Supplemental Material S3

Alignments of retrotransposon markers

for Chiroptera-Perissodactyla-Cetartiodactyla-Carnivora relationships

Table of Content:

Supplemental Material S3a	Retrotransposon markers with "-" state in Eulipotyphla
Supplemental Material S3b	Retrotransposon markers with missing sequences of Eulipotyphla
Supplemental Material S3c	Retrotransposon markers with conflicting patterns in Pholidota or Eulipotyphla

Supplemental Material S3a

Chiroptera+Cetartiodactyla

1.1 Marker BC_0005

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>L1MA9
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ATCTTAAGTGTTCTCACCACACACAAAAAAATG---GTAACTATGTGAGGTGATGGATATGTTAATTAGCTTGATTGTGG
TAATCATTTCACAATGTATACGTATATCAAAACATCACGTTGTACACCTTAAATATATACAATTTTTATTTGTCAATTAT
ACCTC---AATAAA------------------------------------------------------------------
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------------------------------------------------------------------
>Bos taurus
GACTGTTCATATTCTC----------------GCTGTAGCAAACAA----------TAATAGTAAATTCTAGCTGTCGAG
TACCTGTGAGGTGCCAGACACACTTATCTTGAAGTG---TCAGAAACAT------------------------------
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---------------------------CTCTTTTAGAGAAGATTGGTGGCTACTAGTGGTGGGGGGTGGG-TGCAGGGA
GGGGAGCTTTTTGGGTGGGAGGGACAAAACAGGTAAAGAGAGTCAAAGGGTACAAACTTCCAGT--TATAAAAT--GTCA
---TAGG------GATGTAGAGCATGGTGAATATACTTCATAATACTGTACTGCACATTTGAAAGTTGCTAAGAGAGTAA
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TGATCATTTTGCACTACTTAAAAATATCGAATCATTATGTTATATACCTGAAACTAATATCATG-TGTG---CCAATTAT
ACCTCAATAAAAATAAA---TCTTAA---AAT---CTCTTCTGAGCAC--------------------------------
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-------------------------------------------------------------TATTTGTATCCTTGTTTT--
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-----------------------------------------------ATAAATGAGAAAACA-----------------
----------------GTGATCTCATGGCCAGTAAA---TAATGAAGCCGAGATTTAT-AATCA
>Balaenoptera acutorostrata scammoni
GATTGTTCATATCATC----------------ACTGTAACAAAAAAA---------TAATAGTAACTTCTAGCTGTTGAG
GACCTGTGACGTGCTAGACACGCT-ATCTTGAAGTG---TCAGAAACAG------------------------------
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----------------------------CTCGTTTAGAATAGATTGGTGGCTGCTAGTGGCGGAGAGTGGG---------
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TGATCATTTTGCGCTACATCAAAATATTGAATCATTATGTTAGACACCTGAAACTAATATAATG-TGTG---TGAATTAT
ACTGCAATAAAAATACA---TTTAAA---CAT---CTCTTTTAAGTAC--------------------------------
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------------------------------------------------------------------------------
-------------------------------------------------------------TATTTGTATCCTTGTTTT--
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-----------------------------------------------ATAAATGAGAAAACA-----------------
----------------AAGATCTCATGGCCAGTAAA---CAATGGAGGCGAGATTTGT-AATCA
>Myotis lucifugus
GGTTGTTCATATTAT-----------------TGCATTAACAAAAG-----------TAAAAGTAACTTCTAGCTGATGAG
TACCTGTGAGGTGCCAGACATACT-CCCTTGAAGTG---CTAAAAACAT------------------------------
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>Pteropus vampyrus
GGTTATTCATATCATCACGAATGATAATATTTGTTATAACAAAAA-----------TAACAATAACTTCTAGCTATTAAG
TACCTGTGGGGTACCAGATATACT-ATCTCGAACTG---CTAAAAATAT------------------------------
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---------------------------------------CAGATTGATGGTTGCCAGAGGCAGGGGACGGGGTGGGGAGT
GGAT--------------------GAAATGGGTGATGGGAGTCAAAAGCTACAAACTTCCACT--TATAAAATAAAGAA
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ACCTCAATAAAAAA------CTTTAAAACTAT---CTCTTTTAAGTAC--------------------------------
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-------------------------------------------------------------TATTTTCATCCTTGTTTT--
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-----------------------------------------------ATAGGTGAGAAAACAGA-AGTTCAGAGAGCTT-
------------GTTTAAGACCTCAAGGACAGTCAT---TAATGAAGCTGGTATTTGT-GC-CA
>Canis lupus familiaris
GGTTGCTCATATCATC----------------ATTGTAACAAGAA-----------TAATAGTAACTTCAAGCTATTGAG
TACCAGTGAAGTATCAGATATGCT-ATCTCAAAGTG---ATGAAAAGAT---TGGATGTGAGGGTGATCCATCCCTT---
----------CACTGATCGCCAGGGTTGATTTGGCTGATCTGGCTGCTGGTGGGGGTGTCCCCTTGTC----------CC
CCCAGGGCTCCATGCATATCTGTTCTGAAGCTGTGCACTTGGTCAAAGAGGATGACCTTCCCAGATAGAGGAGGACCATT
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-----------------------------------TCT-CCAAGCAC--------------------------------
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-----------------------------------------------------------TATTCATATACTTGTTTT--
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-------------------------------------------------ACAGGGGAGAAAACAAA-GGTTCAGAGAATTT-
------------GCTTAAGGCCTTATGGCAGGTAAT---CAACAGAGCTGAGATTTGT-AATCA
>Mustela putorius furo
GGTTGTTCATATTAGC---------------AAATGTATCAAAAA-----------TAATAGTAACTTCTAGCTATCGAG
TACCTGTGAAGTACCAAATATGCT-ATCTCAAGGTG---CCAAAAAGAT---CAGATGTGGGGGTGATCTGGCTGTGACT
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CTCAGTGCTCCATGCACACC-----------------------------------------------------------
----------------------------CCCCATCCCGAAAACATCCAAATAAGAAAAAAAAAAAA-------------
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--------------------------------------TCT-CTAAGTAC------------------------------
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-----------------------------------------------------------TATTTGTATCCTTGTTTT--
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-------------------------------------------------ATAGGGGAGAAAACAAA-TGTCCAGAGAATTT-
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>Felis catus
GGCTGTTTGTATCATC----------------ACTGTACCAAAA------------TAATAGTAACTTCTAGCAATCAGG
TTCCTGTGAAGTGCCAGACACACT-ATCTCAAATTG---TCAAAAATAT---CGGATGTGAGAGTGATCTGCCTGTAACA
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ATTCCAAGTAGACTCTGCACTGTCAGCACAGAGCCAGACATGGAGCTCGAACTCATGAATTGTGAGACCATGACCTGAGC
CAAAATCAAGAGTCAGATCTTTAACCAGACGCTTAACCAACTGAGCCACCCAGGCACCCCTATTTGTATCCTTGTTTT--
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-------------------------------------------------ACAAGTGAGAAAACAAA-GGTTCGGAAAATTT-
------------GCTTAAGATCTCATGGCCAGTAAT---CAATGGAACACAGATTTGT-AATCA
>Equus caballus
GGTTGCTCATATCATC----------------ACTGTAACAAAAA-----------GAATAGTAACTTCTAGCAACTGAG
TACCTGTGAAATGCCAGACACACT-ATCTCGAAGTG---TCAAAAATAT----------------------------
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-----------------------------------CT---CTAAGTCT-----------------------------------
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-----------------------------------------------------------TATTTTTATCCTTGTTTT--
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-------------------------------------------------ATTGGTGGGAAAACAAA-GGCTCAGAGAACTT-
------------GCTTAAGCTCTCGCGGCCAGTAAA---CAGTGGAGCCAAGATCCGT-AATCC
>Ceratotherium simum simum
GGTTGCTCATATCATC----------------ACTGTAACAAAAA-----------TAATAGTAACTTCTAGCAATCGAG
TACCTGTGAAGTGCCAGACACACT-ACCTCGAAGTG---TCAAAAATAT----------------------------
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------------GCTTAAGCTCTCACGGCCAGCCAA---CAATGGAGCCAAGATCCGT-AATCC
>Sorex araneus
TTTGCTCATGTACTGT---------------CACAAAAGCAATAG--------------TGACGAAACAGCTCTTGAGTG
CTTGTGAGAAAGTGCCAGCCACGTTCTCTCCAAGGG------GGCACAT-------------------------------
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----------------------------------CTCTCTTCAGAGC-------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------GACTTTTAT-----------
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-------------------------------------------------CCTTGTGAG-AAATAAA-GATGCAGACAGCTTA
CTT---------GCTCAAGCTCTCAAGGACAATAAAT--GGAAACAGCCAAGATCAGC-AAGCA
>Homo sapiens
ATCTGTACTCATCAGT------------------TATAACAA--------------TAATAGTAATTTCTGGTTATTAAG
TACCTGTGAGGTGCCAGACATGCT-ATCTCAAAGTG---TAAAAAATAT-------------------------------
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----------------------------------CCCTTTTAAGTAC-------------------------------
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------------------------------------------------------------TATTCTTATCCTTGCCTT--
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-------------------------------------------------ATGGATGAGAAAATAAAAGGTTCAGAGAAGTTA
GTTATTT-----GCTTAAGATCTTGTGGCCAGTTGA---CAGCAGAGCCAAGATTTGT-AATCA
>Trichechus manatus latirostris
TTTTCATAGCATCACT------------------GTAATCAAAATAATATTTTAATCAATAGGTAA-TCAAACTATTGAG
TACCTGTGGAATGCTAG-GACATT-ATCTCTAAATG---TC-AAAATAT-------------------------------
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TCCTATAGAGTTGCTATGAGACAGAATCAACTGAACAGCAACAGATTATAGGTGAGGACATAAA-GGCTCAGAGAAGTTA
ATTAAGCAACTTGCCTAAG-TCTCATGGCCAGTAAA---AAATGGAGCCACGATTTAT-AATTG
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1.2 Marker Rh_Cb01

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>L1MA9_rc
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----------------------------------------------------------------------------TT
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CGT----ATACATTGTGAAATGATTACCACAATCAAGCTAATTAACATATCCATCACCTCACATA---GTTAC---CATT
TTTTTGTGTGTGGTGAGAACAC------------------------------------------------------------
------------------------------------------------------------
>Bos taurus
AGATGTGGGTGA------------------AAGAAATTTAGCTTCTCAGGAATTTCCCATTTTTACATGCTAAGCC----
---GCAAACTA--CATTTTCCAGGCTCCCAAA-TTTTACTGGGTAATGACCTAGCAGT---AAACATTTCTCATTTCTTT
---TATTGTTTT-AATCGAGATTTAATTGACATGCAGTA-TTATATTACTTTCAGGTGTACAACATTATGATTCAATATT
TGT----GTATACTTTGAAATGATCACCACAGCAAATCTAGTTTAC--ATCTATTACCACACAGAATTATTAC---AAAA
ATTGCTTATTTCAT---ACAATAAAAACAAAACA--------TATATTCCATCATTATTAAAAATGAAAACACCATTTTC
TGTTATTTT-GGTGGAAGTAATCATGTGGTTGCTCTGAAA-------TTTTTTAACAGCTTTA
>Balaenoptera acutorostrata scammoni
AGATGTGAGGGA------------------ATGGAATTTAGCTTCTCAGGAATTCCCCATCCTTACATGCCAAGTT----
---GCTAAATA--AATTTACCGGGCTCCCAAT-TTTTACTGGGTAATGACCTAGTAGT---AAACATTGTTCATTCCTTT
---TATTTTTT--AATTGAGATATAACTGACATGTAATA-TTATATTAGTTTCAGGTGTACAACATAATGATTCAATATT
TGA----ATATATTGTGAAATGATCACCACAATAAGTCTAGTTAAC--ACCCATCATCACACAGT-----TAC---AAAA
ATTGCTTATTTCAT---AAAACAAAAACAAAACA--------TATATTCCACTATTAGCAAAA-TAAAAACTTTATTTTC
TGTTGTTTT-GGCATAAATATTCATGTGGTTGCTCTGAAAA-------TTTTTAACAGCTTTA
>Myotis lucifugus
ACTTGTGGAAGA------------------ATGTAATTTCCCTTGCCAGGAATTCCCTGTCCTCAGCTGCCAAGTT----
---GCAAA------ATTTACCAGGCTCCCAAT-TTTTACTTGATAATAACCTAATAGT---AAAAAATGCTCATTTTTTT
----------------TGAGATATCACTGGCATGTAACA-TTATATTAATTTCAGGTATATAACATAATGATGTGATATT
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ATTGCTCATTTCTT---AAAACAAAAACAAAATA--------TGCATTCCACTATTATCAAA--TGAAAATATCATTTTC
TGTTGTTTT-GGCAGAAATACTTGTGTGGTTGTTCTGACAAA----A-TTTTATGCAGTTTTA
>Pteropus vampyrus
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---GCAAA------ATTGACCAGGCTCCCA------TACTTGAGAATAACCTACTAGT---AAAAATTGTTCATTTATTT
---TATTTTTATTTTTTGAGATATAATTGACATGTAAC---TATATGAATTTCAGGTATATAGCAAAGTGATTTGATATT
TAT----ATATATTGCAAAAGGAACACCCCAGTAAAACTAGTTAAC--ATCCATCACCATATAGT-----TAC---AAAA
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>Canis lupus familiaris
----------------------------------------------------------------------------T----
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TGCTGTATG-GGTAGAAATATGTGGATGA--------------------------------
>Felis catus
AGATGTGGGACA------------------GTGGAAGTTAGCTTCCTAGGAATTCCCTGACTTTACCTGCCAAGTT----
---GCAAAATA--TATTTACCAGGCTCCCGATAGTTTACTTGGCAATGACTCAGTAGA----------------------
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ATTGCTCATTTCTT----AAACAAAACC--------------TATATTCTACTATTATCAAAA-TGAAAATATCAGTTTC
TGTTGTTTC-AGCAGAAATATCTGTGTGGCTGCTCTGACAAA-----TTTTTTAACAGCTTTA
>Manis pentadactyla
AGACGGTGGGGA------------------GTGGTAGTTAGATTCTCAGAAACTCCCCATCCTCACCTACCTTAAG----
-TTGCCAGATA--TATTTACCAGGCTCCCAAT-ATTTGCTTGGTAGTAACTTATTAGT----------------------
--------------------------------------------------------------------------------
----------------------------------------------------------------------------AAAA
ACTGCTCATTTCTT---AAAGACAAAACA-------------CATATTCTATTATCAAAA----TGAGGACTTCATTTTC
TGTTGTTTTTTGATAGAAGTATCTGTGTGGTTGCTCTGACAAA------TGTTTAAAAGTTTTA
>Equus caballus
AAACGC-AGGGA------------------ATGGAAGTTAGCTTCTCAGGAATTTTCCCACCTCACCTGTCAAGTT----
---GCAAAATA--TATTTATCAGGCTCCCAAT-TTTTACTTAGTAATGACTTAGTAGT----------------------
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----------------------------------------------------------------------------AAAA
ATTGCTCATTCCTT---AAAACAAAAACGAAATA--------TATATTCTACTGTTATCAAA--TGAAAACATCACTTTC
TGTTGTTTT-GGCAGAAATATTTGTGTGGCTACTCTGACAAA----TTTTTTTAACAGCTTTA
>Ceratotherium simum simum
AGATGTGGCGGA------------------ACAGAAGTTAGCTTCTCAGGAATTGCCCCACCTCACCTGCCAAGCT----
---GCAAAATA--TATTTACCAGGCTCCCAAT-TTTTACTTGGCAATGACTTAGTAGT----------------------
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----------------------------------------------------------------------------AAAA
ATTGCTCATTTCTT---AAAACAAAACCAAAACA--------TATATTCTACTATTATCAAA--TAAAAACATCATTTTC
TGTTGTTTT-GGCAGAAATATTCATGTGGTTGCTCTGACAAA----TTTTTTTAACAGCTTTA
>Sorex araneus
GACAAGAAAGGAGG--------------CCGCGGAAGCTTGCTCTCCCAGAGCCCCCTGACCTCAAATGCCAAGTT----
-----AAAAAATATATTTAC--------------------------CAGCAAG-AGT----------------------
--------------------------------------------------------------------------------
----------------------------------------------------------------------------AAAA
GTT-CTAATTTCTA---AAAACAAAAACAAAATA---------------TATGC-TGTCAAA--TAAAAATATCACTTTC
TGCTACTTTTGGCAGAATAT-----TTGGTTGCTCTGACAAA----AAATTTGAACATCTTTA
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>Homo sapiens
AAAT---GGGGA------------------ACAGAAGTCAGTGCCTCAGGAATTCCTCATCTTCACCTGCCCAGTT----
---GTAAAACA--TATTTAATGAGCCCCTAAA-----------------------------------------------
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-CTTCCCCTTTCTT---AAAACAAAAATAAAACCAAAATTTACATAATCCACTACTGCCAACA-TGGAAACATCATTTTC
TGCTGTTT--AGCAGAAAATT-----TGGTTGCTCTGACAAA-----TATTTT----------
>Trichechus manatus latirostris
AGATGTGAGTGGTAGGGAAGATGTGGGCAAATGGAAATAAGCTCCTCAGGAATTCTCCGTCTACACCTGCCCAGGAAGCA
GCTGCAAAATGTTTATGTATCAGGCTCCAGAT-TTTTACTTGTTATTGGCTTAATAGC----------------------
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------------------------------------------------------------------------------ACAA
ATCGCTCACTTC------AAACAAAACA----------------TTTTCCACTATTGTAAAAA-TGGAAACATCATTTTC
TGCTGTTTT-GACATAAATATTTGTTTGGTCGCTCTAACAAA----AATTTTTAGCATCTTTA
>Choloepus hoffmanni
AGATGTGTGGGA------------------ATGGAAGTTAGCTCCTCAGGAATTCCCCATCCATAGCTGCCCA-------
---GCAA------------GCA-GTTACAAAATTTTTACTTGGTATCGACTTAGTAAA----------------------
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------------------------------------------------------------------------------AA--
-TTGCTTATTTCTT---AAAACAAAAACAAAAAC-----TTACATTTTCCACTCTTACCAAAA-TAGAAACATAATTTTC
TGCTATTCT-GGCAGAAATATATGTTTGGTTGCCCTGACAAATATATTTTTTTAATGACTTTA
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1.3 Marker Rh_Cb07

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AGAACACTTAAGATCTACTCTCTTAGCAAATTTCAAGTATACAATACAGTATTATTAACTATAGTCACCATGCTGTACAT
TAGATCTCCAGAACTTATTCATCCTGCATAACTGAAACTTTGTACCCTTTGACCAACATCTCCCCATTTCCCCC----AC
CCCCCAGCCCCTGGCAACCACC-ATTC-------TACTCTCTGCTTC------------TATGAGTT---------TGAC
TTTTTTAGATTCCACATATAAGTGAGAT---CATGCAGTATTTGTCTTTCTGTGCCTGGCTT-AT---------------
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>Bos taurus
AATCAGATGC-AGTTGTAGCCT--------------------GGCAGAAATTGGACATATTCAGTTACTTAAGTTACA-TG
CCTCAGTTCTCTAACCT--ATCTAAAATTTTACCTTGC---TCCCACCTCTTTTTTTTTTTTTT----------------
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-----------------------------------------------------------TAGAATTTTTTTCTTAATGATG
AAAACTTTGAAGATCTAC--TCTTAGTAATTTTCAAGCATACAGTATAGCATTATTAGCTATAGTTACCATGCTATATAC
TACCTC-CCGTGACTTACTTATTTT--ATAACTAGAAGTTTGTACCATTTGACTCCCTTCACCCAGCTTGCCCT------
-CCCCTGCCGGTGGCAACAACC-ACAG-------GTATCTATGAGGTTTTTTGTTTTTGTTTGTTTT---------GGGT
TTTTTTTGAGTCCACATATAAGTGAGAC---TCTCATTTCTGGTTG-TTGCCAGTGAGCACT-GGCT----TGGGGCCTG
ATTTTTATCTTCTCTGTGTCATCCCCACCAGGGGTCTGAGAAATAACCC-TTCTTCACATTATTAGTATAAGAACAATA
>Balaenoptera acutorostrata scammoni
AATCCTATGC-AGTTGTAGCCTGGTCT----TGTGTGCCATGGTGGAAATTAGAAGTATTCAGTTACTTAAGTTACA-CC
CCTCAATTCTCTAACCTCTATCTAAAATTTTACCTTGC---TC-----TCATTTCTTCTTTTAT----------------
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-----------------------------------------------------------CAGATTTTTTTTCTTGTGATG
ATAACTTTGAAGATCTACCGTCGTAGCAACTTTCAAATATACAATATAGTAGTATTACCTCTAGCCCCCATGCCGTCCAT
TACATC-CCATGACTTACTTATTGT--GTAACTGGAGGTTTGTACCTTTTGACGCCCTTCGACCCATTTGCCCT------
-CCCCTGCCTCTGGCCACAGCCGCCAGTTTCTCTGTATCTATGAGTTGTTTTTTTTTTTTGTTTTTGT---------TTTT
TATTTAGGATTCCACATATAAGTGAGAT---TCTCATTTCTGACTA-TTGCCAGTAAGCACT-GGCT----TGGGGCCTG
ATTTTTATCCTCTCTGTGTAATCTCCATAAGGGATTTGAGAAATAACCC-TTCTTCACATTGTTAATACAAGAACAATA
>Myotis lucifugus
AATCATATGC-AGTTGTAGTCTGATCT-----GTGTGACGTGGTGGAAATTTGAAGCATTCAGTTGGTTAAGATATG-CC
CCTCTATTCTCTAACCTCTATCTAAAAATTTACCTTGC---TCTTTTAAATTAAATTATTTTATCTTGTTTTGTTTTATT
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TACATCCCCGGGATCTATT----TA--ATGACTGGAAATTTGTACCCTTTGACCCCCTTCACCCTTTTCACCCTTTTC--
-CCCCTCCCTCTGGCAACCACC-AACC-------TGCTTTCTGTATC-------TATGAGCTTGTTT---------GTTC
ACTTTGTAATCCCACCAATGAGTGAGAT---TCTCATGTCTGAATA-TTGCCCGGGAGTCCT-TGCT----TGGGGCCTG
T-------------CCTGTAGTCTCCACAGAGGATCTGAGAAATAACCC-GTCTTCCTATTGTTAA-ATAAGAACAATA
>Pteropus vampyrus
AATCAGATGT-AGTTGTAGCCTGCCTGGTCTTGTGTAACATGGTAGAAATTTGCAGGATTCAGTTATTTAAGTCATA-TT
CCTTGATTCTCTAAACTCTATCTAAAGTTTTACCTTGC---CCTTTTTAATTTTATTATTTT---GTTTGGTTTTATTTT
ACTTGTTATTGAGGTATAATTGACAT----ATAATATATTAGTTTCAGGTATATAACATAGTGATTCGATACTTATATAT
TTATTACAAAATGATCACAATAAGTCTAGT---GAGCATCCATCACCATACATAGTTACAGAAATTTTTTTCTTGTGATG
AGAACTTTTAAGATTTACTCTCTTAGCAACTTTCAGATATATAATATGGTATTGTTGACTATAGTCATCATGCTGTACAT
TACATCC-CAGGACTTATTTCTTTT--ATAACTGGAAGTTTGTACTTTTCAATTCCCTTTTCCCATTCCGCCCACCCCTC
GCCCCCACCTCCGGCAACCTCC-AGTT-------TGTTCTCTGTATC-------CCTGAGCTTGTTTTATTTATTTATTT
ATTTTTTATTTCCACACATGAGTGCAAT---CTTCCTTTCTGAATA-TTGCCAATGAACACT-TGCT----TGGGGCCTG
T---------AGTTGTCATAGCTGCCACAAAGGATTTGCGAAATAACCC-TTCTTCATACTATCAATATAAGAACAATA
>Canis lupus familiaris
AATCCTGGGC-TGTGGCAGCCTGG-CTGCTGGAGGCTTGGTGGTAGAGATGTGCAGCCTGCAGGTGCTGCAGTTAGG-CC
CCTCCG-TCTCTAACCCCGCCTGAAGG-TTTCCCTCGC----------------------------------------
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ACTTTTATCT--TCTGGGTAGTCTCCAG---------GAGAAATAAGCC-TTCCTCATATTGTTCGTACAAGGACGATA
>Felis catus
AATGCTCGGC-GGTCGCAATGTGGTCT----CGTGGGACACGG--CAGAGGTTTGCAGTGTGGTTATTCAAGTGACA-CC
CCTGCC----------------TGAAGTTTTCCCTTGC----------------------------------------
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ACTTTTGTCT--TCTGGGTACTCTCCAGGAGGGATTTGAGAAATAAGCC-TTCCGCAGATTGTTCATACAGGAACAATA
>Manis pentadactyla
AGTTATCTGCTGCTCTAAGCCTCGTCT----TGTGCGATATGGCGGAAATCTGAAGCAGTCAGTACCGTGACTTACA-CA
CGTCCCTTCTTCAGCCCCTATCTAAAAGTTCACGGTGC----------------------------------------
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ATT---------TTTATCTTCTCTCCACAGAGGGTTTGAGAAATAACCCTCTTCTCA--TTGTTAATGCAAGAACAATA
>Equus caballus
AATCGTATGC-AGTGGTAGCCTGGTCT----CGGGTGACGTGGTGGAAATTTGAAACATTTAGGTATTTAAGTTA---CC
CCTCCATTCTCTAACGTCTATCTAAAATTTTACCTTGC-----------------------------------------
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------------------------------------------------------------------------------
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>Ceratotherium simum simum
AATCATATGC-AGTGGTAGCCTGGCCT----CGTGTGATGTGGTGGAAATTTGAAGCATTTACTTACTTAAGTTATA-CC
CCTCGATTCTCCAACCCCTATCTAAAATTTTACCTTGC-----------------------------------------
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>Sorex araneus
CATCCTACGC-AACTGTAGCTGGGGCCA---CCGGTGACAAGAAGTACACTGGAAGC-TTCAGTTAGTGATCTTCTATCC
TCCGTTCTCCAGCCCCTCTTCCTAAAACTTTCCTTGGC-----------------------------------------
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-----------------------------TCGCCAGTTTCCTTTG-CTGCCAGAGAGCATT-TGCTC---GGGAGCCTG
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AATCATATGC-AGTTGTAGCCTGGTCT----TGTGTGACATGGTGGAGATTTGAAGCATTCGGTTATCTGAGTTATA-TG
CCTCGATTTTTTAACCCCTATCCAAAATTCTAATTTGC-----------------------------------------
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>Trichechus manatus latirostris
AATTATATGT-AATCA---------------TGGCTCATACAGTGT-GATAGG--GCATTCAATTATTA-AGTTATA-CC
CCTTAAT-------------CCTCTAATTTTACTTTGC-----------------------------------------
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1.4 Marker Rh_Cb09

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>ERV54-EC
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>Bos taurus
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AATATC
>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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AACATT
>Canis lupus familiaris
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CTGTAGTGTTTTCTACTCTAAAACAAT---AGTTC----------------------------------------------
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>Felis catus
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CTTTAGCGTTTTCTACCCTAAAGAGAA-------G----------------------------------------------
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A---TC
>Manis javanica
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>Equus caballus
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>Homo sapiens
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AACATC
>Trichechus manatus latirostris
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CTATAATGATTTCTATGCTGAAGA-AC---AGTTT----------------------------------------------
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A-GATG
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Chiroptera+Carnivora

2.1 Marker DB__0003

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>Canis lupus familiaris
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>Felis catus
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>Myotis lucifugus
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>Pteropus vampyrus
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>Bos taurus
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>Tursiops truncatus
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>Ceratotherium simum simum
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-CTCTTTAACCCCCTCATTT
>Sorex araneus
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>Loxodonta africana
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>Dasypus novemcinctus
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2.2 Marker DB__0042

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>L1_Carn7_rc
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>Canis lupus familiaris
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>Panthera tigris
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>Manis pentadactyla
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>Myotis lucifugus 1
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>Myotis lucifugus 2
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>Pteropus vampyrus
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---------------TTAAT-TT-AATTTTTCTGAGGTA----TGACATAAAACAT---TATTAGTTTCAGGTGTACAAC
ATAATGATTCGATATTTGT---AAAAGAAACTCATTTTTA---ATACAGGACCAAAAA--GCCCTGGAAAGGAAGAACAT
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>Bos taurus
AATTGTAGTCTACATAAA-----ATTTTCAATTGCCTTATTTTTAATTTTATTTACAATTTTAAACCTATGGAATTTCAG
CCCCATATACAGTTGCCAGAAGCAGCAAGTTGAG---CAGAGAAATTTA-TTTTCA-----------------------
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-------------------------------------------ACACAGGACTAAAAA--GCTCTGAAAAGGGA---CAC
TTACTGAATTCCTACCACATGTCAGGCGC-TTTATAT-----GTTATGTCTCTGTACTCATTTAATATTCACACCAAAA
>Balaenoptera acutorostrata scammoni
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TCCCAAATATGGTTTC-AGAAGCAGTAAGCTGAG---AAGAGAAATTCA-CCTTAA-----------------------
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----------------------------------------ACACAGGACTAAAAA--GCTCTGGAAAGGGAGAACAC
TCACTGAATTCCTACCACGTGCCAGGCGC-TTTACAT-----GTTATGTCCCTGAACTCATTTAATATTCACATCAAAA
>Equus caballus
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TTCCAAACATGGTTTC-ATAAGTGGCAAGTTGAG---AAGAGAAACTCA-TTTTTC-----------------------
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>Ceratotherium simum simum
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>Condylura cristata
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ACC-AAATATG-TCCC-ATGAATGACAAA--------AGCAG---CTCA--TTTTG-----------------------
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----------------------------------------ATAATGGATTAAAA---GTGCTGGAAAAGGAGAAT-G
TTATTGAATTCATACC--GTGAGATACACTTTTAAAT-----ACTATATCTGGGAAC----TTAATATTCACACCAAAA
>Homo sapiens
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----------------------------------------ATACAAGACTAAAAA--GCTCTGGAGAGGGAGAACAT
TTACTGAATTCCTATCACATGCCAGGTAC-TTTACAG-----ATTATATCCCTGAACTCATTTAATACTCACATCAGAA
>Trichechus manatus latirostris
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TCCCAAAAATCATTTC-ATAAGTGGTAAGTTGAA---AACAGAAACTCATTTTTAA------------------------
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----------------------------------------TAATAGTACTAAAAAATGCTTTGGAAA--GAGTCCAT
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2.3 Marker DB__0073

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>MER34C_CF
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>Canis lupus familiaris
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>Felis catus
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TCCCTGGGTTTTCCCC---CATATACACAGGAGGTTTACGTGT--TATTAAACTTCTGTTTATCTC-CT---GTTAATTT
GTCTTTTATTACATGG----------------------------GGTGGGGGATGGGATCTCAGCTAAGAGCCTCAAAG
GGTAGAGGGAAAATTATTTGTCATTCCCCCACA---CAGG---CTTTAACATATCAAATTAAGGGGACAAAGCAGAATGA
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>Manis pentadactyla
TACTCA-GTTTCACAAATCATGTAAATGTAAAAGCCTCCCCACCTGAAGGGGCTCCAGAAACAGCACAGATTTCATACAT
TTG---------------------------------------------------------------------------
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----AACACATACAATCATTTCCTGGCTTCTTATGATTCAGGGTCCTTC---CAGG----------TGAAGGGGAGCAGA
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-CCCCACCTTTCTTTCCTCGTTAGTCGAAGA--TGGCATTTGAGGTCCCGGCTGGAGCCATTTCGGGAGGCACGCATGTA
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GTCTTATT-------------------------------------ACAGGGAGGAGGAATCTCAGTCACAAACCTAGAAG
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>Myotis lucifugus
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TGCCTCCCTCTCTGTACCAGGGAGAGGAGGATAAT--AAAATCTCTAGAAACTCTTATTTATGTGCAGAGCAG-------
------------------CTATATCCTTTTTTATTGTGCTTTTCCTGGTAATTACTCATAACTGGCCTCCCC-CCA-CCC
CCAATATCTTTCTTTTGTCTTTAGCTGGTGGCTTTGTATTTAAGGTGGTGGCTTGGGTCAGTTCTAGGAGTTAGTTAAAC
TATATTTT------------------------------------------------------------------
-----------------------------------------ATTTATAGGGAGTCTCAGCCAAGGACCTAGAAG
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A-----TTTCAACTT----------CTGAGAATGACTTCTGAAT
>Pteropus vampyrus
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A-TGAGCAT----GAAGACCACACCCCTGTTTACTGCAATTTTCCTGGTCACCTCCCATAACTGGCCTCCCCAACACCCC
CCAACATCTTCCTTTTGTCTTTAGCTGCAGA--TGGCATTTGAGGTGGTGACTTGGGTTATTTCCAGGAATTACTCAGTT
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>Bos taurus
TTTTCATGATATTAAAATCATATAGATGTAAGAGTGTCCCCTCCAGTACAGGC---AGAAACAGCATGGATTCTACACGT
TTG------------------------------------------------------------------------
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----AACATATTCATTAATTTCCTGGCTTCTCATGAGTCAGGGTCCTTC---CAAG-----------------------
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A-----TTTTCTTTT----------CTGAGAGTGGCTCCTGAAT
>Balaenoptera acutorostrata scammoni
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TTG------------------------------------------------------------------------
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----AACACATTCCCTCATTTCCTAGCCTCTCGTGAGCCAGGG----TC---CAAG-----------------------
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ATTTCCTCTTCTTTT----------CTGAGAGTGGCTCCTGAAT
>Equus caballus
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TTA------------------------------------------------------------------------
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----AGCACATTCACTCATTTCCTGGCTTCTCATGAGCCAGAGTCCTTC---CATG-----------------------
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-------------------------------------------TTTCAACTTGTCAAATGAAGAGGAGACAGCAGAATGA
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>Ceratotherium simum simum
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TTA------------------------------------------------------------------------------
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----AGCACATTCACTCATTTCCAGGCCTCTCATCAGCCAGAGTACTTA---CACG-----------------------
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>Sorex araneus
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TTG------------------------------------------------------------------------------
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----AG--AATCCATTCATTTCCTATCTTCTCATGAGTCAGGCTGCTTT---TAAG-----------------------
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-------------------------------------------TATCAACCTGTCAAATGTAGAAGAGTGATAGCAGAGT
CTACTGTTTCTTCTT--------TTTTAAGGCAC-CTCAATAAT
>Homo sapiens
TTCCGGTTATATTAAAATCATATAGGTCTAAAGGCATTCCCTCCTGTAAAGAT------------------TTAACACAT
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----AGCAAATTCACACATTCCCTGGTGCCTCATGGTCCAAGGTTCTTC---CAGG-----------------------
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-------------------------------------------TATCAACTTGTTAAATTA----GAAAGAGAATAA---
--TTTGTCTTCTGTTTTGTTTTTCCCTGAGAGTGACTCCTGAAT
>Dasypus novemcinctus
CTTCCATTATTTTAAAATCTGATAAGAGCAAAATCTACCCATA-TGAAAAGTC---AGGAACAAGATAG--TACATTCAT
TCA------------------------------------------------------------------------------
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----------------------TTCCCTCTCATGAGCCAGAACCCTTC---TAGG-----------------------
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2.4 Marker DB__0077

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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Myotis lucifugus
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>Pteropus vampyrus
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>Bos taurus
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----------------------GAATTCTCAGGGGGGCTAATCCAATGTCTGTGATTTGCAGTCCCAAAGAAAGAATAC
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>Equus caballus
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>Ceratotherium simum simum
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>Sorex araneus
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>Homo sapiens
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>Loxodonta africana
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----------------------GAATCCTCA-GGGGACTAGTCCGGTGTCTATCATTTATAATCCCAAGGAAACAATAT
GTTAAAATGAGAATCCCCATATTCAAATTACATGTCTGATGTCACAG
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2.5 Marker Rd_Db02

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>CarERVR1
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----------------------------------------TGTTGGGGAAGGTCATCGA-------------------
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-----------------------------------------------------------------------------GAA
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GGTTCCGCTTGCCTTCCCCGCTCCCAGAGGCTGCTCCAAGGACACAGCCTTGAGATAGTGATGTGGTGTTGAGAACACCT
GNACGGTATACGTGACTGAACCCAGTTAAGGCCTCTATATAAACTTTTAAGATT-TGGCGGGCGGGTGCGGAGATCTACT
CGTCTTGCTG--------CCGCCC-AAGACAAGCCTCGT-ATGTAAGTTCCCTTTGCTTATTAAANCTGCCACCTACCAA
CCTGGAGTGGCCTGCCTCTTTCTTCGGTCTCTCCCTGCCCTCTGCGTACGGGGG-----------------CC-GGTTT
CAGATTACACCCGGGAAGCTCCCGAGGGGGTTGCGAACCAACA-------------------------------------
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>Canis lupus familiaris
TAAGG----TTACTA-CTACATACCTAGAAGTAACTATCAGATTTGGTAGAAGAAAAA--------------AACTGA--
TTGTATAGGTCAGGGTA--GCTTAACGGTG---AGTCA---TGTTGAAGGGGGTAAT-----------------------
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-----------------------------------------------------------------------------CAG
GACAGGA-CACTAGTTAACCCAGGAGCTGGATCTGGGCAATCAGAGGCTCCTCACCCCA-TCTC--ATCCTTGGAATGTA
CCTTCTGCCT--AATTCCCACA-GTAGGAGCTATTCCAAGAACATCGTCTGCAGAGAGTAAGATGCTGATGAGACCATCT
GGATGGTATATGTGGCCGAGCCCAGTTTCGGCCTCTATATAAACTTT-AA-------GACGACAGGTGCAGAGATCTACT
CATGTTGCAG--------GCACCC-AAGGCAAGCCTCAT-AGGTAAATCCCCTT-GCTTGTTAAA-------CCTGCCAG
TTTTGAGTGGTCTGCCTCTTTCTCCAATCTCT--CTGGCCTTCATCTG------------------------CCTGGTTT
CAGGTTTCACCCAGGAAGCTCTGAA---GGTTGCAAACCAACA---AATAA---CCAGACA-------TGATGCAGGGGA
AACAGCATGTTCCCA------GAGGCACGAAATACAGTGGTAGGCTGAGGTATATTATGAACCCCACGGTGTAA
>Felis catus
TAAGGGTTGCTACTA-CTCAGTACCTAGAAGTAACTATCAGATTTGGTAGTAGAAAAAAGAA--GATTGATTAACTAAGC
TTGTGTAGATCAAGGAATGGCTTAGTGGTG---AATAG---TGTTAAAGGAGCTAATCAA----------------------
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-----------------------------------------------------------------------------GAG
GACATGA-TACTAGTTGACCCATGAGCTGGACCTGGAATATGAGAGTCTCCTCA-CCCACTCCCCTGTCCTTGGAATGTA
CATTCTGCC---AGTTCCCACA-GGGGGAGCTATTCCAAGGACATAGTCTATAGAGAGTAAGGTGTTGTTCAGACCATCT
AGATGGTATATGTGACTGAGCCCAATTAAGGCCTCTATATAAACTTT-AA-ATTATTCA-------TGCAGAGATCTGCT
TATCTTGCAG--------TCATCATAAGACAAGCCTCAT-AAGT--------TC-CCTTATTAAAACTGCCACCTACCAG
TTTTGAGTGGTCTGCCTTTTTATTCAGTCTCT-CCTGCCCTCCATGTATGGGA-------------------CCTGGTCT
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AACAGCATGTTCCTATATATGGAGACATGAAACAGAGTGGTGTTTTGAGGTACACTATGAACCCCATAGTGCAA
>Myotis lucifugus
TAAGCG---TTGTTA-GAAC----CTAGAAACAACTATCAGATTTGGTGGTTGAAGAAAGAA----AAAATTAACTCAGC
TTCAGGGGGTCAAATAGAGGCTTAATGGTG---AATAG---TGTTGGAGGAGGTGATTGA--------------------
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-----------------------------------------------------------------------------GAG
GACATGAGCACTGGTTGAATTA-GAGCTGGACCAGGGCAATCA------------CTCCTTTCCCTATCCTTGGAATGTA
TGTTCTGCTTACAATTTCCACA-ATAGGAGCCACTCCAAGGACATTGCCTTGAGAGT-----AAGGTGTTGAGATCATCT
GAACA------ATGACTGAGCCCAGATAAGGCCTTTATATATACAC--T-AAGATTCTGGTGGGCAGGTGTAGAGATGTACT
TGTCTTGTGACTCCCCCTCCCCCC-AAGACAAGCCTCATTAAGT----TCCTTT-GCTTATTAAAACTACCACCTACCTA
TCTGGAGTGG-CTGCTTCCTTCTTCGGTCTCTTCCTACTCTCCTTGTGGGAGGGGGAAGGGGGAAAGTGGGTCCTGGTTT
CAGATTTCACCCAGGAAACTCCTGA---GGTTGCAAGCCAACA---AGTAG---CTCAACA-------TGTTGCAGCGGA
AATAGCGTGTCCCTGTGTTTGGAGGCATTAAAATCAGTAGTGTGTTAAGGCACAGTATGAATCTCATAGTGTAA
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>Pteropus vampyrus
TAAGGGTTATTACTAACTTAGTACCTAGAAATAACTATCAGATTTGGTAGTGGAAGAAAGAA-AAATTGATTAATTCAGC
TTCAGTAGGTCAAGGACAGACTTAATGGTG---AATGG---CATTGGAGGAAGTAATTGAGAGTAATGTAGGGAGGAGGC
AAGAGAATTAAAATGTTAAATCAATCTACGTTCAGAGGCTGCAATACGCTGATCAGCTATGTACCAGGCCAGGAGGACAC
CTGCAGAACAAAGAAAGATTTCTGCTAGGATGGCTAACAACCCATTTCCCACACCTGTGGAAGGGGACACAAGAAAAACT
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CTAGGAACTGTCAGCAGGCCTTTCACACTACATATTACCTTTTGACACTACATAGTCTTCCCCTTCCCCTTCCTCACTGT
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TGTCTTGTGA--------CCACCC-AAGACAAGCCTCAT-AAATAAGTTCTCTT-GCTTATTATAACTGCCACCTACCTA
TCTGGAGTGGTCTGCCTCTTTCTTTGGTCTCTCCCTGCTCTCCTCTTGGGAAGGGCAGGTT-----------GCTGGTTT
CAGATTTCACCCAGGAAGCTCCTCG---TGTGGCAAACCAAAA---AGCAG---CCCTGCA-------TGTTGCAGGGGA
AATATCATGCCCTTATGGAGGGAGTCATGAAAC--GGTGGTGAA----------------CTCCATAGTGAAA
>Bos taurus
TAAGGGTTGTTACTA-TCTAGTACCTAGAAGTAGCTATCAGAATTGGTGGTGAGAGAAAGAAAAAAATGACTAACT----
TGGAATAGGTCAAAGAAAT-GTG------------------------------------------------------------
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------------------------------------------------AATAG---CCAGGTA-------TGCTGCAGGTGA
AACAGCATGTCCTTATATAGGGAAGCATGAAACAGAGTGGTATGCTGAGGAACACTAGGAACCCCAGAGCGTAA
>Balaenoptera acutorostrata scammoni
TAAGGGTTGTTACTA-CTTAGTACCTAGAAGTAGCTATCAGAATTGGTGGTGAAGGAAAGAAAATAATTATTAACTCAGT
TTGAATCAGTCAAAGAAAGGCTTAAT-GTG-----------------------------------------------------
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------------------------------------------------AATAG---CCAGGTA-------TGTTGCGGGTGA
AATAGCACGTCCCTATATATGCAAGCACAAAACACAGTGGTGTATTGAGGTACACTAGGAACCCCATAGTGTAA
>Equus caballus
TCAGGGTTTTTACTA-CTAAGTACCTAGAAGTAGCTATCAGATTTGGTGATGAAAGAAAAGA----TTGATTAACTCAGT
TCGAATAAGTCAAGGAGAAGCTTAATGGTG-----------------------------------------------------
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------------------------------------------------AATAG---CCAGACA-------TGTTGCAGGTGA
CATGGCATGTCCCTATATATGGAGGCATGAAACAGAGTGGTGTGTTGAGGTATGCTACGAACCCCATAGTGTAA
>Ceratotherium simum simum
TAAGTGTTGTTACTA-CTAAATACCTAGAAGTAGCTATCCGATTTGTTGATGAAAGAAAAGA----TTGATTAACTCAGT
TTGAATAAGTCAAGGAGAAGCTTAATGATG-----------------------------------------------------
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-----------------------------------------------AATAG---CTAGACA-------TGTTGCAGGTGA
AATAGCATGTCTCTATATATGAAGGAGTGAAACACAGTGGTGTGTTGAGGTATGCTATGAACCCCATAGTGTAA
>Sorex araneus
----------CACTG-CTTGGTACCTCGAAGTAGCTATGAGATCTGGCAGTGAAAGTAAAAG----TTTAGTAAGTCAGT
TTGATTAGGTC-AAGA---TC-GAATGGTG-----------------------------------------------
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-----------------------------------------------AATAG---CTAATCACTATTTGTGTTGCAGGGGA
AATTGCATGTCCTTGTAGTTGGAG-ATAGAAACAGAGTGGTGGGTTGAGGT----------------------
>Homo sapiens
TGA--GTTGTTATTA-CTTAGTACCTAAAAGTAGCTATCAGGTTTGCTGGTAGAAG-AAGA----TTCCATTAATTCAGC
TGGAGTAGGTC-AGGAGAGGCTTAATGGTG-----------------------------------------------
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-----------------------------------------------AATAT---CAGAATA-------TGCTGCAGATGA
AATAACTCGTCCCTATATATGGAGGCATGAAACAGAGTGAGGTGTTGAG------------------------
>Heterocephalus glaber
CAAGAG---TTATTA-TTTAGTACATAGAAGCAGCTAT-----TTGGTGAGAGAAGAT-GAA-------ATTAACTCAGT
TTGAGTAGATCCAGGAGAAACTTCATGGTG-----------------------------------------------
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-----------------------------------------------AATAG---CTGAATA-------TTCTTCAGGTGA
AATAGCATGTCCCTCTATAAGGAGGAATAAAACACAATGGTGTATTGAGGTAT-CTGTGA--------------
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2.6 Marker Rd_Db03

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>MER34C_CF
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TCTTTGGCATAAGGATTATTTTAGGCTGATTATTTTTAAGAAACTGCAGACACAGGAGAAGCTCTGAAAACCGAGTAGAA
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AGGAGGATGACTCTAAATCTCTAGAAA--CTCTTATCAATGGAGAAGGCAAGGACTTAAATCTGCATAACAACCTTACCC
TTGTTTACTGTGCTTTTCCTGGTAACCTCCCATAACTGACTCCCCA-CCCCCAACATCTTTTTT-GTCTTTAGCTGGAGA
TGGTATTTAAGGTGATGGCTTGGGCCATTTCGGGGAGTT---ACTCAGTTTTCCTGGGTCTCTCCCATGTATACAGGAGG
TATACATATGTTATTAAACTTTTGTTTGTTTTTCTCCTGTTAATCTGTCTTATGTCAATTTGATTCTTAGACC-------
------AGCCAGAAGAACCTAGAAGGGTAGA-GGAAAATTTTTTT--CTCCTCAACA----------------------
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>Canis lupus familiaris
TGACAAAACAAACCCTTAGAGTTTCAAATTTTGCAATATGTATCTTTGTTATTCTGAAAGCATTTGTTATATGATATGTG
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TCTTGGGCAT-AGAATTATTGTGAATTGGTTGTTTTTAAGAAACAGCAGAT---GTAAAAGCTCTG-AAAGCTAGTATAA
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AGAAAGA-GA--CAGAACCTCTAGAAA--CTCTTGCAAATGGGGAAAATAGAGACTTAGATCTGCATGACAACCATA---
--CTTTACTGTGATTTGCCTGAAAACATCCCATAACTTGCTCTTTATCCCCCAACACCTTCTTTTGTCAGTAGCTGAGGG
TGATAGTCAAGGTGATGGCTTGGGTCATTTCAAGGAGTTACTACTCAGTTTTCCTGGGTCTCTCCATTGTATATAGGAGG
TATATAT--GTT----AATTTCTGTTTGTTTTTCTCCTGTTATTCTTTTATTACAGAGG----------------------
--TGTTTCAGCCAAGAATCTAGAAGGGTAGAAGGAAAATTATTTTTCCTTCTCTACA-----CATA---TATGAAGTATG
TTC-ATTTTGATATTTGAATCCTGATTTAATCTATGGTCATCCTGT--------AAAGCCAAGAGGTTCTCAGTTCTGAT
CTGTGTGCTGAGTA
>Felis catus
TGA----ACAAA-CCTTAGAGTTTCAAATTTTGGAATTGGTGTCTTTGTTATTCTCAAAGCATTTGTTATATAACATGTC
TAATC------ATTACCATGAGTT-TAATGCATG---CATG---TGAAGAAGAGCATAATTTGCCACCCCAAAATATGCC
-CTTTGGCATAAGAGCTATCTTGAGATGGTTATTTTTAAGGAACAGCAGAC---------------CTAAGCTGGTAGAA
GTTACCCTTTTGTAAGAGTCATTTACATTAATAAGGGAAATCTCCATTTGTCAGGGTGTCTTCCTCTCTGTACCAGGAAA
GGAAGAA-GA--CAGAATCTCTAGAAA--CTCTTATCAGTGAAGAAAAGAGAAACTTAAATCTGCATGACAACCATA---
--TGTTACTGTGATTTGCCTGAAAACCTCCCATAACTTGCTCTCTATACCCCAACATCTTCTTTTGTCTTTAGCTGGAGG
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TATACAT--GTT---TAACTTCTGTTTGTTTTTCTCCTGTTATTCTTTCATTATGGAGG----------------------
--TGTCTTAGCCAAGAACCTAGGAGGGTAGAAGGAAAACTATTTGTCCTCCTCTACA-----CATA---TATGATGTCTG
TTC-TTTTTAGTATTTGAATTCTGATTTAATCTATAGCCATTCTGTCTTTGT--AATGCCAAGAGGCTCTCAGTTCTGAT
CTGTGGGCAGAAGA
>Manis pentadactyla
TGACCAAACAGA-CCTTAGAGTTTCAAATTTTGGAACCCGTGTCTTTGTCATTTTGAAAGGAGTTGT--TATAATATGTC
AAATA------ATTACCATGTGTT-TAATGCATG---CATA---TGAAAGGGAACACAGTTTGCCACCCCAAAATATTCC
TCTTTGATATAAGAATGATTTTGAGCTGGTTATTTTTAAGAAACA-CGGACATAGTAAAAACTCTGAAAACCTAAGTGAA
GTCAGCCTTTTGTAAGAGACATACACATTTATAAGGGAAATCTCCATATGTAAGGGTGTCTC---CTCTGTACCTGGAAG
AAGATAA-----CTAAATTTCTAGCAATTCTTTTATCAATGGAGAAGGCTGAGACTTAAATTTGTATAACATCCATACCC
TCCTTTACTGTGCTTTGTCTCAAAACCTCCCATAACTGGCTCCTGATTCCCCAGTATCTTCTTTTGTGTTGAGCTGGAAA
TGGTGTTTAAGGTGATAGCTGGGGCCATTTG-GGGA------ATTTAAATTTCCTGGGTATCCCCCATGCATACAGGAGG
TATACAT--GTTATTATACTTCTG------TTTGTTCTGTTTATCTTTTATTACAGGTG----------------------
--GGTCTCAGGCAAGAACCTAGG-TGGTAGA-GATAAAATTATTTTCCTCCCCTGTA-----CCTA---TATAATGTC--
CTC-TTTTTAGTATTTGAATTTTGATTTAATCAATGGCCATCCTGTCTTTGTGTAATGCCAAGAGGCTCTCAGTTCTGAT
CTGTGTACAAAATA
>Myotis lucifugus
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------------------------------CAAG---TCTA---TGAAGGAGAGCAGTATTTT---CCCCATCATATGCT
TCTTTGGCATAAGGATCATCTTGAGTTGGTTATTTTTAAGAAACAGCAGACATAGGAAAAGCTCAGAAAACCTAGTAAA-
GTTACCCCTTGGTAAGAGATATTTACA------AGAAAAATCTCCATTTGTAAGTGAGTCTCCTTCTTTGTACCCTGAAG
GGAAGAATGA--CAAAATCTATAGAAA--TTCTTATCAGTAGAGAAGGCAGAGACCTAAATCTACATAACAACCATACCC
TCCTTTACTGTGCTTTGTCTGAAAACTTCTCATTGTTTGCTCTCCACCCTGCAACATCTTCTTT-TTCATAAGCTGAAGA
CAGTATTGAGGGTGGTG--GTTTGCCATTAAAGGGAGTT---AATCAGTTTTCCTGGGTCTCTCCCATTTATACAGGAGA
CATATAA--GTTATTAAACTT------GTTTTTCTCCGATTATTCTGTCTGTT----------------------------
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------------------------------ATCTCTGGCTATACAGTCACTGT--AATACCAAGA-GCTCTCAGTTTTGAT
ATGTGTACAGAATA
>Pteropus vampyrus
TGACCAAACGAATCTT-GTAGTTTCGAATTTTGGGAGCTGT--CTTTGTTATTTTGAAAGCATTTGT--TATAATATATC
TAACA------ATTACCATGAATT-CAATGAATG---CATA---TGAAAGGAAGCAGAATTTACTACTCCAAAATATGAC
TGTTTGGCATAAGGATTATCTTGAGCTGGTTATTTTTAAGAAACAGCAGACATAGAAAAAGCTTTGAAAACCTAGTAGAT
GTTGTTCTTTTTGTAAGAGATATTTACATTTATAAGGAAAATCTCCATTTGTAAATGTGTCTCCCTCTCTGTACCTGGAAG
AGAAGGATGA--CTAAATGTCTAGAAA--CTCTTATCAAAGGAAAAGAAAGAAAC--AAATCTACATAAAAACCATATTT
TCCTTTACTGTGCTTTACCTGAAAACCTCTCATAACTTGATCCTCATCCCCTAACATCTTTT---ATCTTTAGATGAAGA
TGGTATTTAAGGTAATGGGTTGGACCATTTCAGATAGTT---ACTCAGTTTTCTTGGGTCTCTCCTATATATACAGGAGG
CATACAT--GTGATTAAACTTCCATTTCTTTTTCTCATGTTATTCTATCTTTTAATCCCACGGATCTGGAGATGGAGTGC
GTTGTCTCAGCCAAGAACCTATAAGGGTGGA-GATAAAATTATTTTT-TCCCCTACA-----CAAA---TATAATGTCCA
CTC-ATTTTAGTATTTGAATTCTGATT-----CATGGCTCTCCTGTCATTT---AATATCAAGA-GCTCTTAGTTTTGAT
TCGTGTGTAGTATA
>Eidolon helvum
TGACCAAACAAATCTT-ATAGTTTTGAATTTTAGGAGCTGT--CTTTGTTATTTTGAAAGCATTTGT--TTTAATATATC
TAACA------ATTACCAAGAATTTCAATGAATG---TATA---TGAAGGGAAGCAGAGTTTACTACTCCAAAATATGCC
TGTTTGGCATAAGGATTATCCTGAGCTGGTTATTTTTAAGAAACAGCAGACATAGACAAAGCTTTGAAAACCTAGTTGAT
G---TTCTTTTTGTAAGTGATATTTACATTTATAAGGAAAATCTCCATTTGTAAATCTGTCTCACTCTCTGTAGCTGGAAA
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AGAAGGATGA--CTAAATGTCTAGAAA--CTCTTATCAAAGGAAAAGGAAGAAAT--AAATCTTCATAAAAACCATATTT
TCCTTTACTGTGCTTTACCTGAAAACCTCTCATAACTTGCTCCTCATCCCCTAACATCTTTT---ATCTTTAGATGAAGA
TGGTATTTAAGGTAATGGGTTGGACCATTTCGGGTAGTT---ACTCAGTTTTCTTGGGTCTCTCCTATGTATACAAGAGG
CATACAT--GTGATTAAACTTCTATTTGTTTTTCTCCTGTTATTCTATCTTTTAATCCCTGGAGTCTGGAGATGGAATGC
GTTGTCTCAGCCAAAAACCTATAAGGGTGGA-GATAAAACTATTTTT-TCCCCTACA-----CAAA---TATAATATCCA
CTC-ATTTTAGTATTTGAATTCTGATT-----CATTGCTCGCCTGTCATTT---AATACCAAGA-GCTCTTATTTTTGAT
TCGTGTGTAGCATA
>Bos taurus
TGG----ACAAACCCT--------GGAATTTAGAAATCTATATCTTTGTTATTTTTAAAACATTCTT--TAAAATATGTC
TAAAA------TTTTTAATGCATT-TAATGCATG----------------------------------------------
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---------------------------------------------------------------CATA---TATGATATCTG
CTC-TTTTTAATATTTGAATTGTGATTTAATCTATGGCCATTCTGTCTTTGT--AATGCCAAGAGGCTCTTAGTTTTTAT
TTGCATGGGGAATA
>Balaenoptera acutorostrata scammoni
TGGACAAAGAAAGCTT-AGAGTTTTGAATTTTGGAATCTGTGTCTTTGTTATTTT-AAAGCATTCTT--AATAATACATC
TAACA------ATTACCATGCATT-TAATGCACA----------------------------------------------
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---------------------------------------------------------------CATA---TATGGTGTCTG
CTC-TCTTTAGTATTTGAATTCTCATGTAATCTGTGACCATTCTGTCTTCTT--AATGCCAAGAAGCTCTTAGTTCTGAT
CTGTGTGGGGAATA
>Equus caballus
TGACAAAACATACCCT-AGACTTTCAAATTTTGAAATCTG--CCTTTGTCATTTTGATAGCGTCCCT--GTTAATATGTC
TAACA------ATTACCACGTTTT-TAATGCATG----------------------------------------------
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---------------------------------------------------------------CAGA---TATAACGTCTG
CGC-TTTGTAGTATTTGAACTCTGATTTAATCTATGGCCATCTTGTCTTTGT--AATGCCAAGAGTCTCTCAGTTCTAAT
CTCTGTGCCGAATA
>Ceratotherium simum simum
TGACCAAACAAACCCT-AGAGTTTCAAATTTTGAAATCTGTGTCTCTGTCATTTTGATAGCAATCCT--ATTAATATGTC
TAACA------ATTACCATGTTTT-TAATGCATG----------------------------------------------
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---------------------------------------------------------------CATA---TACGATGTCTG
CTC-TTTTTAGTATTTGAATTCTGATTTAATCTATGACCATCCTGTCTTTGT--AATGCAAAGAGGCTCTCAGTTCTGGT
CCTTGTGCAGAATA
>Sorex araneus
TAACCAAATGAACCCT-AGACTTTCAAATTT-ATAATCTTTATCTTTGTTATTTTGATAATGTTTTT--ATAATTATGT-
-----------TTTATTATGTTT--TAATGCAAG----------------------------------------------
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---------------------------------------------------------------CGTC---TGTGACCTACG
CTT-TT--AAATATTTAATTAC-AATTTGGAA---------------------AAT--CAAGAGTCTTTTTT---TAAT
CTATGTGTAAAATA
>Homo sapiens
TGAC----CAAA-CCTCAGAGTTTTGAATTTTGAAATCTG-ATCT---TTATTTTAAAAGCATTTGT--ATTACTATGTG
CAATATTAATAGTTATCATAGTTT-TAATTCAGA----------------------------------------------
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---------------------------------------------------------------------------------
---------------------------------------------------------------CATA---TATGGTGTTTG
CTCTTTTTTAGTATTTAGATTCTGATTTAGCCTATAGGCATCTTGTCTTTGT--AATGCCAAGAGTATTTCAGCTCTGAT
CTATGTGCAGAATA
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>Trichechus manatus latirostris
GGACCAAACAAATCCT-AGAGTTTAGAATTTTGGAATCTGTGTC--TGCTATTTT-AAAGTATTTGT--ATTAATATGTC
TAACA------ATCACCATACTTT-TAATGCCTG-----------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------CATG---TATAATGTCTG
CCG-TTTATAGTCTTTGAATTCTGATTTAATCTATGGCCATCCTGTTTTTGT--AATGCTAAGAGGTTCTCAGTTTTGAC
CTAGATGCATAATA
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2.7 Marker Rd_Db05

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>MER34C_CF
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-------------------------------------------------TGAAGGGGAGCAGAATTTGCCACCCCAAAAT
ATGCCTCTTTGGCATAAGGATTATTTTAGGCTGATTATTTTTAAGAAACTGCAGACACAGGAGAA----GCTCTGAAAAC
CGAGTAGAAGTTACCCTTTTGTAAGAGACATTTACATTTATAAGGGAAATCTCCATTTGTAAGGGTGTCTCCCTCTCTGT
ACCAGGAAGAGGAGGATGACTCTAAATCTCTAGAAACTCTTATCAATGGAGAAGGCAAGGACTTAAATCTGCATAACAAC
CTTACCCTTGTTTACTGTGCTTTTCCTGGTAACCTCCCATAACTGACTCCCCACCCC-----CAACATCT----TTTTTG
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--------------------CTTTAGCTGGAGATGGTATTTAAGGTGATGGCTTGGGCCATTTCGGGGAG-TTACTCAGT
TTTCCTGGGTCTCTCCCATGTATACAGGAGGTATACATATGTTATTAAACTTTTG-TTTGTTTTTCTCCTGTTAATCTGT
C-------TTATGTCAATTTGATTCTTAGACCAGCCAGAAGAACCTAGAAGGGTAGAGG-AAAATT--TTTTTCTCCTC-
--AACA-------------------------------------------------------------------------
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>Canis lupus familiaris
CAAAGGCAGTAGAATCTGATATTTTGACTTTGAGTTTCACAATG-TCTAAACTC---AGTTCAAGCTGGAAAATAATTTA
TAAAA------TAGGTTTAGAATTCAGCATAGGTG---TAGGAGGC---TTCAAG-GAGCAGAATTGTCACCCCCAAAAT
ATGCCTCTTTGGCATAAGAATTATTCTCGGCTGATTATTTTTAAGAAACAGCAGACACAGGAAAA----GTTC-CAAAAC
CAAGTGGAAGTTAC-CTTTTGTAAAGGAAATGTACATTTATAAAGGAACTCTCTATTTGTAAGGGTGTCTCCCTCTCTGT
ATCAGGAAGAAAAGGATGCCTCTAAATCTCTAGAAACT-----------------------------------------
--------------------ATTTTCCTGGTGACCTTCTTTAACTGGCCTCCTCCTCT----TCTAGAACA-TTTCTTTTG
T-----------------------------------------------------------------------------
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--------------------CTTTAGCTGGAAATGGTATTCAGAGTGGTGGCTTGAG-CATTTCAAGGAG-----TTAGT
TTTCCTGGGTATCTGTTATGTATATGGGAGGTATACAT--GCTATTAAACTTCCA-TTTATTTTTCTCTTCTTAATCTGT
C-----TTTTATTACAGGGAGTATCTTAGCC-------AAGAACTAAGATGGGTAGAGGGAAAATTA-TTTTCCTCCCT-
--TACAAGGC---AAAAATATTTTTGTCAAGTTTCCAATTTCACTAAA-GTTTTTTCACACTACTATAAGACTA---TTT
TCTCTCTAACATTTTGTAGTGCTTTTTGAAACAGTTTCAAG
>Felis catus
CAAAGAAGGTGGAATCTGATA-TTTGGCTTTGAGTTTCACAATG-TCTAAAGTC---AGTTCAAGCTAGAAAATAATTTA
TAAAATAGTCTTAGGTTTAAAATTCAGCATCAGTG---TAGGAGGC---TGAAGG-GAGCAAAAC-TGTCACCCCAAAAT
ATGCCTCTTTGGCATAAAGTTTATTTTAGGCTGATTATTTTTAAGAAACAGCAGACATAGGAAAA----GTTC-CAAAAC
TGAGTGGAAGTTACCCTTTGGTAAAGGAAATGTACATTTATAAGGGAAATCTCTATTCG-AAGGGTGACTCCCTCTCTGC
ACCTGGAAGAAAAGGATGCCTCTAAATCTCTATAA-CTGTTGTCAAAGGAGAAGTC-----ATTAAATCTGCATAACAA-
-----CCTTGTTTACTGTGCTTGTCCTAGTGACCTCCCATAACTGGCCTACTCCTCT----CCCATAACATTTTCTGTTG
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--------------------CTTTAGCTGGAAATGGTATTTAAAATAGTGATTTGAGTCA-TTC-AGGAG-TTACTCGGT
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TTTTTTTTTAATTACAGGGAGTGTCTCAGCC-------AAGAACCAAGAAGGGTACAGGAAAAATTATTTTTCCTCTCT-
--TACAAAGC---TAAAATATTTTTGTCAACTTTCCAATTTTATTAAG-GTTATTTCACATCACTATAAAACTA---TTT
TCTTTCGAAAATTTTGTAGTGCTTCTTGAAACATTTTGAAG
>Manis pentadactyla
CAGACAAGGTGGGAT-TGATAATTT-----------------TG-TCTACACTC---AGTTCGAGCTGGAAAATAATTTA
TAAAATGGACTTAGGTTTAGAATTCAGCAGCAGTG---TAGGAGGC---TGAAGGAAAGTGGAATATGTCACCTCAAAAT
ATGGCTCTTTGGTATAAGGATTATTTTAGGCTGATTATTTTTAAGAAACAGCAGA--TGGGAAAA----GCTCTGCAAAC
CAAGGAGAAGTTACCCTCTTGGAAGATAAATTTACATTGATAAGGGAAATCTGCATGGATAAGGGCGTCTCACTC--TGT
A-GAGGAGGAA---GATGA--CTGAAACTCTAGGAACT--CATTAATGGCCAAGGCAGGGACTTAGATCTGTGTAACAAG
CATATCCTCATTTACTGTGCTTTTCCTGGTCGCCTTCCCTAACTGGCCACCTCCAACTGGCCCCAGTATC-TTTCTTTTG
C-----------------------------------------------------------------------------
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--------------------CTTTAGCTAGAGATGGAATTTAAGGGGATGGCATGGGCCACTTCAGGGAG-TCACTCAGT
TTTCCTGGGTCTCTCCCAAGGATACAGGAGGTTTACAT--GTTATTAAACTTCTG-----CTTTTCTCCTGTTAATCTAT
C-----TTCTAGTTGGAGGGGTGTCTCAGCT-------AGGAACCTAAAAGGGTAGAGGGAAAATTATTTTTCCTCCCC-
--TGCAATGC---TAAAATATTTTTGTCAAGTTTACGATTTTATTAAAAATGATTCCACACAACTATAAAAATA---TTT
TCTTTCTAAACTTTTGTGGTGCTTTTTGAAACAGTTGCCAA
>Myotis lucifugus
CAAAGAAGGTGAAATCTGATAATTTGGCTTTGAGATTCACAATG-TCTAAAGTC---AGTTCAAGCTGGAAAATAATTTA
TAAAATGGACTTACGTTTAAAGTTCACCAATGGTG---TAGGAGGC---TGAAGAGGGGCAGAATTTGTTATCCTAAAAT
AGGCCTGTTTGGGATAAGGATTATTTTAAGCTAATTATTTTTAAGGAAAT-CAGACATAGGAATATGTAGCTCTGAAAAC
CAAGTAGAAGTTACCCTTTTATAACAGACATTTACATTTGCAAGGAAAATCTCCATTTG--------TCTCTCTCACTGT
ACCAGAAAGAGACAAATTA--CTAAATCTCTAGAAACTCTCATCAATGGAGAAAATAAGAACTTAAATTTGCATAACAAA
CATGCCCTTGTTTATCATGCTCTTCCTGGTGACCT---------------CCCTTCCA----CCTCCAACA---TCTTTTG
T-------------------------------------------------------------------------
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--------------------CTTTACCTGGAAATAGTATTTAAGGTGATGGCTTGGGCCA-TTTAGGGGATTTATTCAAT
TTTCCTGGGTACCTTCCA-----------GGTACACAT--GGTATTAAACTTCCCTTTTATTTTTCTCCTGTTTATCTGT
C-----TTTTATTACAGGGGGTATCTCAGTT-------AAAAACCAAGAAGGGTAGAGTGAAAATTA-TTTTCCTCCCC-
--TAGAAAAT---TAAAATATTTTTGTCATGTTTCCAATTCT---GAG-GTGATTTCACACCACTATAAAAATA--TTTT
TCTTTCTAAAATTGTGGATTGCTTATTGAAACAGTTGCAAG
>Pteropus vampyrus
CAAAGAAGGTGGAATATGATATTTTGGCTTTGAGACTCACAATA-TCTGAACTC---AGTTCAAACATGAAAATAATTTA
TAAAATAGAC--AGGTTTAGAGATTGGCATTGGTG---TAGGAGGC---TGAAGGAGAGCAGAATTTGTCACCC-AAAAT
ATGTCTATTTGGCATAAGGATTATTTTAGGTTAATTATTTTTAGGGAACATCAGACATAAGAAAAA---GCTCTGAAAAC
TGAGTAGAAGTTACCTTTTTATAAGGAACATTTACATTTATAAGAGAAATCTCCATTTG--------TCTCCCTCTCTAT
ACCAGGAAGAGAAGGATGA--CTAAATCTGTAAGAACTCTTATCAATGGAGAAAGCAAGAACTTAAATTTGCATAATAAC
CATGACCTTGTTTATTGTGCTTTTCCTGGTAACCTCCCCTAACTAGCCTCTCCACCA--AACCCTCAACATATTCTTTTG
TCTTTAGATGGAGATAGTTTTTTTTTTTAAATTAAGTTTATTGGGATAACATTGGTTAATATAATTACATAATTTTCATG
TGTACATTATCATTTGACATCTGTATATTCTATTGTGTGTTTACCACCCAAAGTCCAGTTTCCTTCAGCTACCATATATT
TGATTCCCTTTACCCACTTCACCTTCCCTTAACCCCCTTATATTTGACCCCCTTTAACTATTTACCTACTCTCTCCTCCC
CCACCCCCTGCCTTCTGGTAACCATTAGTCTATAGTCCATGTCCACGAGTCTCTGTTTGTCCTGTTCATTTGTTGCTTTT
AAGTTTATATCTCACATATAAGTGATATCATGTGATTTTCAACTTTTTCTGTCTGGCTTATTTCACTTAGCATGACTATC
TCGAGGCCCATCCATGTAGTCGCAAATGGCAGCATTTCATCTCTTCTTATGGCTGAGTAATATTCCATTGTATATATGTA
CCACAACTTCCTTAGCCAATCATCTATCGTAGGACATTTTGGTTGCTTCCATGTCCTGGCCACTGTGAATAATGCTGCTA
TAAACATTGGTATGCAAATATCTTTTTGGATATGGGTTTTCAAGTCTTTGGGATAAATACCCACTAGAGGGATTGCTGTT
TTATATGGCAGATCAATTCTTAGTTTTTTGAGGAACCTCCATACTGTTTTCCATGGTGGTTGTACCAATTTGCAGTCCCA
CCTGCAGTATATGAGGATTGCTTTT--TGGAGATAGTTTTAAAGGTGATGACTTGGGCTA-TTTGGGGAA-GTATTCAGT
TTTCCTGGGCTTCTCCCATGTATATAAGAGGTACACAT--GTTATTAAACTTCTG-TTTGTTTTTCTCTTGTGAATTTGT
C-----TTTTATTTCAGGGGGCGTCTCAGTC-------AAGAGCCTAGAAGGGTAGAGGGAAAACTA-TTTTCCTCCCC-
--TACGTGGC---TAAAATATTTTCGTCAAGTTTCCAATTTA---GAG-GTGATTTCACACCACTATAAAAATGTCTTTT
TTCCTCTAAAAATTTAAAGTGCTTATTAAAACAGTTGCAAG
>Bos taurus
CAAAGAAGATCAAATCTGATAATTTGGCTTTGAGTCTCACAATG-TCTAACTCC---AGTTCAAGCTGGTAAATAATTTA
CAAAATGGACTTAGGTTTAGAACTCAGCATTGCTG-----------------------------------------
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--TAAGAGGC---CAATATGTTTTTGTCAAATTTCCAACTTTATTTAG-AGGATTTCACATCACTGTAGAAATA---AGT
TCTTTCTAAAAATTTGCAGT---------------CGCAAG
>Balaenoptera acutorostrata scammoni
CAAAGAAGGTGAAATCTGATAATCTGGCTTTGAGTCTCACAATG-TCTGACTCC---AGTTCAAGCTGGAAAATAATTTA
CAAAATGGACTTAGGTTTAGAACTCAGCATTGTTG-----------------------------------------
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--TAAGGGGC---TAATATATTTTTATCAAATTTCCAACTTTATTAAG-GGGATTTCACATCACTATAAAAATA---TGT
TCTTTCTAAACTTTTGCAGT---------------TGCAAG
>Equus caballus
ACAAGAAGGTGGAGTCTGATAACTTGGCTTTGAGTCTAACAGTG-TCTAAACAC---GATTCAAGTTGGAAGATAACGTA
CAAAACGGACCTACGTTTAGATTTCAGCACTGGTG-----------------------------------------------
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--TGAGAGAC---TAAGCTATTTGTGTCAAGCTGCAAATTTTATTAAG-GTGATTTCACACCACTATAAAA-TA---TTT
TCTTCCTGAAATTTTGCAGTGCTTCTTGAACCAGTTGCAAG
>Ceratotherium simum simum
CCA-----GTGGAGTCTGATAATCTGGGTTTGAGTCTCTTGGAG-TCTAAACAC---AATTCAAGTTGGAAAAAAGCTTA
CACAATGGACTCAGGTTTAGAATTCACCATTGGTG-----------------------------------------------
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--TAGGAGAC---TAAGGCTTTTTTGTCAAGCTTCCAATTTTGTTAAG-GTGATTTCACACCACTATAAAAATA---TTT
TCTTTCTAAAATTTTGGAATGCTTCTTGAAACAGTTGCAAG
>Condylura cristata
TAAGACAGGTGGAATCTAATAATTTGGCTTTAAGATTCACAGTG-CCTAAATTC---AATTCAAGCTTGAAAACAATTTA
CAAAATAGACTTATGGGTATAAGTCAGCATTGGTA-----------------------------------------------
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--TAGACGGC---AGCATATTTTTGCTGTATTTTCTATTTTAGTAGAG-TGATTTTAAACCACCATACATTAT----TTA
ATTGCTAAAA-TTTTAGAGGGCTTCTTGAAGCAGTTATAAG
>Homo sapiens
CAAAGAAGGTAGAATTTGATCAGTTGGCTTTGATTGTCACAAGG-TCTAAACTCTTCAGCTTAAGCTAGAAAATAATTTA
CAACATGAAATTAGGTTTAGAATTTAGCATTGGTG-----------------------------------------------
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--TAAAAGGC---TAAAATA-TTTTATAGAGTTTCTGATTTTAATAAG-GTAATTTTACACCACTATAAA-------AAT
ATTTTCTAAAATTTTGGGGTGCTTCTTAACACAGTGGCAAG
>Dasypus novemcinctus
CAAAGAAGGTAAAATGTGATAATTTGACTTCGAGTCCCACAATGTTCTAAACTC---AGCTCAAACTAGAAAAAAAATTA
CAAAATGGAGTTAGGTTTAGAAGACAGCATTCGTG----------------------------------------------
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--TAGGAGAC---TAAAATTGTTTTGTAAAGTTTCAGATGTTTT-AAG-TTGATTTCACTCCACTATAAAAA----TTTA
CTCTTTAAATTTTGTAGACTGTCTCTTGAAACAGTTGTAAG
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2.8 Marker Rd_Db14

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>L1_Carn7
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-----------------------------------------------------------------------------ATGG
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---TGACAGATGGTAACTAGACTTATTGTGGTGATCACTTC-ACAATGTATACAAATGTCGAA-TCACT----ATGTTGT
ACACCTGAAACTAATATAACATT--GTATGTCAATTATACTCAAAT-AAAAAAA-------------------------
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-------------------------------------------------------------------
>Canis lupus familiaris
GAGA-CCTTTATTC-GTTTAGAATGCCTT--------------CCACCCC---TTCCCTCTCCTTTCCCTCCCCATTTTT
ATTTATTTATTTATTTATTTTTCAATCC-AGTTTTATTTTTAAAGACAGTCTAT-TCATCCCTT----AAAACTAACTGG
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---TGATGGATGTTAATTAGACTGATTGTGATGGTCATTTT-GGAATACATACAAATATCAAA-TCATT--TTACACTGA
ACACCTGACACTAATAT--AATGTTGAATGTCAATTATAGCTCAGT-AAAAAATTAAATAAAAAA---ATTAAATTTT--
---AAAATTTAACTGG---AATACTTGTTCCCTTCTG-TGTGAAGCTTT-CTTTGACATCCCTATTCCCCCAGGCAG---
--------------------GAGTAAGTGCTCTCTGAGCACTTAATATATATAAATGACTAAAAATATT
>Ailuropoda melanoleuca
GAGA-ACTTTATTCAGCCTAGAATGCCCT--------------CCCCCA--------------TTTCCCTCCCAA-----
--------------------------------TTTTTATTTTTAAAGACAGCCTAC-TCATCCTTT----AAAACTAATTGG
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---TGATGGATGTTAACTAGACTTATTGTGGTGATCATTCT-GGAATACACACAAATATCAAA-TCATT--ACACATTGA
ACACCTGATACTAATATATAATGTT--ATGTTAATTATAGCTCAAT-AAAAAATTAAATTAAAAATTGATTAAACTTT--
---AAAATTTAACTGG---AATACTTGTTCCCTTCTG-TGTGAAGTTTT-CTTTGACATCCCTACTCCCCCAGGCAG---
--------------------GAGTAACTGCTCTCTGAGCACTTACTATATATAAATGACTAAAA-TATT
>Manis pentadactyla
GAGA-CCTTTAGTCAGCCTAAAATGCTCT--------------CCCCAGC---TTCCCTGCCTTTTGTTTCCCTA-----
-------------------CCCAAATCCAGTGTTTATTTTGAAAGATAGCCTAC-ACATCCTTT----AAAACTAACTGG
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---TGATGCATGTTAACTAGACCTATTGTGGTGATCATTTT-GCAA-ATAGACAAATATCAAA-TCAAT----ACATTGT
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---AAAAAATAACAGG---AATATTTGTTCCCTTCTG-TGTGAAGCTTC-CCCTGACATCCCTACTTGCCCAGACAG---
--------------------GAGCAACTGCTCTCTCAGCACTTAATATATA--AATGACTCAAG-CACT
>Myotis lucifugus
GAGATAATTTATTCAGCCCAGAATGCCCT--------------CCCCCAC---CT-CCTACCCTTTCCCTGGCCA-----
-----------------------AATTCAACTTTTATTTTTAAAGATAGCCTAC-TTAACCTTT----AAAACTAACTG-
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---TGATGGATATTAACTACACTTACCGTGGTGATCATTTT-GCAATATGTACAAAGAGCAAAATCATTAATTATAGTGA
ACACTCAAAACTAATATAATATTAT--ATGTGAATTATACCTCAATT-AAAAGAATTATTAGTTT-TAA-----------
---AAAACCTAACTGA---AATATTTGTTCCCTTCTG-TGTGAAGCTTT-CCTTGACATCCTTACTCCCTCAGGCAG---
--------------------GAGTAACTGCTCTCTCAGCACTTAATATATA--AATGAGTGAAA-TATT
>Pteropus vampyrus
GAGA-CCTTTATTCAGTTTAGGATGCCCT--------------CCTCTAC---TTCTTTACCTTTTCCCTACTCCA----
-----------------------------------ACTTTTAA-GATAGTCTACTTCATCTTT-----AAAACTAACTGG
---TGATGACCTTTTCATGAAGATAGCCTGGAAAGTGAAGAAGGAAGCCCCTGCCCCTCCCAAAGCTGAAGCCAGAATAA
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TCTGACAGCCCGAGACACTGCAGCTCTGAAGGCAACCCAAATATCCTTGGAAGAGCACCCCCCGGAGAAACAAGCTTGAC
CACTATGCTATTGTCAAGTTCCCCTTGACTACTGAGTCAGCCATGAAGAAGATAGAAGACAACAATACACTTATGTTCAT
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TGTGGATGTCAAGGCCAATAAGCACCAGATCAAACAGGCTGTGAAGAAGCTCCATGACATTGACATGGCCAAAGTCAACA
CCCTGATCAGGCCTGATGGAGAGAAGAAGGCATATGTTCGGCTGGCTCTTGACTATGATGCTTTGAATGTTGCCAACAAA
ATTGAGATCATCTAAACTGAGTCCAGCTGGTTGATACTAACTATAAAAATTTTTCATTGTAAAAAAAAACAAAACAAAAC
TGGTGATGGATGTTTACTACATTTATTGAGGTGATCGTTTTTGTAATATGTACAAATATCAAA-TCATT----TTGCTTA
ACACCTGAAACTAAAAA--TATG-----TGTCAATTAAACCTCAATTCAAAAGATAAATTAGAAAAAAACAAACA-----
---AACCTCTAACTGG---AATATTTGTTTCCTTCTT-TGTAAAGCTTT-TCTTGACATCCTTACTCCCCCAGGCAG---
--------------------GAGTACCTGCTCTCTCAGCACTTAACATATA--AATGACTAAAA-CATT
>Bos taurus
GAGA-CCTTTATTC---CAAGGACACCCTGGACCCCCTCTCCTGTTGCAC---TCCCCCACGCTTTCCCTGCCCA-----
-----------------------AATC---------TTTTCAGAGACAGCCTAC-TTATCCTATC---CCAACTAACCGG
>Balaenoptera acutorostrata scammoni
GAGT-CCTTTATCC---CTAGGATGCCCTGGCCCTCCTCTCCTGTCCGACTCCTTCCGTACACTTTCCCTGCCCA-----
-----------------------AATCCAACTCTTATTTTTAGAGAGCGCCTAC-TCATCCTTT----AAAACTAAATGG
>Equus caballus
GAGA-CCTTTCTCCAGCCTAGAACGTCCT--------------CCTTGAC---CTCCCTAGCCTTTCCTTGCTCA-----
-----------------------AATCCAACTTCTATTTTTAAAGAGAGCCTAC-TCATCCTTT----AAGACTAACAGG
>Ceratotherium simum simum
GAGA-CCTTTATTTAGTCTAGAATATCCT--------------CCCCTAC---CTCTCTACCCTTTCCTTGCCCA-----
-----------------------AATCCAACTTTTATTTTTAGAGAGAGTCTAC-TCATCCTTT----AAAATGAACTGG
>Condylura cristata
GAG----CCCGAGTGACACACGCAGACCT--------------GGAATCA--CCACACGGCCTCTTCCCAGCCCCCTTCC
TGCCC-----------------AAATCCAGTTTTTATTTGCAGAGATGCCCTGC-TCATCTCTT----AAAACTAACAAG
>Homo sapiens
GAGA-CCTTTATTCAGTCTAGAACGCCCT--------------AGGCTTC---TTGCCCTTCCCTTCTCTACTCTTTCTC
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TGCCA-----------------AAATCCAACTTTTATTTTTAAAAATAGTCTAC-TCATCCTTT----AAAACTAAGTGA
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-------------------AATATTTGTTCTCTTCC--TGTGAAGCTTTTCTT-GACATCC-TATTCCCCTAGGCAG---
--------------------AAGTAACTGCTCTCTCAGCACTTAATATACA--AATGACTAAAA-CATT
>Trichechus manatus latirostris
GGGA-TCTTTATTCAGACTAGAACACTCT--------------GGCCTCC-TAATTGTGTCCCTTTCCCCAACCTCTACC
TACA-----------------AAATCCAACTTTTCTTTTTAAAAACAGAGTAC-TCATCCTTT----AAAACTAACTGA
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-------------------ACTATTTGTTTCCTTCCC-TGTGAAGTTTT-CTTTGACACCCCTACTCTCCCAGGCAG---
--------------------GAGTAATTGCTCTCTCAGTACTTAACACATA--CATGACAAAAA-CATT
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2.9 Marker Rd_Db22

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>L1MA9
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--------GGGGCTGGGGGGTGGGGGAAATGGGGA---GATGTTGGTC---AAAGGGTACAAAGTTTCAGTTATGCAGGA
TGAATAAGTTCTGGAGATCTAATGTACAGCATGGTGACTATAGTTAATAATACTGTATTGTA--TACTTGAAATTTGCTA
AGAGAGTAGATCTTAAGTGTTCTCACCACACACAAAAAAA--TGGTAACTATGTGAGGTGATGGATATGTTAATTAGCTT
GATTGTGGTAATCATTTCACAATGTATACGTATATCAAAACATCACGTTGTACACCTTAAATATATACAATTTTTATTTG
TCAATTATACCTCAATAAA------------------------GCTGGAAAAA-------------------------
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>Canis lupus familiaris
GATTGCACTAGGG--------GAGGAAAAGAAAA-AGATTTCCAGCCTCA-TTTTAAGACCTCTCCTTGTACATAAAATT
CTTAAAACAATATTGTTTTCCATTTATTGTATTAA---AAATCAAATC---AAGAGGTACAAACTTCCAGTTAT--AAAA
TAAGTAAATCTTGGGGATATAATGGATAGCATGGTGACTATAGTTAATAGCATTG-ATTGTA--TATTTGAAGGTTGCTA
AGAGAGTAGATATCAAAAGTTCTCATCACA-AGAAAAAAA-TTTGTAACTATATGTGGTGAGGG--ATGTTAACTAGACT
T-----AGT---CATCTTGCAATAAATATAAATACCTAATCATGATGTTGAACATCTGAAACTAATA-------------
-----------------------------------------TGTCAATTATATATAAAA----ATAT---ATA-TAT
ACC---ATGAAGCACTTACAGGCAAGAAGT--TTCTG-------------------------------------AAAAAC
AATTTAGAATGTAGT------AAAAAGTGGG-AGACTTAT----GGGACAGACATTATCTATTTAGGCTATTTG
>Felis catus
GATTACACTAGGG--------GAGAAAAAAA----AGATTTCCAGACCCAATTTTAAGACATCTCCTTTTATATAAAATT
CTTAAAACAATATTGTTTTCCATTTATTATATTAA---AATTTAAATC---AAAAGGTACAAACTTCTAGTTAT-AAGTA
AATATAAATCCTCAGGATATAACATATAGCATGGTGACTATAGTTAATAAAACTG-TTTGTATGTATTTGAAGGTTGCCA
AGAGGGTGGATCTTAAAAGTTCTCACCACA-GGAAAA----TTTGTAACTATATGTGGCGATGG--ACTTTAACTAGACT
TCCTT-AGT---CATTGTGCAATATATGCCAATATCTCATCAATATGTTGCACATCACAACC-AATAT--AATGTTATA-
-----------------------------------------TGCCAATTATATATAAAAT---ATAT---ATA-CAC
ACC---ATGAAGCACCTACAGGCAAGAAGTGATTCTG---------------------------------------AAA
AGTTTAGAATGCAGC------AAAAAGTGGG-GGATTTAT----GGGCTGGACAT-ATCTATTTAGACCATTTG
>Manis pentadactyla
GATTGCACTGGAG--------AAAAAAAA------AGATTTCCAGCTTCAATTTTAAGACATCTCTTCTTATATAAAATT
CTTAAAACAACGTTGTTTTCCATTTATCATATTAA---AAATTAAATC---AAAAGATACAAACTTCCAGTTAT--GAAA
TAAATAAATCCTGGGACTGTAATGTACAGCATGGTAACTATAGTTAATG---CTATATTGTA--TATTTGAAAGTTGTTA
AGAGAATTGATCTTAAAAATTCTCATTGCA-AGAAGA--------AAATTCTGTGTAACAATGG--ATGTTAATTAGAAT
TCTTGTGGTAATCATTTTGAAATATATA-CAAATTTGAATCATGAACTTGTACACCTTAAACTAATGTTACATGTCAATT
ATATATAT-----------------ATATACACACACATACACACACACACACACACATATATAT-ATAT---GTA-TAT
------AT-AAGGAAGCACAGGCAAGAAGTGATTTTGAAAA---------------------------------ACAAAT
AATTTAAAATGTAGT------AAAAAGTAGG-GGATTTAT----GGGCCGGACAT-ATCTACTTAGACCATTTG
>Myotis lucifugus
-----------------------------------------------------------------------ATTAAATT
CTTAAAACAACATTGCTTTCCATTTATTATATTAA---AAATTAAATC---AAAAGATATAAATTTCCCATCAT------
TAAATAAGTCCTAGGAATGCACGG-----TATGGTGA---TAGTTAATAATACTGTATTGTA--TATTTTAAAGTTGCTA
AGAAAG---ATCTTAAAAGTTCTCATCACA-AGAAAAAAA-ACTGTAACT---TGTGATGAGGG--ATGTTAACTAGACT
TACTGTGGTGACCATTTTACAATATATTTAAATATCAAATCATTATGATGTATACCTAAAACTAAAAT--AAAACTAATA
AATACTATAT-----------------------------------TGTCAT----ATATAAA-------------------
------ATGAAGCACTTCCAGGCAAGCAGTGGTTTTGGAAAA----------AACAAAAACAAAAAACAACACCACAAAT
AACTCAGAATGTAGT------AAAAAGTGGGGGGATTTATGGATGGGATAGGTAT-ATCTATCTAGACCATATG
>Pteropus vampyrus
GATTGCACTGAAG--------GGAAAAAAAA----GGATTTCTGGCCTCAATTCAAGGACATTTCCTTTTATATCAATTC
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TAAA--AGTCTTAGGGATCTAATGTCT-GCATGGTGACTATAGTTAGTATTACTGTATTGTA--TATGTGAAAGTTGTTA
AGAGAATAAATCTTAAAAGTTCTCATCTCA-AGAAAAAAAATTTGTAACTGT--GTGGTGATGG--ATGTTAACTGGACT
TATTGTGGTGGTCATTTTACAACATATACAAATATTGAATAATTATGTTGTACACCTGAAACTAATAT----AGTTATAT
TGTCAAATATATGTGTGTGTGTGTGTGTGTGTGTGTGTGTATCTTTCATTATATATATACATACATAT---ATATAAT
CTC---ATGAAGCACTTAGAGGCAAGCAGTAATTTTG-------------------------------------AAAAAAA
AATTTAGAATGTAGTAAAAAAAAAAAGCGGA-GGATTTAG----AGGATGGACAT-ATCTGTTTAGACCATTTG
>Bos taurus
GATTGTTCTGGAG----CCAAGGAAGGGTACAAGGAGATTCCTAGCCTCAGTTTTAGGACATCTCCTTTTATATGAAATT
CTTAAAGCAACATTGTTCTCCTTTTATTATATTGA-----------------------------------------
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-------------------------------------------------------------------------AAACTAG
GTC---ATGAAGCACTTACAGGCAGAAAGTGATTTTGAAAA-------------------------------AGAAAT
AATTTAGAATCAAGT----AAAAAAAGTGGG-GCGTGTAT----GGGACGGACAT-----ATTTAGACCTGTTG
>Balaenoptera acutorostrata scammoni
GATTGCACTGGGT----C--------GGGGCAGGGAGACTCCCAGCCTCAATTTTAAGACATCTCCTTTTATATGAAATT
CTCGAAGCAACATTGTTTTCCACTTATCATATTGA-----------------------------------------
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--------------------------------------------------------------------------------
-----------------------------------------------------------------------AAA-TAG
ATC---ATGAAGCACTAACAGGCAGAAAGTGATTTTGAAAA-------------------------------ACAAAT
AATTTAGAATGAAGT------AAAAAGTGGG-GGATTTAT----GCAATGGACAT-ATCTATTCAGAC-TTTTG
>Equus caballus
-----------------------------------------------------------AGATATCTCCTTTTATATGAAATT
ATTAAAACAACATTGTTTTCCATTTATTA-----A-----------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------GAA-TAT
ATC---GTGAAGCATTTACGGGCAGGAAGTAATTTTGAAAA--------------------------------ACAAAT
AATTCAGAATGTAGA------AGAAAGTGAG-TGATTTAT----GGGACGGAAAT-ATCTATTCAGAATATTTG
>Ceratotherium simum simum
GATTGGACTG---------------GGGGAAAAAAAAGATTCCCAGCCTCAATTTTAAGACATCTCCCTTTATATGAAATT
CTTAAAACAACATTGTTTTCCATTTATTATATTAA-------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------GAA-TAT
ATC---ATGAAGCATTTACAGGCAGGAAGTGATTTTGGAAA--------------------------------ACAA--
--TTTAGAATGCAGA------AAAAAGTGGG-AGATTGAT----GGGATGGACAT-ATCTATTCAGACTATTTG
>Erinaceus europaeus
GACTGCACTGGGC---------AAAAAAAGAACCAACATTTCCAGCCTCAATTTAAAAACATCTCCTTGTATATGCAATT
TTTGAAATAACATAA-TTTCCATTTGATGATGTT---------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------------------TTTAAAA
ATC---ATTAATTACCTACAAGCAAGAAGTGATTTAGAAAAAGCAATATAGGGAGGGGAAAAAAGTAATATAGTACAAAA
TTGTGTCTTAGGGGG------TCAGAGGG---TGGTTTAT----AGGATGGATTT-ACTTGTTTCGATCATTTA
>Homo sapiens
GATTGCACTGGAG-----------------AAAAAATATTTCCAGCCTCACTTTCAAGACTTCTTTTGTCATATGAAATT
CTTAAAACAACATTGTTTTCTATTTATTTTATTAA---------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------------------AAC-TAT
GTC---ACGAGGCACTTGTGGGCAGGAGGTGATTTTGAAAA--------------------------------GACAAAT
AACTTAGGATGTAGT------AAATAGTGGT-AGATTTAT----AAGACAGACAT-ATCCACTGAGACCATTTG
>Trichechus manatus latirostris
GATTGCACTTTGGTGGGGGGGAGGGGGGCAGGGCAGGATTTTCAGCCTCAATTTTGAAATACCTCCTTTTAAATGATTCT
C-----AAAAAATTAATTTCCATTTTTTAAATTTA---------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------------------AAA-TAT
GCC---ATGAGGCATGTATAGGAAGAAACTGATTTTGAGAAA-------------------------------GA-AAAT
A-TTCAGGATGTAGT------AAAAAGTGGG-GAATTTAG----GGGATGAGCAT-ATCTATTTAGGCTGCTTT
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Cetartiodactyla+Carnivora

3.1 Marker D__C0011

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>L1MA9_rc
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-----------------------------------------------------------TATTGAGGTATAATTGACA
AATAAAAATTGTATATATTTAAGGTGTACAACGTGATGTTTTGATATACGTATACATTGTGAAATGATTACCACAATCAA
GCTAATTAACATATCCATCACCTCACATAGTTACCA-TTTTTTT-GTGT-GTGGTGAGAAC---ACTTAAGATCTACTCT
CTTAGCAAATTTCA------------------------------------------------------------------
-----AGTATACAATACAGTATTATTAACT-AT-AGT-CACCATGCTGTACATTAGATCTCCAGAACTTATTCATCCTGC
ATAACTGAAACTTTGTACCCTTTGACCAACATCTCCCCATTTCCCCCACCCCCCAGC----------------------
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>Canis lupus familiaris
TGATAAGGTT---TTG--ATCGCTTCAGTCCATGCTTACAGATAACAATCATGTAATGTGAAATTTGAAGCCGTACTT--
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
---------------------------------------AA-TTCTACTTT---GTAAAAAAAATTGAGCTAATATTGAAA
T----ATAGCACACTGATTTCGGGTGGAC------ATGATTCAGTGTGTATATGCATTTTGAAAAGATCACCACAAA---
---TCTAGTTATCTG--T-------CACTACTACAA---TTTTT-TTCTTGTGATGAGAGCCTTTACTTAGCAAATTTCT
ATTTGCAACTTTCA------------------------------------------------------------------
-----AAAGGGCAACGCATCGTTATTAATT-GT-AGT-GTCCACTCTGTACACTGCATCCTCTTGACATACATATTTT--
ATAACCACAAGTTTGTACCTTTTGACCCCCTTCACC--CATTTCATTA--TCCTCCC----ATTCTACTTG---GAAAAG
CAATAGATATA----GTGCATTTATTGAATAGCCCTATTTT-CAGCCTTTTATTCATAACGCCATATTTATTAAAATCCA
GTACTTCACACAA--GTAATTTT
>Felis catus
TTATAAGGTT---TTAAGATCACTTCAGTCCATGCTTACAGATAATAAGCATATAATGTGAAATTTGAAACAGTACAT--
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
---------------------------------------AA-TTCTACTTT-------AAAAAATTGAGATGTAATTGAAA
T----ATAACA--TTAGTTTCAGGTGTACCTC---ATGATTCATTATGTGTATGTATT--GAACCAATCACCACAAT---
AAGACTAGTTAGCTG--TCACCAAACATGTTCACAATTTTTTTTTTGTCTTGTGATGAGAGCTTCTACTTAGCAAATAAGA
CTAGTTAGCTGTCACTAAACATAGTTACACTTTTTTTTTCTTGTGATGAGAGCTTCTACTTAGAAAATTTCTCTTTGCAAC
TTTCAAATATGTAACACATTGTTATTAGCT-AT-AGT-GACCATGCTGTACAATGGATCCCCATGACAAATATATTTT--
ATAAGCAGAAGTTTGTACCTTTTGACCCCCTTCACC--CGTTTCACCA--GACCCCC----ATTCTACTCT---TAAGAG
TGACAGATGTG----GTGCATTGAAAGCATAGCCTTATATT-CAGCCTTTGATTCATTTTGCTATATTTATTAAAATCCA
TTACTTCACACAA--GTAATTTT
>Manis pentadactyla
TTATGATATTGTTTTGATATCACTTCAACCCATACTGACACATAATAGTCATGTAATCTGAAATTTGAAACAATGTCT--
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
---------------------------------------AA-TTCTACTTT-----TTTGTGTG-TGAGATATAATTGACA
TAT-AGCATTATATTAGTTCCA--TTAACAT----CTGTTACCA------------------------------------
----------------------TACACAGTCAGAGATTTTATTT-TCTTGTGA---GAACTTTAACTTAGCAACTTTCA
G-------------------------------------------------------------------------------
------ATATACACTACAGTATCATTAACT-TT-AGT-CTCCATGTTGTACATATCCTC---------------------
AGGAC-TTAA-TTTGTACCTTTTGACCCCCTTCACC--CATTTTGCCA--CCTTCT-----ATTCTACTGT---TAATAG
CAATAAATGTA----CTATATTTATTGTATAACCTTATGTT-CAGCCTTTTATTCATGTTGCCAATTTTGTTAAAATCCA
ACACTTCACACAAAAGTAACTGT
>Bos taurus
TTATCACATT---TTGTTATCACTTCAATCCATG-TTACAGATTATAGTCACATAATGTAAAATTTAAAACAGTACTT--
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
---------------------------------------AG-TAGTACCTT-------TTTGTGTTCAGGTATAATTGACA
TGT-AAGATTTTATTAGTTTCAGATGTACA-----ATGATTCAATATTTATTTATATTGCAAAATGACTACTATAGGAAA
TTGAGTTAACATCTG--TCACCATACACTGTTACAAATTTTTTT-GTCTTGTGATGAGAACTTTTATTTAACATCTCTTT
CTTAGCAACTTTTA------------------------------------------------------------------
-----AATATATGATATAATGTTATTAACTAGTCACTTTGCCATG-TGTTCATTGTATCTCCAGGACTTACTTATCTT--
ATTAC-TCAAATTTGCACCTTTTAATGCCCTTAACC--ATTTTGCCTACTTCCTAAC---AATTCTACTGT---TAATCT
CAATAGATGTG----TTACATTTATTGCATAGCC-TGTATT-TAGTGTTTTATTCATATTGTCAAATTTAGTAAAATTCA
GTAGTTCCCACAA--GTTGTTTT
>Balaenoptera acutorostrata scammoni
TTATCACATTGTTTTGATATCACTTCAATCCATAGTTACAGGTTATAGACATATAATGTGAAATTTAAAACAGTGCTT--
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
---------------------------------------AGGTTCTACTTT-------TCTGTGTTGAGGTATAATTGACA
TAT-AAGATTTTATTAGTTTCAGATATACAACATAATGATTTGATATTTGTATATATTGCAAAATGATTACTACAGGAAA
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TTTAGGAACTTTTA------------------------------------------------------------------
```

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-----AATATGCGGTATGGTGTTATTAACTAGTCACTATGCTGTA-TGTACGTTACATCTTCAGGACTTATTTATTTT--
ATAAC-TGAAGTTTCTACCTTTTGACCCCCTTCACCC-ATTTTGCCTACCTCCCCCC---AATTCTACTCT---TAATAG
CAATAGATGTA----GTACATTTATTGCATAGCCTTATATT-TAGCCTTTTATTCATATTATCAAATTTATTAAAATTCA
GTAGTTCCCACAA--GTAATTTT
>Myotis lucifugus
TTATAAACTA---TTGATACCATGTCAATCCATGCTTACAGATAATAGTCACATAATGTGAAATTTAAAGTGGTACTT--
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-----------------------------------AC-TTCTACTCT-------------------------------
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--------------------------------------------------------------------------------
-------------------------------------------------------------------------TAGTAG
CAACAGATATAGTACGTACACTCATTGCATATCCTTATATT-CAGCCTTCTATTTATATTGCCCAATTTATTGAAATGCA
TTACTTCACATGA--CTAAGTTT
>Pteropus vampyrus
TTATAATATTATTTTGATATCATTTCAATCCAAGCTTACAGATAATAGTCAT---ATGTGAAAGTTAAAACAGTACTT--
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----------------------------------AA-TTTTACTCT-------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-------------------------------------------------------------------------TAATAA
CAATAGATGTA----GTGAACTTATTACACAGCC-TATAGT-CACCTTTTAATTCATATTGCCAAATTTGTTAAAATCTA
ATACTTCACATGA--GTAACTTT
>Equus caballus
TTATAACATTGACTTGATATCACTTCAATCCAGGCTTAT--GTAATAGTCATATAATGTGAAATTTAAAACAGTACTT--
--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------
-----------------------------------AA-TTCTACTCT-------------------------------
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--------------------------------------------------------------------------------
-------------------------------------------------------------------------TAATAG
CAATAGATGTA----GTGAACTTATTGTATAGCCTTATGTT-TAGCCCTTTATC----TTGCTGAGTTCATTAAAAGCCA
GTGCTTCACACAA--GTAACTTT
>Ceratotherium simum simum
TTATAATATTGTTTTGATATCACTTCAATCCATGCTTAT--GTAATAGTCATATAATGTTAAATTTAAAACAGTACTT--
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----------------------------------AA-TTCTACTCT-------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-------------------------------------------------------------------------TAATAG
CAATAGATGTA----GTATACTTATTGTATAGCCTTATATTTTAGCCTTTTATTTATCTTGCCAAGTTTATTAAAATCCA
GTACTTGACACTA--GTTAACTT
>Condylura cristata
TTATAACATTGTTTTGACATCAAGTCAATCCATGCTAACAGATAAAAGTCTTGTAATTTGAAATTTGAAACAATGCTTGC
TTGTACTTTTTTTTTTTTTAAAGATTTATTTATTTATTCATACAGAACTGGGGTACAGGCCAGAGATGCGGAGGGTGAGAG
GATTCACCAGAGACAGAGTGGGAAGCAGAACAGGCAGATCGACGAAGCACACTGCTGAGGGGAGCAGCGGGCGGGTCAGG
AGAGGTCTGCCACGCCTTGTGGTCACCTCCGGGGCAGGCGGGGATCGAACTCATACGGAAGTGGCTTTAGTTTCTCAGTG
CAGTGCTTTAACCCGCTGCGCCACCAGGGAGGGCC---TGCTTGTACTTT-----------------------------
--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------
-------------------------------------------------------------------------TAAGAG
CATTAGATGCA----GTGTCCTTAATGCCTAGCTTTATATG-CAGTCTTTTATTCATATTGCCAAATTTATGAAAATCCA
ATATTTCACATAA--GTCACATT
>Homo sapiens
TTATAATATCA-TTTGATATCATTTGAATCCGTGCTTACAGACAATAGTTATATAATATGAAATTTAAA-CAGCACTT--
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-----------------------------------AA-TTCTATTCT-------------------------------
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------------------------------------------------------------------------------TAATAA
CAATAGATATC----ATGCATTTATTGTACAGCCTTGTATT-TAGCCTTTTATTCATGTTGTCAAATTTACTAAAATCTG
ATATTTCATACAA--GAAATTAT
>Trichechus manatus latirostris
TTATAATATCTTTTTGATATCACTTCAGTATAAGCTTATACATAATAGTCGTATAACAGGAAATTTAAAA--GT-CTT--
------------------------------------------------------------------------------
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-------------------------------------AA-GTTTACTTT-------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------TAACAG
CAATAAATGTG----GTGCACTTAATGAACA-----ATATT-CAG-------TTCCTATTACCAAATTTACTAAAATCCG
ATACTTCACGCAA--GTAAATTG
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3.2 Marker D__C0012

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>L1MA_EA_rc
-------------------------------------------------------------------------------
-------------------------------------------------------------TTTTTTTTTTTCAGT--TTTAT
TGAGATA-----TAATTGACATATAACATTGTATTATGTTTAAG-GTGTACAACATAATGATTTGATATATGTATATATT
GTGAAATGATTACCACAATGAAGTTAATTAACACATCCATCACCTCACATAGTT-ACAAATTTTTTTTTTGTTTKTGTGA
TGAGAACTTTTAAGATCTAC-TCTCTTAGCAACTTTCAAATATACAATACAGTATTATTAACTATAGTCACCATGCTGTA
CATTACATCCCCAGAACTTATTCATCTTATAACTGAAAGTTTGTACCCTTTGACCAACCTCTCCCTATTTCCCCCACCCC
CCAG----CCT-------CTGGCAACCACCAA---------TCTATTCTCTGTTTCTATG-----------------AGT
TTGGTTTTTTTTTTTTAGATTCCACATATAAGTGAGATCATG--CAGTATTTGTCTTTCTCTGTCTGA-CTTATTTCACT
TAG-CATAAT----------------------------------GCCCTCAAGGTTC-----------------------
-------------------------------------------------------------------------------
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>Canis lupus familiaris
ACAAAAAAACCTCACCAC-AGA-ATATAGCCCATTTTATAC----TTAATA-----TTGTTCATGAGTTTCTAAAATTAG
AATTAAGGTACTTGCACAGTT---------ATTTT---TAATTTGTTTGATAGCT-------------TAAGTCTTTTAT
TTTAAT------TAATCTACATATGACATTCTATTAGTTTCAG--GTGTACAACATAATGATTCAATATTTTTATATATT
ACAAAATAAGCATTACAATATGCCTCATTAG--CAACCATCATCACACATAGTT-ACAAA-------TTTTTTCTTGTGA
AGAAGACTTTTAAGATTTACTTTCTTAAGCAAGTTTTAAATATGCAATACTGTATTATTAATGATAGTTACCATGCTATA
TATTATATACCCTACTC--ATTTATGTCATAACTGGAGGTTTGTACCTTTTGACCCCCTTCACCCATTTTGCCCACTCTA
TACC----CTTATCA---CTGGCAACCACC-AGTTGCCAT-TCTATTCTCTGT----ATGTAATCTATT-CTCTGTATGT
ATGAATTTGTTTGTTTAGTTT----------------------TGGTAG----TTGTCTTCCTCTGA-ATTATTTCATT
TAAACATAACTT----TTTTTTTTAACCATAAC---AC----CAATACAAGGCATAA--------------------TTT
TTCTTAGTGAATATTTAGGAA------AATGCAGAAGTAAAGATAAAAAAGT--GAATCTTA-----TTGTTCCATGCTA
AAGGAAGA
>Felis catus
AATGAAGAA----AGAACATGGAACATGATGCATTTTACAC----TTAATA-----TTGTTCATGTATTTCTAAAAATAA
AATTGAGGTACTTTCACAATT---------GTTTT---TATTTTTTTGGTAGAGC---TGAGCTTGATTAGGTCTTTTAT
TTTAAT----TAAACACAATTTATATATGAC-ATTACTTTCATATATATATAACATAATAATTCAATATTTGTATATATT
ACAAAACGATCACCACAATAAGTCTAGTTAA--CATCTGTCACCATACATAGTT-ACAAA----TGTTTTCTTCTTGTGA
TGAGGACTTTTAAGATCTAC-TCTTTTAGCAAGTTTCAAATATTCAATACAGTGTTATTAATTATAGTCACCATATTGTT
TATTATATACCCATGAC----TTATTTTATAACTGGAAGTTTGTACCTTTTGACCCCTTTCACACATTTTGCCTACCCTC
TACC----CTCATGT---CTGGCAACTACTAATCTGTTCT-TCTATTTTCTGTGTCTATAAGGGTTTTTTTTCCTTTCCT
TTTTTTTTTAAATTTTAGATTCCACATATAAGTGAGATCATA--TGGTAATTGACCTTCTCTGTCTGA-ATTACTTCACT
TAAA-----TGCT---TTTTTCTCTACTATAAC---AC----CAATATAAGCCAGAA--------------------CTT
TGCTTAGTGAATATTTAGGAAAATGAGAGTGCAGAAGTAAAGGTAAATAAGT--GGGGCTTG-----TTGTTCCATGCTA
AAGGAAAA
>Manis pentadactyla
GAGGGAGAG-AACATGAGACAGAACACTGCCCATTTAACACTTAATTAATATAATATTGCTCATATGTTTCTAAAATTAG
AATTAAGGTACTTGCATAGCT---------GTT-----GCTTTGTAGAGCAGAGC--------TTGGTTAGGTCTTCATT
CTCATT-AGGTATGACTGGGAGATGACATA---------TTTTGGGTGTCCGACATAAGGAGGT--GATACATACACACT
GTGAAATGATCA----------------------GCGTGACATGACATACAGTTAACATG----------TGTCACTGAA
TGTAGTCAAAAAAAGCTCTTTTCTT-ATGATGATTTTTAAGATGTATTCTC---TTAGTAAGTGTAGTCCGTATGTTGTG
CATTACATCACCATGACTTTTTAATTTTTATTTTGTAAGCTTGTACCTGTTGACCCTCTTCACTCATTTAGCCCACCCCC
TGCTC-------------CTGCCAAC----AGTCTGTTCTCTGTA---------------------TCTATCTGCTTGCT
TTTGTTTTTAATGCTTAGATTCCACATATGAGTGAGATCATTATTTGTCT--------TTTTGACTTATTTTACTTCAG-
----------------AGTTTTTTCATTACAAC---AC----GAATACAAACCACAA---------------------TT
TGCTTAGTGAATATTTAGGAAAATGAGAATGCCAAAGTAAGGATAAGTAAAT--GGGTCTCA-----TTCCTCCAAACTA
AAGGAAAA
>Bos taurus
GAGGGAAAG-CACATATGAAGG-ACATGGCCTATGTTACACGAAATTAATA-----TTGCTCCTGTGTTTCTGAAATTAG
AGTTAAGCTACTTGCTCAGTT---------TTTCA---TTTTTTTAGAATGGAAT--------TTAATTACTTCTTTTTT
TAAAATGAGGTATAATCACCTTATATATT------AGTTTCAT--GTGTAT--CATAC----------TTTGTATATAAT
GTAAAATGATCAT-------AGTCTAGTTAA--CATTTGTT-----ACATAGTT-GCAAA-TTTTTTGTTTTCCTCCTGA
TGAGGTCTTTTAAGATCTAC-TCTTTTAGAAAGTTTCATATATGCTGTTAGTTATTGTTGACTATAGTCAGCATGCTGTC
CATTACATCCCCATGAC-ATTTATTTTTTTGTATAGAAG-TTGTACCTTTTGAACTTACTTACCCGTTTTTCTCA-TCAC
CACTCCAACGCATTACCTATGGCAACCACCAATTTGTTCTCTGTA-TCT---------ATGAGGT------TTTTGTTTGT
TTGTTTTGGTTT-TTTCGA-TCTACATATAAATGGGATCATACATTGT------CTTTCTCTGTCTGACCTTATTTCACA
TT--CATACAGC----TTTTTCTTTACTGTAGC---AC----AAATATTGTTCACAG---------------------TT
TGCTTAGTAAATATTTAGGAAGATGAGAATGCAGAAGTAAGTGTAAAGAT-T--GGGTCTCG-----TTTCTTCATTGTA
AAGTAAAT
>Tursiops truncatus
GAGGGAGAG-GACACACATAGG-ATACGGCCCATTTTACACATAATTAATA-----TCACTCATGTGTTTCTAAAATTAG
AATTAAGGCACTTGCACAGTTTTTCCTTTTTTTTT---TTTTTGTAGAGCAGAGT--------TTGATTAGGTCTTTTTT
T-TAATGAGGTATAATTAACATATGACAT---ATTAGTTTCAT--GTTTATGTCATAATGCTTTGATATTTGTATATATT
ACAAAATGGTCACCACAATGAGTCTAGTTAA--TATTTGTCACCATACATAGTTAATAAA-AA-TTTGGTTTTCCCCTGA
TGAGGACTTTCAAGATCTAC-TCTTTTAGCAAGTTTCAAGAGTGTAATTCCTTATTCT-AACTATAGTCGCCATGCTGTA
CATTATATCCCCATGACTTGTTTTTTTTACAACTGGAAGTTTGTACCTTTTGACCCT-CTTATCCATTTTGCTCA-CCAC
CCCCTCATCCCATTT-TTCTGGCAACCACCAATCTGTTCTCTGTA-TCT---------ATGAGGG----------------
----TGTTTTTTTTGTAGATTCCTCATATAAGTGGGATCATACTTTGT------CTTTCTCTGTCTGA-CTTACTTCACT
TT--CATACTGCT---TTTTTCTTTACTGTAAC---AA----CAATACAAGCCACAA---------------------TT
TGCTTAGTGAATATTTAGGAAAATGAGAATGCAGAAGCAAGGGTAAAGAGGT--GCGTCTCG-----TTTCTTCATTGTA
AAGGAAAT
>Myotis lucifugus
AAGGGAGAG-AACAC----AGG-ATACCACCCATTTTACACATAATTAATA-----TTGCTCATGTGTTTCAAAAATTAG
AATGAAGGTACTTGTGCAACT-------------T---TATTCTGTAACAATAAC-------------------------
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-----------------------------------AC----CAATACAAGACACAA---------------------TT
TTCTTGGGAAATATTCAGAAAAATTAGAATGCAGAATGAAAAATAAACAAGT--GTGTCTCT-----TTATTCCATGCTA
AAGCACAA
>Pteropus vampyrus
AAGGGAGAG-AACACAGATAGG-ATACTGCCCATTTTACACATCATTAACA-----TCACTCATGTGTTTCTAAAATTAG
AGTTTAGGTACTTGGACAGTT-------------T---TTTTCTTTAACTCTAAC-------------------------
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-----------------------------------ACTGACCAATACCAGGCACAA---------------------TT
TGCTTAGTGAATGTTTAGAAAAATGAGAATGCAGAAGTGAAGATAAGTAAAT--GGATCTCATTTATTTATTCCATGCTA
AAGGAAAA
>Equus caballus 1
AAGGGAGAG-AACACAGATAGG-ATAGTCCCCATTTTACACAAAATTAATA-----TTGCTCATGTGTTTCTAAAATTAG
AATTAAGGTACTTGCACAGCT-----------------TTCTTCTTCACCTTAAC-------------------------
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-----------------------------------AC----CAATGCAAGCCACAA---------------------TT
TGCTTAGTGAATATTTAGGAAAATGAGAATGCAGAAGTAAGGATAAA--TGT--GTCT--CG--------TTCCACACTA
AACAAAAA
>Equus caballus 2
GAGGGAGAG-AACACAGATAGG-ATAGTCCCCATTTTACACATAATTAATA-----TTGCTCATGTGTTTCTAAAATTAA
AATTAAGGTACTTGCACAGCT-----------------TTTTTCTTTACCTTAAC-------------------------
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-----------------------------------AC----GAATACAAACCACTA---------------------TT
TGCTTAGTGAATATTTAGGAAGTTGAGAATGCAGAAGTAAGGATAAATAAGT--GGGTCTCA--------TTCTGTACTA
AACAAAAA
>Equus caballus 3
GAGGGAGAG-AACACAGATAGG-ATAGTCCCCATTTTACACATAATTAATA-----TTCCTCATGTGTTTCTAAAATTAA
AATGAAGGTACTTGCACAGCT-----------------TTTTTCTTTGCCTTAAC-------------------------
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-----------------------------------AC----GCATGCAAGCCACAA---------------------TT
TGCTTAGTGAATATTTAGGAAGATGAGAATGCAGAAGTAAGGATAAATAAGT--GGGTCTCA--------TTCTGTACTA
AACAAAAA
>Ceratotherium simum simum
GAGGGGGAA-ATCACAGATAGG-ATGCTCCCCATTTTACACGTAATTAATA-----TTGCTCATGTGTTTCTAAAACTAG
AATTAAGGTACTTGCACAGCT-----------------TTTTTCTTTAATGTAAT-------------------------
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-----------------------------------AA----CAATGCAAGCCACAA---------------------TT
TGCTTAGTGAATATTTAGGAAAATGAGAATGCAGAAGTAAGGATACATAAGT--GGGTCTCG--------TTCCATGCTA
AAGGAAAA
>Condylura cristata
GAGGGAGGG-GACACAGGTAGA-ATATATATGATTTTACATATAAATAATG-----TTGTTTATATGTTTCTATACTGAG
ATT-----------------------------------TTTTTCTTTATCATAAC-------------------------
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-----------------------------------AC----CAGTATAAGTCTCAATTTACTACCAGTTTGTCTCAATT
TACTTAGAAAATATTTAGGAAAATGAGATGCAGATATTAAAGGAAAATGGTTCTGTTTCTCATT---GATGTAGATGG-A
GATGAAAC
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>Homo sapiens
GAGGGAGAG-AAAGTAGATAGG-AAACTGC--ACTTTGTGCACAATTAATA-----TTCTTCAATGGTTTCTAAAATTAT
TACAAAGG--TTTTTGCAGTT-----------------ATTTTCTTTGCTGTAAC-------------------------
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-------------------------------------------ATCA-TTGCAT-----------------------
-ACTCAGTAAATATTTAGGGACAGAAGAATACGGATAATAAGGATAATAAGT--GGATTTCT---GTTTCTCACAGTTGA
A--GATGA
>Orycteropus afer afer
GAAGGAGAA-ACTACAGATAGG-AGACT----ACTTTA-ACATAATTAATA-----TTGGCCATATGCTTCTAAAATCAA
AATTGATAAACATCCTCACAAC-----------TT---TTTTCTTTCTTTGTAAC-------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
----------------------------------AC----TAAAATAAGCTTCAA--------------------TT
TCCTTTGCAAACATCTAGGGGAATTTTGAAGTAGAAATCAGGATGAATATGT--AAGT--CT---GT-TCTGCCATATTA
AATGAAGA
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3.3 Marker D__C0015

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>L1_Carn7_rc
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-----------------------------------AGTATA-ATTGACATACAATGTTATATTAGTTTCAGGTG-----
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-------------------------------------------TACAACATAGTGATTCGACATT------TGTATAC-
-ATTGTGAAGTGATCACCACAATAAGTCTAGTTA-------------------------------------------
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>Canis lupus familiaris
CTCCACACT---ATGGTATCTCTCTTTTAAGGCCTCAAAAGGATTCTATAAATATGTGCTCATGTGGGTGGAAGT---GT
AAGATAG----TTCCC---CCCTCCCC------CCCAGTTTC-ATTGACAGGTGATGTTGTATAAGCTTAAGATG-----
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-------------------------------------------TACAACATAATGATTTGATAGA------TGCATGG-
-ATTGCAAAATGACCACCGCACTAAGTTTGATTA---ATACAATGAGGTTTA---AGATGCAAAAATCGTTTAG------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------GCAAATGAAGGCAGTATTTGGAAACCAGA
GTACAATTCTCGGCA---TGGATGATTT
>Felis catus
CTTCACACTTCTGTGGTATCTTTCACTCAAGGCCTCAAAAGGATTCTATAAACATGTGCTCAGGTACGCTGAAGT---CT
AAGAGAG----TTCCG---CCCCATTA---------------GTTTAACAGATGGCATTGTATAAGCTTAAGGTG-----
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------------------------------------------------------------------------------
-------------------------------------------TACAACACAACGATTTGATATA------TGCATGT-
-ATTACAAAATGATTACCACACTAAGTTTAGTTA---CTATGATAAGATTTA---AGATGGGAAAATCATATAGAAAAAC
AAACTGAGGGGGCACCTGGGTGACTCAGTTGGTTAAGCATCTGACTCTTGATTTCAGATCCAGTCATGATCTCATGGTTT
GTGAGTTCAAGCCCCGCGTTGGGCTCCGCACTGACCATGCAGAGCCTGCTTGGGATTCTCTTTTTCTCCCCCTCTCTTGC
TCGTAGTCTCTCTCTGTCAAAATAAATAAATACACTTAAAGAAAAAGAAAGAAAAATGAACTCAGTATTTGGAAACCAAA
GTATGAGTCTTGGCA---CGAATGATTT
>Manis pentadactyla
CTCTGCACTTCTGGGATGTCTTCCCTTTAAGGCCTCAGACGGACTCTATGGATATGTGTTCAGATAGGTTGAAGT---AT
ACAATAGAGTTTTTTT---CCCCCTTAGTTTTATTAAAATATAATTGACAGATAACACTGTATAAGTTTAAGGTG-----
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-----------------------------------------TGCAACATAATGATTGGATATA--------CATGTA
TATTGAAAAATTACTACCACACTAAGTTTAGTTA---ATAAGGTA-GGTTTA---AGATGGGAAAACTGTACTG------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------AAAAATGAACACAGCAATTG----------
-----------------------------
>Bos taurus
CTCCACACTTCTGCAATGTCTTTC--TAAAAGCCCCTAAACTGTTCTAGAAAGATGTGTTCATGTTGTCTGAGGC---AT
AAGATAG----GGTTC---CCCTACTAGGTTTATTGAGATATAATTGACAGATAACATTGTATAAGCTTAAGGCA-----
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-----------------------------------------TCCAACATAAATATTTGATATATATATATGCTTGT-
-GTTGCAAA-TGATGACTGCAATAAGTTTCCTTC---AT--GATG-GGTTTT---AGATGGGAAGATCATATTG------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------AAAAAATAAACACAGTGTTTGTGGACTAAA
GTGTG--TCTTGGCATTATCAATAACTT
>Balaenoptera acutorostrata scammoni
TTCCACACTTCTCCGATGTCTTCCATTTAAGGCCCCCAAAGGATTCTAGAAACATGTGCTCTGTTGG-CTGAGGC---AT
AAGACAGGGTTTTCCT---CCCCAGTT---TTATTGAGATATAATCGACATATAACATTGTATAAGCTTAAGGTATACCA
TGTAGCTGTTCATTTTTCCCAGCACCACTTATTGAAGAGGCTGTCTTTTCTCCATTGAATATTCTTGCCTCCTTTGTCAA
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CAGTACCATATTGTCTTGATTACTGTAGCTTTGTAGTATAGTCTGAAGCCAGGGAGCCTGATTCTTCAGCTCCGTTTTTC
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TAACACCATACACAAAAATAAACTCAAAATGGATTAAAGACCTAAATGTAAGGCCAGATACTATAAAACTCTTAGAGGAA
AACATAGGCAGAACACTCTATGATATAAATCACAGCAAGATCCTTTTTGACCCACCTCCTAGAGAAATGGAAATAAAAAC
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NNNNNNNNNNNNGAATATTACTCAGCCATTAAAAGGAACGAAATTGAGTTATTTGTAGTAAGGTGGATGGACCTAGAATC
TGTCATACAGAGTGAAGTAAGTCAGAGAGAGGAAAACAAATACCGTATGCTAACGCATATATATGGAATTTAAAAAAGCG
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CATAGCACAGGGAGATCAGCTCGGTGCTTTGCTCCATTTTTCATCCCCTAGAGGGATGGGGTAGGGAGGGTGGGAGGGAG
GCTCAAGAGGGAGGGGATATGGGGATATATGTATACATATAGCTGATTCACTTTGTTATACAGCAGAAATTAACACATTG
TAAAACAGTTATACTCCAATAAAGATGTGGAAAAAAAGGTGTATTACAACGTAAAGATCTGATGTA------TGCATAT-
-GCTGCGAA-TGATGACTGCACTAAGTTTCGTTA---AT--GATG-GGTTTA---AGATGGAAAAATCATATTG------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------AA-AAACGAACACAGTGTTTGTAGACCAAA
GTCTGAGTCTTGGCATCATCAATAACTT
>Myotis lucifugus
CTCCATACTTCCGTAATATCTTTCATGTATGTTTTCAAAAGGATTTTAAAAACGTGTGCTCACACAGGCCAAAAT---AT
AAGATAG----GTTTA------------------------------------------------------------
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----------------------------------------------------------AGATAGGAAAATCATAAAG------
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----------------------------------------------------------ACACAGTATTTAGAGACCCAA
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>Pteropus vampyrus
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AAGATAG----ATTTA-------------------------------------------------------------
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----------------------------------------------------------AGATGGGAAAATCATACAG------
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----------------------------------------------------------ACAGTATTTGGAAACCAAA
GTATGAGTCTTGGCAT--TCAATGGTTT
>Equus caballus
TTCTACATTTCAATGATATCTTTCATTTAAGGCCTCAGCAGAATTCTGTAAACATGTGTTCACATAGGCTGAAGT---AT
AAGATAG----ATTTC-------------------------------------------------------------
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----------------------------------------------------------AGATGGAAAAATCATATAG------
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>Ceratotherium simum simum
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AAGATAG----GTTTA-------------------------------------------------------------
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----------------------------------------------------------AGATGGGAAAATCATATAG------
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-------------------------------------------------AGAAACGAACACAGTATTTGGAGACCAAA
GTATGAGTCTTGGCATCATCAATAATTC
>Condylura cristata
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AGAATAGGAA-AGTTA-------------------------------------------------------------
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------------------------------------------------------------TATGGAAAT----------
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ATAGGAGTATTGGTATCATCAGTGATAT
>Homo sapiens
CTCCACCTTTCTAGGTTTTCATTTATTCAAGCCCTCAAAAGGATTCTATAAACATGGGCTCATCTAGACTGAAGT---AT
AAATAGG----TTTAA------------------------------------------------------------
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------------------------------------------------------------GATGGGAAAATCACATGG------
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-----------------------------------------------------AAAAATGAACATGGTATTAGGAGACCAAA
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>Loxodonta africana
CTCGACACTTCTATGATATCTTTCGT--AAGGCCTCACAAAAAGCCTATCAACGTGTGCTCATATTT-CTGAAGT---AT
AAGGAAG----ATTTA------------------------------------------------------------
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------------------------------------------------------------AGATAGGAAAGTCATACAG------
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-----------------------------------------------------AAAAACAAAAACTGAGTTTGGAGACCAAA
GGATGAATCTTGTCCTCTCCACTGATTG
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3.4 Marker D__C0020

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>L1MA9
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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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CACCAAGACACCCAGAGGAAGGTGGAAAA
>Myotis lucifugus
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>Pteropus vampyrus
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-------------------------------------------AAAACACAATTC---------TAAGGTTT--------
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>Equus caballus
CTTCTCTTTGATGGAGCTAGGAGAGTATTAGGGGCCCTTCAGATCCTGCATTAACTCAATTGTTTCCGTTGTTTGTCTTA
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AGCCAAGAGTTCCAGAGGAAGGTGGTAAA
>Ceratotherium simum simum
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>Condylura cristata
ACACAATTTGAAG---TTGGAAGAGAATTAGGAAGCCTTCTGTTCCTAAATTTACTCA----GTGGTTTTGTTTGTCTTT
TCAAACAAACCCTTCTCTTATTAATG--CTAATGCCCTCTT-----------------------------------------
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AACCAACCCCTCT-----------------
>Homo sapiens
ATTCTTCTTGGAG---CTGG-AGAGTATTGGGAAACCTTCAAGTCCCACATTTACTCAGCTGGTTCATCTGTTTGTCTTA
ACATGTAAACCTTCCTCTTACTGGTGTTCTAACTTCCTCTT-----------------------------------------
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GGCCAAGAGCCTCAAAGATAGGTGACAAA
>Choloepus hoffmanni
ATTCTCCTTGATGAAGCTGGGAGAGTATGGGCAGGCCTTCAGGTCCTACATTTACTCAGCCTTTTCATCTGTTTGTCTTA
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------------------------------------------------------------------------------
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3.5 Marker D__C0036

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CATATANACCTCATTTTGCCTGACTGTCTTTGGAATTTCCATGTCTGTGTGGATTCCCCGTACGTACGCTATTAAATTTG
ATTTTCTCCTGTTAATCTGTCTCATGTCAATTTGATTCTTAGTCCAGCTAGAAGGACCTTGAAGGGGA------------
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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Pteropus vampyrus
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------------------AAAACTCATCAACACAT-TTTAGTTGTTG-TTTTCTATATCCCTGTTTATCTAATGGTGCT
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>Equus caballus
TCTTTGGATCCATTTTTATTCCCC-TTTACCCACTCATTTCTTTAGAAAGTATAGTCTAACATCTACAAGAGTGTATCTT
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>Ceratotherium simum simum
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>Erinaceus europaeus
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>Homo sapiens
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>Dasypus novemcinctus
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3.6 Marker D__C0044

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>Canis lupus familiaris
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>Felis catus
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GTAACATTTCAGATTTTGTCATCTCACACTATCAGTCT
>Bos taurus
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GCCTTCAACTCAAAATAATCCACATGCCAAAGTGGCACGTTTGGGGG-TGGTGTGTTCTGCTACCCTTCA---ATCT-TG
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>Balaenoptera acutorostrata scammoni
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AGAACATTTTAGATTTTATCATCTAGTGCCACCAGTCT
>Myotis lucifugus
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>Pteropus vampyrus
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----------GAGGGGTCTTATTTT-AGAGAAAATG---ATC-TCTGG-GTGATGCC------TTCC-------------
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>Equus caballus
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>Ceratotherium simum simum
GAATTGACCTA-CACTTCATCTCGAAG-GACTGGC-A-TAAAATAATTGTCAATG-----TTATTTGGC--TTTACTT--
----GGAGGGAAAGGGGCTTATTTC-AGGGAGCATG---ATC-TCTTG-GTTATGAC------TTCC-------------
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----------------TGATTTCTCTA---TATTTCTTCACA-TACATTATGACA-TTAATGGGGTCTTAGCAAACCACA
AGACCATTTCAGACTTTATCATCTAGTGTCATCAGTCC
>Sorex araneus
AAATTGAACCAACACTTCATTTTTAAGAGTCTTATCATTTAAATAATTGTCATTCTTCTTTGGTTCTGT--TTTG-----
-----GAGG-AGTGGAATTTATTTT-AGACAGCATG---ATG-TCTGG-CTTATGAG------TTCC-------------
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>Homo sapiens
GAATTGACCTA-CACTTCATCTGGAGA-GTCTGAT-GTTTAAATCATTGTCAGTG-----TTGCTTGGT--TTTATTT--
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>Dasypus novemcinctus
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3.7 Marker D__C0047

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>Canis lupus familiaris
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GGGTGGGCAAA----------TGGGTAGA-----GCCCAAAGGTACAAACTTCTAGTTACAAAA------GAA-GTCATG
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ACTGCCCAGTAGAT------------------------------------------------------------
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CC-----GCCTGCGGCCCGTGC--------------------ACCTGCCGGC
>Felis catus
CTAACAGAAGCAAGAAG-AGAGGCAGTCGAGCCTCATGTGTCTTGTTGCTTGCTGAC-AAAGTACTTGACAGAATACTTG
CATTATCTCTGCTTATCTACCTTTG--------------ACTTTTAAAAA---A--------------------------
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CT-CTGAGTCTGGTGTCTGCACCCTGTCTGT-------------CTGTTGGC
>Manis pentadactyla
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GC-C-CAGCCG-ACGTCCGCACCCTGCCCTGAGCCACAC---CCCCGGCGGC
>Bos taurus
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AACCAA-------------GCTGTTTGATAGGT---GAGAACAGATAGGTGCTTTCCAGAGGAAGAGGAT---GAATAAA
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CT-C-GAGTCTCATGTCTGTGCCCTGCCCTGAATTACACTCTGCCTGTTGGC
>Balaenoptera acutorostrata scammoni
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CAACCAACAAACAAAAC--CAAGCTCATAGATAGGTGAGAACAGATAGGTGGCTGCCAGAGGTAGGGGGT-------GGG
TAAAGGTCAAAATGGG-----TGAAGGGA-----GTCGAAAGGCACAAACTTCCAGGTATAAAAT-----CAATGTCCTG
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TGTTGTACCCCTGAAACTAATGT-----------------ATATCACTTCTACCTCAATTTTAAAAATAATAATAAAATT
AAAAT-T---AAT-TAAGAAA---TGTATCCTTTCAGAAACATGAAATAGCATTTCCCACTGTGCTTACCAGTTTCTGCC
CC-CCGAGTCTGTACCCTG-------CCCTGAATCACACTCTGCCTGTTGGT
>Myotis lucifugus
CCAGTGGAAGCAAGCGG---AGTCTGGCAAGCCTAATGTGTCTTGTTGCTGGTTGAC-AAAGTGCCTGACAGTGTACCTC
CAGCATTTCTGCTCATCTACTCTTG--------------ATTTTTAAAAA----------------------------
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-------------------------GGTGCCAATTCAGAAACCTGAAATATCACTTCCCGCTGTGCTTCCCACTTTCCGCC
CT-G-GGGCCTGCTGTCGGCACCCTGCC------------------GCTGGC
>Pteropus vampyrus
CCAATGGTAGCAAACAGAAAAGTCAAGCAAGTCTAATGAGT-TTGTTGCTTGTTAAC-GAAGTGCTTGACAGTATAACTC
CATCATCTCTGTTTATCTACTCTTA---ATTTTTAAAAAATTTTTAAAAA----------------------------
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-----------------------TGTACCAATCCAGAAACCTAAAATACCATTTCTCACTGTGCTTACCATTTTTTGCC
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>Equus caballus
CCAAAGGAAGGAAGCGG-AGAGTCAGGCAAGCCTGATGCGTCTTACTGCTCATTGAC-GAAGTGCTT-CCAGTATGCTTC
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-----------------------GGTGCCAATTCAGAAACCCAAGATACCATTTCCCACTGTACTTACCACTTTCTGCC
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>Ceratotherium simum simum
CCAACAGAAGTGAGCCG-------AGGCAAGCCTGATGTGTCTGATTGCTTGTTGAC-ATAGTGCTT-CCAGTGTACTTC
CATCATCTCTGCTTATCTACTCTTG--------------ACTTTTAAAAAA----------------------------
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-----------------------GGTACCAATTCAGAAACCCAAAATACCACTTCCTACTGCGCTTTCCACTCTCTGCC
CT-GTGAGTCTGATGTCTGTACGTTGCCCTAAATTACACTCCGCCTGTTGGC
>Sorex araneus
CCAATAGA-GCAAAACA-AAAGCCATTCAAG--TCAATGTGTTTTATTTCTTGCTAC-AAAGTGTTTGACAGAATTCTTC
CAGA--------------ACTTCT---------------GTCTTTTAGAAA----------------------------
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-------------------------GATGACAGTTTTAAAACTTGAAATATCCTTTTCCACTATACTTATCACTTTTTGCC
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>Homo sapiens
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TATCATCTATGCTTATCTACTCTTG--------------ATTGTTTAAAAA----------------------------
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------------------------GCTGCCAACTTAGAAACCTAAAATGCAATTTTCCATTGTGCTTACTACTTTCCACC
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>Trichechus manatus latirostris
CCAGTGGAAGCAGGAGG---AGTTAGGCAAGGCTGATGTATCTTGTTGTTAATTGAT-AAAGTATTCGAAAATATATTTC
CATCACCTATGCTTATCTACTCTTA--------------ATTTTTTTAAAA----------------------------
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-----------------------AGATACCAATTCAGAAATCTAAAATACCATTTTCCATTGTGCTTACTACTTTCCACC
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3.8 Marker D__C0049

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>L1_Carn7
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TAAAAAAA------------------------------------------------------------------------
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>Canis lupus familiaris
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TACCTTCCCCTGAGAACGTTCCACTAGGTCGTAAAGAGTGTGTGTGTGCATACCTGT
>Felis catus
CTTCTCCACGTCTGCCTGTG---GTGGGGGGGGGGGGATATTTTCTGACGGCGGTTCCCCCAGGAATTTTTT-TACAATG
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>Manis pentadactyla
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>Bos taurus
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TACCTTGACCCAAAAACATTCCA---------------------------------
>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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------------------------------AAAGCCACAGACAGTTTT-TGTTTCTATCCTCTGGCACTACCTTGGCCT
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>Pteropus vampyrus
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>Equus caballus
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>Ceratotherium simum simum
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CTTTGAG-----CCCTCTCCATTTCTCTAAGGTTGTGGGTCTT-----AAAGACT-----------------------
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>Condylura cristata
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ATGGCAT-----TGTATCCTGTTTCCCCACCACTGTGAATTTT-----GAAGAC-----------------------
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------------------------------AAACATCACGAAGGGCTTTCATTTCTATGCTCTGCCACTACCTTTGCTT
TGGCTTGGCTTGACAACACT-----ATAGGTAAAAGACAATGTGTGTGTGTGTGTGT
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>Homo sapiens
CTTCCCCACTTCTGGCTGT----GGGAA----------CATTTTCTAGGATGGATCTTTCCAGGCATTTTTTTTTCTGTG
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>Loxodonta africana
CTTCTACCAT----------------------------ATTGATTTAGTAAC-GCTTCTCCTGGCATTTGT--TTCTATG
CTTTGAGT----CTTCTTCCATTTCCCTAAGGTTGTGGGCCTT-----GGGGACC-------------------------
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3.9 Marker D__C0052

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>L1_Carn7_Rc
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TCTAGTTACCATCTGTCACC------------------------------------------------------------
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>Canis lupus familiaris
CTTCCCTTCCTGGTCATCACTGAACACCCAGCACCTGGA-----ACATGGTGAGTGGTCAACATGGGTGAGTGAATGGAT
ATCATCCGCCATGTTTCCCAGGCTATGTATGGCG--------CCAGATTTTTC----TTTTTAATTGAAATATAATTCAT
ATATAACATTATATTAGTTTGAGTGTACAATATAATGGTTTGATATTTGTAAACACGGTGAAATGATCACCACAATTAC
TCCGGTGACCATTCATCACC----TGTAT---------------------------------------------------
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-GG---CACCCAATTTTT---------GCAGACTTGC--------TTTTTCCTCAAAACTGAGAC--CCATCAACCCTGG
TCCACTTCCAAGGACTAGTCCTCACATTAGGGTGAGG----AATTCCAGAGCCTTCACCC
>Felis catus
CCTTTCTTCCCATTCGTTGTCCTACA-CCAGTGCCTGGA-----ACATGATGACTAGTCAACGTAGGCGAATGTATGAAT
CTCATCTGCTATGATTCCCAGGCTATGCATGGTG--------TCAGTTTTTAT-----TTTTAATTGAGGTATAATTCAC
ATCTAACTTTTTATTAGTTTCAGGTGTACAACATAATGGCTCAATATTTGTATACACAGTGAAATGATCACCACAATTAG
TCCAGTGACCATGCATCACC----TGTAT---------------------------------------------------
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-GG---CACCCACTTTTT---------GCAGACTTGT--------TTACTTCTGAAGATCATAACCTCTATCAACCCTGT
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>Manis pentadactyla
CCTTTCTGTCCATTTGCTGTTGTACACCCAGTGCCTAGA-----ACGTGGTGAGTGCACAACATGGGGGAATGAATGAAT
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TCTGGTCATCATCTGTTACT----CACCT---------------------------------------------------
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-----------------------------------------------------------------------------TTC
TGC---TGCCCAGGTTTT---------GAAGACCTG--------CTTAATCCTTAAAGCTGAGACCTCC-TCAACCCTGG
TGCCCTTCTGAGGACTAGTCCTTACATTATTATGAGG----AATCACAGAGCTCTGACCC
>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Equus caballus
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>Ceratotherium simum simum
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>Homo sapiens
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3.10 Marker D__C0054

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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Loxodonta africana
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3.11 Marker D__C0061

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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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AAAATTACTGCAGGAATT
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3.12 Marker D__C0064

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>MER34C_CF
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----------------------TGAAGGGGAGCAGAATTTGCCACCCCAAAAT--ATGCCTCTTTGGCATAAGGATTATT
TT-----AGGCTGATTATTTTTAAGAAACTGCAGACACAGGAGAAGCTCTGAAAACCGAGTAGAAGTTACCCTTTTGTAA
GAGACATTTACATTTATAAGGGAAATCTCCATTTGTAAGGGTGTCTCCCTCTCTGTACCAGGAAGAGGAGGATGACTCTA
AATCTCTAGAAACTCTTATCAATGGAGAAG---GCAAGGACTTAAATCTGCATAACAACCTTACCCTTGTTTACTGTGCT
TTTCCTGGTAACCTCCCATAACTGACT-CCCCACCCCC-AACATCTTTTTT-GTCTTTAGCTGGAGATGGTATTTAAGGT
GATGGCTTGGGCCA-TTTCGGGGAGTTACTCAG-----TTTTCCTGGGTCTCTCCCATGTATACAGG-------------
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AGGTATACATATGTTATTAAACTTTTGTTTGTTTTTCTCCTGTTAATCTGTCTTATGTCAATTTGATTCTTAGACCAGCC
AGAAGAACCTAGAAGGGTAGAGGAAAATTTTTTTCTCCT-----------------------------------------
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>Canis lupus familiaris
TCTGGTGGCTGTATGTTTTG----------GAAACCTGATAGGCTACCCACTTTGCTAAAGC-----TTCTTGAGTTTAA
GGATATTGCT---TATTAG---TGAAGGGGAGCAAAATATACCACCCCAAAAT--ATGCCT-TTTGGCATAAGAATTATT
TT-----AGGCTGATTATATTTAAGAAACACCTGACATAGGACAAGCTCTGAAAGC--AGTAGATGTTACTCTTTTGTAA
AAGACATTGACATTGGTAAGACAAATCCTTATTTGTGAGG-TGTTTCCCTCTCTGTACCAGGAAGAGAAGGTTGACTTTG
AATCTCCTGAAACTCTTATCAATGGAGAAA---GTAAGGAATTAAATTTGAATAACAAACATACCCTTGTTTACTGTGCT
TTACCTGATAACCTCCCTTAACTGGCTGCCTCACCCCC-AATGTCTTCTTT-GTCTTTAGCTGGCGATGATATTTAAGGT
GACAGCTTGGGACA-TTTTGGGGAGACACTCAC-----TTTTCCTGGGTGTTTCCCATGTATACGGG-------------
--------------------------------------------------------------------------------
AGGTATATAT--GTTGTTAAACTT----TTGGTTTTTTCCTGTTAATTTGTCTTTTTATTACAGAGATGTCT---CAGCC
A-AGAACCCAGAAGGGTGAAGGGAAAATTATTTTTCCTTCCCCA----CATTAG------CC--------AAAAAAGAAAA
AAATAAA------------ATTCTTAAACGTTGGCTAGATTCCCAGCAAGT-GATA------------------------
-------------------------------------------------------------TATATAA-----
----GAGATACTCAGGAGAATCAGTAAGCCAATT
>Felis catus
TCTGGTGGCTGTGAGCATTC-TGTC-TTTGGAAACCTGCTCAGCTACCCACTT-GCTAAAGCT--TCCTCTCAAGTTTAA
GGATATTGCT---TATTAG---TGAAGGGAAGCAAAACATACCGCCCCAAAAT--ATACCT-TTTGGCATAAGGATTATT
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AATCTCCGGAAACTCATATCATTGGAGAAG---GCAATGACTTAAATCTGTATAACAGCCATACCCTTGTTTACTGTGCT
TTCCCTGATTACCTCCCTTAACTGGTTGCCTCACCCCC-AACATCTTT----GTTTTTAGCTGGAAATGATATTTAAGAT
GGCAACTTGAGACA-CTTTGGGGAGTTAG---------TTTTCCTGAGTGTTTCCCATGTATACAGG-------------
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AAGTATATAT--GCTATTAAACTT----TTGCTTTTCTCCTGTTAATCTGTCTTTTTATTTCAAAGATGTCT---CAGCC
A-AGAACCTAGAAGAG---GAGGAAAATTATTTTTCCTACCCCA----CATTAG------C---------AGCCGCACCC
CACAAAA------------TTTCTTAAACATTGGCTAGATTCCCAGATAGT-GATA------------------------
-------------------------------------------------------------TATAAGA-----
----GAC--ACTCAGGAGATTCAGTAAGCCAATT
>Manis pentadactyla
TCTGGTGGCTG----TATTA-TGTC-ATTGGAAAACTGCTGGGCTACCCACTTTCCTAAAACC--TCCTCTCAAGTTTAA
---TAGTGGT---TATTAA---TGAAGGGGAGAAAAACATACCATACCAAAAT--ACATCTCTTTGGCATATTGATTATT
CT----------GATTATTTTTAAGAAACAGCAGATGCAGAAGAAGCTCTGAAAACCAAGTAGACGTTTCCC-TTTGTAA
GAGATATTTACATGTATAAAGAAAATTTCAATTTGGAAGGGCGTCTCCCTTT-AG-ACCAGGAAGAGGAGGATGACTCTA
AATCTCATGAAACT--TATCAATGGAAAAAAATGTGGCAACTTAAATCTGCATAACAACCTGACCCTTATTTACTGTGCT
TTGCCTGATAACCTGCCATAACTGACCTCCCCAGC----AACATCTCCTTTTGTCTTTAGCT---GATGGTATTTAAGGA
GGCAGGTTGAGCCTTTGTGGGGAAGTTACTCAC-----TTTTCCTGGATCTCTCTGTCGTATACAGG-------------
--------------------------------------------------------------------------------
AGGCATACAT--TTTATTAAACTT---------ATTTTCCT-TCTGTTAATCTTTTTATTATAGGGG-GTCT---CAGTC
A-AGAACCTAGAAGGGTGGAGGGAAAATTATTGT-CCTCCCCTA----CGCTAG--------------AAAAAGAAACAG
ATAAAAA------------TTTCTTAAGCATTGGCTAGAATCCCA-AAAGT-AATA------------------------
-------------------------------------------------------------TGTAG-------
----GAGATATTCAGGAGAATCAGTAAGACAATT
>Bos taurus
TCTGAGGGTTGTGAGTATTA-AGTC-TTTGGAAACCTACTGAGTCACCTAGTTTCCTAAAGCT--TCCTCTCAAGTTCAA
GTATATTGCT---TATTAG---TGAAGGGGAGCAAAATGTACCACCCCTAAAA--GGCCCC-TTTGACATATGA-TAATT
TT-----AAGCTGGTCATTTTGGGGAAACAGCAGTAGT-CAAGAAGCTGTGAAAACTGAGTAGAAGTGACGCTTTTGTAA
GAGACAAGTCCATTTATAAGGGAAATCTCCATTTGTAAGTATGTCTCCCTCCCAGTACCAGGAAGAGAAATCGGATTCTA
AATCTCTAGAAACTCTTAACAATGGAGAAG---GCAAGGACTTAAATCTGCATAACAACCTTACCACTGTTTACTGTGCT
TTTCCTGGG-CTCTCTCACATCTGGCCTCCCCGCCCCC-AACATCTTCTTTCATCTTTAATTGGAGATGTTACTTAAGGT
GGCAGCTTGGGACA-----GGGACATTTCTGGGATTAGTTTTCCTGGGTCTTTCCCCTGTATATAATAGAAATTTTGTTG
TGGTCCAGTCACTCTTTGGTGTCTGACTTTGTGACCTCATCGACTGCAGCATGCCAGCCTTCCCTGTCCTTCACTAGAGT
AGGTGTATGT--GTTATTAAACTT------GTTTTTCTCCTGTTATTCTGTCTTTTTATCATAGGGAGGTCT---CAGCC
A-AGAACCTTGAAGAGTGGAGGGAAAATTATTTTTCCTCTATCA----CATTAG------CC----------AAAAAAAG
ATTAAAA------------TTTCCTAAACATTGGCTAGATTCCCAGCAAGT-AATA------------------------
-------------------------------------------------------------TATAGAATCCTA
AAAGGAGACACTCAGGAGAATCAGCAAGCCAATT
>Balaenoptera acutorostrata scammoni
TCTGGGGGCTGTGAGTATTA-AG---TTTGGAAACCTACTGGGCCACTTAGTTTCCTAAAGCT--TCCTCTCAAGTTTAA
GGATATTGCT---TATTAG---TGAAGGGGAGCAAAACATAGCACCCCAAAATATGGCCCA-----AAATATGG-TTATT
TT-----AAGCTGGTCATTTTTGAGAAACAGCAGACACAGGAGAAGCTCTGAAACCTGAGTAGAAGTTACGCTTTTGTAA
GAGACAAGTCCATTTATAAGGGAAATCTCCATTTGTAAGGATGTCTCCCTCTTAGTACCAGGAAGAGAAAGATGATTCTA
AATCTCTAGAAACTGTTAACCACAGAGAAG---ACAAGAACTTAAATCTGCATAACAACCTTATCCTTGTTTACTGTGCT
TTTCCTGGTCACCTCCCACAACTGGCCTCCCCGCCCCCCATCATCTTCTTTTGTCTTTACTTGCAGATGTTACTTAAGGT
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GGCAGCTTGGGACATTTCCGGG-AATTAG---------TTTCCCTGGGTCTCTCCCCTGTATACAGT-------------
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AGGTATACAT--GTTGTTAAACTT--GTTTGTTTTTCTCTTGTTATTCTGTCTTTTTATCACGGGGAGGTCT---CAGCC
A-AGAACCTAGAAGGGTGGAGGGAAAATTATTTTTCCTCCACCA----CATTAG------CAAAAAAAAAAAGAAAAAAG
ATTAAAA------------TTTCTTAAACATTGGCTAGATTCCCAGCAAGT-AATA------------------------
-----------------------------------------------------------------TATAGAATCCTA
AAAGGAGACACTCAGGAGAATCAGCAAGCCAATT
>Myotis lucifugus
TCTGGTGGCT----GTCTTA-TATC-TTTGGAAACATGCTG--------ACTTTCCTAAGGCT--CCCTCTCAAGTTTAA
GATTATTGCT---TACTAG-------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
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-----------------------------------------------------------------------------
-------------------------------------------------------------C---------CAAAAATAAG
ATAAAAAT-----------TTTATTCAACATTGGATAGATTCCCAGCAAGT-AATA------------------------
-----------------------------------------------------------------TATAGAATCCTA
AAAGGAGACACTCAGTAGAATTCATAAGCCAATT
>Pteropus vampyrus
TCTGGTGGCTATGAGTATTA-TCTC-TTTGGAAACATACTGGGCTACCCACTTTCCTAAAGCT--TCCTCTCCAGTTTAA
AGATATTGCT---TATTAG-------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
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-----------------------------------------------------------------------------
-------------------------------------------------------------C-------AAAAAAAAAAAA
AAAAATT------------TTTTTTAAACATTGGCTAGATTCTCAGCAAGT-AATA------------------------
-----------------------------------------------------------------TATAAAATCCTA
AAAGGAGACACTCAGGAGAATCAATATGCCAATT
>Equus caballus
TCTGGTGGCTGTGAGTATTATTATC-TTTGGAAACCTGATGGGCCACCCACTTTCCTAAGGCT--TCCTCTCAAGTTTAA
GGATATTGAT---TATTAG-------------------------------------------------------------
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-----------------------------------------------------------------------------
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-----------------------------------------------------------------------------
-------------------------------------------------------------C-AAAAAACAAAAATAAAAA
TAAAAAA------------TTTCTTCAATCTTGGCTAGATTCCCAGCAAGT-AATA------------------------
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AAAGGAGACACTCAGGAGACTCAATAAGCCAGTT
>Ceratotherium simum simum
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GGATATTGCT---TACTAG-------------------------------------------------------------
-----------------------------------------------------------------------------
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-----------------------------------------------------------------------------
-----------------------------------------------------------------TCAAAAAAAAAA
AAAAAAA------------AAAAAAAAAGA------GGATTGGCAACAGAT-GTTAGCTCAGGGCCAATCTTCCTCACTA
AAAAAAAAAAAAAAAAAAAAAAAAGACAAAAAATTTCTTCAACATTGGCTAGATTCCCAGCAAGTGATATATAGAATCCTA
AAAGGAGACACACAGGAGAATCAATAAGCCAATT
>Sorex araneus
TCTGGTGGGTGTGAAG--TA-TTGTTTTTGGAAATTTGCCCGACCACTATATTTCCTAAAACTCCTTCTCTCAAGTTTAA
AGATCTTGCT---TATTAA-------------------------------------------------------------
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-----------------------------------------------------------------------------
-----------------------------------------------------------AAGCAAGAATAAATAAT
AAAAGAAAAAATTTAATTTTTTCTTAAACATTGGCTGGATTCCCAGCATCTGTATA------------------------
-----------------------------------------------------------------GAATCCTA
AGAGGAGACACTCAAAAGAATCAGTAAGGAAAAG
>Homo sapiens
CCTGGCAGCTGTGAATATTA-GATC-TTTGGAAACCTGCCCGGCCACCCACTTTCC---AGCT--TCCTCTGAAGTTTAA
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GGATATTGCT---CATTAAG-------------------------------------------------------------
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-----------------------------------------------------------------AAAAAATAAAATAAT
ATAAAAA-----------TTTCTTGAATGTTGGCTAGATTCTCAGCAAGT-AATA-----------------------
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AAAAGAGATACTCAGGAGAATCACTAAGTCAAGT
>Loxodonta africana
CCTGGTGGATTCAAACTGCT-GACCTTTTGGTTAGCAGCTGTACCACTTAACCAA-TA-CGCC--ACC---AGGGTTTCC
AAATATTACT---CAGTACC-------------------------------------------------------------
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------------AGGAAAAAAAAGGCAG
ATGAAAA-----------TTTCTCAAACATTGGCTAGATTCTCAGCAAGT-TATA-----------------------
-----------------------------------------------------------------TGTAGAATCCCA
ACAGGAGACACTCAGGAGTATCACTAACT-AATT
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3.13 Marker Rd_Dc09

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>L1MA9
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----------------------------------------------------TAATTAGCTTGATTGTGGTAATCA---TT
TCACAATGTATACGTATATCAAAACATCAC-GTTGTACACCTTAAATATATACAATTTTTATTTGTCAATTATACCTCAA
TAAAGCTGGAAAAA-----------------------------------------------------------------
----------------------------------------------------------------
>Canis lupus familiaris
CCTAGAGCTATCAACTCATCTTTTAGTTGTTTAACAACATGACAAGATTAAATGAAAT-ACTATCGAATACAATGTAAAC
T-GCCGAGG-----------------------------------CTCAAACATAGGTT---AAA-TTCCAGGTAA---TT
TTGCAGTGTATACAAATACTGAACCATTACCATTGTGCACCTGAAACTAAGATAATGTTTTATATCAACCCGTACCTCAA
TTTTTT---AAAATTCCAGTGAA---AAAATATATTAAAACCAAGTTAATCATCCAATGCCTT---------GTGACATT
ATAATAACCATGAGCTAATAAT----GGGCAAGT-CCTATGTGT-TAGGCAGTCATTTGCCCTTATA
>Felis catus
CCTACAGCTATCAACCCATCTTTTAGTTATTCAACAATATGACAATATTAAATGATAT-ACTGTCAAACACGATGTAAAC
T-ACCTAGG-----------------------------------CTCAACCACAAGCT---AA--TTCCAGATAA---TT
CTGGAGTGTATACAAATACTGAATCATTAT-ATTTTACACTAGAAACTAATATAATGTTTTATGTCAATC-ATA-CTCAA
TTTTTT---AAAATTCCAGAGAA---AAAAAATATTAAAACCAAGTTACCCATCCAATAACCTTGGTTATCTTGTGACTT
TTAATAGCCAAGAGCTGACAAT----GGGCAAGT-CCTATGTGA-CAGGTATGCATTTATCCTTACG
>Manis pentadactyla
CCTAGAGTTATCAGCTCATCTTTAAGACATTAAACAATATAACAAGATT-----AAAT-ATCATCTAACACAACTTAAAC
ACAGCTAGG-----------------------------------CTCAAACATGGGTT---AAAATTCCAGAGAG---GT
GGGCAATATATACAAATATCGAATG-TCAT-ATTGTACACCTGAAA-----GTAATGTTGTACATCAATTGA-ACCTCTG
TATTTT---AAAATTCCAGAGAA---AAATAA-ACTAAAACCAAGCTAACTATCTAATCTCTTGGTCATCTTGTGACACA
ACA------------------------GCCAAGAGCCAATCTAT-ATGCCAGTCACTTAACCTTCCA
>Bos taurus
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T-ATCAAATTTTAA-----------------------------TTCAAACATGAGTT---AAAATTCCAGAGAA---TT
TCACAATATATACAAATATCAAGTCATTAA-GTTGAACTCCTGAAACTACTATGATGTTGTGTGCCAGTT-ACACCTCAA
TTAAGA---AAACTTCCAGAGAA---A----------------------------------------------------
----------------------------------------------------------------
>Sus scrofa
CTTAGAGTTATCAACTCATTTT--AGTTATTCAATAATATGAAATGATTAAATGAAATTATCATCTAACACAACTTAAGC
T-ACCAAAG-----------------------------------CTTAAGTGTGAGTT---AAAATTTCAGAGAA---TT
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TTATGA---AAAATTTCAGAGAA---AACATATACCAAAGCAAAGTTAATCATCTAATCACTTGGTCATCTTGTGACATT
AAGAGC------TAATAAGAGT----GGTCAAGT-CCTATGCGT-CAGG----TACTTATCCTTACA
>Vicugna pacos
CTTAGAGTTATCAACTCATCTTTTAGCTATTCAACAATATGACATGATTAAATGAAAC-ATCATCTAACTCAACTTAAAC
T-ACCAATGAGATACTACAATCATTCCTGTTTATAAATTAAGACCTCAAACGTGAGTT---AAAATTCCAGAGAA---TT
TCACAATATACACAAACATCAAATCATTAT-GTTGTATACCTGAAACTAATACAATGCTATATGTCAACT-ACACCTCAA
TTAAGA---GAAATTCCAGAGAA---AATATATACTAAAATAAAGTTAATCATCTAATCACTTGGTCATCTTATGACATT
A-----------CAAT-AGA---------------------------------------CCTTACA
>Myotis lucifugus
C-TAGAGTTACCAATTAATCTTTCAGTTACTC-ACAATATGACATGATTAAATGAAAT-ATCTTCTAACACAACGTACAC
T-ACCTACA-----------------------------------TTCAAACATGGGTT---AAAATTCCAGAGAA-----
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--------------------------AATATATACTAAAACTAAGTTAATCATCCAATCCCTTAGACATCTTGTGACATC
ACAAGAGCCAAGAGCTAACAAT----GAACAAGT-CCTATT----CAGG----CACTTTTTCTTACA
>Pteropus vampyrus
CCCAGAGTTA-----TCGTCTTTTACCTACTC-ACAATATGAAATGATTAAATGAAAT-ATCATCTAATACAACTTAAAC
T-ACCTAGG-----------------------------------TTAAAACATGAGTT---AAAATTCCAGAGAA-----
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--------------------------AATATACACTAAAACTAAGTTAATTATCCAATCCCTTAGTCATCTTGTGACAAT
AT--TAAT-AGCAGTTAACAAT----GGACATAT-CCTATGTGT-CAGG----CACTTTTCCTTACA
>Equus caballus
CCTAGTGTTATCAACTTATCTTTTAGCTACTC-ACAATATGACATGATTAAATGAAAT-ATCATCTAACACAACCTAAAC
T-ACATAGG-----------------------------------TTCAAACATGGGTT---AAAATTCCAGAGAA-----
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--------------------------AATATATACTAAAACCAAGTTAATCATTCAATCCCTTAGTCATCTTATGACACT
ATAATAGCCAAGAGCTAACAAT----GGTCAAGT-CCTATGTGT-CAGG----TACTTATCCTTACA
>Ceratotherium simum simum
CCTAGTGTTATCAACTCATCTTTTAGCTACTC-ACAATATGACATGATTAAATGAAAT-ATCATCTAACACAACTTAAAC
T-ACGTAGG-----------------------------------TTCAAACGTGGGTT---AAAATTCCAGAGAA-----
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--------------------------AATACATAATAAAACCAAGTTAATCATTCAATCCCTTAGTCATCTTAAGACACT
ATAATAGCCAAGAGCTAACAAT----AGGCAAGT-CCTATATGT-CAGG----TACTTAGCCTTACA
>Condylura cristata
---------ATCATCTGATATTTTAGTTACTC-ACTGTAT-ATATGATTAGGTAAAAT-TTCATCTAATATAACTTTATC
T--CCTGAA-----------------------------------GTTCAAAAATGGAAA---ATACACACACACACACACA
CA-------------------------------------------------------------------------------
--------------------------CACACACACACACCCCAAGTTAATCATCTAGTACCTTGGTCATCACATGATATT
TTAATAGCCAAGAGTTAATACT----GAGGAGGG-CCTACTTGT-CAGT----CATTTATCTTTTGA
>Homo sapiens
C------------AGTTATCTTTTAGCTACTC-ACAATATGATATGATTAAATAAAAT-ATTGTCCAACACAAATTAAAC
T-ACTTATG-----------------------------------TTCAAACATGGATA---AAAATTCCAAAGAA-----
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--------------------------AATATGTACTAAAATCAAGTCAATTATTCCATCCCTTGGTCATCTTGTGACATT
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ACAGTAACCAAGAGCTAACATT----GG-CATGT-CCTATGTAC------------CTATCCCTACT
>Trichechus manatus latirostris
CCTAGAGTTATCAACTTATTGCTTAACTACTG-ATAATATGACATGACTGGATGCAAT-ACTGTCCAACACAACTTAA-C
T-ACCTAGA-----------------------------------CTCAAACATGGGTA---AAAATTCCAGAGAA-----
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-------------------------AATGTGTACTAAAACCAAGTTAATCATCCAATTCTTTGGTCATCTTGTGACATT
ATACTATCCAACAGCTAATATTTATTGGGCAAGT-CCTATATTCTAGATGCTTCTTTAATCCTTACA
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3.14 Marker Rd_Dc31

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>L1MA9
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AGAGTAG-ATCTTAAGTGTTC--------TCACCACACAC----------AAAAAAATGGTAACTATGTGAGGTGATGGA
TATGTTAATTAGCTTGATTGTGGTAATCATTTCACAATGTATACGTATATCAAAACATCACGTTGTACACCTTAAA-T--
----ATATACAATTTTTATTTGTCAATTA-TACCTC---AATAA----------------AGCTGGAAAAA---------
--------------------------------------------------------------------------------
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>Canis lupus familiaris
AGAGACAGAATATTTGATAGGAAACATACACATAATTTTCTGGAAGAGAGTTTGAGGGAA--AGAATAAAGAA---GAAG
CAAGTAA----CCAAAAATTCAGATC---TC---TCACATA----------CGCAATTTGTAGCTATGTATGGTGAC--A
AA-------------TATTGTGGTAATCACTTTACAATATACACAAATAT--ATACA----ATATGCAATGTGAAACT--
-----------AATATTATATGTCAATTA-TACCAC---AATT----------------------AAAAGATTCACA
CA---GAAGTTGTATACCTGAGTGGCTAGG---AAGTCTTGGGACCTTTAAATCAAAATAAGAAGATCA-----------
--------CATGTCTCAAATTAGTAC
>Felis catus
TGAGGCAGAATGTTTGATAAGAAACATACACATAATTTTCTAGAAGAGAGTTTGAGGGAG--AGACTAAAGAA---GAAA
TAAGTAAGTAATCAAAGATTCACACT---TCGCATCACACACACATACACACACGATCTGTAGCTATTTATGGTGAC--A
AATGTTAACTAGACCTATTGTGATGATCATTTTACAATATATACAAATATCAAGTCAGTACATTGTATACCTGAAAGT--
----AAATATGATTGTTATATGTCAATCA-TACCTC---AATTA----------------AAAAAAAAAAAAGATTCACA
CC---AAAATTGTATGCCTGAGTGGCTTGG---AAATCTTGGGACCTTTAAATACAAATAAGAAAATGAAAGGAATTTAT
GA--TTCACATCTCTGACATTAGTAC
>Manis pentadactyla
AGAGATAGGATATTTGATAGGATACATACATGTAACTTTCCGGAGGATGGTTTGAGGGAA--AGAATGAAGAT---GAAA
GAAATAA----TCCATAACTCACACC---TCTCATCACATGAA--------AAAAATCTGTGACTATGTAT-GTAAC--A
GAGGTTA-TTAGACTTAGTGTGGTGATCACTTTGCAGTATATACAAATACCAAATCA---TGTAGTATACGTGAAGCTAA
TGCAATGTTTTATAATTATAATG-ACTTA-TACCTC---AATAA----------------AAGAAAAAAAGGTTCAC-
---------ATCAATGCCTGAGTGGCTAGG---AAATGTTGGGACCTTTAAATCAAAATAAGAAAAACAAGGGAATTTGT
TG--TTCGCATCCCTCGCATTAGTAC
>Bos taurus
AGAG-GAAAATATTTGATAGGCTTCAAGTGTGAAACTTTCTGGGAGAGAGTTTCAGGGAA--ATAATGAAGAA---AAAA
AAAGTAA----TAAAAAATTCACACC---TGTCATCACAAG----------AAAAAATTATAAGTATGTATGGTGAT--A
GATGTTATCT-----TACTATGGTGATCATTTCTCAATGTATGTG----TCAAGTCA-----TTGTATACCTGAAACT--
-----AATAC-AATGTTACATGTCAAATATTACCTC---AATTA----------------AAATAAGAAGGACTGACA
CC---AAAGTTGCATGCCTGAGTGGTTAGG--ATAATCTTGATATCTTAAAACTGAATTAAGGCAATCAAGGAAGTTTAT
TA--TTCACATCTCTGCCATGAGCAC
>Balaenoptera acutorostrata scammoni
AGTGACAGAATATTTGATAGGATTCATGTGTGTAACTTTCTGG--GAGGGTTTGAGGGGA--AGAATGAAGAA---GAAA
GACGTAA----TTAAAGATTCACGCC---TCTCAACACAAG------AAAAAAAAAATTATAGCTATGTACAGTGAT--G
GTTGTTAACTAAACTTATTATGGTGATCATT-CTCAATATATACAAAGATCAAGTCA-----TTGTACACCTGAAACT--
-----AATAT-AATGTTATATGTCAGTTA-TACCTC---AATTA----------------AAATAAAAAAGATTGACA
CC---AAAGTTGCATGCCTGAGGGGTTAGG--ATAATCTTGGGACCCTTAAATCGAAATAAGGAGATCAAGGGAGTTTAT
TA--CTCACATCTCTGCCAGGAGTAC
>Myotis lucifugus 1
AGAGACAGAATATTTTATAGGATGCTTACATGTAACTT-CTGGAAAAGAATTTGAGGAGGGAAAAATGAAGGA-------
--------------------------------------------------------------------------------
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---------------------------------------AAATA----------------ATAATCAAAGATTCACA
CC---AAAGTTGTATTCCTGAGTATCTAAAAAATAATCTTGGGACCTTTAAATCAAAATAAGGAAATCAAGAGAATACAT
TA--TTCACATCTCTATTGTTAATAC
>Myotis lucifugus 2
AGAGACAGAATATTTTATAGAATGCTTACATGTAACTT-CTGGAAAAGAATTTGAGGAGGGAAAAATGAAGGA-------
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---------------------------------------AAATA----------------ATAATCAAAGATTCACA
CC---AAAGTTGTATTCCTGAGTATCTAAAAAATAATCTTGGGACCTTTAAATCAAAATAAGGAAATCAAGAGAATACAT
TA--TTCACATCTCTATTGTTAATAC
>Pteropus vampyrus
AGAGACAGAATATTTAATA-GATGCTTACATGTAACTTTATGGAAGAGGG-TTGAGGGAC--AG-ATGACAAA-------
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---------------------------------------GAAAA----------------TAA-----GATTCACT
CT---AAAGTTGTATTCCTGAGTAGCTAGG--ATAATCTTGGGACCTTTAAATCAAAATAAGGACATCAAAGGAACTTAT
TA--TTCACATCTCTATCGTTAGTAC
>Equus caballus
AGAGACAGAATATTTGATAGGATGCATACATGTAACTTTCTGGAAAAG--TTTGAGGGAA--AGAATGAAGAA-------
--------------------------------------------------------------------------------
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-------------------------------------GGAAA----------------AAGTAATCAAAGATTCACA
GC---AAAGTTGTATGCCTGAGTGGGTAGG--AAAATCTTGGGACCTTTAAACTGAAAT--------CAAGGGAATC---
------------------ATTAGTAC
>Ceratotherium simum simum
AGAGGCAGAATATTTGATAGGATGCATACATGAAACTTTCTGGAAGAAAGTTTAAGGGAA--AGAAGGAAGAA-------
--------------------------------------------------------------------------------
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-------------------------------------GAAAC----------------AAGTAATCAAAGATTCACA
GC---CAAGGTGTGTGCCTGTGTGGCTGGG--ATAATCTTGGGACCTTTAAATCAAAAT---------AAGGGAATTGAT
TA--TTCACATCTCTATCATTAGGAC
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>Condylura cristata
AAG-CCCCAGAGACAGAAAACTTGGTAGGATGCAACTTTCTGGAAAAGAGTTTGAGGGAA--AGAAT-AAGAA-------
----------------------------------------------------------------------------------
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----------------------------------------AAGAAAAGAAAAGAAATATATATATATATATAT-ATTTACA
CC---AAAGTTGTAT-CCTAAGTGATTAGA--ATAACCTTGGACTCTTTAAATGGAAATAAGGAAATACAGAGAATTTAT
TAATGTTACATTGCTACCATTAGCAT
>Homo sapiens
TAAGACAGAATATTGAATCAGATGTGTACACATAACTTTCTGGAAGGGGGTTTGAGGGAG--AGAGTGAAGAA-------
----------------------------------------------------------------------------------
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----------------------------------------AAAAA------------------GGTAATCAGAGAGTTACA
CC---AAGATTGCATGCCTGGGTGGCTAGG--ATAATCTTCGGATATTTAAATAAAAAC---------AAGGAAATCTAT
TG--TTCATATTTCTGTTGTTAGCGT
>Trichechus manatus latirostris
TGA-GCAGAATATTTGATAGGATGCGTCAATTTAACTTTCTGGAAGGGGATTTGAGAGAA--AGGGTGAAGAA-------
----------------------------------------------------------------------------------
----------------------------------------------------------------------------------
----------------------------------------GAAAA------------------AGTAATCAAAGATTCATA
CC---AAGATTGTGTGTCTGTGTAGCTAGG--ATAATGGTAATACTGTTAAATAAAAATAATGAAGTTAAGGCAATCTAG
TA--GTCACATTTCTGTCATTAGTAC
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Perissodactyla+Carnivora

4.1 Marker DH__0011

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>MER34C_CF_rc
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TTCC-TCTACCCTTCTAGGTTCTTCTGGCTGG-------------TCTAAGAATCAAATTGACATAAGACAGATTAACAG
GAGAAAAACAAACAAAAGTTTAATAACATATGTATACCTCCTGTATACATGGGAGAGACCCAGGAAAACTGAGTAACTCC
CCGAAATGGCCCAAGCCATCACCTTAAATACCATCTCCAGCTAAAGACAAAA-AAGATGTTGGGGGTGGGG-AGTCAGTT
ATGGGAGGTT----------------------------------------------------------------------
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---------------------ACCAGGAAAAGCACAGTAAACAAGGGTAAGGTTGTTATGCAGATTTAAGTCCTTGCCTT
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AGATTTCCCTTATAAATGTAAATGTCTCTTACAAAAGGGTAACTTCTACTCGGTTTTCAGAGCTTCTCCTGTGTCTGCAG
TT----------------------------------TCTTAAAAATAATCAGCCTAAAATAATCCTTATGCCAAAGAGGC
ATA-TTTTGGGGTGGCAAATTCTGCTCCCCTTCA----------------------------------------------
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>Canis lupus familiaris
TTTTCCCTTTTTGCT-TTAGAATTCCTT-----------------------AATATGTTCAAGT------------TGAG
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AAGAAAAACAA---GAAATTTAATAAT--ATGTATAATTACTGTTTACATAGGAGAGACTCAGGAAAAC----TAA--CT
CTAAAATAGCCCAAGCCACCACCTTTAGTATCATTTCTAGCTAAAGACAAAAGAAGCTGTTGAGGATGGGAGAGCTAGTT
ATAGGAGGTT----------------------------------------------------------------------
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---------------------GTCAGGAAAATCA---GTAACAAGGGTATAGCTGTTAGGCAGATTTAGGTTCTAGACTT
CCCCATTGATCAGAGTTTCTAAAGTTCTT--CCCAGTAC---------------AGAAAGAAAGATACCATTACAAATGA
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>Felis catus
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G--AAATACCCCAAGCTTCCACCTTTAATACCATTTCCAGCTGAAGACAGAAGAAGATGTTGAGTGTGGGAGATCCAGTT
ATGAGACATT----------------------------------------------------------------------
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---------------------ATGTGGCAAATCA----CAGTAAAAGTGTAGTTGTTATGCTGATTTAAGTCCTTGGCTT
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AGATTTCCCTTATAAATGCAAATGTCTCTTACAAAAGGGT--ATTCTACTTGATTTTCAGAGCTTCTCCCCTGTCTGCTG
GGTTTTGTTTGTTTGGTTTATTTT-----------GTGTCTTAAATAACTA-----------GCTCAAAATACAGAAGC
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>Manis pentadactyla
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TTT---TTGGGGTGGCATATTCT--------------------GCATCCACATTTTGGGTGGATGAAGCACATTCATCAA
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>Equus caballus
TCCTCCCTTTCTGCC-TTTGAATTCCTTTTTT-------------------GCTATTCTCAAGA-CTGTAGCAAAGTCAG
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AGGGGAGGGT-------------------------------------------------------------------------
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CTCCACTAATAAGAGTTTCTAGAGATGTA--GTCATCTTCCTCTTCCTGGTACAGAGCGAGGAGACACCCTTACAAAGGG
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TTT----------------------------------CTTAAAAATCATCAGCTCAAAATAATCCTTATGTCAAAGAGAC
ATA-TTTTGGGGTCACAGATTCTCTTCCCCTTCA---GGTT--GCATCCACGTTTTGGGTGGATAAAACATGTTTATCAA
A-TCCTCCACTTTCATCCAGATCCTTTGTAGTGCTGTTTGTTT-AAAAACACGTATTCACAAGAA
>Ceratotherium simum simum
TTCTTTCTTACTGCC-TTGGAATTCCTTTTTTT-------------------CTATTCTCAAGT-CTGTGACAAAGTCAG
ACATTGGGATTTGTATTGGCACATCTTCAGGG-AATGAACAGAAG-----GACT---TGT--AGGGGAGGAAAAATAATT
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CTGAAATGACCCAAGCCACCACCTTAAATACGATCTCCAGCTAAACACAAAAGAAGATGTTGAGGGAGGGG-AGCCAGCT
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----------------------ACCAGGCAAAGCACAGTAAGCAAGGGTATGGTCGTTATGCAGATTTAAGTGTATGTCCT
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ATA-TTTTGGGGTGGCAAATTCTGTTCCTCTT-A---GATT--GCATCTACATTTTGGGTGGATGAAACATATTTATCAA
A-TCCTCCACTTTCATCCAGATCCTTTGCAGTGCTGTTTGTTA-AAAAACA----TTTAAAAGAA
>Bos taurus
TCCTCTTTATCTCTC---GTAACTTTTTTTTTTTTCTTTTCTTTTCTTTTCAATATCCTCAAGT-CTGTAACGAAGTCAG
ACATTGGAGTTGG-TTTGGCACTTCCTCAGGGAAACGGAAGGAAG-----GACC--------------------------
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-------------------------------------------ACATCCACATGTAGGGTGGATGAAGCATGTGCATCAA
A-TCCTTCACTTCCATCCTCCTCCTTTGTAGCACGATTTGTTT-AGACACAAGCATTTAAAAGAA
>Balaenoptera acutorostrata scammoni
TTCTCCCTTTCTGTC-TTGGAACTTTTTTTTTTTTT---------------TTTATTCTCAAGT-CTGTAACAAAGTCAG
ACATTGGAGTTGG-TTAGGCTCTTCCTCAGGGAAATGGAAGGAAG-----GACT--------------------------
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---GCATCCATATTTTGGGTGGGTGAAGCACATGTATCAA
A-TCCTCCACTTTCACGCTCCTCCTTTGTAATGCTGTTTGTTT-AGAAACAAGCATTTAAAAGAA
>Myotis lucifugus
CTCTCTCTTTCTGCC-TTGGGATTTCTTTTC---------------------ATATTCTCAAAT-CTGTAGCAAAGTCAA
GCATTGGGGTTGGGAATGGCATTTCCTTGGGG-AATGAAAGGAAG-----GTCC--------------------------
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---ACATCCACATTTTGAGTAGGTGAAGCACATTCATCAA
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>Pteropus vampyrus
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GCATTGGCATTGGGATTGGGGCCACCTGGGGA-CATGAAAGGAAA-----GGCT--------------------------
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A-TCTTCTACTTTCGTCCACATCCTTTGCAGTG-TTTTTGTTT-AAAAACAAGCATTTAAAAGAA
>Erinaceus europaeus
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GCATTGGTGTTTATAATGGCTCTTCCTCAGGG-AATGAAAGGAAT-----AACT--------------------------
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---ACATCCAGGGTTTGGATGGGAATAGGACATTCATCAA
A-TCCTCTGCTTTCCTACAGGTCTTTTGTAATGATGTTTGTTT-TAAAACACATATTTAGAAGAG
>Homo sapiens
TTCTCCCTTTCTGCC-TAATAATTCATTTTT--------------------TATATTTTCAAAT-CTGTAGCAAAGTCAG
GCATTGGGATTGGGCTTGGCACTTCCTTGGGG-AAAGAAAGAAGAA----CTG---------------------------
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--CATCCGCATTTTAAAGGATTGCAGCACATTCATTAA
A-TCCTCCACTTTCTTCCAGCTCCTTTGTAATGCTATTTGTTT-CAACACAAGTGTTTAAAATAA
>Dasypus novemcinctus
TTCTTCCTTTCTGCC-TTGTAATTTTTTTTTTTTTTTT-------------AATATTCTCCGGT-CTGCAGCCAAGTCAG

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GCATTGAGATTGTG--TTGTCCTTACTTGGAG-AATGCAAAGAAGGG---GTGA--------------------------
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-------------------------------------------GTCTGCTTGGGG-GAGGGAGCGCG--GCATTCATCAA
ATTATACCACTTCTGTTTAACTCCTTTGTAGTGCTGTTTGTTTAAAAAACAAGCATTTAAAATAA
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4.2 Marker DH__0016

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GTATACAATACAGTATTATTAACTATAGTCACCATGCTGTACATTAGATCTCC--------------------------
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>Canis lupus familiaris
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TGACTAAGCTCTTCCTGTGGGCTCAGT--CT------------AGAAGAAA----TACTGGTCTATG---TGGTATGACT
GCCTTT---TTTTTTTTTTTTCCAGTTTCATTCAAATAGAGTTGACATACAGCACT-GTATACATTTAGGTTGTACAGC
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GGAATGAGGCTTACATCCTAATTTGGGCAAT-GGAGTAATACACTGAAGATAAAGGCAACAAACAAAC--------AAAA
TT---TGGAAA
>Felis catus
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TTAAGCGGAAA
>Manis pentadactyla
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>Equus caballus
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TTAAGTGGAAA
>Ceratotherium simum simum
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GGAATGGGGCTTACATTCTAATTGGGGAAAT-GAGAGTACACACTGAATGCAAAGGTAACAAACAAAC----AAAAACAA
TTAAGTGGCAA
>Bos taurus
ACACAAGCTCCCAGAGCT---GACGGGGGTGGGGG---------TGTCTCTTGCACCAGGGAAGAACCGTGAAGTGTAGG
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----------------------------------------------------------------------------TCA
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
ACACACTATCCCAGAGCAGGGGCTGGGGGCCGTGG---------TATCTCTCCCACTAGGTAAGAACCC-----------
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GCTCTT----------------------------------------------------------------------
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ACAAGTGGTAA
>Pteropus vampyrus
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TGGCCCGGC---TCCTGTGGGCTCT-GC-ACC-----------ACAGAGAAGTCCCCCTGATCTACA---TGACATGACC
GCTCTT---------------------------------------------------------------------
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------------------------------------------------------------------------------TAA
GGGAAGGTGTTCACGTTCTAATTGGGT-----GAAGAAAAACACTGAATAAAGAGGCGGCAAACAAAC----AACAACAA
TTAAGTGGTAA
>Condylura cristata
CTAACATGCTGTGTGCCATGCCAGATTGGG--------------GGTCTCTTTCAGTAGGTAAGAACCCCAAAGT---GG
TGACCAATCTCGTCCTGTAAGCTTGGTACAGGTAGGTA-----AAAGTAAA----TAG--GTAAAGA---AAGATTTGTA
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GGGAAAGGGTGCACATTCTAG-------AAAGATAGTAACACAGAGAATGCAAAGGCAACAAACAAAA---------CAA
GTAAGTGGCAA
>Trichechus manatus latirostris
ACATGCTATCACAGAGCAGACTGAGGG-----------------TATCTCTTCCACACAGTAACAAGCCCTCAGT---AA
TTAATAAGCTCCCACTATGGCTTAGCA--TT------------ATAGGGAA----TACTGATCTAAA---TGACACGACT
GTTCTT----------------------------------------------------------------------
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TTAAGCGGTAA
>Choloepus hoffmanni
ACGTGATAACA-TGAGCAGACCATGGGTGGGGGTTTGGGGTTG-GGTTTCTTCCAATAGGTAATAAACCCTCAGT---GG
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GCTATT----------------------------------------------------------------------
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4.3 Marker DH__0020

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GCAAATTTCAAGTATACAATACAGTATTATTAACTATAGTCACCATGCTGTACATTAGATCTCCAGAACTTATTC-ATCC
TGCATAACTGAAACTTTGTACCCTTTGACCAACATCTCCCCATTTCCCCCACCCCCCA-----GCCCCTGGCAACCACCA
TTCTACTCTCTGCTTCTATGAG----------TTTGACTT----------------------------------------
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------------------TTTTAGATTCCACATATAAGTGAGATCATGCAGTATTTGTCTTTCTGTGCCTGGCTTATTTC
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C----CATATCTTG-GCTATTGTGAATAATGCTGCAATGAACATGGGAGTGCAGATATCTCTTCGAGATACTG-ATTTCA
TTTCCTTTGGATATATACCCAGAAGTGGGATTGCTGGATCATATGGTAGTTCTATTTTTAATTTTTT--GAGGAACCTCC
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CCAACACTTG-TTA-TCTTCTGTCTTTTTGATAATAGCCATTCTAACAGGTG---TGAGGTG-----------------
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-
>Canis lupus familiaris
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CAGTTTTTGTAAAATAAATACAAATACC---TAAACATAAAAATACTATTTTTAAATTGAGATGT---ATTTGACATAGA
ACG------TTAGTTTCAGGTGTAAAACATAATGATTCACCATTTGAATATA--TCACAAAGTG----ATCAC-AAGTCT
GGTTAACAT--TTATCTCCATAGTTAC-----AAAAATTTGTTTTT-CTTGTGATGAGGACTTTCAAGATCTGTTCTTTTA
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TTCATAATTGAAAATTTATACCCTTTGACCTCCTTGACCTATTTCACCCACTCTCCAC----TGCCTCTGGCAACCATCA
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T
>Felis catus
ATCCTTTT----ATTATATATCATCTATAATACATTAGAGTTTG-CTTTGCTT-ACTC---TTA--GTTATTTTAA-TTT
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-------------------------ACAGT------------------CCTTTTAAAAATGTTGTAAATAATGTAAAACC
T
>Manis pentadactyla
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-------------------------------------------------------------TTGAAACTATGCATCAGAC
TCCAAAGTTTTGTTTCTAAAATGGACTAATAAATTATAGTCATCATGCTGCATATTATATCCCCAGAACTTAATT-ATCT
TATACCTA--GAAGTTTTTACCTTTTTACCACCTTTACTCAATTTCCCCTCTAAACC-----------------CCTTAA
CTCTACCTCTTGCAAATACCAATTTGT-----TCTCTGTT----------------------------------------
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CTATTCCATTGCAGTTTTACTTAAACCCCCCCTCCCAGTTTCTTTATTTATTAATCTATTGATGGACTCTTAGATTG-TT
C----CATGT-CTTGGCTATTGTAAATAGTGCTGCAGTAGACATGGGAATGCAGTTACCTTTTTTACTTAATG-TTTCCA
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C-AAGATTTCCTTATTTTCTAGTGCTTTTGATAATAGCTATTCTAACATTCT---AACATCTAAAAAGAATAGTCTTTTT
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-------------------------ATAGT------------------GCTATTAAAAATGTTGTATATAATGCAAAACC
T
>Equus caballus
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------------------TTTTAGACTCCACATATAAGTGAGATCATATAGTATTTGTCTTTAACTGTCTGACTTATTTC
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-------------------------ACAGT------------------GCTATCAAAAATGTTGTAAATAATGTTAAACC
T
>Ceratotherium simum simum
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-----------------------------------TATTT------------------------------------------
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------------------TTTCCGATTCCACATATAAGTGAGGTCATACAGTATTTGTCTTTAACTGTCTGACTTATTTC
ACTTAGCATAATGCCCTCAAGGTCCATCCATGTTGTCACAAATGGCAAGA-----TTTCATTCTTTTT-AAGGCTGAATA
ATATT-CATTGTATTTATATACCAC-----------ATTTTCTTTACTCATTCATCCATTAATGGACAATTAGGTTGCTT
C----CATAT-CTTGGCTATTGTGAAAAATGGTGCAATGAACATGGAGGTGCAGATACCTTTTCGAGTTAGTG-TTTTCA
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CCAACAGTGG-TTA-TTTCTTGTCTTTTTGATAATAGCCA-TCTAACAGGTG---TGAGGTGAGGAATACTGTTCTTTTT
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T
>Bos taurus
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------------GACCTTGGAAAAGGAAA-AATTGATTATCTGACCTATTTAAATGATTT-AAAAATTATAGCATTTC--
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T
>Balaenoptera acutorostrata scammoni
GACCTTTT----AATTTATATCTTCTACCATACATTAC-------CTTTGCTTTGCTT--ACTG--TTTATTTTAA-TTT
CAGTTTCAGTAAAATAAA--TAAGTACC---TGAATGTAGGAATCCTGTTCTCTTTGAGGGAAAT---------------
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T
>Myotis lucifugus
---------------------------------------------TTTTGCTTACTGTTATTTATTTTAATTTTAA-GTT
CAGTTTCAGTAGAATAAACAAATATACC---TGAACATAAGAATACTCTTC----GAAGAGAAAT---------------
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------------GACCTTGGAAAAGGAAATAATAGATTTCTTCACTTACTTAAACAATTT-AAAAATTACAGCAGATT--
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T
>Pteropus vampyrus
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T
>Condylura cristata
ATCCTCAA----TATATATGCCTTCTACATTACATTA-AGTTAC--------------------T-GTTATTTTTT-CTA
ACGTTTCAGT-AAGAAAGCATGAATACC---TGGACCTAGGAACACTATTCCTTGTAAGAGAAAT---------------
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------------GGCCTTGCACGAGGAAA-GATAGAGGTTTCGATTTATTTAAATAATT--AAAAATGACAGCTTCTT--
-------------------------TCAAG------------------GCTACTAAGTATATTGTATATACAATAAAACC
C
>Homo sapiens
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CAGTTTCAATAAAATAAACCTAAATACC---TGAACATTGGACTATTATTCCTTTTAAGGGAAAT---------------
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------------GACCTAGGAAAAGTAAAGATAGAGTTTTTTGACCTTTTTAATTTTTTT-TTAAATTACAGCACATT--
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T
>Trichechus manatus latirostris
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TAGTTTCAATAAAATAAACATCAATACA---TGAACATTGGAATACTATTCTTTTTAAGAGGAAT---------------
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------------GACCTTGGGGAAGGAAA-GACAGTTTCCTTGACCTATTTAACAACTTTAAAAAATTAAAGCACA----
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T
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4.4 Marker DH__0024

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>Canis lupus familiaris
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CATCA-TCACTGGTGTCTTCCTCACATCTGCTTTCACAGA---AGTCAAACTAGCCTCACTGTCTATTAGCAC---CCAG
AGAACAGC
>Felis catus
TAATGTC---CAGAGGCCAGCAAATGGCTCCAACCACAGTGACTTCTAGATTTCTGGTCT-AAATGAGT-----------
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AGAAGAGC
>Manis pentadactyla
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TTTACACAGAGGTGGGAGTCTTTGTAAGA------GAATGATCTGAAAAAATGGTCAGAGCAGGAAG--------CTTTC
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>Equus caballus
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AGAGTAGC
>Ceratotherium simum simum
TGATGTC---CAGAGGCAAGCAAACTGCTCCAGCCACAGTGATTTCTAGATTTCTAA-CT-AGGCGAGGG-----CCGTC
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CATTG-TCATCAGCGTCTTCTTCACATCTGATTTCACAGA---AGTCAAACCAGCCTCCCTGCCTATTAGCAC---ACAG
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AGAGTAGC
>Bos taurus
CAATGCC---TAGAAGCCAGCAAAATGCATCAGC-ATTGTGATTTCTAGATTTCTCGTCT-AAGCCAAGG-----CCACC
CTTTAGCACCACACTGACACCTATCACGTG---AGGGA-----------------------------------------
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----------------------------------------------------------CC-ATTTCACTCTCGCAGAAGGTGAG
CA----TCATCAGTGT-TTCTTCACATCTGATTTCACAGAGGATATCAAGCCAACCTCGCTTCCTATTAGCAC---TCAG
AGAGCAGC
>Balaenoptera acutorostrata scammoni
AGAAGCC---CAGAGGCCAGCAAACTGCTCCA-GCATGGTGATTTCTAGATTTCTCATCT-AGGCAAGCGCT-----ACT
CCTTAGCACCAAACTGACAACTATCACGTG---AGGGA-----------------------------------------
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----------------------------------------------------------CC-ATTTCGCTCTCACAGAAGGTGAG
CATCG-TCATCAGTGT-TTCTTTACATCTGATTTCCCAGAGGACGTCAAACCAGCCTTGCTGCCTGCCAGCAC---CCAG
AGAGCAGC
>Myotis lucifugus
AGTTGCC---CAGAGGCCAGAAAACTGCTCAAACCAGAGTGATTTCTAGCTTTCTCATCT-AAGCGAGGGCCCCTCCAGC
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>Pteropus vampyrus
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CGCCAGGCCCACGACGATAACTATCATGTG---A-GGA-----------------------------------------
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----------------------------------------------------------CCTATTTCACTCTCACGGAATGTAAG
CACTG-TCATTAGTATCTTCTTCACATCTGATTTCACAGGGGCAACCAAGCCAGCCTCACTGCCCATTAACTC---CCAG
GGAGCAGC
>Condylura cristata
TCTTGTG---TGGAGGCTGGCAAACTGTTCCAACA-TAGTGATTTCTATATTTCTCTTGAAAACGAGACCTCT-----AC
C--CAGCACTACACTGATCGCTTTCCTGTC--AAGATT-----------------------------------------
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----------------------------------------------------------------------------
----------------------------------------------------------GTTTGTTCTCACATAGTGTGAG
CATCG-------GTGTCTGTGACA--TCTGACTCCACAGA---AGTCAAACCTGCCTCAATGCCTATTAA----------
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>Homo sapiens
CAGTGCC---CATAGGCCAGCAGACCACTCAGACAAGGGCAATTTCGAGATTTCTAATCT-AGGCAAGGGCCGTGCCAAG
CACCA------CACTGACAGCTATCATTTG---AGGC-----------------------------------------
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----------------------------------------------------------AATATTTCACTCTTATAG--TGTGGT
CACCG-TC-CCAGTGTGTTTTTCACATCTAATTTCATACAGGAAGTCAGCCCAGCCTCACTGCTTAT--CAGA---ACAG
AGAACAGT
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>Heterocephalus glaber
CAGTACCACTATCTGGTCAGCAAACTTCTCAGATAATGACAATTTCTAGATTTCTAGTAT--AGCAAGGGCC------AC
CACCGGCACCACACTGATA-TTGTCATGTG---AGGTA----------------------------------------
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----------------------------------------------------------CT-GTTTCACTCGCATGGAATGTGGA
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AGAGTAGC
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4.5 Marker DH__0067

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>ERV54-EC_rc
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CAAAATGAAAGACTTTT--ATA---GGCAGAAGGGAGCAGGAACAAGGAAGTTATACTAGGCAAAAAA-GTGGATTGGTT
ATTGCAAGGTTACTTTCCTTTAGGGGATGGCAGGGGTCTATCAGGCAGATTACCTAACTAGTGCTGATCAGGTGATTCCT
GATTGACTGGTTTAAGATTCCATTTCTG----------------------------------------------------
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---------------------GGAGAGCCGAAACTGTAATTAAGTTAAGTCTCGGTTTGGTGACGTGGGGCTTAGCATAA
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>Canis lupus familiaris
CCAAACCTGTGCTGAAGCAAGAAAGGAGTTAAATA----------------------------------------------
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4.6 Marker DH__0211

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4.7 Marker Rd_Dh04

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>Bos taurus
ATGAAA--TTTACCT--AATGTAGTTTAAAGTAGGTC-------TTTGTTGAAGCCAACCAGAA---TCTGT-GTCCCAA
TACCAGGCAAG----ATTTTTGCCCACCTGGTT-------------------------------------------
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-----------------------------------------------------------GCTCAG---AAAAGTTTAATGCCT
----GAACTGATCCTGATACAGTGGCTTGGAAATATATGT-----------------------------------
---------------------------------ACAACTATTTAGTTAGGAAACTATGATTA---TTGCTTAACAGCAT
TGTT
>Vicugna pacos
ATGCAA--TTTATTT--AATTTAGTTTAAAGTAGGTC-------TTTGTTGAAGCCAAGGAGCGGAATCTAG-GCCCCAA
CACCAAGCAAG----TCGTTTGTCCACTTGGGT-------------------------------------------
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-------------------------------------------------------------ATTCAT---AAAAGTTTAATGAAT
----GAACTCATTTTGAAACAGCAGCTTGAGGAAACCACA-----------------------------------
-----------------------------------------------------------------ATCAACGTTCAGCGGCAT
AGTT
>Myotis lucifugus 1
CCAAAAA--TTATTTTTAATTTCATTTAAAGGAAGTT-------TTTGTTGAAACCAAGGAGCAGGATCTAG--ACCCAA
TACCAAGCAAG----TCCTTTGCCTACTTGGTT-------------------------------------------
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-----------------------------------------------------GCTCTA---AAAAATTTCATAAAC
----AAACTCACCCTGTTACCCTGACCAGGAAATATATGT-----------------------------------
---------------------------------GCAACAATTTAGTTAGGAACCTATGAGTAACACCATTCAATAGCAT
AGTT
>Myotis lucifugus 2
CCAAAAA--TTATTTTTAATTTCATTTAAAGGAAGTT-------TTTGTTGAAACCAAGGAGCAGGATCTAG--ACCCAA
TACCAAGCAAG----TCCTTTGCCTACTTGGTT-------------------------------------------
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------------------------------------------------------GCTCTA---AAAAATTTCATAAAC
----AAACTCACCCTGTTACCCTGACCAGGAAATATATGT-----------------------------------
---------------------------------GCAACAATTTAGTTAGGAACCTATGAGTAACACCATTCAATAGCAT
AGTT
>Myotis lucifugus 3
CCAAAAA--TTATTT--AATTTCATTTAAAATAAGTT-------TTTGTTGAAACCAAGGAGCAGGATCTAG--TCCCAA
TACCAAGCAAG----TCCTTTGCCTACTTGGGT-----------------------------------------
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------------------------------------------------------GCTCTG---AAAAATTTCATAAAC
----AAATACA--CTGTTACCGTGACCAGGAAATATATGT-----------------------------------
---------------------------------GCAACAATTTAGTTAGGACCCTATGAGTAACACCATTCAACAGCAT
AGTT
>Pteropus vampyrus
ATGAAA-----ATT---ACTTAATTTAAAAGTAGGTC-------TTTGTTGAAACCAAGGAGTAGGATCTAG-GACCCAA
TCAATACCAAGCAAGTCTTTTGCCGACTTGGTG-----------------------------------------
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------------------------------------------------------CTAGG---AAAAATTTAACAAAC
----AGAC--ATCCTGTTATAGTGGCTACGAAATATATGT-----------------------------------
---------------------------------GCAATAGTTTAGTTAGAA--------------CCATTCAACAGCAT
AGTT
>Condylura cristata
ATGAAAA--TTATTT--AATTTTGTTTAAAGTTGGTC-------CTTATTGGAGTCAAAGACTAGGGTTGAT-GTCTCAA
TACTAAGCAAGCCAGAATCCTATATACTGGG-G-------------------------------------------
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------------------------------------------------------ACTCTG---AAAAATTCAATTAAT
----GAAATCATCCTGATATGATGGCCAGAAACTATGCAC-----------------------------------
---------------------------------AACTGCTGAGTTAAAGCATGGCTATTAACATAATTTAACGGCAT
AGTT
>Homo sapiens
ATGAAAAATTTAC----AACCAGATTTAAATCTGGTTTTAAGGCCTTGCTGAAACCAAGGAGCAGAAACTAG-GCCCCAG
TGCCAAGCAAT----TCTTTAGCCCACTTTGGG-------------------------------------------
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------------------------------------------------------TGCTCAG---AAAAATTCAATAAAA
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----GAACTTATCCCAATAGGATGGCCAGGAAAAATATGT---------------------------------------
----------------------------------ACAATAATTCAGTTGGG-TGCTATGATCAAAGTCTTTCAGTAGCAT
CATT
>Trichechus manatus latirostris
ATAAAAA--TTATTT--AAGTT-GGCTAAAGTAGTTC-------TTTGGTGAAGTCAAAGAGCAGGGGCTAT-GTTCCTT
ACATCAGCAAG----TCCTTCGCACACCTGGGT-----------------------------------------------
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-------------------------------------------------------GTTTAG---AATAGTTTGTTAAAT
GAGTGAATTTATTTAGATATAATGGCCAGAATATATATATATATATGCATTTATATTCATACATACACATATGTATACAC
ATACATATATATATACGCATACACATACACACACAAAATAATTTAGTTAGGAAACTATAATTAATGTCATTAATCAGCAT
AATT
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4.8 Marker Rd_Dh11

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>L1MA9
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-------------------------------------------------AGTAGAATGGTGGTTGCCAGGGGC---T
GG-GGGGTGGGGGAAATGGGGAGAT---GTTGGTCAAAGGGTACAAAGTTTCAGTTATGCAGGATGAATAAGTTCTGGAG
ATCTAATGTACAGCATGGTGACTATAGTTAATAATACTGTATTGTATACTTGAAATTTGCTAAGAGAGTAGATCTTAAGT
GTTCTCACCACACACAAAAAAATGGTAACTATGTGAGGTGATGGATATGTTAATTAGC----------------------
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----TTGATTGTGGTAATCATTTCACAATGTATACGTATATCAAAACATC-ACGTTGTACACCTTAAATATATACAATTT
TTATTTGTCAATTATACCTCAA-TAAAGCTGGAAA---AA------------------------------------------
------------------------------------------------------------------------------
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>Canis lupus familiaris
CTTCATTCACTATTTCAGAATTTGTATGG-TAGTTTCTAGCAGCCTATTTATGCTTCATAGACCTCATGATCAT----AT
AGAAAGAAAA-GTTTTTAG----------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------------------------TATTTTTT---A
AA-CAGATGTTGTTTAAGAAGAGAT---GTT---TAA-GGGTACAAACTTGCAAGT-GGCCCA-TAAATAAGTCCTGGGG
ATCTAATGCATGGCATAATGAATAGAGAAAACAACATTGTATTATAATAATCACACTTGCTAAGAGACTAGATCTTAATT
AT-TTCACCACAAAACA-GAAATGATAATTATATAACATGACAGAGG--CT---AACC----------------------
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----TCTATAATGGCAAACATATCACAATATATAAATACATCAAATCAAC-ATGTGGTAAACTTTAAATTTACATATTAT
----ATGTCGAATATATTTCAATTTTTAAAAAAAA---AAGC-TGTAAATGGGTTCTAGCAGAAT---CTCAGCAGCAA-
--GAAGCAATAACTAAGAACT----------------------AAAGG---CCAGAGATCAACAAGCACATTT-------
-------------------------------------------------------------------TTT--TCTC
TCTCTGGCTATGAGCAGAAG
>Felis catus
CTTCATTCATTATTTCAGAATTTGTATGG-TAGTTTCTTGGAGCTTATTTATACTTTGTAGACCTCATGATCAT----AT
AGAAAAAAAG-GTCTTCAGTATTTTTTTATGTCTATTTATTTTTGAGAAAGAGAGAGCATGAGTGAGGGAGGGGCAGAGA
AAGAGGGAGACAGAGGCTTCAAAGCGACTCCATGCTGACAGACAAAGAACCTAACTTGGGGCTCAAACTCATGGAACCAC
CAGATCATGGCCTGAACCGAAGTCAGACACTTAACCGACTGAGCCATTCATGTGTCCCAGGTCTTTAATATTTTTT---A
AG-CAGATGTTGTTTAAGGAAAGAT---GTTGTTTAA-AGATACAAACTTGCAAGT-GGTAGA-TAAATAAATCCTGGAG
ATCTAATGTATGGTGTAGTGAATATAGAAAACAATATTGTATTATAACCATCAAACTTGCTAAGAGACTAGATCTTAATT
AT-CCCACCACAAAAAA-GAAATGATAATTACATGATGTGACAGAGATACT---AACC----------------------
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-CTCCCTGCAATGGCAATTGTACCACAATATATAAATGGATCAAATCAAT-ATGTTGTGCACCTTAAATGTACATGATAT
-TATATGTCCAATATATTTCAA------TAAAAAA---AAGT-TTTAAACTGGTTCTAGCAGGAT---TAAACTGGTT--
-----------------------------------------------------CAAACATCAACAAGTACATTT-------
-------------------------------------------------------------------TTTTTC-TCTC
TCTCTGGCTATGAGCAGAAG
>Manis javanica
CTTCGTTCAGTAATTTGGAATCTGAGTGGTTAGCTTCGTGCAGTTCGTTTTTGCTTCAGAGAACTCATGCTCGT----CT
AGAATAAAAA-GGCTTCTG----------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------TTCTCTTTT---T
AGCCAG-TG----TTAAGGAGAGAT---GTTGTTT---GAATAGAAATTTGCAAGT-AGTAGA-TAAATAAGTCCTGACA
ATCTAATGCATGGTATAGTGAATATAGACAACAATATTGTATTGT-CGTACCAAACTTGTTAAGACACTA-ATTTTAGCT
AT-CCCACCACAAAAAA-GAAAAGATAATTATGTGACATCATAGAAGTGCT---AATC----------------------
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-ATTGCTACAATGG------------------TGATCTTATCATGTTA-T-ATGTTGTATACCTTAAATTTAGAAAATAT
---TGTATCAATTATATTTTAA------TTTTAAA---AAGTTTTAAAATCACTTCTAGCAGATT---CTCAGCAGCAA-
--GTAGCAATATCTAAGAACT-----------------------GAGG--TCCAAAGATCTATAGGCACATTT-------
-------------------------------------------------------------------TCTC-TCTC
TCTCTGGCTATGAATGGAAG
>Equus caballus
CTTAATTCAAGAATTTGAAATTTGTATGG-TAGTTTCTCACAGCTTGTTTAGACTTGGAAGACCTCATGCTCAT----AT
AGAAAGAAAG-GTCTTCAG-------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------CATCCTTT---A
AG-CAGGTGTTGTTTAAGGAGAGAT---GTTGTTCAA-GGGTATCAACTTGCACCT-CGCAGC-GAAGTAAGTCCTGGAG
CACTAATGCTTGGTGTGGTGGATGTAGGCAACAATATTGTATTATAATCATCAAATTTACTAAGAGACTAAATCTCAATT
AT-CCCACCACAAAAAAAGAAATGGTAATTATGCGACGTGATAGAGGTGCT---AACC----------------------
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-ATTGCTACAATGTCA----TATTGCAATAGATAAATGTATCGAATCAGCAATGCTATACACCTGAAATTTATGCAACAT
----ATGTCAGATCTATTTCAA-TTAAAAAAACCA---AAGC-TTTAAATCAGTTCTAGCAGAAT---CTCAGCAGCAA-
--GTAGCCAGAACCAAGAACT---------------------------------AAGA-AAAAAAGCATT----------
-------------------------------------------------------------------TCTCTTCTC
TCTCTGGCTATGAACAGAAG
>Ceratotherium simum simum
CTTAGTTCAATAATTTGAAATTTGTATGG-TAGTTTCTTGCAGCTTG-TTATGTTTCAGAGACCTCATGCTCAC------
AGAAAGAATG-GTCTTCAG-------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------TATCCTTT---A
AG-CAGATATTGTTTAAGGAGAGAT---GTT---TAA-GAATACGAACTCGTAACT-AGTAGA-GAAATAACTCCTGGAG
ATCTAATGCATGGTATAGTAAGTATAG---ACGATATTGTATTATAATCATCAAGTTTGCTAAGAGACTAGATCTTAATT
AT-CCCATCACAAAAAA-GAAATGGTAATTATGTGATGCAATAAAGGTGCTTGTTACCGGCACATTGGGTCCTTGCTGTC
GCCCAGGATGGAAATCAAGAGAGACAACTGTAGGATCCCAAAAAGGGAACCCCAACTCCAGTCTCGGGAAGGCGCGGACC
CACAGACACAGAAGACCGAGCTTGATGCAAACGCAAGAGGTAAGAGGTTTACTAAGCGGAGCTCCGGGCCGACACGTATC
TCTCGCAGGAGACAGAGGAGTCGACCCCGAACCTTAAAGGGCAAGCTCTTTTNNNNNNNNNNGATAAACGTTCCCTCCTA
TACCAGGAATCCTTAGGGCGTGGAGGTGCCTGTCTCTAAGGTAGTAACTTTTAAATTTTTAATATAATTTACTTCCTTCA
CAACAAACAGGAGTAGAAACGTAGAAGTTTATTAGCTTGTGCACAGGAGAAGCACCAGGCAGCCGGTGCGGAAAGGAAAG
GGGCAGGTGATGGGCTCGTTAGGGAGCAGGATTGTGGGGCTTTTATTAGGCAACGGCTGGGGAGGAGCCTTATCAGGGCA
TGTAGAGGTGGGGTTGTGCTTGTGCCTGCACTATCGTGTAGCACGCTACCACATGCGACGCATGTGTCATTAGCATGTTA
GTTCTCCACCCCCAGGTGTGACTTTTACTATGGTAATGGGGCGAGGGTCACCTTCAGTGGACTCCTGGGTGCTAGGGTGC
ATTCATAAACCCAGGAAAGTCCGGAGGCTTCGGAATGTGGATCTTGGTGGTCTCTACCTGATTCCCTTAGCTTGCTGATT
GGTTAGGGGCCTTATCTTGTTAGGCCAGGGGCTTTGCAGATGGCCCTGTCTTGTTAGGCTGGTTTCTGTCTCATGCTAAC
CATCACTACAATGTCA----TATTACAATATATAAATGTATCAAATCAAC-ATATTATACACCTGAAATTTATACACCAC
-TATATGTCAGCTATATTTCAA--TGAAAAAAAAG---AAGG-TTTAAATCGGTTTTTAGCAGACT---CTCAGCAGAAA-
--GTAGCAAGAACTAAGAACT-----------------------AAGG--TTCAAAGATGAATGAGCATGTTT-------
-----------------------------------------------------------------TTTTCTC-TCTC
TCTCTGGCTATGAACAGAAG
>Bos taurus
CTAAGTTCAAAAATTTGGAATTTGTATGG-TTTTTTCTTG-AGGCTTGTTTTGTTTCAGTGATCTCATTCTCA-------
-GAAAGAAGA-GTTATCAG-------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------TATCCTTT---A
AGCTTTCAGTCGGTTCCAATGGAAT-------------------------------------------------------
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------------------------------------------------------------------CTCAGCAGCAA-
--GTAGC----ACTAATAACT-------------------------GTTTCCAGAAATAAATAAGCAGTTTT-------
-------------------------------------------------------------TTTCCTTTCTC-TCTC
TCTCTGGCTATGAAAAGAAG
>Balaenoptera acutorostrata scammoni
CTTAGTTCAATAATTTGAGATTTGTATGG-TAGTTTCTTGAAGCTTGTTTATGCTTCAGAGACCTCATGCTCAG----AC
AGAAAG-----GTTTTCAA---------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------TATCCTTT---A
AGCTTTAAATCTGTTCCAGTGGAAT---------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------TTCAACAGCAA-
--ATAGCACTGACTAAAAACT-----------------------AGGCTTCCAAAGATCAACAAGCAGTTTT--------
-----------------------------------------------------------------TTCC-TCTC
TCTCTGACTATGAAAAGAAG
>Myotis lucifugus
CTTAGTTCAATAACTTGGAATTTATATGG-CAGGGTCTTGCAGGTTCTTTATGCTTCAGAGACCTCATGCTCAT----AC
AGAAAGTCAG-GTCTTTAG---------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------TATCCTTT---A
AG-----------TTCTAGCAGAAT---------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------CTGAGTAGCAAC
TAACAATAAAACCCAACATC-------------------------------CCAAAGATCAGCAAGCACTTTT-------
-----------------------------------------------------------------TTTTC-TCTC
TCTCTAGCTATGAACAGAAG
>Rhinolophus ferrumequinum
CTTAGTTCAATAATTTGGAATTTATATGG-TAGTTTCTTGCAGCTTCTTTATGCTTCAGGGACCTCATGCTTATTTCTAC
AGAAAGTAAG-GTCTTCAG---------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------TATCCTTT---A
AGCTTTAA-TCAGTTCTAGCAGAAT---------------------------------------------------
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------------------------------------------------------------------CTCAGTAGCAA-
---TAACAATAACTAGGGAAGGTGTCAATCCTAGAGGAAGTGAACAGGGGGTCTGAGAGCAAAGAGAAGATTTGGGAGAG
AGCCTCGCTCTCTCTCTCTCTCTCTCCCCCCCCCCCCCCCCCCCCCCCCCCCTCTCTCTCTCCCCCTCTCTCGCTCTC
TCTCTGGCTATGAACAGAAG
>Pteronotus parnellii
TTTAGTTCAATAACTTAGAATTTATATGG-TAGTTTCATGCAAGTTCTTTATGCATCAGGGTCCTCATGCTCAT----AC
ACAGAGTCTG-GTCTTCAT---------------------------------------------------------
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-----------------------------------------------------------------ATCCTTA---A
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AGATTTAAGTCAGTTCTAGCAGAAT-----------------------------------------------------
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-------------------------------------------------------------------------CTCGGCAACAG-
--GTAACAATA----AGAACT-----------------------AACATCCCAAGGAACAGCAAGCACTTTT-------
-----------------------------------------------------------------ATTTTCT-CTC
T--CTGCCTATGAACAGAAG
>Sorex araneus
ATTGATTCAATAATTTAGAACTTAAATGA-TAG--CTTTGTAGCTTATTTATGCTTCAGAGAACTCAAGCTGTT----AC
AGAAAGG-----TCTTCAG-------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------TATCCATT---A
AACTTTAAATTGGTTCTAGCAAAAT-----------------------------------------------------
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-------------------------------------------------------------------------TTCAGCAAAAG-
-----------------------------------------AAATAAGGTCCAAAGATCAACAAGCACATTT-------
-----------------------------------------------------------------TTCCCTTTGTCTCTT
ACTTACGTTCAGAAGCGACC
>Homo sapiens
TTTAGTTCAATAATTTAGAATTTATGTGG-TAGTTTCTTGC----------AGCTTTAGAAA-CTCGTGCTCAT----AC
AGAAAGTAAAGATCTTCAA-------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------TAGTCTGT---G
AGATTTAAATCAGTTCTAGCAGAAT-----------------------------------------------------
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------CTCAGCAATGG-
--ATAGCAATAGTTAAGGTCC-------------------------------AGAGATCAACAAGCACATTT-------
-----------------------------------------------------------------TTTTTTTCCTCTC
T----GGCTATGAAAAGAAG
>Choloepus hoffmanni
CATAGTTCAATAATTTGGAATTTATGTGG-TAGTTTCTTGAAACTTGTTTATGCTTCAGAGAATTCATGCTCAC----AC
AGAGAGAAA-GATCTCCAG-------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------TATCCTTT---A
AGGTTTAAATTAGTTTTAGCAGAAT-----------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------------CTCAGCAACAG-
--GTAGCAAGAGCTAAGAACT-----------------AACAACTAAGTTCCAAAGATCATGAAGCACATTT-------
-------------------------------------------------------------GTTTTTTATTCTCTG
GCCCG----GAGAAA-AAAG
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4.9 Marker Rd_Dh34

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>L1MAB_EC
------------------------------------------------------------CAAACCATATATCTGATAAG
GGGTTAATATCCAAAATATATA---AGGAACTCAT---ACAACTCAATAGCAAAAAAA---CCAAATAATCCAATTAAAA
AATGGGCAGAGGATCTGAATAGACATTTTTCCAAAGAAGACATACAAATGGCCAACAGGTACATGAAAAGGTGCTCAACA
TCACTAATCA-TCAGGGAAATGCAAATCAAAACCACAATGAGATATCACCTCACACCTGTTAGAATGGCTATTATCAAAA
AGACAAGAGATAACAAGTGTTGGCGAGGATGTGGAGAAAAGGGAACCCTTGTGCACTGTTGGTGGGAATGTAAATTGGTG
CAGCCACTATGGAAAACAGTATGGAGGTTCCTCAAAAAATTAAAAATAG-AACTACCATATGATCCAGCAATCCCACTTC
TGGGTATATATCCTAAAGGAAATGAAATCACTAATCTTGAAGAGATATCTGCACTCCCATGTTCATTGCAGCATTATTCA
CAATAGCCAA----GAYATGGAAACAACCTAAGTGTCCATTGATGGATGAATGGATAAAGAAAATGTGGTATATATATAC
AATGGAATATTATTCAGCCATAAAAAAGAAA--------------------------------------AGAAGGAAAT
CCTGCCATTTGTGACAACATGGATGGAACCTTGAGGGCATTATGCTAAGTGAAATAAGTCAGACAGAGAAAGACAAATAC
TGCATGATCTCACTTATATGTGGAATCTAAAAAAAAAAAA---------CCAAACTCATAGAAACAGAGAATAGATTGGT
GGTTGCCAGAG----GCTGGGGGGTGGGG--------GAAATAGGGAGAGGTTGGTCAAAGGGTACAAACTTTCAGTTAT
AAGATGAATAAGTTCTGGGGATGTAATGTACAGCATGGTGACTATAGTTAATAATACTGTATTGTATATTTGAAAGTTGC
TAAGAGAGTAG-ATCTTAAAAGTTCTCATCACAMAAACAAAAAAAAAATTTGTAACTATGTGAGGTGATGGATGTGTTAA
TTAACTTCATTGTGGTAATCATTTCACAATA---TATACATATATCAAATCATTATGTTGTACACCTTAAACATAATACA
ATGTTATATGTCAATTATATCTCAATA----AAACTGAA---AAAAAAAAA----------------------------
------------------------------------------------------------------------------
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>Canis lupus familiaris
CTTTTTTCCCT--CTCCTCATTTTCTTCTCCCATTA-TTACCTCTCTTTTCTGGTGAAACTAAAGGGTAGTATTTTAAAG
TTATGCACATGATAGTTTGTTA---AAAACTGTGA---ACAACTCAGTAGCAAAAAGAATCCCAAACTGTTTGATTT-AA
AATGGGCAAAATCTCTGAATAGACATTTTTCCAAAGAAGACATA--GATAGCCAACAGATGTATGAAAGGATGTTCAGCA
TCTCTCATCA-TCAGAGAAATGCAAATCAAACCTACAATAAGATATTACCTCACACCTGTTAGAATGACTCTTATCAAAA
AGGCAAGAAGT---AAGTGTTAGTGAAGG--------------AACCCTTGTGCACTGTTGGT-GGAAATTAAACTGGTA
C------TATGGAAGACAGTGTGGAGGTTCCTCAGAAAGTTAAAAATAGTAACTATCCTATAATACAGCAATTGCACTTC
CGAGTATTCGTCT-GAAGAAAATGAAAACACTAA-CTCAAAAAGATCTATGCACCCCCATGCTCATTACAGCAATTTTTA
CAATGGCCAA----------GATATATATGAAGTGTCTGTCCATGGATAAATGGATAAAGA--------TGTGTATAGAT
GTAAAA-------------------AAAAA-----------------------------------------TGAATGCAGT
CCTGTCATTTGTGGCAGCATGGATAGA-TTTAGAGGATATTATCCTATGTGAAACAAGTCAGACAGAAAAAGACAAATGC
CACATGATTTCACTTATGTTTGGACTCTAAATAAAAACAA------AAACCAAGCTCATAGATACAGAGAACAAATTGGT
GGTTGTCAGAG----GAGGTTGGGTGGGG--GTAAGTGAAATAGGTGAAAGG-ATTCAAAAAGTACAAAATTCCAGGTAT
AAAATAAGT----CATAGGGATATAATGTTTAGCACAGTGACTATAGTTAATAATACTGTATTGCATATGTGAAGGTTAG
TAAGATAGTACAGTCTTAAAAGTTCTCATCACAAGAAAAAAAA----TGTTGTAATTA------CTAACAAGCA--TTAA
GTAGACTTATTGTGGTAATCATTTTACAATA---TATACAAATATCAAATCATTATGTTATACATCTGAAAC-TAATATA
ATGT---ATGTCAGTTATACCTCAGTT--AAAAACAAAA---TAAAACTGTGAGC---CTT-GCTTATGTGGATACAATT
TAA-----ATAAAATCATTATCCAGGGTGATTAATGCAGTAAGC-TTTTGTTTGTTTGTGTGCTTGTTTTTTAAAATGCT
GAAC
>Felis catus
CTCCTTTCCCT--TCCCCTC-ATTCT-CTTCTCGCA-TTACCTCTCATTTCTGGTGAAACTAAATAGTAGTATTTTAAAG
TTATGCACATTATAGCTTGTTA---AAAAACTTGA---ACAACTCAGTAGCAAAAACAATCCCAAATGATCTGATTTAAA
AATGGGCAAAGGCTCTGAATAAACATTTTTCCAAAGAATACATACAGATGGCCAACAGACACATGAAAACAGGTTCAGCA
TCACTAATCA-TCAGGGAAATGCAAATCAAAATCACAATGAGATATCACCTCACACCTGTTAGAATGACTCTTCTCAAAA
AGATAAG-------AAGTATTGGTGAGGA-TGTGGGGAAAAGAGAACCTTGTGCACTGTTGGT-AGAAACTAAACTGGTA
CAGCCACTCTGGAAAACAGTGTGGAGTTTCCTCAGAAAGTTAAAAATAGAAACCATCATATAATATAGCAGTTCCACTTC
TGGATATTCATCC-GAAGAAAATGAAGACACTAA-TTCAAAAAGATACATGCACCTCCATGCTCATTACGGCAGTTTTTA
CAGTAGCCAAGATGTATATGGAAATAGCCTAAGTATGCATCCATAGATGAATGGGTAAAGAAGTGTGTGTGTGTGTGTGT
GTGTGTGTGTGTGTGTGTGTGTGTGTGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGGAGAATGAAGT
CTTGCCATTTGAGACAACATGGATGGA-CCTAGAGGGTGTTAAGCTAAGTTCAATAAGTCAGA----GAAAGACAAATGC
CTTATGATCTCAC----AGGTGAAATCTAAATGAAAACAA------AAACCAAACTCATAGATACAGACAACAAATTGGT
GGCTGCCAGAGATTGGGGGGTAGGGGTGGAGATAGGTGAAATTGGTAAAGGG-AGCCAAAAGGTAAAAAATTCCAGTTAT
AAAATAAGT----CATGA-GATGTAACGTACAGCATGGTGACTGTAGTTAGTAATACTATATTGCATATGTGAAAGTTGC
TAAGAGAGTA-AATCTTAAAAGTTCACATCACAAGAAAAA--------GTTGTAATTA------TTGACAAACA--TTAA
CTAGAC---TTCTTGTGATCATTTTACAGTA---TATACAAACATCAAATCATTATGTTGTACATCTAAAAC-TAATATA
ATGTTGTATGTCAGTTACACTTCAATT---AAAACAAAG---CAAAACTGTGAGC---CTT-GCTTACAACGATGGGATG
TAA------TAAAATCATTGCCCAAGGTGATTAACACATAATAA-----TTGTGTTTATGTGCTTGTTTTTTAAAATGCT
GAAT
>Equus caballus
CTACTTTCCCC--TCCCCTCTTTTCT-CTCCTTCCA-TTATCTCTCTTTTGTGGTGACACTACATGATAGTGCTTTAAAA
TTATATGAATTATAGTTTTTTA---AAAACTATGA---ACAACTCCATAACAAAAA------CAAGCAATCTGATTACAA
AATGAGCAGAGGATCTGAATAGACATTTTTCCAAAGAAGACATACCGATGGCCAACAGGTGCATGAAAAGGTGTTGAGCA
TCACTAATCACCCAAAGATATGTAAATCAAAACCACAATGGGATATCACTTCATGCCTGTTAGAAAGTCTTTTATCAAAA
AGATAAGAAG----AAGTGTTGGTAAGGG-TTGGAGAAAAGGGAGCTCTTGTGCACTGTTGTTGGGAATGTAAATTGGTG
CAGCCATTATGGAAAACAGTGTGGAGCTTCCTCAAAAAGTTAAAACCAG-AACTACCATATGATCCAGCAATTCCACTTC
TGGATATTTTTCT-GAAGAAAATGAAAACACTAA-CTCTAAAAGATATCTACACTCCCATTTTCATTGCAGCATTATTTC
CAAGAGCCAA----AACATGGAAACAACCTAAGTGTCCATCAACGGATGAATGGTTGAAGAAAATGTGGTGTATATATAT
ATACAATGGAATATTATTCATCCATAAAAA-------------------------------------AGAATGAAAT
CATGCCGTTTTTGACAACACAGATGGA-CCTTGAGGGCATTATGCTAAGTGAAATAAATCAGACAGAGAAAGACACATAC
CATATGATCTCACTTATATGTGGAATCTAAAACAAATAAACAAAATAAACCAAGCTCATAGATACAGAAAATAGATTAGG
GGTTGCCAGAG-TCAGGGGTTAGAAGTG---CTGGGCAAAATGGCTGAAGGG-GGTC-AAAGGTACAAACTTCCAGTTAT
AAAATAAGT-AGTCCTGGCGATGTAATGAACAGCATGGTGACTATAGTTAATAATACTGTATTGCATATTTGGAAGTTGC
TAAGAGAGTA--------AAAGTTCTCATTACAAGAAAAAAA------TCTGTAGCTATGTATGGTGGTGGATG--TTAA
CTAGACTTATTGTGGTGATCATTTCACAATACTATATACAAATAGCTAATCATTTTGTTGTATACTTGAAAC-TAATATA
GTGTTGTCTGTCAGTTATACCTCAATAGGAAAAAAGAAA---AAAAACTATGACT---CTT-GCTTACAGGGATGGAATT
TAATAAATATTAAATCATTGCCCAGGGTGATTAGTGTAATATGCC----TTTTGTTTGCTTGCTTGTTTTTTAAAATGCT
AAAT
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>Ceratotherium simum simum
CTACTTTCCCC--TCCCCTCTTTTCT-CTCCTCCCA-TTCTTTCTCTTTTATAGTAAAACTACATGATAGTATTTTAACT
TTATACAAATGACGGTTTTTTA---AAAACTGTGA---ACAACTCCATAGCAAAAAA-----CAAACAATCTGATTAAAA
AATGAGCAGAGGATCTGAATAGACATTTTTCCAAAGAAGATATACAGATGGCCAACAGGTACATGAAAAGGTGTTCAGCA
TCACTAATCA-TCAAGGAAATGTAAATCAAGACCACAATGAGATATCACCTCACGCCTGTTAGAATGACTTTTATCAAAA
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CAGCCGCTATGGAAAACAGTATGGAGGTTCCCCAAAAAGTTAAAAACAG-AACTACCGTATGATCCAGCAAGTCCACTTC
TGGGTATTTTTGT-GAAGAAAACGAAAACACTAA-CTCTGAAAGATATCTACACTCCCATGTTCATTGCAGCATTATTTA
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A--CAATGGAATATTATTCACCCATAAAAA----------AGAATGAAAT
GGTGCCATTTGTGACAACATGGATGGACCTTTGAGGGCATTATGCTAAGTGAAATACGTCAGAT-GGAAAAGACAGATAC
CATATGATCTCACTTATATGTGGAATTTAAAACAAACAAAC-AGAAAAACCAAGCTCATAGATACAGAAAATAGATTGGT
GGTTGCCAGAG-TCAGGGGTTGTGGGAGG--TGAGGCAAAATGGGTGAAGGG-AGTCAGAAGGTACACACTTCCAGTTAC
AAAATAAATAAGTCATGGGAATGTGATGTACAGCATGGTGGCTATAGTTAATAATACTGCATTACATATTTGAAAGTTGC
TAAGAGAGTAT-ATGTTAAAAGTTCTCATCACAAGAAAAAGA----------AAAATCTATGGTGATGGATG--TTAA
CTAGACTTATAGTGGTGATCATTTCACAGTACTATATACAGATAGCTAATCATTATGTTGTATACCTGAAAC-TAATATA
GTGT---ATGTCAATTATACCTC--------AAAAGAAA---AAAAACTGTGACT---CTT-GCTTATAGGTATGGAATT
TAATAAATATTAAATCATTGCCCAGAGTGATTAATGCAATACAC----TTTTTGTTTGCTTGCTCGTTTTTTAAAATACT
AAAT
>Bos taurus
CTCATTTGCCT--TCTCAAGTCTTCT-CTGCTCACA-TTATCCCCTTATTATGGTAGAACTACATGATGGTACTTTAAAA
TTTTCCAAATTATCATTTGTTT----------
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----------AAAACTGTGAGC---CTT-GCATAGAGGCATGGAATT
TCA------TGAAATCATTACCCAGGGTGC-TAATGCAGTATAC----------TTTGTTTACTTGTTTTTTAAAATGCT
AAAT
>Balaenoptera acutorostrata scammoni
CTAATTTGCCT--TCCCATCTCTTCT-CTCCTCCCA-TTATCCCCTTATTATGGTGGAACTACATGACAGTACTTTTAAA
TTTTGCAAATTATCATTTGTTT----------
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----------AAAACTGTGAGC---CTT-GCATACAGGGATGGAACT
TAA------TAAAATCATTGCCCAGGGTGATTAATGCA--ATAC--TTTTTTTGTTTGCTTGTTTGTTTTTTAAAGTGCT
AAAT
>Myotis lucifugus
CTACTTTCCCT--TCCCCTCTCTCCT-CTCTTCTAA-TTATCCTTCTTTTATGGTGAAACTATATGATAATATTTTAAAG
TTATGCAAATTATAGTTTGTTG----------
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----------AAAACTGTAAGT---CTT-ACTTACAGGGATGGGATT
TAA------TAAAATTACCACCCAGAGTCATTAATACAGTATAC---------TTTTCCTTGCTTGTTTTTTTAAATGCT
AAAT
>Eidolon helvum
CTATTTTATCT--CTCCTTCTCTTCT-CTCCTTCTA-TTTTCCCTCTTTTATTGTGAAACAGTATGATAGTATTTTAAAG
TTATACAAATTATAGTTTATTG----------
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-------------------------------------------AAAACTGTGAGT---TTT-GCTTACTGGGATGGAATT
TAT------CAAACTCGTCACCCAGAGTGATTAATGCAGTACAC-----TTTTGTTTGCTTGCTTGTTTTTAAAAATGCT
-AAT
>Condylura cristata
AGACTTTAACTTTCTACCCCCTTTTT-CTTCTCCAATTTACCTCTCTTTTATGGTAAAACTGCAGGAT-ATATTTTGCAG
----GCAACTTACAGTTTGTTA------------------------------------------------------------
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-------------------------------------------AATACTGTGAGC---CTTTGCTGACAAGAGTAAAATG
TAA------TAAAATCATTGCCTAGAATGATTAATGCAGTATAC--TTTGGTTGTTTGTGTGCATGTTTCTAAAAAAGCT
AAAT
>Homo sapiens
CTACTTTCCCT--TCCC-TCTCTC---CTCCTTCCA-TTACCCCTCTTTTATGGCAAAACTACAAAATAATATTTTAAGC
TTATGAAAATTACAGTTTATTT------------------------------------------------------------
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------------------------------------------------------------------------------
-------------------------------------------AAATATTTTCGGC---CTT-GCTTACAGGGATGTAATT
TAA------T-ACATCACTACCCAGGATGATTAATGCAATACCCTTTTGGTTTGTTCCCTTGCTTGTCTTTTAAAACGGT
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>Dasypus novemcinctus
CTACTTTCCTT--TTACTTATTTCCT-TTCCCTTCA-TTACCCTTCTTTTATGGTGAAACTAGAAGATAGTATTTTAAAG
TCCCTCACTTTATAGTTTGTTA------------------------------------------------------------
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-------------------------------------------AATTCTTTGAGC---CTT-GTTTACAGGGGTGGGATT
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4.10 Marker Rh_Hd15

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>L1MA9
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TG-GAAAAA----------------------------------------------------------------------
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>Canis lupus familiaris
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ACAGTTAATTGTAACACTGTATTGCATATTTGAAAGTTGCTAAGAGAATAAATCTTAAAAGCTCTCATCATAAGAAAAAA
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TA-AAA-TCAAATAGA---AATT----------------------------------------------------------
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------------------C---------TTTTTTTACTCCCATATCATCTTGTGAACCTCATTTTGGAGATTACAACTT
TAGAATAAATTATCCATTACTCATTCCATTGGACTTGCCCATGG
>Felis catus
TTGCCTACTTTAATAAGACTGTACCACACGAGGAAAAAAATGTTTGAC-CGTGGACTATAAC-ATTTATACATGTGTG-T
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TC-AAA-TAAAATAGA---AATT----------------------------------------------------------
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------------------CTATTT----TTTTTTTATCCCCGTGCCATCTCGGGAAGCTCACTTGGAAGACCACTGCCT
TAGACAAAATTACCCTTTATCTATTCAGTCGGACTTGCTGTGGG
>Manis pentadactyla
CTGCATACTTTGATAAGACTGTACTGCATCAGGAAAAACATGTTTGACGCATGGATTGTAAT----CATACATATTT---
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TAGTCAGAATTATCCTCCACTTATCCAGTGGGACTTGCCCATGG
>Equus caballus
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------------------CTA-------TTTTGTTATTCCCACACCATCTTGTGAAGCTTACTTTGGAGACCACTGCCT
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>Ceratotherium simum simum
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>Bos taurus
TTGCCTACCCTAAT----TTTAAACAAATGTTCAAAACAATGTTTGAC-CATGGCTAGTA-C-A-----------TAG-T
AAAACATGCATGTAAAAAAA-TTT-----AAA-GCATGAGATTAGAAAATAAAGAGA----------------------
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-------------------GATC---------------------------------------------------------
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-------------------CCAGT-----TTTTAAAATTTCCATACCACCCTGTGAGGCTCAC-----ACAGTTTTGCCT
TAGACAAAACTGTCCCACACGGCTGTAGTTGGACTTGCCTGTGG
>Tursiops truncatus
TTGCC-----------------CTCCCAATTTAAAAATAATGTTTGAC-CACGGGTTGT-ACTATTTATGTATGCATG-T
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-------------------AATT---------------------------------------------------------
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-------------------CCATT------TTTAAAATTTCCATACCACTGTGTGACGCTCAC----------GTTGCCT
TAGATAAAATTATCCTGCACACAGGCA-----------------
>Myotis lucifugus
TTGCCTACTTTAATAAAACTGTATCCTATTAG--AAAAAATGTTTGAC-TATAAATTGTAGC-ATTTGTATATGTTTT-A
TATACATGCATGTAGAAAA--TTT-----AAAAACATAAGATT-AAAAATAAATATA----------------------
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------------------------------------------------------------------------------
-------------------AATT---------------------------------------------------------
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>Pteropus vampyrus
TTCCCTACTTTAATAAAACTGTAGCCCATTAAG-AAAAAATGTTTGAC-CATAGATTGTAAC-ATTTATATATGTGTTTA
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-------------------AATT---------------------------------------------------------
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-------------------TTGTTTGTTTTATTTTAATTCCCATATCATCTTATGAAGCTCACTTTGGATGCCTTTGCCT
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>Erinaceus europaeus 1
GTTCTCAATATAGATATGTGGGTCCCCATTAGG--AAATATGTTTGAC-CATGGATTGTAAC-ATTTGTATATGTGTG-T
AAAATGTGCACACACACAAATTTT-----AA--GTGTGAGATAAAAAACAG-----------------------------
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-------------------AAAT---------------------------------------------------------
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-------------------TCAAA-----TTTCTGTATTTCCAAA-CATCTTGTAAAATTCACTTTGGAGACTATTGCAT
TAGAGAGAATTATTCTCCACTGATTCATTTGGACTTGCCAGTGG
>Erinaceus europaeus 2
ATTGTC--TACAGACATGTAGGA-ACCTATTGG-AAAACAGGTTTGAC-CAGGGATTGTAAC-ATTTGTGTATGTATG-T
AAAACATGTACACACAAAAATTTT-----AA--GTTTGAGGTAAAA---------------------------------
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-------------------AAAA---------------------------------------------------------
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------------------------------------------------------------------------------
-------------------TCCAA---------TTTATTTCCAAACAAC-TTGTGAAATTCATTTTGGAGACTGTTGCAT
-AAAGAGAATTATTCTCTACTTATTCGTTTGGACTTGCCAGTGG
>Homo sapiens
TTACCTACTGTTACAAGACTGTACTCCACTCAG-AAAAAATGTTTGAC-CATAGATTGTAAT-GTTTACACATGCACG-T
AAAACATGAATGCAAA-TTTTTTT-----AAA-GCATGCAATTAAAAAATAAATAGA----------------------
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-------------------AATTGGCTGGGTGCAGTGGCTCACGCCTGTAATCTCAACACTTTGGGAGGCCGATCGCGAG
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AGCCGAGATCGCGCCATTGCTCTCCAGCCCAGGCAACGGTATGAGACTCTGTCTCTGAATGAATGAATAAATAAATAAAT
AAATAAATAAATAGAAATTATATA-----TTTTTTCCTTCCCATACCA-CTTGTGAAACTCACTTTGGAGATTACTGTCT
TAAACAAAATTTCCCTTCAGCTATTCTGTTACACTGTGCAGT-A
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>Heterocephalus glaber
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AGAACATATATCCAAAAAGAATTT-----AA--GCCTGATATTAAACAATAAATAGA----------------------
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------------------------------------------------------------------------------
------------------TTTT----------------------------------------------------------
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------------------------------------------------------------------------------
------------------TCTAT----ATTTTTTTCTTCCCATACCATCTTGTGAAGCTTGATTTGGAGACTACTGCCT
TAAATGATATTATCACCTATCTACTCAGATGCACTTACTGGTGG
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4.11 Marker Rh_Hd16

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>MLT1J2
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--------TGTGGCAGAGACTGGCTAGGTGTTCACCAAAACCCGTTTCCTTTTCCTCCTGGG--CACACAGCTAGA-CTA
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GCCACTTCCAGGCCTGGCCCATAAAAACCTCCCACGTGATCCTCC-ATGCTCTCTCTCTTTCCCCGTCTGCTGGCT----
----GGATGCAG-AGGATCTAGNGGAGAACTCCGAGGNCCTAGGAGGATGGCGGAGCCACAAGATGGAAGGAGCCTGGGT
CCCTGAGTCACTACNTGGAGGAGA-GCCACCCACACCCGACCAGAACCCNCACTGGACTGTGACATGAGTGAGAAATAAA
CTTTTATTGTGTTAAGCCACTGAGATTTGGGGGTT---GTTTGTTACAGCAGCTGGCATTACCCTGACTAATACA-----
--------------------------------------------------------------------------------
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>Canis lupus familiaris
GATAACTATAAATATGATCACTACATATTTTAATTATCCCCATTATCTCT-----------------------------
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-------------------------------------------------TTCATACTTGCACA-------CATGATTAGCT--
-ATCT---AATGGCAAATACCAGGACATATACTCA------CCATTTTCCCTACATCCTGGGTGCACA-CTTTACATACA
TATCTCCCAGCCCTCCTTTCA---------------GTGACTGAAATCTGGCCAATGGAATAGAGACAGGG-CAAG---G
AGTGA-CCCAT-CCAGGTATATAAAA-CCTCCCATACAATCCACCTTCCTTCTC-------------TGTTAGACCAGTG
CAAAGGATCCTG-AGAAGGG---GGAGAGAGT-GAAGTCCCAGGAAAAGACAA-AACCACTTCATGG-AGGAGCTTATGT
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CCTTTACTGAGTTTTGCCCCTGAAATCTTGGAGTTTAAGTAACATTATATAAATTCACCTTCCCTGATTCGTTCA---CA
TT---CTTACACTGT-ATT-------------------------------------------CTTATCCCTTTACTTCA
GAAACTG-AGCA----ACTAGGAACAA--CAT--ATTT-TTTT-TTCCATAGTCAGAAAGTA-TTTGAACTCT
>Panthera tigris altaica
ATAAA-------TGTGATCACTACATATTTTAATTATTCCTGTTGTCTTTTCTTTTAAAAAAATTTTTTTAAACGTTTAT
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CGCCAGGCTCTGAACTGTCAGCACAGAGCCCAACGTGGGGCTCAAATTCACGAACTGCGAGATCAGATCTGAGGCGAAGT
CGGACGCTCAACCGACTGGGCCACCCAGGCGCCCCACTGTTGTTTTTTCATACTTGCAAA-------CACGATTAGCT--
-ATTT---TATGGCAAACATGAGGCTATATATTCA------CCATTTTCGCTACATCCTGGGTGCACA--CTTACATACA
AATCTCCCACCCCTCCTTTCA---------------TTGACTGAAATCTGGCCAATGGAATAGACAG-GTG-TAAG---G
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CAAAGGATTCT--GGAAAGA--GGGAGAGAA--TCAGTCCTAAGGAAAGGTAA-AACCACTTCATTGAAGGAACTTATGT
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GAAATTG-AGCA----GCTGTGAGCAACGTAT--ATTTATTTT-TTCCATAGTCAGAATTTA-TGTGAACTCT
>Manis pentadactyla
ATAAAATATAAATGGGATCGCTATAGAGTTTAATCATCCATGTTCTTTTT-----------------------------
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-ATAG---TATGGCAAACACTAGGATATACTCGCC--AAACCCA-TCTCTCTGTATCCTGGG--CACACACCTACATACA
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-AATGCAGCGTC-CAGAAGA---GAAGAGAAT-GAAGTCCTAGGGAAAAGCAA-AGCCACTAAATGTTAGGAGCCTATGT
CTCTGAATTACTACATGCAGTGGACGCCATCC-----TGACCAAACTA--CATTGTACTGTGACTTACAGTAGAAACATA
ACTTTATT-AGTT-AGCCAATTAAAT------CTTAAAGAAACATTATGTAAGTTCAGCTTCC-TAAGTAACTCA---TT
-----TTTATACTGT-TTT-------------------------------------------CCAATTTTTTAACTTCA
GAAATTG-AGCA----ACCATGAAC-------------ATTTT-TTCC--AGTTAGAATGTA-TTTGAGTTCT
>Equus caballus
ACAAATTATAAATGTGATCACTACATA-TTTAATCATCCCTGTTATCTTT-----------------------------
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-ATCT---TATGGCAAACACCGGGTTATCTACTCACTAAACCCATTTTCCCTACATCCTGGG--CACATACCTACATGCA
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CCTTTACCGAGTTAAGCCACTAAAATCTTATAATTAAAGGAACAATACATAAGTTTACCTTCCCTGACTAATTTA---CA
TT---CTTATGCTGT-TTT-------------------------------------------CTTATCCCTTTACTTCA
GAAACTG-AGCA----ACTACAGAAAATACCT--ATTTATTTT-TTCCATAGTTAGAACATATTTGGAACTCT
>Ceratotherium simum simum
ATAAATTATTAATGTGATCACCACATA-TTTAATCACCCTT---ATCTTT-----------------------------
--------------------------------------------------------------------------------
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>Bos taurus
ATAAGCCCAAATTATGGACTATAGCAG-TTTAATAATCACTGCCATTTTT-----------------------------
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-CACT-------------------------------------------------------------------------
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>Balaenoptera acutorostrata scammoni 1
ACAAGCCCAAATTATGGACTGCAGCAG-TTTAATCATCACTGTCATTTTT-----------------------------
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>Balaenoptera acutorostrata scammoni 2
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>Myotis lucifugus 1
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-CATT-------------------------------------------------------------------------
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>Myotis lucifugus 2
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-CATT-------------------------------------------------------------------------
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>Myotis lucifugus 3
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-----------------------------------------------------CTTCCAAAATAAAGCCTTGATTAAAC--
-CATT-------------------------------------------------------------------------
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----------------------------------------------------------------------------
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----------------------------------------------------------------------------
----------------------------------------------------------------------------
-----CATGCCCTAT-ATTA-----------------------------------------CTCATATCTTTCTTTCA
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>Myotis lucifugus 4
ACAAGCCCAAATTATGGACCGCAGCAG-TGTAGTCATCACTGCCACTTCC----------------------------
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-----------------------------------------------CT-ACTTCCAGAATAAAGCCTTGATTAAAC--
-TATT------------------------------------------------------------------------
----------------------------------------------------------------------------
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----------------------------------------------------------------------------
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-----CATGCCCTAT-ATTA-------------------------------------------CTCCTA-CTTCACCTCA
GAGATCG-AGGA----ACTATA--CG-CAAATGGATTTATTTT-CACCACAGGGAGAGCACA-TTGTACTTGT
>Pteropus vampyrus
ATAAGCCCAAGTCATGGACTGCAGCAG-TTTAATCATCACTGCCATTTTT----------------------------
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-----------------------------------------------CTTACTTCCAATATAAAGCCTTGATTAAAC--
-CACT------------------------------------------------------------------------
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-----CATACCCTAT-ATTA-------------------------------------------ATCATACCTTTACTTCA
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>Sorex araneus 1
ACAAGCCCAA-TTATGGGCTGCAGCAG-TTCATTCATCACTGCCATTTTT----------------------------
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-----------------------------------------------CTTACTTCCAAAATAAAGCCTTGATTAAAT--
-CATT------------------------------------------------------------------------
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GAGATTG-AGGATTTAATTATATACAACAAACGAATTTATTTTTCACCATAGGGATAACATA-TTGTACCTCT
>Sorex araneus 2
ACAAGCCCAA-TTATGGGCTGCAGCAG-TTCATTCATCACTGCCATTTTT----------------------------
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-----------------------------------------------CTTACTTCCAAAATAAAGCCTTGATTTAAT--
-CATT------------------------------------------------------------------------
----------------------------------------------------------------------------
----------------------------------------------------------------------------
----------------------------------------------------------------------------
----------------------------------------------------------------------------
----------------------------------------------------------------------------
-----CATACCCTAT-ATTA-------------------------------------------CTCATACCTTTACTTCA
GAGATTG-AGGATTTAATTATATACAACAAATGAATTTATTTTTCACCATAGGGATAACATA-TTGTACCTCT
>Sorex araneus 3
ACAAGCCCAA-TTATCGACTGCAGCCA-TTCATTCATCACTGTCATTTTT----------------------------
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-----------------------------------------------CTTACTTCCAAAATAAAGCCTTAATTAAAT--
-CATT------------------------------------------------------------------------
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----------------------------------------------------------------------------
----------------------------------------------------------------------------
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-----CATGCCCTAT-ATTA-------------------------------------------CTCATACCTTTACTTCA
GAGATTG-CAGATTTAATTATATACAACAAATGAATTTATTTTTTCACCATAGGGTTAAATA-TTGTACCCCT
>Homo sapiens 1
ACAAGCCCAAATTATGGACTGCAGCAA-TTTAATCATCACTGCCATTTTT----------------------------
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----------------------------------------------------------------------------
-----------------------------------------------CTTACTTCCAAAATAAAGCCTTGATTAAAC--
-CATT------------------------------------------------------------------------
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----------------------------------------------------------------------------
----------------------------------------------------------------------------
----------------------------------------------------------------------------
-----CATACCCTAT-ATTA-------------------------------------------CTCATACCTTTACTTCA
GAGATTG-AGGA----ACTATATACAACAAATTAATTTATTTT-CACCATAGGGATAACATA-CTGTACCTCT
```

```
>Homo sapiens 2
ACAAGCCCAAATTATGGACTGCAGCAA-TTTAATCATCACTGCCATTTTT-----------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----------------------------------------------CTTACTTCCAAAATAAAGCCTTGATTAAAC--
-CATT----------------------------------------------------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----CATACCCTAT-ATTA-----------------------------------------CTCATACCTTTACTTCA
GAGATTG-AGGA----ACTATATACAACAAATTAATTTATTTT-CACCATAGGGATAACATA-CTGTACCTCT
>Trichechus manatus latirostris 1
ACAAGCCCAAATTATGGACTGCAGCAA-TTCAATCATCACTGCCATTTTT-----------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----------------------------------------------TTTTAACTTCCAAAATAAAGCCTTGATTAAAC--
-CATT----------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----CACACCCTAT-ATTA-----------------------------------------CTCATACCTTTACTTCA
GAGATTTGAGGA----ACTATATACAACAAATGAGTTTATTT--CACCATAGGGATAACATA-TTGTACCTCT
>Trichechus manatus latirostris 2
ACAAGCCCAAATTATGGTCTGCAGCAA-TTCAATCATCACTGCCATTTTT-----------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----------------------------------------------TTTAGCTCCCAAAATAAAGCCTTGATTAAAC--
-CATT----------------------------------------------------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----CATACCCTAT-ATTA-----------------------------------------CTCATACCTTTACTTCA
GAGATTCAAGGA----ACTATATACAACGAA-GAGTTTATTTT-CACCATAAGGATAACATA-TTGTACCTCT
```

Chiroptera-Perissodactyla

5.1 Marker H_B_0004

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>L1MAB_EC
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------AAAAAAAA
TTT------GTAAC---TATGTGAGGTGATGGATGTGTTAATTAACTTCATTGTGGTAATCATTTCACAATATATACATA
TATCAAATCATTATGTTGTACACCTTAA-ACATAATACAATGTTATATGTCAATTATATCTCAATAAAACTGAAAAAAAA
AA--------------------------------------------------------------------------
-----------------------------------------
>Equus caballus
GTGTGAAATGAGT----------AGAAACAACTGTAACTTA-CATTCATCTTG-ACTCATTTGAGTCAAATA--TTGAGG
GATATAGTTTATTCTT-GGC-ATAAATATTA------CTCTTC---TTATTG----------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------AAGAAA
AAT------TTTTC---TATATGAGGAAATGGATG--TTAGCCAAACCTATTGTGGTAATGATTTTACCATAGAAGCAAA
TCATACCATCGTGCTGTACACCTGAAAC----------AGTGATGTATGTGAATTA-TTTTTCGGTAAAATTGGGGAAAA
AAA---TCAGTAAGTGGAAAAAA------------TTTTTTTC---AAG-----TTCTTTTT----TCTCGTTAGGCTAA
TGATATGG--AATGATTACAGT--TTTCTTGGTACAATATTT
>Ceratotherium simum simum
GTGTTAAATGATT----------AGAAACAACTATAACTTA-CATTCATCTTGCTGTCATTGGAGTCAAATG--TTGAGG
GATATAGTTTATTCTT-TGT-GTAAATATTA------CTCTTC---TCATTGAAGAAAAATTTCTCTCTCTCTCTTTTT
TTTTTTTTTTTGTGAGGAAGATCAGCCCTGAGCTAACATCCATGCTAATCCTCCTCTTTTTTGCTGAGGAAGACCGGCTC
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AAT------TTTTC---TATGTGAGAAGATGGATG--TTAGCTGAACCTACTGTGGTAATCATTTTACAGTATAAACAAA
TCACACCATCATGCTGTAGATCTTAAAC----------AGTGATATACGTCAATTATTTTTGACGTAT---GG---AAAA
AAA---TCAGTAAGTAGAAAAA-------------ATTTTTTC---AAGGAG--CTCTTTTT----TCTCATTAAGCTAA
TGATATGG--AATGATTACAGT--TTTCTTGGTACAATATTT
>Myotis lucifugus
GTGTTAAATGAGT----------AGAAACAACTGTAACTTAACAGTCAT-TTGCTTTGACT-GAATCACACACCTTGAGG
GATATAGTTTATTCTT-GGT-ATAGATATTA------CTCTTC---TTAT-----------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------GAAA
AAT------TTTTC---TATATGAG---ATGTATG--TTAGCTGAACCTATT---GTAATCATTTCACAATATATATAAA
TCAAACCATCTTGCTCTGTACCTTAAACTTGTAC----AGTGATGTATGTCAGTTA-TTTCTCGATAAACTGG----AAA
AAA---TCAGTAAGTAGAGAAAAAAATGTTTTGTTTTCTTTTC---AAGGAG--TTCTTTTTT---TCTCATTAGGCTAG
TGATA-----------TACAGT--TTTCTTGGTACAATATTT
>Pteropus vampyrus
GTGTTAAATGAGT----------AGAAACAAC--TAACTTA-CATTCATCTTGCTTTCACT-GAGTCAAACA--CTGAGG
GATATAGTTTATTCTT-GGT-ATAAGTATTA------TCCTTC---TTGTTG----------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------A-GGAA
AAA------ATTCC---TATATGAAAAAATGGATG--TTAGCTGAGCCT------ATTATAATTTCACAATATATGTAAA
TCAAACCATCATGTTCTATACCTTAAACTTACTTATACAGTGATATATATCAATT---TTTCAGTAAAACTGGG---AAA
AAA---TCATTAAGTGGAAAGAAA-----------TTATTTTC---AAGGAG--TCCTTTTTTT--TCTCATTAGGCTAA
TGATATGG--AATGATTATAGT--TATCTTGGCACAATATTT
>Canis lupus familiaris
GTGTTAAATGAGTATAAGTGAAGAGAAACAACTGTAACTT-----TGTTTTTGTTTTTCACTTGGGTTAACTA--TTGAGG
GATATAGTTTATTCTTAGGT-ATAAGTGTTA-----------------ACTCT----------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------TGT-TGAA
AAAAAA---TTTTC-------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------AAG-----TTCTTTTT----TCTCTTTAGGCTAA
TGATATGG--AATGATTACAGT--TTTCTTGGTAGCATATTT
```

```
>Felis catus
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GATACAGTTTATTCTT-GGTTATAAGTATTA------GTAT------TATTCA--------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------TG--TGAA
AAAA-----TTTTC---------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------AAG-----TTCTTTTT----TCTTATTAGGCTAA
---TATAG--AATGATAAT-----TTTCTTGATACAATATTT
>Manis pentadactyla
GTATTAAATGATT---------AAGAAACAACTGGAACATG---TTTATCCTGCTTTCACTTGAGTCAAACA--TTGAGG
GATATAGTTTATTCTT-GGT-ATCAGTATTA------ATCTTG---TTG---------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------------AAAAA
AAA-------TTTC---------------------------------------------------------------
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-------------------------------------------AGGGCA--TTCCTTTTT----GTCATTA-GCGAG
GGATACGG--AGTGACTATAGT--TTTCTTGGCAAAATATTT
>Bos taurus
ATGTTAGATGAGT----------AGAAACAACTGTAACTTAACATTCCTCTTGAATTCACTTGAGTCAAACA--TTAAGG
GGTATAGTTTATTCTT-GGT-ACAAGCATTA------CTCT---------TCT---------------------------
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------------------------------------------------------------------------------
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-----------------------------------------------------------------------TAA-AGAA
AAAGCACATTTTTC---------------------------------------------------------------
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-------------------------------------------AGGGTTTTTTTTTTTTTTCCCTCTCATTTGACTAG
TGGTGTGGACACTAATTACAGTGCTTTCTTGACACAATATTT
>Balaenoptera acutorostrata scammoni
GTGTTAAATGAGT----------AGAAACAACTGTAACTTA-CATTCATCTTGCTTTCACTTGAGTCAAACA--TTGAGG
GATATAGTTTATTCTT-GGT-ACAAGTATTA------CTCT---------TCT---------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------TAT-AGAA
AAAAAA--TTTTTC---------------------------------------------------------------
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-------------------------------------------------AAGGAG--CTTTTTTTTTTCCCTCATTAGGCTAG
TGATGTGG--AATGATTACAGT--TTTCTTGGCACAATATTT
>Condylura cristata
GTGTCAAAACAGT----------AGAAACAGCTACAATTTA----TGTATTTTTTTCCATCTGAGTCAAACA--TTGAGG
GATACAGTTTTTATTCTTTGTATAAG------------CCTTG---TTTTTTC-----------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------TGTTGAA
AAA-------TTTC---------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------AAG-----TTCTTTTTT----CTCATTAGGCTAG
TGATATAT--AGTGATTGTAACT-TTGATTTTGATTACAGTT
>Homo sapiens
GCACTAAATGAGT----------AGAAATAAATGTAACTTG-CCTTCATCTCGCTTTCACTTGAGTCACACA--TTGAGG
GATATAGTTTATTCTT-AGT-ATAAGCATTAATTTTACTCTTG---------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------TTAAAGAA
AAA-----TTTTTC---------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------AAAGAG--TTATTTTTT----CTCATTAGGC-AG
GAATGTGG--AATGATTACAGT--ATTCCTGGCACAATGTTT
>Dasypus novemcinctus
ATGTTAAATGGAT----------AAAAATAACAGTATCTTG------------CTCTCGCTTGAGAGA--TA--TTGAGG
GGATATGGTTTATTTT-GGT-ATAAGTATTAATTTTACTCTTC---CTTCTTA-----------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
```

```
------------------------------------------------------------------------CTGAAGAA
AAG-----TTCTTC-------------------------------------------------------------
-------------------------------------------------------------------------
-----------------------------------------AAGGGG--TTCTTTTCT------TATTAGGCTAG
TGATACGG--AATGATCACAATT-TTACTTG-CACAACATTA
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5.2 Marker H_B_0006

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>L1MAB_EC_rc
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ACTTTTAAGATCTACTCTCTTAGCAACTTTCAAATATACAATACAGTATTATT-------------------------
------------------------------------------------------------------------------
--------
>Equus caballus
AGCCCGGCAAA----TTATCTGTGTATAA--ATACAGGCCTTGTGTTGCCAATA----------------CCTCTTTT--
------TATTTTTTTTATGAGAAGCTGCAAATTTAA--ACCCTAGCCAA----TCTATTTGAATCTT---TTTTT----A
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AATGAATGTCAC---AAGCCTAGTTA--ACATCCATCACCACACACAGTTACTA------TTTTTTTTCTTGTGATAAGA
ACTTTTAAGATTTACCCTCTCAGCAACTTTCAAATATACGGTACAATATTACT---TTTACTTGATTCTT---CAATGCC
AGCAACCAATTT----TTTAATCTTATGTGGACCAAT-ACTACCTTGGGCAAAATAAAACAAGATTGCGGGCCAGATTTG
GCCTATGG
>Ceratotherium simum simum
AGCCCAGCAGA------TTTTCTAGGTAGTAATACAGGACTTGTGTTGCCAATA----------------CTTCTTTTTA
TTT---TATTTTTTTTATGAGAAGTTGCAAATCTAA--GTTCTATGCAAA---TCTACTTGAATCTT---TTTTTT---A
ATTGAGATATAATTGACTTATAACATTATATTA-GTTTCAGGTGTACAACATAATGATTTGATATTTGTATATATTATGA
AATGATTGCCACAATAAGTCTAGTTA--ACATTCATTACCACACATAGTTACTAA----TTTTTTTCTTGTG--ATGAGA
ACTTTTAAGATCTACTCTCTCAGCAACTTTCAAATACACGGTACAATATTATT---TCTACTTGATTCTT---AAATGCT
AGCAACTGATTT----TTTAATCTTATGTGGACCAAC-ACTACACTGGGCAAAATAAAACAGGATTGTGAGCCAGATTTG
ACCTGTGG
>Myotis lucifugus
AACTCAGCAGG----TCCTCCTTATGTGGAAATGGATATG---CAGACCCAATA----------------CCTCTTTTTC
TT----TTATTTTTTCATCAGAAGCTTCCAATTTAA--GTTCTATTAAAG---TCTACTTGATTCTT---TTTTGTTTAA
ATTGAGACAGAACTGACCTAAAACATTATGTGA-ATTTCAGGTGTATAAC---ATGATTTGATTCTCATACATATTGTAA
AATGACCACCACACTAAGTCTAGTTA--ATATCGGTCACCATACA--TAGTGATTT----TTTTTTCTTGTG--ATGAAG
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AGTAAATTATGC----TTTAATCTTATATGGACCAACAACTGCATTGGGCAAAATAAAACAGGACTGTGGGCCAGATTTG
GTCTGCGG
>Pteropus vampyrus
AGCTTAGCAGA----CCATCGTTATGCAGAAATGCAGGCCTGATGTTGCCAACA----------------CTTTT-----
------TATTGTTTTCCTGAAAAGCTGCAAATTTAA--GTTCTATTCAAA---TCTACTTGATTCAT---TTTTAGT--A
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GATGATCACCACAATAAGTTTAGTTA--ACATCCATCACCACACA--GTTACAGCT----GTTTTTCTTGC---ATGAGA
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GGCAAATGGTTT----TTTAATCTTATATGGACCAAC-ATTGCATTGGGCAAAATAAAACAGGATTGTGGGTCAAATATG
GTCTGTGG
>Canis lupus familiaris
GACACAGTAGA----TTATCATCATGTGGAAATGCAGGCCTTGTGCTGTCAACA----------------GTTGGTTGGT
------TGTTTTTTTCACGAGAAGCTGCAAATGTAA--ATTCTAAACAAA---TCTAATTGATTCTT-------------
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------------------------------------------------------------------------------
-----------------------------------------------------------------------AAATGCC
AACATCCAATGT----TTTAATACTATACAGACCAAC-ATTGCATTGGGCAAAATAAAACAGGA-TGTGGATTAGATTTG
GCCTGAGG
>Felis catus
GACACTGAAGATTATCTATCATCAGGTGGAAATGCCAGCCTTGTGTTGTCCACAGGTTTTTTTTTTCTTTCGTTTTCTTT
TCTTTTCTTTTTTTTCATGAGAAGCTGCAAATGTAATTGTTCTGAACAAG---TCTAATTGATTCTT-------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------------ACATGCC
AACAACCAATTT----TTAAATACTATACAGACCAACACTGCATTGGAAAAAAATAAAACAGTGTTGTGGGTGAGATTTG
GCCTGTGG
>Manis pentadactyla
CACCTGGTAGA----TTATCATAACGTGGAAATACAGGCCTTATGTTGCCAATA----------------------
-------TTTTATTTTATTACAAGCTGCAAATCTAG--GTTCTATACAAA---TCTAATTGATCCTT-------------
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-----------------------------------------------------------------------AAGTGCT
AGGAACCCATTT----TTAAATCCTATATGGACCAAT-ACCAATTCGAGCAAGATAAAACAGGATTGTGGGCCAGATTTG
GACTGTGG
>Bos taurus
CATCCAGGAGA----CTGTCGTTCTGTGGAAATGCAGGCCTGACTGTGCTCACA----------------CTTCTTTCTC
CTTTTATACTTTTTTCATGAGAAGCTGCAAATCTCA--AC------------------TGATTGTT-------------
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-----------------------------------------------------------------------AAATGCG
AGTAATCCATTT----TTTAATCCTATATGAACCAAA-ATAGCACTGGGCAAAATAAAACAGGACTGTAGGTCAAATTTG
GCCTGTGT
>Balaenoptera acutorostrata scammoni
GGCTCAGTAGA----CTGTCATGATATGGAAATGCAGGCCTTGTGTTGCCAACA-------------CTTCTTCTGTCTC
CTTTTTTTATTTTTTCATGAGAAGCTGCAAATCTAG--GTTCTGTGCAAA---TTTAGTTGATTCTT-------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
```

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------------------------------------------------------------------------AAATGCT
AGCAACCAATTT----TTAAATCCTATATGAACAAAC-ACTGTATTAGGCAAAATGAAACAGGACTGTGGATCTAATTTG
GTCTGTGT
>Condylura cristata
AGCTTAGCAGA----TCACTCTTGTATGGAAAAACAGGCCTTGGGTTAATGATACTGAC----------------------
----TTTTGTTTTTCCAGGAAAAGATGCAAATTTAA--ATTGCATGAACA---TCTCTTTCACTCGT-------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------ATATGCT
AGTAACCATTTT----TTAAAACCGATACAGACCAAT-ACTACACTGGACAAATTAAAACAGAACTGTGTGCCAGACTTC
ACCCATGG
>Trichechus manatus latirostris
TGATCAACAGA----TTACCAAT--GTGGAAATACACGGCTTGTGTTGCCAATA-----------------------CTT
TTTTTCTTTCTTTCCCATGAGAAGGTGCAAATCCAG--ATTCTATGCAAA---TCCACCTGATACTT-------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------AAATGCC
GGGAAAATAAAAAAAGTCTAACGCTGTATGAACCAAT-AGTGCACTGGGCCAAGTAAAACAAGATTGTGGCCCAAATTTT
TGACCTGA
>Choloepus hoffmanni
AGCTCAGCAGC----TTAAAGTTACATGGAAATGTAGCCCTTGTGTTGCTAAGG--------------CTTTTTTTTTTT
TTTTTTTTTTTTTCCCATGAGAAGATGCAAATCTAGATTCTGTGTACATA---TCTATTTGATTCTT-------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------AATTGCT
GGCAACCAAA-T----TTCAACCCTATATGACTTCAC-ACTGTTTTGGGCTATATAAAACAAACTTGTGGACCAGACTTG
GCCTGTGG
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5.3 Marker H_B_0008

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>L1MAB_EC
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AAAAAAAAAATTTGTAACTATGTGAGGTGATGGATGTGTTAATTAACTTCATTGTGGTAATCATTTCACAA----TATAT
ACATATATCAAATCATTATGTTGTACACCTTAAACATAATACAATGTTATATGTCAATTATATCTCAATAAAA-------
------------CTGAAAAA---A-----------------------------------------------------
------------------------------------------------------------
>Equus caballus
AAAC---CTCAGAAACTT-AACTG----------------GA-CCAAGGTGTGTCTTAAGACAATTTAGGAAAATGCACT
GGAACAGGGCTACTT-CCCC-----------TCAGAGGGGTTTGAGAATCTGAT---AAAAGCTTGAACTC-T---TACA
GTGAATGTAGACAACTATATTGTACTATAATCATCAAACCTGCTAAGAGACTAGAACTTAATTATTCCAACCAATA----
---AAAAGAAAGCATACCTAGGTACTGTGATAGAGGTGCCAAGTATTGCTACAATTGCAGTCATATTACAAAAAATATAT
AAATGTATCAAATTAACTTATTGCACATCTTAAATTT-ACACAATGATGTGTGTCAAATATATTTGATTAAAAAAATC--
------------ATGAAAAA---AAAAGCTTGAACTCT---CTCCCCTGAAATGCGCAGACATCCAGTATTCAAATATAG
TTTCAAAG---AAGTCACAGGTTTTCTGAAGCCCTACACCC-TAGGTCAAGGACCCCCAGTCTAG
>Ceratotherium simum simum
AAAC---CTCGGAAAGTTGAACTG----------------GA-CCAAGGAGTGTCTTAAGACAATTTAGAGAAATGCTCT
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ATGAATGTAGACAACTATATTGTGCTATAATCATCAAACCTGCTAAGAGACTAGATCTTAATTATTCCAACCACTA----
---AAAGGAAAGGATAATTATGCACTGTGATAGAGGTGCTAAATATTGCTACAATTGTAACCATACTACAAAAAATATAC
GAATATATCAAATTAATTTATTGTACATCTTAAATTT-ACACAATGTTACGTGTCAAATATATTCAATAAAAAGAAAT--
---------ACCATGGAAAA---AAAGACTTGAACTCT---CTCCCCTGAAATGCGCAGACATCCAGTGTTCAAATACAG
TTTCAAAG---AGGTCACAGGTTTTCTGAAGCCCTGCACCCCTAGGCCAAGGTCTCCCAATCTAG
>Myotis lucifugus
AAAT---CTCAGAAAGTTGGACTA----------------GA-CCAAGGAGTGTCTTGGGACATTTTACATAAATGCTCT
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---AAAAGAAAGCATAAGTATATAATGTGATGGAGTTGCTAGATGTCTCTACAATGACAATCATACAGTATTAAATGTAT
AAAATTAAC----------ATTGTACACCTTAAATTT-ACACAATGTTATATGTCAAACATATCC-ATTAAAAAACAACA
ACTTATCATTGAAAGGGAAA---AAAGGCTTGAACTCT---CTCCCCTGAAATGCACAGACATCC-------------AG
TTTCAAAG---GGGTCACAGGTTTTCTGAAGCCCTACAGCC-CAGGTCAGGGACCCTTGATCTAG
>Pteropus vampyrus
AAAC---CTCAGAAAGGTGGGCTG----------------GA-CCAAGGAGTGTCTTAAGACAATTTAGAGAAATGCTCT
AGAACAGTGCTTCTT-TCCT-----------TCAGATATGCTTGAGAATCTGAT---AAAAGCTTAAACTC-T---TATA
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TTCCAAAG---AGGTCACAGGTTTTC------------------------------TGATCTAG
>Canis lupus familiaris
TAA-------GAAAAGTTGAGCTG----------------GA-CCAAGCAGTGTCTCAAGACAATTTAAAGAAATACCCT
AGAACAGTGTTTCTTCCCCC-----------TCAGATATGTTTGAGAATTTGAT---AAAAGCTTGAACTC-T-------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------CTCCCCTGAAATGCGCCAATGTCTGGTGTTCAAATACAG
TCCCAAAG---GGCTCACAGGTTTTCTGAAG-CCTGGAACC-CTCGTCAAGGACCCCTGATCTGG
>Felis catus
AAAG---CTCAGAAAGTTGAACTG----------------GACCCAAGCAGTGTCTCAAGACAATTTAAGGAAATGCTCT
GGAATAGCATTTCTT-ACCC-----------TCAGATATGTTTGAGAATTTGAT---AAAAGCTTGAACTG-T-------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------CTCCTCTGAAATGCACAGATGTCTAGTGCTCAAATACAG
TCTCAAAGCGGGGGTCACAGGTTTTCCAAAGCCCTGCGCCC--TGGTCAAAGACCCCTGATCTGA
>Manis pentadactyla
AAAG---CTCGGAAAGTTGGCCTG----------------GA-CCAAGAAGTGTGTTAAGACCATTGAGGGAAATGTTCT
AGAACAGTGCTTCTT-CCCC-----------TCAGACATGTTT--GAGTCTCAT---AAAAGCTTGCACTC-T-------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------CTCTGCTGAAATGCACAGTTATCCAGCGTTCAAATATCT
---CAAAG---GCGTCACGGGTTTTCTGAAGCTCTACATCC-TAGGGCAAAGAC-CTAGATCTAG
>Bos taurus
AAAG---CTCAGAAAGCTGGACCA----------------GA-CCAAAGAGTGTCTTGAGACAGTTTAGGAAAATGCTCT
GGAACAGCACTGCTT-CCCC-----------TCAGTCATGTTTGAAAATAGGAT---CAAGGCTTGAATTC-T-------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------CTCCCCTGAAATGCACAGACACCCAGTGTTCACATAAAG
TCACAAAG---GGGT--CAGATTTTCTGAAGCCCTGCACCC-AGGGTCAAACATCCTTGACCTAC
>Balaenoptera acutorostrata scammoni
AAAG---CTCAGAGAGTTGGATTA----------------GA-CCAAAGAGTGTCTTAAGACAGTTTAGGAAGATGCGCT
GGAACAGTGCTTCTT-CTCT-----------GCAGATATGTTTGAGAATCAGAT---CAAAGGTTGAACTC-T-------
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------------------------------------------------------------------------------------
-----------------------------------------CTCCCCTGAAATGCACAGACAGCCAGTGTTCAAATAAAG
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>Condylura cristata
TAAGTTCCTCA--AAGTT----------------------CA--GAAAGTTGGACTTATGAAAATTTAAGGAAATGATCT
AGAACTGTGTCTGTTCACC------------TCATATATGTTTGAGAATCTGCT---TACAGCTTGAATTC-T-------
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------------------------------------------------------------------------------------
-----------------------------------------CTGCCCTGAAAGGCACAGACATCATGTGTTCAAATACAG
TTTGAAGG----GGTCACCAGCCTTCTGAAG-CCTCACACTCTAGGTCAAGGACCCTT-ATCTAG
>Homo sapiens
AAAC---TTCAGAAAGTTGGATTG----------------AA-CCAAGGATTGTCTCAAGGCAGTTTAGGGAAATGGTCC
AGAACAGTGCCTCTT-ACCCTTTCCTGTATCTCAGATATGTGTGAGAATCTGAT---AAAAGCTTGAACTG-T-------
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------------------------------------------------------------------------------------
-----------------------------------------CTCCCCCAAAATAGACACACATCCATTGTCCAAATACAG
GTTCAAAG---GGGTCACAGATTTTCTGAAGCCCTATAACC-TAAGTCAAATACCCCTAACCTAG
>Dasypus novemcinctus
AAAC---CTTTGAAAGTTGGCCTAGGACTATGTTAAAGTTGA-CCAAGCACTATCTTAAAACATTTTAAGGAAGTGTTCT
AAAACTGTACTTCTT-ACCCTTTCTGGAGTCTCA--TATTTTTGAGAATTCGCT---AAAAGATTGAACTC-T-------
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5.4 Marker H_B_0022

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>L1_Carn7
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------------------------------------------------------------------------
>SINEC_Fc3
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
----------------GGGGCGCCTGGGTGGCTCAGTCGGTTAAGCATCCGACTCTTGATTTCGGCTCAGGTCATGATCT
CACGGTTCGTGAGTTCGAGCCCCGCATTGGGCTCTGCGCTGACAGCGCGGAGCCTGCTTGGGATTCTCTCTCTCCCTCTC
TCTCTGCCCCTCCCC-TGCTCATGTGTGTGCTCTCATGCACTCTCTCTCTCTCTCTC----AAAATAAATAAATAAACTT
TAAAAAAA------------------------------------------------------------------------
------------------------------------------------------------------------
>Equus caballus
AAAAAAGAGCTCAACCTCAACTAAACACCATCATGTTAGAATAA--------------------AATAAAGCCA-A-ACT
GGTTTGGGTTT-----------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------------------------------------AAA
AGGAAATTACAT---TTTTTGTAACTATGTATGGTGATGAGTGTTAACTAGACTTATTGTGGTATTCATTTCACAATATA
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------------------------------------------------------------------------------
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>Ceratotherium simum simum
-AAAAAGAGACCAAACTCAACTGAACACCATCATGTCAGAATAA--------------------AATAAAGCCACA-ACT
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CACTGACATCGAATCATTGTGTTGTATACCTGAAACTAATAT-ATGTTATATGTTAACTATACCTCAATTT---AAACAA
AGGAAGTTACAT----------------------------------------------------------------
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----------------------------------------AGAGGAAAGTATATTTCTTTTGGTCCACCCAATTAAATAA
GATTTAGCTCTACTAGTAGTTGCAA---------AATACCCACTCTTTTCTATTGAAAGCA--CTTAGTTTG
>Myotis lucifugus
GGGTGAGAGACCAACCTCAACTGAATACCATCATGGAAGAATACTGATAA-----------------AAACCCACA-ACT
GGATTAGATTT-----------------------------------------------------------------
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-------------------------------------------------------------------------------AAA
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>Pteropus vampyrus
GAAAAAAGGATCAACCTCAACTGAACACCATCATGGCAGAATAGTAATAAAAAT----------AATAAAGCCACG-ACT
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CTTTTAGCTGTACCAGTAGCTTTGA---------AATGCCCACTCTCTTCTACTGAAAGCA--CTTAGTTTG
>Canis lupus familiaris
ACAAAACAAACAAACCTCAAATGAACACCACCATGGCAGAATCATGAAAA--------------AATAAAGCCACT-GCT
TGATTGGATTT-----------------------------------------------------------------
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-------------------------------------------------------------------------------AAA
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A-GAAATTACGC-----------------------------------------------------------------------
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>Felis catus
ACAAAA----CAAACCTC---TGAACCCCAATATGGCAGAATTTTGAAAA--------------AATAAAACCACA-CCT
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CACAGTTCCTGAGATCAAGCCCAGTGTTAGGCCCCACCCGGAGAGTTTGGAGCCTGCTTAGGATTTTTCTCTCCTCTCTC
TCTCTGCCTGTCCCCCTGC-------TGTGC--ACACACACTCTTTCTCTCTCTCTCTCTTAAAATAAATAAACATTTTT
TAAAAAGAAAAAGAAAAAAATG--AAAAGAAATCACCT--AAAGAAAAGAATATTTCTTTCGGTCCACTCAAATTAATAA
CATCTAA--CTAC-----------------------------------------TGAAAGCA--CTTAGTTTG
>Manis pentadactyla
AAAACAGAGACTAACCGCATCTGAACACCATCATGGAAGAATTGTGAAAA--------------AATAAAGCCACAAACT
TTATTGGATTT------------------------------------------------------------------------
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-----------------------------------------------------------------------------------AAA
AGGAAATTACAT-----------------------------------------------------------------------
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---------------------------------------AGAGAAAATCACATTTCTTTTGGTCCACCCAAATAAATAA
CGTTCAACTCTGCCGGTAGCTTTGA---------AATGTCCACTCTTCTC---AGAAAGCA--TTTAGTTTG
>Bos taurus
ACAATAGAGACTAATCTCAACTGAACACCATTGTGGCAGAATTGTGAAAA--------------AATAAAGCCACA-ACT
TTACTGGATTT------------------------------------------------------------------------
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-----------------------------------------------------------------------------------TAA
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>Balaenoptera acutorostrata scammoni
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>Condylura cristata
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TCATTGAATTT------------------------------------------------------------------------
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AGGAAATTTCAA-----------------------------------------------------------------------
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---------------------------------------AGAAAAAAGCACGTTCCCTTTGCGCCTAGCAATTAACTAA
CATTTCACTCAACTTA-AATATTGA-------------------------ATGAAGGCA--TTTGGTTTA
>Homo sapiens
ACA---GAGACTAACTTCAGCTGAACACTATCGTGAGAGAATTGTAAAAAATAAAATAA-----AATAAAGCCACA-ACT
TCATTGAATTT------------------------------------------------------------------------
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-----------------------------------------------------------------------------------AAG
AGGAAATTAC-------------------------------------------------------------------------
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-----------------------------------------------------------------------------------
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-------------------------------------------ACAAAGTAAACTTCTTTTTGCTTATCCACTTAAATAA
TATTTAACGCTACTAGTAGCTTTGA---------AATGTCCA--CTCTTATACTAAAAGCAAACGTAGTTCA
```

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>Loxodonta africana
TCAAA-GAGACTAATGTTAACTGAACACTATCAGGGCAGATTTGTGAAAA--------------AATATAGCCACA-ACT
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------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------AAA
GGGAAATTACAC----------------------------------------------------------------------
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CATTTAATTCTAGTAG---CTTTAA---------AATACCCAGTCTCTCTTCCTGAAAGCAAACTTGGTTTG
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5.5 Marker H_B_0028

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>L1_Carn7
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TCGAATCACTATGTTGTACACCTGAAACTAATATAACATTGTATGTCAATTATA-CTCAAATAAAAAAA----------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
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>Equus caballus
GAAAGTGTTTGATATACAATAGGTGTTTACTAAGTGAAATCCATGGGAGACAGCAGGTGCGGCAAAC-AGAGTTTGAACT
CT---GGAATTAGGA-CTAGGTT---AGAA-TCATATCAGACTTCTTGTGGT----ATCATTTCGCAATATATAAAAATA
TTGAATCATTATGTTACACACCTGAAACCGATATAATGTTTTGTGTCAATTATATCTCAATTTTTAAAAAA---AGAATC
ATATCAGCCCCACTGCT---TAAA-ACAATGTATGACCT--------------------------------------
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------CGGTTAGGTGACTTGGCTTCTCCCAGCCACAGTTCCTTTATCTGTGAAATGGGAAT-GCTAATATTTACCTTGT
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>Ceratotherium simum simum
GAGAGTGTTTGATATACAATAGGTGTTTGCTAAATGAAATCTATGGGAGACAGTAGGTGCAGTAAAC-AGAGTTTGAATT
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TTGAATCATTATATTGTACACCTGAAACTAATAT-----TTTATGTCAATTATATCTCAATTTAAAAAGAA---AGAATC
ATATCAGCACCACTGCT---TAAA-AAGATGTATAACCT--------------------------------------
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------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------TGGTTAGGTGATTTGCCTTCTCCCAGCCTCAGTTCCTTTATCTGTAAAATGGAAAT-GCTAATATTTACCTTGT
AGGGTGGT
>Myotis lucifugus
CAGAAGGTTGGACATCTAATAGGTGCTTG-----------CCATGAAAGACAGAAAGTATAATAAAC-AGAGTTTGCACG
CT---GGAGTTAGGAGTGGGGTT---AGAC-T-----------CATTGTGGT---GATTATTTCACAATATATACAAATA
TTGAATCACTATGTTGTATATCTAAAATTAACATAAGGTTATATGTCAATTATATTTCAG-CTAAAAAAAG---AGAATC
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------CAGCCAGATGATTCGGCTTTTCCCAGCCTTATTTTCTTGATCTATAAAATAGAAAT-GCTAACATGTACCTTGT
ATAGTTGC
>Pteropus vampyrus
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TTGAATCAC--TGTTGTACACCTGTAACTAATATAATGTTACATGTCAATTATATTTCAA-TTAAAGAAAA---AGAATT
GTATCAGCTCTACTGCT---TAAA-AAGTTGTATGCCCT--------------------------------------
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------CAGTTAAGCGACTTGACTTCT---AGCCTTTGTTCCTTTATCTGTAAAATGGAAAT-GCTAACATTTACCCTGG
ATGGTTGT
>Canis lupus familiaris
CAGAGTGTTTGATACACAATAGGCATTTGATAAATGAAATCCATGGGAGACAGCAGGGGCAGAAAAC-GGAGTTTGAACT
CTGGAGGAGTTCGGAGCTAGCTT---AGAA-TCATATCAGCTCTG--GTGTT------------------------------
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--------------------TGAA-AAGATGTATGACTT--------------------------------------
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------CACTTAAGTGACTTGGCTTCTCGCAGCCTCAGCGTCTTTATCTATAAAACGCCTTTATCTAATATTTATCTTGT
AGAGTGAT
>Mustela putorius furo
CAGCATGTTTGATATACAATAGGTATTTGATGAATGAAATCCACAAGAGAAAGCAAGTGCAGAAGAC-AGAGTCTGAAGT
CTGGAGGAGTTAGGAACTGGCTT---AGAA-TCACGTCAGCTCCA--GTGCT------------------------------
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--------------------TATA-AAGATGTCTCATTT--------------------------------------
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AGGATGAT
>Felis catus
CAGAGTGTTTGATATTTAA-----------TAAATGAAATCCATGGAAGATATCAGGTACAGAAAAC-AGAGTCTGAACT
CT---GGA----GGAGCTAACTT---AGAA-TTGCATCAGCTCTG--GCGCT----------------------------
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AGGGTGAT
>Manis pentadactyla
TAGAGTGTTTGATGCACAATAGGTGTCTG--AAATAAAATCTATGGGAGACAGCAGGCACAGAAAAC-AGAGCCTGAACT
CTGGAGGAGTTAGGAGCAAGCTT---AGGA-TCATATCAACCCCA--CTAC----------------------------
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--------------------TAAAAAAGATGTATGACCT----------------------------------------
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>Bos taurus
CAGAATGTTTGACATACAACTGGTATTTGCTAGATGCAATCCATGGAAGGTAACAGGTGCAGGAAACAAGAGATTAAACT
CT---GGAGTTAGAAGCTAGCTC---A-AA-CCTTATCATCCCCA--CTGCT----------------------------
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------TGGCCAGGCGACTTAGCTTCTCCTAGCTTCAGTTCCATTATCTGCAAAATGGAAAT-GTTAGTATTTACCTTGT
AGGGCAGT
>Balaenoptera acutorostrata scammoni
CAGAATGTTTGATATACAACTGGTGTTTGCTTGATGCAATCCATGGAAGACAGCAAGTGCAGAAAAC-AGAGTTTGAACT
CT---AGAATTAGAAGCTAGCTT---A-AA-TCATATCAGCCCCA--CTGCT----------------------------
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AGGGCAGT
>Condylura cristata
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---------------GCTATAAA---AGAA-TCATCTCAGATCCT--TTGCT----------------------------
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--------------------TACA-AAGATGTAAGACCT----------------------------------------
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--TGCTTGGTTAGATGACTCAGCTTCTGTCAGGCTCAGTTCCTTTAACTGTAAAATGGGAAC-GCTAACATTTACTGTAT
GGAGTTAT
>Homo sapiens
CAGAGTGTCTGGTATACATCA-GTGCTTGCTCAATGAAATCTATGTGAGACAGCAGTTGCGGCAAAC-AGAGCTTGGACT
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--------------------TAAAAAATAC--ATGACTT----------------------------------------
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------TTGTTAGTTGACTTGGTTTCTTCCAGTGTCAGTTCCTTTATCTGT-AAATGGGAAT-GCTAATATTTATCTTGA
AAGGTTGT
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>Trichechus manatus latirostris
CAGAGTGTCTGGTATACACTAGGTGTTTGCCAAACAAAATCCATGGGAGATAGCAGGTGCAGCAAAC-TGAGCTTGGACT
CT---GCGGTGA-GAGCTAGGTT---AGAA-GCAAATCAACTCCA--TTACT----------
----------
--------------------TAAA-AAGATGTATGACCT----------
----------
----------
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-------GGTTAGGTGACTTGGCTTCTCCCAGCCTCAGTTCCTTTATCTGAAAAACGGGAAT-GCTACTATTTACCTTGT
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5.6 Marker H_B_0029

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>L1MAB_EC
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GTGTTAATTA-ACTTCATTGTGGTAATCATTTCACAATATATACATATATCAAATCATTATGTTGTACACCTTAAACATA
ATACAATGTTATATGTCAATT----ATATCTCAA---TAAAA-----------------------------------
------------------------------------------------------------------------------
--------------
>Equus caballus
TAAAATGATAGGTAAAGTCAA----GAGAAATAAACAAAAGAGAAATTGAATCTAGATTTT-ACATATAAAACC-CATTT
CAATTACAAAAA----TCATCCTC---CATAAA--AAAGAATGTCAT---GGGTTAAGGTGGTCAAAAGGTACGAACTCC
CAGTCATAAAATAAATAGG-TCATGAGGATGTAAAGTACAGCATGATGACTATAGTTATTAATACTGTATGGCATATTTG
AAAGGTGCTATGAGAGTAAATCTTAAAAGGTCTCAATAC---AAGAAAAAAAAGCTTTTGTAACTATGTACAGTGATAGAT
--GGTAACTAGACTT-ATTGTGGTGATCATTGCATAGTGTATACAAATATCAAATTATTACGTAGTACCCCTGAAACTAA
TATAAGGTTATATGTCAAT----TCTCAATATCT---CAATAAAA-AAAGAATGTTAT---AATCAT---ACAATGTTGC
A-------ACTAAAG-TTAAAAACTTT-GGC-AATATATCATCTGGTATTGCAGTATTGTTTACTAACCTCTGATTCATC
ACCCTTCTCTCTAT
>Ceratotherium simum simum
TAAAATGATAGGTAAAGTCAA----GAGAAATAAACAAAAAAGAAATTGAATCTAGATTTT-TAAAATAAAACC-CATTT
CAATTACAAAACA---TCATCCTC---CATAAA--AAAGAATGTTAT---AGGTCATGGGGGTCAAAAGGTATAAACTCC
CAGTTATAAAATAAGTAAG-TCATGAGGATGTAATGTACCGCATGGTGATTACAGCTAATAATACTGTATGGCATATTTG
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--GGTAACTAGACTT-ATTGTGGTGATCACTTCCTAGCGTATACAAATATCAAATTATTATGCAGTATACCTGAAACTAA
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A-------AC------TAAAAAACTTT-GGC-AATATACCATTTGGTATTGCAGTATTGTTTACTAACCTCTGATTCATC
ACCTTTCTCTCTAT
>Myotis lucifugus
TAAAATGACAGGTAAAGTCAA----GAGAAGTAAACAAAAGAAAAACTGAGTCTAGATTTT-AAAAATAACGTTTCAATT
--ATGAAAAAAA----TCATCCTC---CATAAAAAAAAGAATGTTAT---GGGTGAAGGGAGTCAAAAGATACAAACTCT
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--GTTAACTGGACTT-ACTGTGGTGATCATTTTGTAGTATATACAAATATTGAATCATTACATTGTATGCCTGAAACTAA
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ACCCTTCTCTCTAT
>Pteropus vampyrus
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TACTTATATAATAAATAAG-TCATGGGGATGTAATGTACAGCGTGGTGACTATT----------------TGCAAGCTGT
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TATAAAGTTATTTGTCAAT-----GTTATAATCA-----------------------------T---ACAATGTTAT
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ACCCTTCTCTCTAT
>Canis lupus familiaris
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CAATTATAAAA----CTCATCATC---CATTA---AAA--ATGTTGT---------------------------------
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>Felis catus
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CACTTATAAAA----TTCAACCTC---CATAAG--AAAGAATGTTAT---------------------------------
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A-------ATGAAAA-TTAGAAGTTTATGGC-AATGTATCATTTTGTATTGCAGTATTGTTTACTAACCTCTGATTCATC
ACCCTTCTCTCTAT
>Manis javanica
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CAATTACAAAAAA---TCATCCTC---CATTT---AAAGAATGTTAT---------------------------------
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------------------------------------------------------------------------------
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----------------------------------------------------------ACTCAT---ACAATGTTGC
A-------ACTAAAA-TTAACAACTTTTAGT-AAAATATTATTTCATATTACAATATTGTTTACTGACCTCTGATTCATC
ACCCTTCTCCCTAT
>Bos taurus
TTAAAA-----GAAAAGTCAA----GAGAAATAAACAA--GAAA--CTAAATGTATAATTT-AAAAATCAAACC-CATTT
CAAT-ACAAAAAA--ATCATCCTC---CATAAAA-AAAGAATGTTAT---------------------------------
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ACCCTTCTCTCTGT
>Balaenoptera acutorostrata scammoni
TTAAAC-ATATATAAAATGA-TAAAGAGAAATAAACAA--GAGAAATTGAATCTACAATTT-AAAAATAAAACC-CATTT
CAATTACAAAAAAAAATCATCCTC---TATAAAA--AAGAAAGTTAT---------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
------------------------------------------------------------AATAATCATGCAATGTTGC
A-------ACTAAAA-TTAGAAACTCT-GTC-AATATATCACTTGGTATTGCAATATTGTTTACTAACCTCCGATTCATC
ACCCTTCTCTCTAT
>Condylura cristata
---------------------------TAAAGAAACATACAAAAAATCAAATCTAGATTTT-AAAAATAAAACC-CCTTT
TAACAACATTTA--ACTCATCCTC---CATGG----AAAAAA-TTAT---------------------------------
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--------------------------------------------------------------------------------
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------------------------------------------------------------AATAGT---ACAATTTTGC
A-------ACTAATA-TTAAAAACTCTCAGT-AATATGTCATTTGGCATTACAGTATTGTTAGCTAACCTCTGATTCATC
ACCCTTCTCTCTAT
>Homo sapiens
GAAATAAAATGGTAAGTGAAATAAAGAGAAATAAACAAAAAAGAAATTAAATCCAGATTTT-AAAAATAAAAC------T
CAATTACATAA---AATCATCTTC---CATAACAA-ACGA-TGCTACA----------------------------------
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A-------ACTAAAA-TCAAGAATTTT-GGC-AATATATTATCTGGTATTGCTAATACCTCTACTAACCTCTGATTCATC
ACCCTTCTCTCTAT
>Choloepus hoffmanni
GAAAATTACAGGTAAAATCAAGTAAAATAAATTATATCAAGAGAAATTCAATCCAGATTTTTAAAAATAAAAA--TTTAT
CAATTACAGAG---AATCATTCTC---CATAAAAA-AGGA-TGTTATA----------------------------------
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--------------------------------------------------------------------------------
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------------------------------------------------------------AATCAC---ATAATGTTGC
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ACCCTTCTCTCGAT
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5.7 Marker H_B_0036

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TCCATCACCTCACATAGTTACAAATTTTTTTTTTGTTTKTGTGATGAGAACTTTTAAGATCTACTCTCTTAGCAACTTTC
AAATA--TACAATACAGTATTATTAACTATAGTC-----------------------ACCATGCTGTACATTACA---T
CCCCAGAACTTATTCATCTTATAACTGAAAGTTTGTACCCTTTGACCAACCTCTCCCTATTTCCCCCACCCCCCA---GC
CTC-----------------------------------------------------------------------
------------------------------------------------------------------
>Equus caballus
AGGATAGAATAGTACTAATCATTCCAAC-TTTATTTATTTGCTGGGGTTTAGGACTCCTCTACAAATTGGAGCTTCAAGG
CCTATCCCCAACAAGTT---------------------TTTATTTTATTGA---GGTATAATTGATATATAACATTATA-
TAAATTTCAGGTGTACAACGTAATGATTTGATAT-TGTATACACTGCTAAAGGAGCACCACACT-AAGTCTAGTTTC-CA
TCTGTCACCATACAAAGTTACAAATTTTTTTCTTTTTCTTGTGGTGAGAACTTTTAAGATATACTCTCCT-GGAACTTTC
AAAAA--TGCACCACAATGTTATTGACTACAGTC------------------------ACCATGCTGTACATTACA---T
CCCCATGACTTACCTATTTTATAACTGGAAGTTTGTACCTCTTGACCCCATTCACCCATTTTGCATACCCCCCAA---CC
CCC---CTTAGTTTTTCTG---CCAATGAGCTT-CAAAGGAATCAAACAG------------------------AAT--
GAGTGCATCCTTGAAGGAGGAATTTACTTCTTTGCCGTTAATTCTATAATTGTTC--AGAATAAAGAT
>Ceratotherium simum simum
AGGATAAAGTAGTACTAATCATTCCAAC-TTTATTTATTTGCTAGGTTCTAGGATTCCTCTGTAAATTGGAGCTTCAAGG
CCTATCTCCAACAAGTTTTT------------------TTGTTGTTGTTGA---GGTATAATTGATATATAAAATTATA-
TAAGTTTCAGGTATACAACATAATGATTTGATATTTGTATACACTGTGAAAGGATCACCACACT-AAGTCTAGTTTC-CA
TCTGTCACCGTACAAAGTTACAAAATGTTTTCTTTTTCTTGCGACGAGATCTTTTAAGATTTACTCTCTTGGCAACTTTC
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CCCCGTGACTTATTTATTTTATAATTGGAAGTTTGTACCTCTTGACCCCCTTCACCCATTTTGCCCACCCCCCA----CC
CCC---TTTAGTTATTCTG---CAAATGAGGTT-CAAAGCAATAAAACGA------------------------ACA-G
GAGTGTGTCCTTGAAGGAGGAATTTGCTCCTTTACCGTTAATTCTATAATTGTTC--AGAATAAGGGT
>Myotis lucifugus
AGAA-----------TAACCATTCTGAC-TCTATTTATCTGCTAGGTTCTAGAAATCCTCTACAAATTGGTGCTTCAAGG
CCTAGCTCCAGCAAGCTTT-------------------TGTATTTTGTTGA---GATATAACTGACAGACAACATCATA-
TCAGTTTCACTTGTACAACGTAACGATTCGGTATCTGTATACACTGCAAAGTGATCGCCACAGG-AAGTCTCGTTAC-CA
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CAAATA-TGCACTTCAGCGTGATTGACTATAGTC------------------------CTCATGCTATACATTACTGCAT
CCCCATGACTCACTTATTTTATACCTGGAAGCCTGTACCTC-TGGCCCCCTTCACCCATTTCGCCCACCCCCA-----CC
CTC---TTTCGTTATTCTG---CCAACGAGGTT-CAACGCAATAAAACAACTGGGGAGATTCAACGCAATAAAACAACTG
GGGCATGTCC-TGAGGGTGGAATTTGTCCTGTCAGGCTTAATTCTATAATGGTTC--AGAGTAAGGGT
>Pteropus vampyrus
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CCTATCTCCAACAAGCTTT-------------------ATATTTTTTTTGA---GGTATA----ACATATAACATTATA-
TTAGTTTCAGTTGTACAATGGAATGATTAGAAATTTGTATACACTGCAAGATGATT-CCACAAT-AAGTCTAATTAC-CA
TCCTTTACCATACAAAGTCACAG-----TTTTTTTTTCTTGTGATGAAAACATTTAAGGTTTACTCTCTC-GGCATCTTT
CAAATATTGCACTATGATATTATTAGCTACAGGT------------------------TCCATGTTGTACATTATA----
CCCCATGACTTATTTATTTTATAACTAGAAGTTTATACCTCTTGACCCCCTTCACCCAGTTTGCCCCCCCCCCCTTCTCC
CGC---TTTAGTTATTCTG---CCACTGAGGAT-CAAAGTAATAAAACGG------------------------AATTG
GAGCACGTCCTTGAA-GAGGGATTTGTTCCTTTAGGCTTAATTCTATAATTGTTC--AGAATAAGGGT
>Canis lupus familiaris
AAGATAAAGAGGTGCTAACCATCCCAGC-TCTATTGATTTGCTGGGTTCT-GGATTCCTCTACAAACTGGGGCTTCAAGG
CCTATCTCCAACAAACTTTT-----------------TGTTGTTTTTTGG----------------------------
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----------------------CCAATGTGGCT-CAAAGCAACAAAATG-------------------------AATAG
GAACATGTCCTTGAAAGAGGAATTTGCTCCTTTACTCTTAATTCTACAATTGTTG--AGAATAAGGGT
>Felis catus
AGGATAAAGGGATACTAACCATTCCAGC-TCTATTGATTTGCTAGGTTCTAGGATTCCTCAACAAATTGGGGCTTTAAGG
CCTATCTCCAACAAACACTTTTTTTTTTTTTTT-----TTTGGTTATTCTC----------------------------
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----------------------CCAATGAGGTT-CAAAGCAATAAAACTG------------------------AATAG
GAACACGTCCTTGAAAGAACAATTTGCTCTTTTACTCTTAATTCTATAATCATTG--AGAAAAGGGGT
>Manis pentadactyla
AGGATAGAGGGGTGCTTGCCATTCCAGC-TCTGTTTATTTGCTAGTTTCTGGGATTCCTCTGTAAAT-CGGGATTCAAGG
CCTGTCTCCAACAAGGTTTTTGTTTATTTGTT------TTTT--CATTCTG----------------------------
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----------------------CCAATTCAGGTTCAAAGCAATAAGAAAG------------------------AAAAG
GAACATGTCCCTGAAAGAGGAATTTGCTCCTTTACTCTTAATTCTGTAATATTGCTCAGAATAAGGGT
>Bos taurus
AGGATAGAGTGGT-CTAACCTTTCCAGC-TCTGCTTATTTGCTAGGTTCTAGGATTCATTTTCAAGTTGGGGCTCCAAAG
CCTATTTTCAACAAGATTT-------------------TTTAGTTATTCTT----------------------------
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----------------------CCAATGAGGTT-TAAAGCAATAAAACAG-------------------------AATAA
GAACACGTCCTTGAAGGAGGAATCTGCTCCTTTACTCTTAATGCTGTAATTGTTC--ACAATAAGGGT
>Balaenoptera acutorostrata scammoni
AGGGTAGAACAGTACTAACCAATCCAGC-TCTGTTTATTTGCTAGGTCCTAGGATTCAT-TTCAAATTGGTGTTTCAAAG
CCTATTTTCAACAAGCTTT-------------------TTTAGTTAGTCTG-----------------------------
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----------------------CCAATGAGGTT-CAAAGCAATAAAACAG-------------------------AGTAG
GAATGCGTCCTTGAAGGCGGAATTTGCTCCTATACTCTTAATGCTTTAATTGTTC--AGAATAAGGGT
>Sorex araneus
AGGATGGAGTAGTATTAACTATTCCAAC-TCTATTTATGAGCAAGGTCCTAGGATTCCTGTACAAATTAGAGCTTCAAGG
ACTAATTCCAACAAGCTTTGTTGTTGTTATTCT-----GCCAATCAGTTTC-----------------------------
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-----------------------------------AAAGCCATAAAACAA-------------------------AATAG
G-GCACTTCCTTGAAAGTGGAATTTGTTCTTTTACTCGTAATTCTATAATTGTTC--AGGCTAATGGT
>Homo sapiens
AGGATTGAGTAGTACTAACCATTCTGGT-GCTATTTATTTGCTAGGTTCTAGGATTTCCCTATAAATTGGGGCTTCAGGG
CTTATCTCCAACTAATAAGCTTCTTTTTTTTTTTT---TTTAATTATTCTG-----------------------------
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----------------------CCAATGAGGCT-TGAAGCAATCACACAG-------------------------CACAG
GGGCACATTCTTGAAGGAGAAATTTGGGCCTTTCCTCTTAATTCTATAATTGTTC--AGAATGAGGGT
>Choloepus hoffmanni
AGGATAGACTAGTAGCAACCGCTATGGCCTCTATTAATTTGCTAGGTTGTAGGATTCCTATACAAATTGGGGCCTCAAGG
CCTGTATCTAACAAGCTTTTTTTTTTTT----------TTTAATTAGTCTG-----------------------------
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----------------------CCACTGAGGGTTCAAAGCAGTAAAACAC-------------------------AATAG
GAGCTCATCCTTGAAGGAGAAAATTGCTCCTTTGCTCTTAATTCCATAATTGTTC—AGAACAAGGGT
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5.8 Marker H_B_0047

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CATAATACAATGTTATATGTCAATTATATCTCAATAAAACTGAAAAAAAAAAA-------------------------
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>AluJb
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-------------------------------------------------------------------------GGCCGGG
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ACTCCAGCCTGGGCGACAGAGCGAGACCCTGTCTCA-----------------------------------------
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>Equus caballus
CAAGTACTCCAGGGAGGTGACTCTCCA-TTTTTCCC-ATTGAAAAACCAAATCCCAAGCAGAAGAACT-AACCCAG----
-------ATTTGATTCTCTCATAGTTTT-----ATTTTTGA---AACGTGAATCT---TACAAACTTCCAGTCATAAAAT
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AGA-----TAACTATACTT-ATTGTGGCAATCATTCCACAATATATGTAAGT--CAAGGCATTATGTTATACACCTCAAA
CTTATACAGCGCTC-TATATG--TTATATGTTAATAAAACTGAAAGA----GAAA---AATGTGAATCT-----------
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-----------------------------------------------------------TGTCCAAATGGCAAAACTTGTT
CT--TTAAGGACTTTA-A--------------AGCATATTGACTGCATTGAGTCAGA---AGAA----GAT-------GA
GCAGGCAGTTGTTCTTGGAGCACA
>Ceratotherium simum simum
CAAGTACTCCATGGAGGTGACTCTCCA-TTTTTCCC-ATTTAAAAACAAAATCCTAAGCAGAAGAACT-AACTCAG----
-------ATTTGACTCTCCTATAGTTTT-----ACTTTTAA---AATGTGAACCT---TACAAACTTCTAGTTATAAAAT
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AGATGT--TAACCAAACTT-ATTGTCGCAATCATTTAAAAATATGTGTAAGT--CAAGTCATTATGCTGTACACCTTAAA
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CT--TTAGGTACTTTATG--------------AGTATATTCACTGCATTGAATCAGA---AGAAAAACAAC-------GA
GCCAGAAGCTGTTCTTGAAGCACA
>Myotis lucifugus 1
CAAGTGCTCCATGGAGGTAACTTTCCA-TTTTTCCC-ATTTTAAAACCAAATCCCAACCAGAAGA------TTGC-----
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AAATAAGAACTGGGG-------------------------ATGTGCAATACTGCTGGATGGTGTATTTGAAAGGTGCTAAG
ACATTAAATCCTAAAATGTCTCATCACAGGGGAGATAACA-TTTTTTTTCTTTTCCCTTTTTCTATCTATATGAGAAAAG
GGATGT--TAACTAAACTT-ACTGAGGTAATCACTTCACAGTATACGTAAGT-------CATTATTCTATACACCTTAAA
CTTACACAGTGCT--TATGTCAATTATATTTCAATAAAACTGAAAAAAAAGGAAA---AAAGTGAATCT-----------
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------------------------------------------------------------------------------
-----------------------------------------------------------TGTCCAAATGGCAAAACTCGTT
CTCCTCAGGTGCCTTACA--------------AG-----------------------------------------------GA
GCCGGCAGCTGTTCCTGGAGCATT
>Myotis lucifugus 2
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AAATAAGAACTGGGG-ATGTG-----CAATATGATGCACATAATTA--ACTGCTGGATGGTATATTTGAAAGGTGCTAAG
ACATTAAATCCTAAAATGTCTCATCACAGGGGAGATAACATTTTTTTTTCTTTTCCCTTTTTCTATCTATATGAGAAAAT
GGATGT--TAACTAAACTT-ACTGAGGTAATCACTTCACAGTATACGTAAGT-------CATTATGCTATACACCTTAAA
CTTACACAGTGCT--TATGTCAATTATATTTCAATAAAACTGAAAAAAAAGGAAA---AAAGTGAATCT-----------
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-----------------------------------------------------------TGTCCAAATGGCAAAACTCGTT
CTCCTCAGGTGCCTTACA--------------AG-----------------------------------------------GA
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GCCGGCAGCTGTTCCTGGAGCACT
>Pteropus vampyrus
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A--GTAAATCCTAAAAGTTCTCATCACAGGAGAAAAGACA-TTTTTTTCTTTTTCCTTTTTA-TAGGTATATGAGAT-AT
GGATGT--TAACTAAACTT-ACTGGGGTAATCGTTTTACAATACATGTAAAT-------CATTATGCAGTATACCTTAAA
CTTATACAGTGCT--TATGTCAATTATATCTCAATAAAACTGATAGA----AAAA---AATGTGAATCT-----------
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-------------------------------------------------------------CATTCAACTGGCAAAACTGATT
TT--TTTGGTACCTTACA--------------AGTATATTCACTACATTGAATCAGA---AGAAAAACAAT-------GA
GCTGACAGCTGTTCTGGCAGCACT
>Canis lupus familiaris
CAACTACTCCACGGAGACGACTCTCCAGTTTTTCCC-AGTGTCTCACCA------AAACAGGAGAACT-GACTTGG----
-------GTCTGACTGTCTTACAGTTTCATTTTTTTTTTAA---AATGTGAATCT-------------------------
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-------------------------------------------------------------TGTCCAAATGGCACAACGTATT
CC--TTAGGTACCTCATA--------------ACTGTGTCCGCTGCACTGACTCAGA---------------------AA
GAGGTGAGCTATTGAGGCAGTGCA
>Felis catus
CAAGTACTCATGGAAATGG-CTCTCCATTTTTTCCCCACTGTGAAACCAAATCCAAAACAGGAGAACTTAACTTGG----
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-------------------------------------------------------------TGTCCAAATGGCACAACTTATT
CC--TTAGGTACCTTACA--------------ACTCTACCCACTGCACTGAATCCAA---AGGAAAGAAAC-------GA
GCCGACAGCCATTGCTGGACCACA
>Manis pentadactyla
CAGG--TTCCATGGAGGTGATGCTCCATTTTCTGCA--TTGCAAAACCGAATCCGAAGCAGAACAACT-AACTCAG----
-------GTCTGACTCTC--ACAGTTTT-----AATTTTAA---AATGTGAATCT-------------------------
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CC--TTCGATACCTTACA--------------AGTACCACTACTGCAGTGAATCAGAAGGAAAAAAAAAAAAATGAGCCAA
GCTGGCAGCTGTTGCTGGAGCACA
>Bos taurus
CAAGTATTCTATGGAGGTGACTCTCCA-TTTTTCCC-ACTGGAAAACCAAATCCAAAGCAGAACA----AACTCCG----
-------ATCTCACTCTTTTACAGTTGT-----ATTTTTAA---AGTGTGCATCT-------------------------
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-------------------------------------------------------------TGTCCAAATGGCAAAACTTCTT
CC--TTGGGTACTATACA--------------TGTATATCCACTGCACTGAATCAGAGGGGGAAAAAAAGT-------GA
GTCAGCAGCTGTTGCTGGAGCCCA
>Balaenoptera acutorostrata scammoni
CAAGCA---------------TTCCA-TTTTTCCC-ACTAGAAAACCAAATCCAAAGCAGAACG----AACTCCA----
-------GTCTCACTCTTTTACAGTTTT-----ATTTTTAA---AGTGTGAATCT-------------------------
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-------------------------------------------------------------TGTCGAAATGGCAAAACTTCTT
CG--TTAGGTACCTTACA--------------AGTATATTCACTGCATTGAATCGGAGGGAAAAAAG---T-------GA
GGCAGCAGCTATTGCTGGAGCACA
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>Condylura cristata
AGAACTCTACAGAGGTAACTGTCTCCA-TTCTTTCC-ATTTTAAAACCAAATCC--------------------------
-------------------------------------AA---AATATGAGTCC--------------------------
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---------------------------------------------------------------------------------
-----------------------------------------------------------TGCCCAAATGGCAAAACTCACC
CC---TTGGATACCTTAA--------------AGTTTATTAACCACACTGAATATGAAGGCAAAAACA----------GA
GTCTGCCTCTGTTACTAGAGTACA
>Homo sapiens
CAAGGACTTGAAGGAGATGATTCTCCA-GTTCTTCA-AGTGCAAAATAAAATCTGAAGCAGAAAATCT-AATTCAT----
-------ATTTGAT----------TTTT-----ATTTTTAA---AATGTGAATCT--------------------------
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-----------------------------------------------------------TGGCCAGG
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ACTCCAGCCTGGGGAACAAAGTGAGACCCTTTCTCAAAATAAAATAAAATGTTAATCCTGCCCAAAGGGCAAAACTTATT
CT--TTAGCTACCTGTATTACTATTATTAACCAGTAAATTCAATGCACTGAATCAAAAA-AGAAAAAA------------
----GTGGCTGTTACTGAAGGAAA
>Trichechus manatus latirostris
CAATCCCTCCATGGAGACGATGCTCCA-TTTCTTCC-ACTGTAAAATCAAATCCGAAGCAGAAAAACC------------
---------------------CAGCTT------AGTTTTAA---AATGTGAATCT--------------------------
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GCTAGCAGCTGTTGCTTGAGGACA
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5.9 Marker H_B_0054

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TACTCTCTTAGCAACTTTCAAATATACAATACAGTATTATTAACTATAGTCACCATGCTGTACATTACATCCCCAGAACT
TATTCATCTTATAACTGAAAGTTTGTACCCTTTGACCAACCTCTCCCTATTTCCCCCACCCCCCA-------GCCTCTGG
CAACCACCAATCTAT-------------------------------------------------------------
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------------------------------------------------------------
>Equus caballus
CATGTTTCTATGTAACGAAAA-CTT---------AAAAAGAAAAC-TTCACCCTGTACCTCTTGCTTTGTGCTTTGTGAG
GTAGATGCTCTCCTCACAAGACTTCTTCCTGA---AATGGATTCT---TTTTGTTGTT----GTTGAGGTATAATTGACA
TGCAACATTATATTAGCTTTAGGTGTG-CAATATATT-GATTCAATATTTGTATATATTGCAAAATGGTCACCA-AAT-A
AGTCTAGTTAAC------AACCGTCATCATA----GTTACGAAATTTTTTTTCT----TGTGTTGAAAATTTTTAAGATC
TGCTCTCTTAGCAATTTTC-AATATGCAATACAGTATTATTAACTATAGTCACCACGCTGTACATTACACCCCCATGACT
TATTTGTTTTATAACTGGGAGTCTGTACCTTTTGACTCCCTTCATCC-ATTTCGTGCACCCCCTACCCTC-TTCCTCTGG
CAACCACCAATCTGA---AACGGATTCT---TATGGAATTAAA--TAAGAAGAATTC-----------------------
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-----------------------------------------------------TGTGTG--AGAGGGAAAATTTAGTA
CCC--TAAAAGGGAA-CCCAAGAAGGAAGGTAAATAAAAAG-AGGAAAAAGTGTGGAAA
>Ceratotherium simum simum
CATGTTTCTATTTAACGAAAAACTT--------------GAGAAC-TTCACTCTGTTCCTCTTGCTTTGTGCTTTGTGAG
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TACAACATTATATTAGCTTTAGGTGTA-CAACATATT-GATTCAATATTTGTGTATATTGCAAAATGGTCACAACAGT-A
AGTCTAGTTAAC------ATCCGTCACCATA----GTTACGAAATTTGTT-TCT----TGTGTTGAGAATTTTTAAGATC
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CATTTGTTTTTATAACTGGAAGTCTGTACCTTTTGACTCCCTTCATCC-ATTTCACCCAACCCCTACCCCC-TGCATCTGG
TAACCACCAATCTGA---AAGGGATTCT---TATGGAATTAAA--TAAGAA---TTC-----------------------
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------------------------------------------------------------------------------
-----------------------------------------------------TGTGTG--AGAGGGAAAATTTAGTA
CCC--AAAGAGGGAA-CCCAAGAAGAAAGGTAAATAAAAAG-GAGAAAACGTGTGGAAA
>Myotis lucifugus
CATGTTTCCATTTAGTGAAAAGCCT--------AAAAAAGAAAAC-GTCCCTCTGCGCTTCTTGCTTTGTGCTTTGTGAG
GTAGGTGCTCTCCTCAGAGAA---CTTCCTGC---AATGGATTTT-------------AAAAATGGAGGTGTAACTGACA
TGTAGCATTATATTAGTTTCAGATGTA-CAACATCGT-GATTCAATAGTTGCATATATTGCAAAATGATCACCACAAT--
-GTCTCATTAAC------ATCTGTCACCACACATAATTACAACTTTTTTTTTTGCG--TGTGATGAGAA-----------
----CTCCTAGCAACTTTC-AATGTGCAGTAGAGTATTGTTAACTTTCGTGACCATGCTGTACCTTACATCCCTGTTACT
TATTTATTTTATAAATGGAAGTTTATACC-TTTGATTCCCTTTACCC-ATTTCACTCACGCCCCACCCCCCTGCCTCTGG
CAACCGCCAATCTGT---AATGAATTCT---TAAGGAATTAAA--TAAGAAGAATTC-----------------------
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CCC--CGAAAGGGAA-CCCAAGAAGGAAGGTAAATAAAGAG-AGGAAAATGTGTGGAAA
>Pteropus vampyrus
CATG-TTCTACTTAATGAAAAACTT---------AAAAAGAAAAT-GTCACTCTGTGGTTTTTATTTTGTGTTTTGTGAA
GTA--TGCTCTCCTCATAGAA---CTTCCTGA---AATAAAGTTT---TTTTTTTTTTCAAAACTGAGGTATAATCGACA
TGTAACATTATATTAGTTTCAGGTGTA-CTATATATTCCATTCAATATTTGTATATATTGCAAAACGATTACCACAAT-A
AGTCTCATTAAC------ATCTGTCACCACACATAGTTACAATTTTTAT--TC-----CGTAATGAGAACTTTTAAGATC
TACTCTCTTAGCAACTTTC-GATATGCAATATAGTATTGTTAACTATAGTCACCATGCTGTACATTACCTTACGG-----
---TTATTTCATAACTGAAAGTTTATACCTTTTGACTCCCTTCACTC-GTTTCACCCATCCCCCAACCTCCTGCCTCGGG
CAACCGCCAATCTGT---AATGAATTCT---TAAGGAATTAAA--TAAGAAGAATTC-----------------------
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-----------------------------------------------------TGTGTG--AGAGGGAAAATTTAGTA
CCC--CAAAAGGGAA-CCCAAGAAGGAAGGTAAATAAAGAG-AGGAAAATGTGTGGAAA
>Canis lupus familiaris
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GTAGATACTCTCTTCGTAGAACTTCTTCCTGC---AAAGGATTCT-------------------------------------
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-------------------------------GATGGGTTTAA----AATAAGAATTC-----------------------
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-----------------------------------------------------TATGTG--AGATGGAAAAGTCAGTA
CCCAAAAAAAAGGGAA-CCCAAGAAGGATGGTGAGTAAAGAG-AGGAAAATGTGTGGAAA
>Felis catus
CATGTTTCTACGTAATGACAAACTC---------CAAAAGGACACTTTCGCTCCGTGGCTCTTGCTCTGTGCTCTGTGAT
GAAGATGCCCTCCTCGTAGAGCTTCTCCCTGA---AATGGATTCT-------------------------------------
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------------------------------GATGGGTTTAAAAATAAGAAGAATCCGGGGCGTCCGGGTGGCTCAGTCG
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CCC--AAAAAGGGGA-CCCAAGAAGGAAAGTCAGTAGAGAG-AGGAAAATGTGTGGAAA
>Manis pentadactyla
CATGTTTCTATCCAGTGAACACCTT---------AAAAAGAAAACTTTGGTTCTGTGCCTCTTGCTTTGTATTTTGTGGT
AGATGTTCTCCTCGTAGTAT--TTCTTCCTGA---AACGGATTCT----------------------------------
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------------------------------GACAGATTCAAA--TAAGAAGGATTC----------------------
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----------------------------------------------------------TATGTG--AGAGGGAAAGTTCACTA
CCC--AGAAAGGATA-CCCAAGAAGGAAGGCGAGTAAAGAG-GGGAAAATGTGTGGAAA
>Bos taurus
CACGTTTCTATTTAATGAAAACCTT---------AAAAAGAAAATGTTCACTCTGTAC----TACCTCCTGCTTTGTGAG
GTAAATGCTTCCCTCATAAA----CTTCCTGA---GATGAATTCT----------------------------------
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----------------------------------------------------------------------------------
------------------------------GAAGGATTTAAA---AAGAAGACTTC----------------------
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----------------------------------------------------------TCTGTG--AGAGGGAAAATATTGCA
CCC--AAAGAGGGAA-CCTGAGAAGGAAGGCAAGTAAAGAGAAGGAAAATGTGTGGAAA
>Balaenoptera acutorostrata scammoni
TATGTTTCTATTTAATGAAAAACTT---------AAAAAGAAAACTTTCACTCTGTGCCTCTTGCTTTGTGCTTTGTGAG
GTAGATGCTTTCCTCATAAA----CTTCCTGA---AATGAATTCT----------------------------------
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------------------------------GATGGATTTAAA---TAGAAGAATTC----------------------
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CCC--AGAAAGGGAA-CCCGAGAAGGAAGGCAAGTAAAGAGAAGGAAAATGTGTGGAAA
>Condylura cristata
CTTTTTTCTA---GGTAATAAACTT---------AAAAAGGAAAC-TCCACTCTC--CTTCTAGCTCTATGCTATGTGAG
ACAGATGT---TCTCTTAGAACTTCTTTCTGA---AGCAGATACT----------------------------------
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------------------------------GATGGAGTTATA--TAAGAA---TTC----------------------
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----------------------------------------------------------TATGGG--AAAGGGACTGTTGAGTA
CCCCAAAAAAGGGGAACCCATGAAAGAAGGTAAGTAAAGAG--TAGAAATGT----AAA
>Homo sapiens
TGTGTTTCTATTTAATGAAAAACTT---------AAA-GGAAAAC-TTCACTGTGTGCCACCTGCTTTGTGCATTGTAAA
ATGGATGCTGTCTTCATAGAATTTCTTCCTGA---AAGGGATTCT----------------------------------
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------------------------------GATGGAACTAAA--CAAGAAGAATTC----------------------
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----------------------------------------------------------TATGTG--AGAGGGAAAATTCAGAA
CCC--GAAAAGGAAA-CCCAAAAAAGAA-----GTTAAGAG-AGGGAAGTGTGTGGAAA
>Dasypus novemcinctus
TATGTTTCT-TTTAATGAAAAACTT-----------AAAGGTAAACTTCAATTTGTGCCTCTTG-------TTCTGTGAG
ACAGATGTGCTTGTCATAGAACTTCTTCCTGA---AACTGATACT----------------------------------
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------------------------------GATGGAATTAAA--TAAGAA---TTC----------------------
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CCC--AAAAGGGG---CCCAAGA-GGAAGGTGAGTAAAGAG-AGGAAAATGCATGAGAA
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5.10 Marker H_B_0057

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>L1MAB_EC
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CCTTAAACATAATACAATGTTATATGTCAATTATATCTCAATAAAACTGAAAAAAAA-----------------------
------------------------------------------------------------------------------
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>Equus caballus
ACAAAAACAAGCATATATTGCTCAACATCAAAGACTCT-ACACATGTGAGTCATCAAAATCCTTAGCAATAA-----CTT
C------CACTTTTGCCCTGCTATT-------------------------------------------------------
------------------------------------------------------------------------------
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-----------------------------------------------------AAAAAT-G-----TATGAT---CTGTGT
GAGAAGATGGTCGT-TAGCCGAACCT-ATTGTAGTGACCATTTCACA--ATATGTGTAAACCAAACCATCATACTGTACA
CCTTAAAC-TTATACAGTGATGTAGCTCAATTATTTCTCAATAAAACTGGAA---------AAAAATGGGTGAGATGAA-
--AACTGCAAAAACTTAAATAATATGTTAGAGTCAATTTT-AGATTTCTAAAGTTCTTT-TATGGACTAGCCTTT-----
---GTCATCTTCATATTTATTTTCTGTCTAAG
>Ceratotherium simum simum
ACAAAAACAGGCATAGATTGCTTAACAGCAAAGACTCT-GTACATGTGAGTCATCAAAATCCTTAGTGATAA-----CTT
C------TACTTTTGCCCTGCTAATAAAAATGGGTGAGAGCCAGCCCTGATGGCCTAGTGGTTAAAGTTTGGCGTGCTCC
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GAGAAGATGGATGT-TAGCTGAACCT-ATTATAGCAATCATTTCACA--ATATATGTGAATCAAACCATCATACTGTATG
CCTTGAAC-TTATAGGGTGGTGTATGTCAATTATTTCTCAATAAAACTGGA----------AAAAATGGGTAAGATGAA-
--AGCTGCAAAATCTTAAAGAATATATTAGAGACAATTTT-AGATTTCTAAAATTATTT-TATGGAATAACCTCT-----
---GTCATCTTCATATTTATTTTCTGTCTAAA
>Myotis lucifugus
ACAAAAATCAGAATATATTGTTCAGCATCAAAGACTCT-ATACATG-GTGTCAACAAAATCCTTAGTGATAA-----CTT
C------TCCGTTTGCCCTGCTATTA-------------------------------------------------------
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-----------------------------------------------------AAAAAT-GAGTGAGATGAT---CTATAC
GAGACGATCAATGT-TAGCTGAACCT-ACTG--ACAATCATTTCACA--AT-TATGTAAATCAAACCATCATG---TATA
CTTTCAAG-TTATACAGTGATGTATACCAATTATTTCTCAATAAAATGA-----------AAAAATTAGTGAGATGGA-
--AGCTTTAAAAAAATAAATAATATGCTA--ATCATTTTT-TAATTTTTAAAGTTATTT---TAGAATAACCATT-----
---GTCATCTTCATATTTATTTTTTCTCTAAA
>Pteropus vampyrus
---------------------------------------ATACATGTGAGTCATAAAAATTCTTAGTAATAA-----CTT
C------TACTTTTGTACTGCTATT-------------------------------------------------------
------------------------------------------------------------------------------
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-----------------------------------------------------AAAAAT-GAGGGAGATGAT---CTATAT
GAGAAGATGAATGT-CAGCTGAACCT-ATTGTAGTAATCATTTCACA--ATACATGTAAATCAAATCATCATA---TACA
CCTTAAAC-TTATAGAGTGATTTA-TGCCATTATTTCTTAATAAAACTGAAAAAAAAG---AAAAACTGGTGAGATAAA-
--AGCTTTAAAAA-TTAAATAGTATGTTACAGTCTGTTTT-AGATTTCTAAAGTTATTT-TATAAATTAACCTTT-----
---GTCATCTTCATATTTATTTTCTTTCGAAA
>Canis lupus familiaris
ACAAAAACAGGCATAGCTTGCTCAACATCAAAGATTCT-GCACGTGTGAGACATCAAAATCCTTAGTGATAAGGATCCTT
AGTG---CACCTTTGCCCTGCTCTT--------------------------------------------------------
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-----------------------------------------------------AAAAAT-GAGTGAGATGAA----------
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--AACTTCAAAAAATTAAACAATATGTTAGATTTTATTTT-AGATTTTGAAAGTTATTT-TCTATAA-AACTTTT-----
---GTTATCTTACTATGTATTTTCTGTCCAAC
>Felis catus
ACAAAAATAAGCATAGATTGCTCAACATCA--GACTCTAACACATGTGAGTCACCAAAATCCTTGGCAATAA-----CTT
G------TACTTTGGCCTTTCTATC---------------------------------------------------------
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-----------------------------------------------------AAAAAT-GAGTGAGATGAA----------
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--AGCTTCAAAAAATTAAA-----TGTTAGAATCTATCTT-AGATTTCTAAAGTTATTT-TCTATAATAACTTTT-----
---GTTATCTTCATATTTATTTTCTGTATAAA
>Manis pentadactyla
TAAAAAATAAGCATAAATTATCCACCATCA---AATACGATACATGTGAGTCATTAAAAACCTCAGTGATAA-----CTT
C------TACTTTTGTCTTGCTATT--------------------------------------------------------
------------------------------------------------------------------------------
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-----------------------------------------------------ACAAAT-GGGTGAGATGAA----------
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--AGCTTCAAAAA-TTAAATAATATTTTAGAGTCTATTCTTAAATTTCTAAAGATATTT-TATAGAATAACCTTC-----
---CTCATCTTCATATTTTTTT---GTCTGAA
>Bos taurus
ACAAAAGTAGACATACATTGTTCAATGTCAAGGACTGTAATATATGTGAGTCATC-AAATCCTTAGTGACAA-----CTT
C------TACTTTTGCCCTGCTATT------------------------------------------------------
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-----------------------------------------------------AAAAAG-AGGTGAAGTGAA---------
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--AATTTCAAAAA-ATAAATAATATGTCAGCATTTATTTT-AAATTTCTAAAGTTATTC-TATAGAATAACCTCTATCAC
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>Balaenoptera acutorostrata scammoni
ACAAAAATAAACATAGATTGTTCAACCTCAAGGACTCTGAAGCATGTGAGTCATCAAA-TCCTTAGTGATAA-----CTT
C------TACTTTTGTCCTGCTATT------------------------------------------------------
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-----------------------------------------------------AAAAGT-AGGTGAAATGAA---------
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--AGCTTCAAAAA-TTAAATAATATGTTAGAGTCTATTTT-AGATTTCTAAAGTTATTC-TATAGAATAACCTCC-----
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>Sorex araneus
ATAAAACTAAGTAACAATTACTGAACATCAAAAGTTC-TGTTCATGTGAGTCATCAAAATCCT-AGTAATAAAT---CCT
C-------ATTTTTGTCCTGTTTTA------------------------------------------------------
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-----------------------------------------------------GAAAAT-AGAGGAGGCAGA---------
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--AGCTTTGATAATTTTA---CCCTTTTAGAGATTACGTTAGGTTTTTTGAAGTTGTTT---------AACTTTT-----
---GTTATACTAATATTTATTCTATATGTAAA
>Homo sapiens
ACAAAAATAGGCGTAGATTGCTCTA------------------CTCTGGGGTACCAAAAACTCTATGCATGTAAGTCCTC
TAAATTCTATTCATGTCTTGATATTT------------------------------------------------------
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-----------------------------------------------------AAAAAT-GAATGAGATGGA---------
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--AGTTTCAAAAATTTAAATGGTATATTGGAGTCTACTTT-AGATTTCTAAATCTTTTT-CATAGAGTAATAGTC-----
---CTCATTTTTGCATTTATTTTCTGCCTAAA
>Choloepus hoffmanni
ACAGAAATAAGCATGGATTGCTCAACATCAAAAGCTCT-ATACTTGTAAATCCTCCAACTCCTTATAAA-ATAA---CTT
C------TATTTTCACTCTGCTATT------------------------------------------------------
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-----------------------------------------------------AAAAAATGGGTTGAGATCAA---------
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--AGCTCCAAAAAATTAAATCATAAGTTTGAGTCCATTTT-AGAATTCTAAAGCTTGTTTCATAGATTAACAGTC-----
---CTTAACTTCATATTTATT-----TCTAAA
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5.11 Marker Rh_Hc03

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>MER34C_CF
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-----------TGAAGGGGAGCAGAATTTGCCACCCC----------AAAATATGCCTCTTTGGCATAAGGATTATTTTA
GGCTGATTATTTTTAAGAAACTGCAGACACAGGAGAAGCTCTGAAAACCGAGTAGAAGTTACCCTTTTGTAAGAGACATT
TACATTTATAAGGGAAATCTCCATTT-GTAAGGGTGTCTCCCTCTCTGTACCAGGAAGAGGAGGATGACTCTAAATCTCT
AGAAACTCTT-ATCAATGG-AGA-AGGCAAGGACTTAAATCTGCATAACAACCTTACCCTTGTTTACTGTGCTTTTCCTG
GTAACCTCCCATAACTGACTCCCC-ACCCC-CAACATC-TTTTTTGTCTTTAGCTGGAGATGGTATTTAAGGTGAT----
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--------------------------------------------GGCTTGGGCCATTTCGGGGAGTTACTCAGTTTTCCT
GGGTCTCTCCCATGTATACAGGAGGTATACATATGTTATTAAACTTTTGTTTGTTTTTCTCCTGTTAATCTGT--CTTAT
GTCAATTTGATTCTTAGACCAGCCAGAAGAACCTAGAAGGGTAGAGGAAAATTTTTTTCTCCTCAACA------------
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>Equus caballus
TAATTTCTGACTACCC---TTTTTTACTAAACCA-TGTGACAATCAAGTTAGATTATTATTTGGGAATATA--AATGTTT
---GACAG---TGAAGAGGAGCAAAATATGCCACCCC----------AAAAATATGTCTCTTTGGCGTATTTATTATTTTG
AGCTGATAAGTTTTAAGAAACAGCAGACACAGGTGAAGCTCTGAAAAT-GACCTGAAGTTACCCTTTTATATGAGACATT
TACATTTAAAAGGGAAATCTCCATTTTGGGGGAATGTCTCCCTCTCTGTACCAGGAAAAGAAGAATGACT--AAATCTCC
AGAAACTCTTTATCAATGGGAGAAGGC---------AAATCTGCATAACCACCTTGCTCTTGTTTACTGTGCTTTGCCTG
CTACCCTCCCATAACTGGCTTCCCCA-CTCCCAACGTCTTCTTTTGTCTTTAGCTGGAGATGGTGTTTAACCTGAG----
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--------------------------------------------GG-TTTGGCCATTTGGGGGAGTCACTCAGT-ATCCT
TAGT--------------------------------TATTAGCTTCCGTTTGTTTTCCCCCTGTTAATCTGTCTGTTAT
TACAGGG-GTTGCCTCAGCC------AAGAACCTAGAAAGGTAGAGGGAAAATTATTTTTTCTTCCCCAC---AAT-----
------------------GG---ATACTAAGTTTTA----TTTTAGGCCTTGCCTT--TTTCTCAGAGACTGACTTAGAC
ACTCTTGTTCTTTATCCCTTAGTCATGTGGCTCCATAAAATAATTATAGTTGCAAA
>Ceratotherium simum simum
TCATATCTGACTACCC---TTTTTTACTAAACCA-TATGACAATCAAATTAGATTATTATTTGGGAATATA--AATGTTG
---GACAG---CGAAGGGGATAAAAATATGTCACCTC----------AAAATATGGCTCTTTGGCATATTGATTATTTTG
AGCTGGTTAGTTTTAGGAAACAGCAGACACAGGTGAAGCTCTGAAAAT-GAGTAGAAGTTACCCTCTTATATGAGACATT
TACATTTATAAGGGAAATCTCCATTT-GTAAGGATGTCTCCCTCTCTGTACCAGGAAGAGAAGGATGACTATACATCTCT
AGAAACTCTTTATAGATGGGAGAAGAC-------TTAAATCTGCATAACAACCTTACTCCTGTTTACTGTGCTTTGCCTG
ATAACCTCCCATAACTGGCTCCCCCA-CTTCCAACATCTTCTTTTGTCTTTAACTAGAGATGGTATTTAAGGAGAT----
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-------------------------------------------GGCTTGGGCCATTTGGAGGAATTACTCAGT-TTCCT
TAGCATCGCCCTTGTATACA-G-GAAGTATATGTGTTATTAAACTTCTATTTG--TTTTTCCCATTAATCA-TCTTTTAT
TACAGGG-ATTGTCTCAGCC------AAGAACCTAGAAAGGTAGAGGGAAAATTA-TTTTTCTCCCCCAC---AAC----
------------------AG---ATATTAAGTTTTA----TTTTGGCCCTTGCCTT--TTTCTCAGAGACTGACTTATGG
ACTCTTGGCCTTTATCCCTTAGTCATGTGGCTCCATAGAATAATTATAGTTACAAA
>Myotis lucifugus
TACATTCTGATCACTC---TTTTTTACTGTACCATTGTGACAATCAAATGAGGTTATAATTTGGGAATATA-GCACCTTT
---AATAG---CATCGAAGAGCAGAATATCTCACCCCTCCCCACAAAAAAAATATGCTTCTTTGACATACTGATTATTTTG
ATCTAGTTATTTTTAAGAAACAACAGACA--GGGGAAGCTCTAAAAAT--AGTAGGAGTTGCCCTTTTGTAAGAGACATA
TACATTTAAAAGGGACATCTCTATTT-GTAATGGTATCTCCTACTCAGTAC-AGGAGGAGAAGGAGGACTCTAAATTTCT
AGAAACTCTT-ATCAATGGGCGA-GCGAAAGAACTTAAGTCTGTGTAATAACCTTACCCTTATTTAACTTGCTTTATCTG
GTAACCACCCATAACT-GCTCC------CC-CAACATCTTCTTTTGTCTTTAGCTACAGCTAATATTTAGAGTGAT----
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-------------------------------------------GGCTTGGGCCATTTTGGGGAGTTACTCAGTTTTCCT
GAGTACCTCCCCTGTATACA-GAGGTGTATATATGACACTAAGTTTCTATTTGTCTTTCTCCTGTCATTCTGTTTCTCAT
TACAGAGAGGTGTCTCAGCC------AAGAACCTAAAAGGGTAGAGGGACATTTTTTTTTTCTCTCCCAC---AAC----
------------------AG---ATATTAAGTTTTA----TTTTAGGCCTTGCCTT--TTCCTCAAAAACTGACTTAGAC
ATTCTGGCCCTTTATACATTAATCATATGGCTCCATAGAATAATTTTAGTTGCAAA
>Pteropus vampyrus
TAATTTCTGACTACCA---TTTTTTATTAAAACATTGTGACAATCAAATTAAGTTTTTATTTGGGAATATA-ACAGGTTC
---AGTGG---TGTAGGAGAGGAGACTATGCCACC-----------AAAAATATGTTTCTTTGGCATATTGATTATTATG
AGCTAGTTATTTTTAAGAAACAGGAGACACAGGTGAAGCTCT----------------------TTTGTAAGAGACG--
----TTTATAAGGGAAATCTCTATTT-GTAAGAGTATCTTGCTTTCTACAGCAGGAGGAATAGGAAGACTCTAAATCTCT
AGAAACTCTT-ATCAATGGGAGAGGGGCAAAAACTTAAGTCTACATAAGAATCATACCTTTGTTTACTGTGCTTTTCCTG
GTCACCTCCCATAACT-GCTCCCCCATCTG-CAGCCTTTTCTTTTGAGTTTAGGTAGCGATAGTATATAGGGTGACGAAT
TGTAACAGCACATGAATCTCATTTCTTTAGCAGACGTTTTGCTTTCATTCAAGCTAGCTTTGTTTAGCTTGATAGAACTA
TGACTCACTTGCATTCTTTTCATCAAATACTCCTGTACGTATACTTTATATCCTCTCCTTTTAATCTTTAAGCCCTTAGG
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GGTGGTAGCAACACAGAAGTGCAATTAGCATTTCTCCTCAGTTCTTTCTCACTGACACAACAAAGAATCACAGGTCAGCA
AGATTTAGAAAAAGATTTATTAAGGGTATATTTTAGAAGGAGACAGACCAAACTAAGGAAGGCTGCAGCCCTGTGGAACT
TGGGAGGTGAAAGCAAAGATAAAAGAAATAAGAGATAGAGTACACCCAAAGGGAGAGGCGACTTTTCAGCTAAGAAAGCT
GTAACAACGCAGAAGTAGGAAGGTTTATATTATACTGGGGCCATGGTGGGTGGTTACAAAGATGTTTCTAGGTGTTTGGC
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TATAATTAGATTCATGAACTTCTGGGCATAAAAATGCTAGTATAATGATGATGTAATGAGGCGAAGATTGTGGACAAGTT
AGAGTAATACCTTCTGCACAAGTGTCTGTGGCCAGATTAAACCAGCTATAGGTATGGCCCTCCAGTCCTTTGTCTCCCGG
GATGCAGGAAGAAGTCTTTAACTACTAATGAAGTGTATTTTGGGCAGTCTCTAGGTTAGTCTTCCATTCCCTTGTTCCCC
TGTCACTCATGTCTGGTTAGCTACCTAACAGTTTTAGTCAAATAAAGAAAACGCCTTGGCCTCAGTTATGTTTCAGCTCT
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CTGATGTCTGAATAAATCCCCTTTGCCTTAGCCCTGACTAACTGGTAGAGCCCATGACTCTAATACCCGTAGTAACCATG
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GTGTCTTTGGGCTTGGTGCCAATTCCTTAAATAAAACTTTACCTTCTTTGCTGCAATCTACTGTTCATATCTTATTTGAC
TTGTATGCATGCAGGGAAGTGGACACTTTGAGTCTGCGGTAACAGGATTGGGTCATTTCGGGGAGTTACTCAGTGTTTCT
GAGAATTTCCCATGTATTAA-G-AAGGTATAGATGTTATTAAACTTTTGTTTTTCTTTCTCCTGTTAACCTGTCATTTAT
TACAGGGAAGTGTCTCAGCC------AAGAACCTAGAGAGGTAGAGGAAAAATTTATTTTCCTCTCCCAC---AAT----
------------------AG---ATATTAAGTTTTA----TTTTAGGCCTTGCCTT--TTTCTCAGAGACTAACTTAGGC
ATGCTCGCTGTTTACCCCTTCATTGTGTGGATCCATAGAAGAATTTTAGTTGCAAA
>Canis lupus familiaris
TAATCTCTGACCACCT---TTTTTTACTAAGCCA-CATGACAATCAATTTTGATTATTATTTAGGAATATAAACATATTT
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-----------------------------------------------------------------------GAC----
------------------AG---ATATTAAG--TTATTTTTTTTAGGCCTTGCCTT-TTTTCTGAGGGATTG--------
-------CTCTTTATCCCTTGGTCATGTGGCTCCACACAATACTGTTAGTTGCAAA
>Felis catus
TAATTTCTGATCACCCTTTTTTTTTACGATATCA-TGTGACAATCA-----GATTATTATTTGGGAATACAAACAT-TTT
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-----------------------------------------------------------------------AAC----
------------------AG---ATACTA--TTTT-----TTTTAGACCTTGCCTT--TTTCTGAGAGACTGACTTAGGC
ACGCTTGATCTTTATCCC-TAGTCATGTGGCTCCACAGAATCATATGAGTTGCAAA
>Manis pentadactyla
TAATTTCTGACCATTC---CTCTTCACTAAACCACTGTGACAATCAAATTAGATTACTAGTTGGGAATAGA-ACATGTTT
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-----------------------------------------------------------------------GAT----
------------------AG---ATACT--GTTTTA----TTTTAGCCCTTGCCTT--TTCCTCAGAGACTGACTTAGGC
ACTCTAACTCTTTATGCCTTAGTCATGTGGCTCCATGGAATAATTTTAGTTGCAAG
>Bos taurus
TAA-CTCTCAGCACCC---TTTTCCACTAAACCAGTGTGACACTTCGATTCGATTATT---TGGAAATATA-CCATGTTT
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------------------------------------------------------------------GAC----
------------------GG---ATACTAAGTTTTA----TTTTAGGCTTCGCCTT-GTTTCTTAGAGAC-GACTTGGGC
ATTCCTGCTCTTTATCCC-CAATCATGGAGATCTGTAGAATAATTTTAGCTGCAAA
>Balaenoptera acutorostrata scammoni
TAA-CTCTGAGCACCC---TTTTTCACTAAACCAGTGTGACAATTCAATTAGATTATT---TGAGAATATA-CCATGTTT
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------------------------------------------------------------------------GGC----
------------------AG---ATAGTGAGTTTTA----TTTTAGGCCTTGCCTT-ATTTCTCAGAGATGAACTTGGGC
ATTCTTGCTCTTTATCCCTTCATCATGGAGCTCTGTAGAATAATTTTAGTTGCAAA
>Condylura cristata
TA-TTTTGGATCCCTT------------------CAATGACAATCAGATTAGATTAGTATTTGGGAATATA-ACACGTTT
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-----------------------------------------------------------------------GAC----
------------------AG---ATAATGG----CA----TGTTAGGCCTTGCCTT--TTTCTCAGAAACTGGCTTTGAC
ACTCTTTCTCTTAATCCCTTAGTCACATGGATCCACAGAAAAATTT-AGTTGCAAA
>Homo sapiens
TAGTTTCTGATCACTC---TTTTTCTCTAAACCATTGTGACAATCAAATTAGGTTAT-GTTTGGAGGAATA-TTTTGTTT
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-----------------------------------------------------------------------CTATTAT
CATACTATCTGTCACGTGAG---ATAGGAAGCTTCA----TTTTAATTTTTACCTT--TTTCTCAGAGATTGACTTAGGC
ACTCTTAATCTTTATCCCTTAGTCATGTGGCTCCATAGAAAAATTTTACCTGTAAA
>Choloepus hoffmanni
TACA-TTTCAGACCAC-------------------TGTGACAATCAAATTAAATTA---TTTGAGAGTATA-ACATGCTT
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-----------------------------------------------------------------------GAC----
------------------AG---ATATTTTA-TTTAC---TTTCAGTCCTTGCTTTTTTTCTCCAAAGATTGACTTACAT
ACACTTAATCTTTATCCTCTGTTCATGTGGCTCTGCAGAATAATTTTAGCTGCAAC
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Perissodactyla+Cetartiodactyla

6.1 Marker HC__0001

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>L1MA9
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-------------------------------------------------------------------------------G
TAACTATGTGAGGTGATGGATATGTTAATTAGCTTGATTGTGGTAATCATTTCACAATGTATACGTATATCAAAACATCA
CGTTGTACACCTTAAATATATACA--ATTTTTATTTGTCAATTATACCTCAA----------------------------
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>SINEC_Fc2
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--------------------GGGGCGCCTGGGTGGCTCAGTCGGTTAAGCGTCCGAC-------TTCGGCTCAGGTCATG
ATCTCGCGGTTCGTGAGTTCGAGCCCCGCGTCGGGCTCTGTGCTGACAGCTCAGAGCCTGGAGCCTGCTTCGGATTCTGT
GTCTCCCTCTCTCTCTGCCCCTCCCCCGCTCACGCTCTGTCTCTCTCTCTCTCAAAAATAAATAAACGTTAAAAAAAAAA
TTAAAAAAAAAA--------------------------------------------------------------------
------------------------------------------------------------
>Bos taurus
GCACATCCCCAACTGTAACAAC-CAAAAATGTCTCCAGACATTACTAAACATCCACTAGAGGCAAAACCACCCCCAGTTA
AGAATCACTACCCTAAGAG---CATTCAGCAAGTGCCCTTGTATACAGCAGGCCAAC---AGAAAGTCTCCTCAAGGGCG
AAAATTAACAA-TGCAGATGATTGTATTGAGAGGACAGAGGTAATTTTATGTGGAA-----AGATTGCCTGG---TTCTG
TAACTCCGTATGGTGGGACAAATGTTAACTAGACTTACTGTCATGATCATTTTGCCATATATACAAGTATCAAATCATTA
TGTTGTACACCAGAAAG-----T---AATATAATATGTCAATTATACCTCAACTTACAAATTTTT---------------
-------AGGTTGTCTA--------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------AATGAAATATACAAAAATAATCTC-------
----------------------------TTTGGAGTAAGACTC-AGGTCATTTTTT
>Balaenoptera acutorostrata scammoni
GCACACCCCCAGTTGTAACAAC-CAAAAATGTCTCCAGACATTAATAAACGTCCGCTAGCGGCGAAACCACCC-CAGTTA
AGAACCACTACCCTAAGAG---TATTCAGCAAGTGCCCCTGTATACAGTAGGCCAAC-----AAAAAATTCTCAAGGGCT
AAAATTAACAA-TACAGATAATTGCATTTAGAGGATAGAGAAAATTCTATGTGAAA-----AGATTGCCTCA---TTCTG
CAACTATGTATGGT--GACGAATGTTAACTAGACTTATTGTCATGGTCATTTTACCATATATACAAATATCAAATCATTA
TGTTATATACCAGAAACTAATAT---AATATTGTACATTAATTATACCTCAATTTAAAAAAAATTTTAA-----------
-------AGATTGCCTA--------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------AATGAAATATACAAAAGTAATCTC-------
----------------------------TTAGGAGTGGGACCCCAGGTGATTTTTT
>Equus caballus
ACATACCCCGAGTTGGGATAACGCAAAAATGTCTCCAGACATTAATAAATGTCCACTGGAGGCACAATTACCC-CATTGA
AGAACCACTACCCTAAGAGTGATATTCAGCAAGTCCCCCTGTACACAGTAGACCAAC-A-AAAACTTTTCTTTAAGGGCT
AAAATTAACAA-TACAGAAAACTGCACTTAGAGGACAGAGAACATTCTACGTAAAA-----AGATTGCCTGA---TTCTC
TAACTATGTATGGC--AATGGATGTTAGCTGGACTTAATGTGGTGATCATTTCGCAATATATACAAATATCAAATCATTA
TGTTGAACACCAGAAACAAGAAA---TATGTTGTATGTCAATTACACCCCAATAAAACTTTTAAAAAAGCAAAAGA----
-------AGATTGCCTG--------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------AATGAAATATACAAAAGTAATCTC-------
--------------------------TTTTGGGAGTGAGATCCCAGGTGATTTTTT
>Ceratotherium simum simum
GCATACCCCCAGTTGTGATAAC-CAGAAGTGTCTCCAGATATTAATAAATGCCCACTGGAGGCAAAATCACCC-CAGTGG
AGAAGCACTACCCTAAGAG---TATTCAGCAAGTCTCCCTGCATATAGTAGACCAAC-C-AAAAATTTTCCTTAAGGGCT
AAAATTAACAA-TACAGAAAACTGCATTTAGAGGACAGAGAACATTCTATGTAAAA-----AGATTGCCTGA---TTCTG
TAACTATGTATGGC--AATGGATGTTAGCTAGACTTAATGTGGTAATCATTTTGCAATATATACAAATATTGAATCATTA
TGTTGTACACCAGAAACCAGAAAGATAATGTTGTATGTCAATTATACCTCAATAAAACTTTTTTAAAAGAAAAAAAAAAA
AAAA---AGATTGCCTG--------------------------------------------------------------
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-----------------------------------------------------AATGAAATATACAAAAGTAATCTC-------
--------------------------TTTTAGGAGTAGGACCCCAGGGGATTTCTT
>Myotis lucifugus
GCACTCCCCCAGCTGTGACGAC-CAAAAATGTCTCCAGACATTAATAAATGTTCACTGGAGTCAGAATCACCC-CAGTTG
AGAACC-TTACTCTAAGAA---TAGTCACCACAT-CCCCTGTATAAAATAGACGAACCA-AAAAAATTTCTTTAAGGACT
AAAATTAACAA-TATAGTTAATTACATTTAGAGGACAGAGAAAATTCTATGTAA-------AAATTGCTTGA--------
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--------------------------------------------------AACGAAATATACAAAAGTAAGCTC-------
--------------------------TTTTCAAAGTAGGATTCCAGGAGATTTTTT
>Pteropus vampyrus
GCACACCCTCAGTTGTGACAAT-CAAAAATGTCTCCAGATATTAATAAGTGTCCCCTGGAGGCAAAATCATCCACAGCTG
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AAAATGAACAA-TATAAATAACTGCATTTAGAGGGCAGAGAAAATTCTATGTAA-------AAATTGCCTGA--------
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----------------------------------------------------AATGAAATATACAAAAGTAATCGC-------
--------------------------TTTTAGGAGTGGGATGCTAGGTGATTTTTT
>Canis lupus familiaris
GCATACCCTCAGCT-TGACAGC-CAATATTGTCTCCAGACATTAATAAATGTCCACTGGAAGCAAAATCACCCCTAGTTG
AGAACTACTACTCTAAGAGT--TATTCAGCAAGTCCCCCTGTATACAGTAGACCAAC-A-AAAATGTTTCCTTATGGGCA
AAAATAAACAATTACAGAT-ACGGAATTTAGAAGAT--AGAAAATTCTATGTAAAA-----AAATTACCTGA--------
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-----------------------------------------------------AATGAAATACATAAAAGTAGCCTCT------
--------------------------TTTTAGGAGTGTGACCCCAGGTGATTTTTT
>Felis catus
GCATAACCCCAGCTGTGACAGC-CAAAATTGTCTCCAGATATTAATAAATGTCCACTGGAGGCAAAATCACCTATAGTTA
AGAACCACTACTCTAAAAA---TATTCAGCAAGCCCCCTTGTATACAGTAGACCAAC-A-AAAAATTTTCCTTAAAGGCA
AAAATTAACAA-TACAGAT-ACTGCATTTAGAGAACAGAGAAAATTCTGTTAAAAAAA---AATTTGCCCGA--------
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--------------------GGGGCACCTGGGTGTCTCAGTTGGTTGAGAGTCCAATTCTTGGTTTCAGCTCAGGTCATG
ATCTCACAGTTCGTGAGCCTGAGCCCCACATTGGGCTCTGTGCTGACAG-------TGTGGGGCCTGCTTGGGATT----
------CTCTCTCTCTGCCCCTCCCCTGCTCATGCTCTG----TTTCTCTCTCAAATTAGGTACACTTAACTAAAATAAA
ATAAAATAAAATAAAATTAAATTAAATTAAATTAAATTAAATTAAAATGCCTGAAATGAAATATACAAAAGGAATCTC-------
--------------------------TCTTAAGAGTGGGACCCCAGGTGATTTTTT
>Manis pentadactyla
GCACACCCCCAGCTGTGGCAGC-CAAAAATGTCTCCAGAAATAAAT--ATGTCTACTGGAGGCAAAATCACCC--AGTTG
AGAATCACTACCTTATGAC---TATTCAGCAAGTTCCCCTGTATATAGTAGACCAA-----TAAAATTTCCCCAAAGGCT
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>Condylura cristata
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>Choloepus hoffmanni
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6.2 Marker HC__0011

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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Equus caballus
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>Ceratotherium simum simum
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>Pteropus vampyrus
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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Condylura cristata
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>Homo sapiens
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>Choloepus hoffmanni
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6.3 Marker HC__0017

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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Condylura cristata
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>Homo sapiens
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>Trichechus manatus latirostris
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6.4 Marker HC__0032

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>Bos taurus
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>Equus caballus
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>Ceratotherium simum simum
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>Myotis lucifugus
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>Pteropus vampyrus
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>Felis catus
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>Manis pentadactyla
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>Condylura cristata
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>Homo sapiens
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ATC
>Loxodonta africana
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6.5 Marker HC__0037

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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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ATAAGACAATAA--------AAATAAAATCA
>Equus caballus
AATACATCTGATTTTCTCTCCATATTAAAGTAAATCAATTGC-ATGGTAAATAAGAGAATTCATCCTAAGAATATATTAT
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CTAATTGACATATAACATTATGTAAA-TTTCATGTGTACAAGATAATGATTTAATATTTGTATATATTATGAACTGATCG
CAACAAT---ATTAA----------CACCCATCACAATAGTTA---ACACCCATCACCTCTCTT---GTGGTGGA----C
TTTCTTGCCTTC-TTATAG---------CAATGACTTTCTGGCACTGT---ATTTTC-TGTTA---ACAAACTTGGATAT
ATGAGACAATAC--------AAATAAAGTCA
>Ceratotherium simum simum
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CTAATTGACATACAACATTATATTAG-TTTCAGGTGTACAACATAATGATTCAATATTTGTGTGTATTGCAAAATTGTCG
-------------------------CCACAATAAGTCCAGTTA---ACATCTGTCACCTTGCTT---GTGGTAGACTTTC
TTGCTTTCTT-----ATAG---------CAATGATTTTCTGGCACTGT---ATTTTC-TGTTA---ACAAACTTGAATAC
ATGAGACAATAC--------AAATAAAATCA
>Myotis lucifugus
GATAAATCTGATTTTTTCTAAACATTGAAGT----CAATTGC-ATTGTTCATGAGAGAGTTCATCTTAAGAATATATTAT
TTTTTT------TACCATGG-TTAGGTCATACA---CCTGTAATATTATTGGAC-------------------------
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-----------------------------------------------------------------TTTTTGG-----C
TTTCTTAT----ATCATAG---------CAATGATTTTT-GACACTGTACTATTTTTTTGTTA---ACAAAGTTGGATAC
ATGAGACAATAC--------AAGTAAGATCA
>Pteropus vampyrus
AATAAATCTGAGTTTT-CTAAACATTAAACTAAGTCAATCGC-ATTGTGCACAAGAGACTTCATCTCAAGAATGTATTGT
TTT---------TGCCATGAATTAGGTTATATA---TACATAATATCATTGGAC--------------------------
------------------------------------------------------------------------------
-----------------------------------------------------------------TTTCTTG-----C
TTTCTTTT----ATTACAG---------CAATAATTTTCTGGCATTGC---ATTTTC-TGCTA---ACAAACTAAGATGC
GTGAGACAATTC--------CAATAAATTCA
>Canis lupus familiaris
AAAATATGTGATTTTT-CTATACATTAAAATAAGTCAATTGC-ATGGTGCACAAGAGAGTTCATGTCAAGAGTTTATTAT
TTTT--------TATCATGAATTTAGTTATAGA---CCTGTAATATCATTAGAT--------------------------
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-----------------------------------------------------------------TTTCCTG-----C
TTTCTTATCTATAATACATTGCTATAATCAATGATTTTCTGGCACTAC---ATTTTC-TGTTA---ACAAACTTGAATCC
ATGAGACAATAC--------AAATTATATCA
>Felis catus
AAAATATACGACTTTT-CTGTACATTGAAATAAGTCAATTGC-ATGGTGCATGAGAGAGTTCCTGTCAAGAGAACGTTAT
TTTTTTTTTTTTTACCATGAATTTGGTTATACA---CCCATAATATCATTAGCT--------------------------
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-----------------------------------------------------------------TTT---------C
CTGTTTTCTTTTATTACAC---------CAATGGTTTTCTGGCATTGT---ATTTTC-TGTTA---ACAAACTTGAATCC
ATGAGACAATAC--------AAATAAAATCA
>Manis javanica
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TTTT--------TACCATAAATTTGGCTATACA---CCCATAATATCATTGGCC--------------------------
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TTTCTTAT----ATTGTGG---------CAATAATTTCCTGGCACTGT---ATTTTC-TGCTA---ACAAACTTGGATAA
ATGAGACAATAT--------AAGTAAAATCA
>Sorex araneus
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TTTT--------TACCAAGAATTCAGTTCTATT---TATAAGAAAAACCATCAT--------------------------
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AAGCCTT--------ATGG---------CA-TGATTTTATGGTACTGG---ATCTTA-TGTTA---ACAAGCAGAGATAA
ACAAGAC--AACAA------AAATAAAATCA
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>Homo sapiens
AATAAATCTGATTCTT-CTGTACATT-AAATAAGTCTATTGTAATGGTGCATGAGAGAGTTCAACTCCAAAAAAAGAATT
TTTT--------TACCATAAATTTAGTTATATA---CCTATGCAATCATTGGAT--------------------------
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-----------------------------------------------------------------TTTCTTG-----C
TTTCTTAT----AACATAG---------CAATGATTTTGTAGCACTGT---ATTTTC-TATTA---ACGGAATTGGATAC
ATGAGACAATACCAAACAAAAAAAAAAATCA
>Dasypus novemcinctus
AATAAATCTGATTC-------------AAACAAGTCAATTGCAATGGTGCATGAGAGAGTTCAA-----GAATATGT-AT
ATATTG------TACCATAAATGTGTTTATAAG--TCAAAAGAAAATCCTTGTG--------------------------
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ATGACAAAATACA-------ATGGAAAATCA
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6.6 Marker HC__0048

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>L1MA9_rc
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TGAGAACACTTAAGATCTACTCTCTTAGCAAATTTCAAGTATACAATACAGTATTATTAACTATAGTCACCATGCTGTA-
------------------------CATTAGATCTCCAGAACTTATTCATCCTGCATAACTGAAACTTTGTAC--------
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>Bos taurus
CCTGATACAAAGGCTCCAGAAAAAAGAAGTTATCTGTGTCTTTTTAGGACACAATCTGTCATTCTGAATTAAAAGAC-AA
CATGTT----------------------------------------------------------------------
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-------------------------------------------------CTTAATTGAAAATGTTT---AATGTACACATCT--
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>Tursiops truncatus
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TATGTT----------------------------------------------------------------------
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-----TACACGTCT---TGATGCCTCTAATTCAAATCCTCATATAAATCCTTTAGTAAAACAGATTTGT
>Equus caballus
CCTGACACAAAAGCTCCAGAACAAAGAAG-TATTTGTGTCTC-TTAGGATACCATCTACCATTCTGAATCAAAAGGC-AG
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>Ceratotherium simum simum
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-----TACA--TCT---TGATGTCTCTAATTCAAATTCTCATATAAATCCTTTAGTAAAATAGATTTGT
>Myotis lucifugus
CCTGATACAGGGCCTTCGGAACAAAGACA-GATCTGTGTCTC--TAGGATA----CTATCAGTCTGAGTTAAAAGTC-AG
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>Pteropus vampyrus
CCTGACACAAAGCCTCCAGGGGAAAGACG-TATTTGTGTCTCTTTGGGATACACTCTATCATTCTGGGTTAAATGGCAAA
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>Canis lupus familiaris
CCTGATACAAAACCTCCA--ACAAAGAAG-TATTTGTGTCTCTTTAGGATATAGCCTATCATTCTGAATTAAGGGAC-AC
TATATT------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
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>Felis catus
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>Manis pentadactyla
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----------------TGATGCTTCTGATGCAAATCTTT------------AGTAAAACAGACTTGT
>Condylura cristata
CCTGACACA--GTCTCCAGAACAAAGAAG-TAT--ATTTCTCTTTAGGATACAATCTACCATTTTGAATTAAAAGATAAC
TATGTT--------------------------------------------------------------------------
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-----------------CAAATTCTCATACAAACCCTTTT----------AATAAAACAGAGTTGT
>Homo sapiens
CCTGATACAATGCCTCCAGAACAAGGAAG-TATTTGTGTGTCTTTAGGATACAATCTATCATTCTGAATTACAAGGCAAG
GAGTTT--------------------------------------------------------------------------
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>Dasypus novemcinctus
TGTGACACAAAGTCTCCAGAACAAATGAG-TATTTATGTCTCATTGAGATACAATCTATCAATCTGAA------------
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-----------------------------------------------ATCTTTAAAGAAGTTT---AATCTATGTGTCT--
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6.7 Marker HC__0059

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>L1MAB_EC
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ATATATCAAATCATTATGTTGTACACCTTAAACATAATACAATGTTATATGTCAATTATATCTCAATAAAACTGAAAAAA
---AAA----------------------------------------------------------------------
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>Bos taurus
GAGTACTTGATCAAGACTTTTCCTTTGTAATTTGCTTTGCTTCTTTTAGCTGGGACTCTGA--------CTTTTTAATTT
CTTTTTTTTTTTTTTACCAACTTGGCATCA---AAATCCATTGCAAG---GCTGTTGATTGAACTTTCTCATCACAAGAA
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AAATATTGAATCATTATGTTGTACATTTGAAAC-TAA-----TGTTAT--GTCAGTTATACCTCAATAAAAA---------
---AAATCCATTGTGGG---TACCTTTCTTCATGTACT----GATTAAAACATTCCACTTTGACAGTTCCTGTAT-----
--TTTAAAGA
>Balaenoptera acutorostrata scammoni
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---AAATCTATTGCAGT---TACCTTTCTTCATGTGCTGCCTAATTAAAATATTCCACTTGGACAGTTCCTATAT-----
--TTTAAAGA
>Equus caballus
CAGACCTTGATTAGGATTTTTCCTTTGTAATTCACTCTGCTGCTCTTAGCTAGGAATCCAA--------------AGATT
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AACAAA----TTCTGTAACTGTGTATGGTGACG----GATGTGCTAGACTC-ATTGTGGTGATCATTTTATAATATATCC
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---AAATCCACTGCAGG---TACCTTTCTTCATGTACCATCGAATTAAATTATCCCTCTTTGACTTTTTCTGTAT-----
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>Ceratotherium simum simum
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AAAAA-----TTCTATAGCTATGTATGGTGACGGA--TGTTAACTAGACTT-ATTATGGTAATCATTTTGCAATGTATAC
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---AAATCTGTTTCAGG---TACCTTTCTTCATGTGCCACCTAATTAAAATATCCCTCTTTGACTGTTTCTATAT-----
--TTTAAAAA
>Myotis lucifugus
CAGATCCTGATTAGGATTTTTCTTCTGCAATTAACTCTATTTTCCTTAGCTGAGAATCCAT-------------------
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--------------------TACCTTTCTTCATATGCCATCTAATTAAATTATCTGCTTT--ACTGCTCCTATATTTTA-
--TTTTTAAA
>Pteropus vampyrus
CAGACCTTGATTAGGATTTTTCTT-TGTAATTCACTCTACTTTTCTTAGCTGGCAATTTATTTATTTATTTATTTATTTA
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--------------------CACCTTTCTTCACATGCCATCTAATTAGAACACCCTCTCT-----GTTCTTATATTTTAT
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>Canis lupus familiaris
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--------------------TATCTTTCATCATGTGCCATCTAATTAAAATAACCCTTTT----TTTTCC-ATATTTT--
--TTAAAAAA
>Mustela putorius furo
CAGACCTTGATTAGGATTTTGCCTTTATAGTTCACTCTGTTTCACTTAGCTGGGAATCCAA-------------------
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--------------------TAACTTTCATCATGTGCCATCTAATTAAAATATCCCCCTC-----TGTTCCATATTTCT-
--TTTGTTTT
>Felis catus
CAGACCTTGATTAGGATTTTTCCT-TGTAGTTCACTCTGTTTCTCTTAGCTGGGAATCCA-------------------
------TTTTTTTTAACCAACTTTGCATCA---AAA-----------------------------------------------
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----------------------------TCCATGTGCCATCTAATTAAAATATCCCTCCT-----TTTCC-ATATTTT--
---AAGAAAA
>Manis pentadactyla
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--------------------TACTTTACTTCCTGGGCTATCTAATTAAATATCCCTCTCT-GACTGCTCCTATATATATA
TTTTTTTGTC
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>Condylura cristata
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AGATTATGATTTAAGAAAGCAACTGCATCA---AAATCCATTACAGG---------------------------------
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--------------------TGTCTTTCTTCATGTGTGTTCTTATTACAATATTCTTCTTTCACTCTTCGTATATTAAAA
AAATTATCTT
>Homo sapiens
CACACCCTGATTAGGATTTTCCAACTGTGATTTGTCCTGCTTCTCTTAGTTGGGAGTCCAT-------------------
------ATAGTTTTTACCAACTTTTCATCA---AAAGCCATTGCGGG---------------------------------
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--------------------TAGCTTTCTTCATGTATCATCTAATTAAAATATCACTCTGAGACTGTTCCTACATTTAAA
AAA----CCT
>Trichechus manatus latirostris
TAGCCCTTGATTAGGAGTTTTCTTTTGTG-----------------------------------------------------
---------------ATTCATTCTGCATCA---AAAGCTATTGCAGG---------------------------------
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6.8 Marker HC__0060

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CAACCACCATTCTACTTTCTGTCTCTATGAATTTGA------CTACTCTAGGTACCTCA--TATAAGTGGAATCATACAG
TATTTGTCTTTTTGTGACTGGCTT------------------------------------------------------
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>Bos taurus
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CACTT---AAGCTCA-TCATTTCTAAATGTACAGTTCAGTAATGTTAC-----------ATTTGGTGCAACCAGGGGCCA
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CCCCCACCCTCCTACATTCTATCCCTGTAACTTTGA------CTACTCTAGGAATCTCATTTAAAAATGGAATCA-----
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TAATTACAGTGGAAAT----TGCAGTTTAAGGCTTGCCTGTGAACTGGATTATA
>Balaenoptera acutorostrata scammoni
ACTTTTGCCATTTTAATTTTGTCCTGCAGGAGCATA----------------------------CATTCACCATGG---A
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-CCCTACCCCCCTACTTTCTC--------------------------------------------------------
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>Equus caballus
GCTTTTACCCTTTTTATCTTGCTGTGCAGAAACATA----------------------------CATTCACCATGTGCTG
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>Ceratotherium simum simum
GCTTTTACCGCTTTTATCTTGCTGTGCGGAAACTGTTTTTATCTTGCACAAATTCGATTTATCCAGTTTACTTTGG-CTG
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CAATTACAGTGGAAATTCTGTAGCGTTTGAGGCTTGGCTCTGAACTAGATTGTA
>Myotis lucifugus
GCATTTACCATTTTTATTTCACTATGCAGAAACATA----------------------------CATTCACCATGGGCTG
AGTGATGCAATAGACAGTGTAA---TGGAGA--ATATATC-TTT-------------------------------------
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>Pteropus vampyrus
GCATTTACCATTTTTATTTTGCTATGCAGAAACATT----------------------------CATTCACCATGGGCTG
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>Canis lupus familiaris 1
GCATTTACCATTTTTATTTCGCTATGCAGAAACATA----------------------------CATTCACCATGGGCTG
TGTGATGCAGTTGACAGTGTAA---TGGAGA--ATATATC-TTT-------------------------------------
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>Canis lupus familiaris 2
GCATTTACCATTTTTATTTCGCTATGCAGAAACATA----------------------------CATTTACCCTGCTCTG
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>Felis catus
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>Manis pentadactyla
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>Condylura cristata
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>Homo sapiens
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>Dasypus novemcinctus
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6.9 Marker Rh_Hb02

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>Balaenoptera acutorostrata scammoni
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>Equus caballus
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>Myotis lucifugus
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>Canis lupus familiaris
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>Felis catus
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>Condylura cristata
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>Dasypus novemcinctus
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6.10 Marker Rh_Hb16

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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Trichechus manatus latirostris
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Chiroptera+Cetartiodactyla+Carnivora

7.1 Marker D_BC0002

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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Equus caballus 1
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>Equus caballus 2
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-------------------------------------------------------------------------------
----------------------------------GAAATGGTATAGGTAATCATAGTAAGGAGAGGAA--CAATTTG
A--TTTAGGCTGGAGTTTTGCACTTT--GTTCTGAACTTTCTGAAAATGTTACTATTCTAA-GCC
>Choloepus hoffmanni
ATGCCACTTGCTTTGTAGAGCTAAAATT--TCATGTGATTCTTCT------------------CA----AAACCAAGTT
GAAGTCTCCTCATGA-------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
---------------------------------------AAAAGCTGGT-CTG---------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
----------------------------------TAAAAGGTATATAAAAACACAGTAGAGAGAGAAA--CAGTTTG
A--TTCATGCTGACTTCTTCCCCTTTTTCCCCAGAGCTTTCTGAAAACTTGATTGTTATAC-TCT
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7.2 Marker D_BC0018

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>L1_Carn7
------------------------------------------------------------------------------
-------------------------------------------------------------------------------T
AA---CTAGACTTATTGTGGTGATCA-CTTCACAATGTATACAAATGTCGAATCACTATGTTGTACACCTGAAACTAATA
TAACATTGTATGTCAATTATAC-TCA-----AATAAAAA-------------------------------------
------------------------------------------------------------------------------
------------------------------
>Canis lupus familiaris
AAAT-ATTGT----------------------------------TTTTTGCTTTCATTAATTTTGAT-TTTTAAAAATGG-G
GGAAACATTG--AG-------TTTTTTTCCTAAAGAAATAATCATTAGCCTT---A-ATAAAAATAAG-CTCTT-ATTTT
AA---CTAGACTTACTGTGCTGATCA-TTTCACAATATATATAAATACCTACTCTTTATATTATCC--------ACTAATG
TAATGCTATATGTCAATTCTACCTCA-----ATAAAAAT---A--TGTAAT--TAAAA-CTCA--GAATTTA---TCCCA
AC--ATACATACATTTGTTCCTGTGTACACATATCTTCATTGAAATGGGCCCAGAAAATACTCATTATGATTGCTTCTGA
GTGAGTCC-TTTCCATCTTATTTTCTTGAC
>Felis catus
AATTCATTGCATTT-TTCATTATTG-----------------TTTTGGGTTTTATTAACTTTAAC-TTTAAAAAATG--G
GGAAACATAT--TT-------TTTTATTCCTAAAGAAGTAATCATCAGACTT---A-ACAAAAATAAG-CTCTT-ACTTT
AA---CTAGATTTATTGTGCTGATCA--CTTACAATATATACAGATACCTACTCTTTATGTTATCCACTTGAAACTAATA
TAATGTTGTATGTCAATTATACTTCA-----ATAAAAAT---ACATGAA----TAAAAGCTCT--ATGTTCA---TCCCA
GC--ATATATACATTTGTTCCTATACACACATATCTTCATACAAATGGGCCCAGAAAGTATTACTTGTGATTGCTTCTGA
GTGAGTCC-TTTCTATGTTTTTTTCTTGAC
>Manis pentadactyla
AATTCATTGCCTTT---CTTTATTA-----------------CTTTTTTGAAAATTAATTTTAAA-TTAAGGAAAGAA--
GGAAACATTGACAGACT----TTTTTCCCCTAAAAAAATAATCATTAGACAT-----ATAAAAATAATACTCTT-ATTTT
AA---CTAAACTTATTGTGCTAGCCA-TTTCACAATATATACAAATATCTAATCATTTTGCATACC---TGAAACTAATA
TAA---------GTCAATAATAGTTA------ATAAAAAT---AAA---------TAAGA-CTTG--ATATTTA---TCCCA
AC--ACATATATATATGTTCCTATACACATAT--CTTCATAGACATGGGCCAACAAGAAAGT--ATTGTGATGTTTCTGA
GTGCTTTG-----TATTTTATTTTCTTGAC
>Bos taurus
AATTCATGGTATTT---CTTTATTGTTG--------------TTTTTGTTTTCATTCATTTTAGC-TTTACCAAAAGG-G
GGAAATGCTT-TAT-------TTTCTTTTCTAAACAAATAATCACCAGACAT---ATATAAAAGTGGAGCTTTT-ATTTC
AG---CTAGATTTATTGTACTGATAA-TTTCACCATCTATATAAATGTGGAATCATCATGTTGTACATCTGAAAC----A
TAATGTTATATGTCAATTATATCTCA-TATATTACTTAT---A--TAACATCTTAAACAGTAA--GATGTTA---TCCCA
AC--------------------------ATATATCT-----------------------------------------
------------------------------
>Balaenoptera acutorostrata scammoni
AATTCATTGTATTT---CTTTATTATAG--------------TTTTTGTTTTCATTAATTTTAGC-TTTAAAAAAGAGGG
GGAAACGCCT-TGT-------TTTGTTTTCTAAAGAAGTAATCATTAGACAT---ATA--AAAGTAAGGCTCTT-ATTTC
AA---CTAGATTTATCGTACTGATCA-TTTCACCAGTTATACAAATATGGAATCATTATATCGTACACCTGAAACTATTA
TAATGTTCTATGTCAATTATACCTCAGTATAA-ATAAAT---AAATAAA----TAAG-GCTCA--GTGTTTA---TCCCA
AC--------------------------ATATATCTTCATAGGATTGGGCCTAGAAAGTATTAATTATGATTGTTTCTGA
GTG----C-TTTTTATATTATTTTCTTGAC
>Myotis lucifugus
AATTCATTGTATTT---CTTTA--------------------TTTTTGTTTTCATTAATTTTAAC-TTTTAAAAAGAGGG
GGAAACATGGGTGT-------GCTTTTCCCTAACAAAGCAATTATTAGACTT---ATATAAAAATAAGGCTCTT-ATTTT
AA---CTAGACTTATTGTGCTGATTA-TTTCACAGTATATAGAAATATCAAATAATTATGTTGTACACTGGAAACTAATG
---TGTTGTATATCAGTTATACCCCA-----ATAAAAAT---AAATAAA----TAAG-GCTCA-----GTCA---TCCCA
ACT-GAACATACATAT-TTTCTGAGCACGCCTATCTTCATAGAAAT--------------------GTGATTGTTTCTGA
GTAAATGG-TTTCTATGTTATTTTCTTGAC
>Pteropus vampyrus
AAAAAAAGGAA-TT---CTTTA--------------------TTTTTGTTTTCGTTAATTTTAAC-TTTAAAAAGGGGAG
AGAAACA----------------TTTTTTTTAAAGAAGTAATTATTAGAA-----AAATAAAAATAAGGCTCTTTATTTT
AA---CTAGTCTTATTGTGCTGATCATTTTTCCAATATATACAAATACCGAATCATTATGTTGTACGCCTGAAACTAATA
TAGTATTCTATGTCAGTTTTACCTCA-----ATAAAAAT---ATATGAA----TAAA-GCTCGATGTATATA---TCCCA
CT--ATATATACATATGTTTCTATACACACATAGCTTCATAGAAATAGGCCCAGGAAGTATTAGTTGTGATTGTTTCTGA
GTGAGTTC-TTTCTGTGTTATTTTCTTGAC
>Equus caballus
AATGCATTGTATTTCTTCTTTATTG-----------------TTTTTGTTTTCATTAATTTTAAC-TTTAAAAAAGAGGG
AGAAACTTGGGTGG-------TTTTTTCCCTAAAGAAGTAATGTTTAGACTT---ATATAAAAATAAGGCTCG--ATGTT
TA------------------------------------------------------------------------------
-------------------------------------------------------------------------TCCCA
AC--ATATATACGTCTGTTCCTGTATACACATATCTTCATAGAAAT-GGCCCAGTAAGTCTTAGTTGTGGTTGTTTCTGT
GTGTCTGCTTTTTTATGTTATTTTTTTGAC
>Ceratotherium simum simum
AGTGCATTGTATTT---CTTTATTC-----------------TTTTTGTTTTCATTAATTTTACC-CTTAAAAAAGAGAG
GGAAATATGGGTGTG------TTTTTTTCCTAAAGAAGTAATCTTTAGACTT---ATATAAAAATAA-GCTGG--ATGTT
TA------------------------------------------------------------------------------
----------------------------------------------------------------------------TCCCA
AC--ATGTATACTTATGCTTCTGTATACACGTATCTTCATAGAAATGGGCCCAGAATGTATTAATTGTGGTTGTTACTGA
GTGTGTGC-TTTTGATGTTATTTTCTTGAC
>Sorex araneus
AGTTTATTATATT----CTTTG--------------------TATTTTTTTAATTTCTGTAATTT-GAGAAAAAAGAGGT
GGAAATATTGG----------TTTTACCCCTAAAAAAGTAATCATTATAATT---ATATAAAAATATATCCCA--GTGTT
TA------------------------------------------------------------------------------
----------------------------------------------------------------------------TCCCA
ACATACATGTTTTTGTAGACTTACGTCTTCATA-------------GAAATGAGCCCAGAATTATTGATATTGTTTCCTA
GACCTTTTTATGTTAAACT-CTATAGTTAG
```

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>Homo sapiens
AATTCATTGTATTTCTTCTTCATTTATTTATTTATTTATTTATTTTTGTTTTCATTAATTTAAAC-CACAAAAAAGCAGG
AGAAAATGGTGTGGGC-----TCTTTTTTCTAAAGAAGTAATCATTGGACTT---ATAAAAATAACA--CTTG--ATATT
TA--------------------------------------------------------------------------------
--------------------------------------------------------------------------------TCTGT
CTGTATACACACACATACACTCATAAACACGTATCTTCATA-AAATGGGTTAAGCAAGTATTAATTGAGGTTGTTTCTTA
GTG-------TTTTTTGTAATTTGCTTCAC
>Choloepus hoffmanni
AATTCATTCTATTTCTTCTTTATTG-----------------TTTTTGTTTTCATTCATTAAAACTTTTAAAAAGGAGAA
GAAAACATTGTTATTGTTATGGTTTTTTCCTAAAGAAGTAATGATTGGACAT---GTATAAAAATAAG-GTTAA-ATTTT
TA--------------------------------------------------------------------------------
--------------------------------------------------------------------------------TTTCA
AA--GGATATACATGTATGTACTCAGACACATACCCACATAGGAATAGGTCTGGTAGGTGTTAATTGTGATTGTTTCTGA
GTGTGTTT-----TATATTATTTGTTTTAC
```

7.3 Marker D_BC0019

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>L1MA9_rc
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TTTTGATATACGTATACATTGTGAAATGATTACCACAATCAAGCTAATTAACATATCCATCACCTCACATAGTTA-----
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----CCATTTTTTTGTGTGTGGTGAGAACACTTAAGA--------------------TCTACTCTCTTAGC-AAATTTCA
AGTATACAATACAGTATTATTAACTATAGTCACCATG----------------------------------------
--------------------------------------------------------------------------------
-----------
>Canis lupus familiaris
TAGGCATCCA-----------TGAGGTGTATATTTGACGTTTT-ATAATAT------------------------GTTTT
TTATATTACTTCAGAACAGGAAAATAA---TTCTTTGGGGAGAATGA-TCCCAAG---AACAATTTCACATGGT-ATT--
--------TTCTCCCA-TTTAATTGAG---ATGTAATTGACATATAG-CATTGTGTAAATTTAAGGTGCACAGCATAAAG
ACTTGACCTTCATATATATTGTGAAATGATTACCACAAGAAATTTAGTTAACAT--CCATCATCACATATAGGTA-----
-----------------------------------------------------------------CAAAAAAACAGGGA
AAAAATG-TTTTTCCTT-GTGATGAGAACTCATAGCAACTTTCTACTTTCTATGTTTTCTACTCTTTTAGC-AACTTTCA
AATATACAATTCAGCATTGTTAACTATGGTCATCATGTTG---TAGATTACATGATGCTTATGCTTA-TTTTTTAACAAA
CTTGTTTTGAG---T-GGTTCGT--AATCCAGGACAGG----GGTTGTCAAA-TGTTGCCTTCTGTTCAAATTAAGCCTG
CCACTTGTTTG
>Felis catus
CAGGCTTCCA-----------TGAGGTATATATTTGACTTTTT-TTAATATT---ATG--------------------TTT
TTATATTACTTCAGTACAGGAAAAAATA--TACTTTGGGGAAAGTGA-TCCTAAG---AATAATTTCACATAATGATT-T
--------TTTTCCAG-TTTAATTGAG---ATGTAATTGACTTAGAG-CACTGTGTAAGTTTAAGGTATACAGCATAATG
ACTTGACTTTCATATATATTGTGAAATGATTACCACAAGAAGTTTAGTTAACAT--CCATCATC-CTATTAGGCG-----
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CACCGTGTTTTTTCCTT-GTGATGAGAACTTTTAGGA--------------------TCTACTCTTTTAAC-AACTTTCA
GATATACCATTTAGCATTGTTAACTGTAGTCATCATGTTG---TATATTACATGATGATTA-------TTTTGTAACAAA
CTTGTTTTTAG---C-GGTTCTC--AATCTAGGACAGG----GATCAGCAAA-TGTTGCCTGCTGAGCAAATTCAGCCTG
CCTCTT-TTTG
>Manis pentadactyla
CAGGCGTCCCTGTGTGGAAGTTAAGTTTGATATTTGACTTTTT-ATAATAT----ACA----------------ATTTTT
TTGTATAAATTCAGCAGAGGAAAATA----TTCCTTGAGGAGAGTGA-TCCTAAG----ATAGTTTCACATGATGATCTT
--------CCTCCCAG-TTTTATTGAG---ATATAATTGACATATGG-CATTGTGTAAGTTTAAGGCATTCATCATAAGG
ACTTGACTTTCACA--TATTGTGAAATAATTATTACAATAACT--AGTTAAAAT--CCATCATGTCATATAG--------
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AACAATGTATTTTCCTTTGTGATGAGGACTCTTAGGA--------------------TCTACTCTCTTAAC-AACTTTCA
AATATACCATATAGCACTTTTCACTGTACTCATCATGTTA---TACATTATATGAC-ATTA--------AAAAACAAAAA
CTTCTTTTCAG---T-GGTTCTC--AGTCTAGGACAGG----GATCAGCAAA-TATTGCCTACTGTCCAGATTCAGCCTG
CCATTTGTTTT
>Bos taurus
TATG----------TGGAAGTTGAGTTTGATATTTGACTTTTT-ATAATATT---ACA------------------TTTT
CTGCATTACTTTAGTACAGGAGAATATATATTCCTTTAGGAGACTGA-TTCTAAG---AACAGTCTCACATGATGGTG-T
--------TTTCCCAT-TTTTATTGAG---ATATAATTAACGTATAGCCCCTGTGTAAGTTTATAGTGAATAGCATGATG
ACTTGAACTTCATT--CATTGTGAAATGATTACCACAGTAAGTTTA---AACAT--CCATCATTTCATATAG--------
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TTAACATTTTTTTCCTT-GT-----GAGCTCTTAGGA--------------------CCTACTGTC--AACTAACTTTCA
AATATACCATGTTGTATCA-TAACTGAAGTTATCATG------AATATCACATGATT-----------TTTTTTTTTAAA
CTTGTTTTCAG---T-GGTTCTC--AGTCTAGGAAAGG----GAATGGCAAA-CATTGCCTGCTGTCCAAATTCAGTCTG
TCACTTGTTTG
>Balaenoptera acutorostrata scammoni
TAGGCTTCCTTGTGTGGAAGTTGAGTTTGATATTTGACTTTTT-ATAATATT---ACA------------------TTTT
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--------TTCCCAGT-TTTTATTGAC---ATATAATTAACATATGG-CCCTGTGTAAGTTTAAGGTGAATAGCGTAATG
ACTTGACTTTTATA--TATTGTGAAATGATTACCACAGTAAGCTTAGTTAACAT--CCACCATTTCATATGG--------
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AAAAATGGTTTTTTTTT-GTTGT--GAACTCTTAGGA--------------------TCTACTGTCTTAACAAACTTTCA
AATATACCACATAGCATTG-TAACTGTAGTCATCATG------TATATCACATGTTGGTTTTTTTTTTTTTTTTTTAAA
CTTGTTTTCAG---T-GGTTCTC--GGTCTAGGACAGGCAAACATCTGCAAA-CATTTCCTGCTGTCCAAATTCAGTCTG
CCTCTTGTTTG
>Myotis lucifugus
TAGGATTCCATGAATGGAAGTTGAGTTTGATACTTGGTATTTT-ATAATATT---GTGGTGTTTTTA--------TTTTA
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AC-----TCTCATG--TATGGTGAAATGATAACCGCAATAAGTTTAGTTAATAT--CCATCATCTCACATAG--------
-----------------------------------------------------------------ATACAAAGAAAAC
TCCAATTTTTTAACCTT-GTGAGGAGAACTCTTAGGA--------------------TCTCTT-------GAAACTTTTA
AAAACACCATATAGCATTGTTAACTATAGTCATCATG------TACATTACATG--------------TTTTTTTAAAAA
CTTGTTTTTAG---TAAGTTCTC--AATCTAGGACAGA----GATCAGC------------------------CTGCCTG
CCACTTATTTG
>Pteropus vampyrus
TAGGCTTCCATGTATGGAGGTTAAGTTTGAAATTTGACGTTTT-ATGATATT---ATAGGTTTTTTAAGTCTTATTTTTT
TCATACTATTTAAGCACAGGAAAATATA--TTCCTTGGAGAGAATGA-TCCTAAG---AATAGTCTCACATGATATT--T
--------CCCCCCAG-TTTTATTGAG---ATATTATTGACATATGG-CACTGTGTAAGTTTGAGGTGTATAGCTTAATG
ACTTGACCTTTATA--TATTATGAAATGATAACCACAATAAGTTTAGTTAACAT--TCATCATCTCATATATATATATGT
ATATATATGTATGTATATATGTATATATAGATAGATAGATAGATAGATAGATAGATAGATAGATACAGAAAAAAAAACAA
GAAATGCTTTTCTCCTTGGCGATGAGAACTTTTAGGG--------------------TCTACTCTCTT--GAAATTTTAA
```

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AATATACCATACAGCATTGTTAACTATAATCATCATGTTA---TATATTACATGATTTT---------TTTTCTTTTTTA
CTTGTTTTCAG---T-AATTCTC--AGTTTAGGACAGG----GACTGGGAAA-CAGTGCCTGCCATCCATATTCAGCCTG
ACACTTGTTTG
>Equus caballus
CAGGCTTCCACGTGTGCGGGTCAGGCTTGATAGTTGACGTTGT-GTCATGTT---ATG-------------------TTT
TTGTTTTACTTCGGCACAGGAA-AAATA--TTCCTTGGGGAGGGGGGCTCTTAAG---AACAGTTTCACACGATGATTTT
--------TTTTTAAC-TTTTCATCAG------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
--------------T-GGTTCTTAAAACCTGGAACAGA----GATCGGCAAACCGCTGCCTGCCAACCAAATTCAGCCTG
TCGCTTGTCTG
>Ceratotherium simum simum
CAGGCTTCCACGTGTGGAAGTTGAGCTGGGTATTTGATGTTTT-ATAAGGTT---ATG-------------------TTT
CTGTTTTACTTCAGCACAGGAAA-AATA--CTCCTTGCGGAGAGTGG-TCCGAAG---AACAATCTCACACGATGAT-CT
--------TTTTTAAC-TCTTTGTCAG------------------------------------------------------
------------------------------------------------------------------------------
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--------------T-GGTTCTC--AGTCTAGAACAGG----GGTCGGCAAACTGCTG-------ACCAAATTCAGCCAG
TCACTTGTCTG
>Condylura cristata
CAGGCTTCTACATGTGAAAGTTGAATGTGATATTTCACTTGTT-ATATTATG----TG-------------------TT
TTGTAAGACTTCATCAAACAAACAAAAA--TTCCTT-GGGAGAGTGA-CCCTAAG---AACAGTCTCATTTGATAATTTT
ATATCATTACAAATACATGTTTCTTAG--------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
--------------T-GGTTCTC--AGTCTAGAACAGG----GATTGGAAAACCCCTGTCTGC--AGCCCATCAAGTTTG
CCACTTATTTT
>Homo sapiens
TAGGCTTCCATGTGTGGAAGTTGAGCTTGATATTTAAGTTTTC-TTAGTATT---AAG----------------GGCTTT
TTTATATATCCCTTGAA-----------------------------------------AATAGTTTCACATAATGATTTT
--------TCAAAAAC-TCTTTATCAC------------------------------------------------------
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------------------------------------------------------------------------------
--------------T-GATTCTC--AGTCTAGGGCAGG----GATTGGCCAACCACTGCTTGTTGGCCAAATTCAGCCTG
CCACATGTTGT
>Choloepus hoffmanni
TATGCTTCCATGTGTGGAAGTTGAACTTGATATTTGACTTTTTTATAATATT-TTATC--------------------TT
TTGTATCACTTCATCACAGGAACAAATA--TTCCCTGAGGGGAGTGA-TCCTAAG---ACTGGTCTCTCAAGATGATTTG
--------TTT-AAAC--CTCTATCAG------------------------------------------------------
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CCACCTGGTTT
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7.4 Marker D_BC0025

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>ERV54-EC_rc
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AAA-GTGGATTGGTTATTGCAAGGTTACTTTCCTTTAGGGGATGGCAGGGGTCTATC-AGGCAGATTACCTAACTAGTGC
TGATCAGGTGATTCCTGATTGACTGGTTTAAGATTCCATTTCTGGGAGAGCCGAAACTGTAATTAAGTTAAGTCTCGGTT
TGGTGACGTGGGGC----TTAGCATAAGTGACTCCATTTTGGGCCTGTTGTCTTGTTTTTAA------------------
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------------------------------------------------------------
>Canis lupus familiaris
AATT---------------GTGCTGCTGTGAAAAGGCCTTATTCTCCTGCCAGAG---------ACTAGAATGTTTTA-C
ACTACAGTATAGTTTGTTTTCAGGTGCTTTACACACAACTGCAT---TACCGAT---TGTTACATAAAGCCAAAAATTCA
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TGGCAACGTACGGC----TTAGCATAAGGGACTCCATTTGAGGCCTGTTGTCTCGTGTTTAA---CACCGC---CTTGTT
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>Felis catus
AGTT---------------GTCCTGCTGTGAAAAGGCCTTATTCTCCTGCCAGAG---------ACAAAAATGTTTTA-C
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TGATCAGGTGATTCCTGAGAGAGTGGCTTAAGATTCCGTTTCTGGGGGAGCTGAAGCTGTAATCAAGTTTGGTCTTGGTT
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TTTTT--------------------------------------------------------------------------
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>Bos taurus
AGCTTAACAGCTGG---TTGTCCCAAAG-GAAAAGGCCTTATTCTCCTGACAGTA---------ACAAGCATGTTTTATC
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CCTGAGCAAATCCTAAAAGATCTTATTGGCTTTATTTAACAATTCATCAATTGGGCAGCATCTCACATAGTAAATAACAA
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CTATT--------------------------------------------------------------------------
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TACAT-CTACCTTTTTTTGCTATCTTTCTCCCTCAAGAGGAGA--ATGAGTTCCACAAGG
>Balaenoptera acutorostrata scammoni
AGTTTAACAGCTGG---GTGACCTACTGTGAAAAGGCCTTATTCTCCTGACAGTG---------ACAGGA-TGTTTTATC
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CGGTGATGTGGGGCTTATTTAGCATAAGCAACTCCATTTTGGGTCTGTTATCTTCTTCTTAA---AGCTAT---CTTGCT
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TACAT-GTACCTTTTT-TGCTTTCTTTCTCCTTCACGAGGAGAATGTGAGCTCCACAAGG
>Myotis lucifugus
AATTGAGTAACTGGTAGGTATCTTACTGTGAAAAGGCCCTTACTCCCTGGCAGAGATAAACGAAACAATAATGTTTTACC
ACCAAAGCACAGCTCATTTTCAGGTGCTTTACACACAACTATAT---TACCTAC---TGTTA---AAAAATCAAAATTCA
GCTGAGTGTATTTT-GAAGATCTTACTGGCTTTATTCAGCAATTCATGAATCAGAAAGCATCCAATCTAGCTAACAG-AA
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AAG-GCTGGTTGGTTGTTGCAAGGTCACTTTCCTTGAGGGGAAGGGAGGGGTATGTC-AGGCAGATGGCCTAACTAGTGC
TAGCGATAGGTATCCTGATTGACTGG-TTATGATTCCATTGCTGGGAGAGCCCAAACT---------------CTTGGTT
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TTAGT-----------------------------------------------------------------------------
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TACCTGCTAGCTTTT--TGCTGTCTCTCTCCTTCACGAGAAT---GTAAGCTCCATAAGG
>Pteropus vampyrus
AGTTGAACAGCTCGTG----------------------------TCCTGCCAGAG---------ACAAGAATGCTTGACC
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GCTCAGGACATTTT-GAAGA-CTTATTGGCTTTATTCAGCAATTCATGAATCAGGCACCATCCAATCTAGCAGATAG-AA
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------------------TTGACTGGTTTAAGATTCCATTTCTGGGAGAGCCCAAACTAAGA-----------CTCGGTT
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TTATT-----------------------------------------------------------------------------
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>Equus caballus
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TTATT-----------------------------------------------------------------------------
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>Ceratotherium simum simum
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ACTACAGTGTGGCTCGTTTTCAAGGGCTTTACACATAACTGCAT---TATCAAC--------------------------
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TTATT-----------------------------------------------------------------------------
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>Condylura cristata
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ACTAACCACTGACAATTTT-CAAGTGCTTT----------AAAC----ACCTAC--------------------------
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-CATT------------------------------------------------------------------------------
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TAAATACTA-CTGTCTATTCTGTC---CTCTTTCATGAGACT---ATAGGCTGCATGTGA
>Homo sapiens
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TTATT-----------------------------------------------------------------------------
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--------------------------------TTTCTTTATAGCACTTTATCACC-CTTTGAAATTTTACTGTATA-CT
TATGTGCTATCTTTGT-TGCCGTGTTTCTCCTTCATGAGAAC---AGAAGTCCCACAAGG
>Choloepus hoffmanni
AGTTGAACAGCTAG---ATACCCTACTGAGAGAAGGTCTTATTTTCCTGGAAGAC---------ACAAAAATGTTTTACC
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ACTATAGTACAGCAATATTTCAAGGGTTTGACTCATGACTAAAT---TATCTAC--------------------------
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TTATT-------------------------------------------------------------------------
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7.5 Marker D_BC0031

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>Canis lupus familiaris
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TAATATAAAATTT---ACCATTTTTACA--TGGTAAAATCCTATG----TTGTACCCCTAAAATGAATATCATGTTAAAT
GGCAAGTATACCTC---AACTGA---AAAAAAAAAAAGGAAGAGGAGGAAGAGGAGAAGGTGGAGGTGGGCGAGAAGAGG
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AAAGTGGGAATAATCAGATAATAATTGAT-GGGGTCTACATTTAGAGTCT
>Felis catus
AACTAAATAC---------TAATTTT--CTCTTGCAAATA--CTCTGGCCATGTGACATAAATCTAAAGAGAGAGAGAGA
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TGGGGGCGATCTTTTCACAATATATACAA-TGTAAAATTCTTATGTATACTATATCCTTGAAATGAATATAATGTTATAT
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>Manis pentadactyla
AACTAAACAC---------TCACTTT--CCCTTGCAACTAG-CTGTAGCCATATGATATAGTTCTAAAAAGAAAGAAAGA
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AGACTGGGAATAATCAG-CCACAAT-GGT-GGGGTTCATGTTTAGATTCT
>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Pteropus vampyrus
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>Equus caballus
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>Ceratotherium simum simum
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>Condylura cristata
-------------------TAATT---TCTTTTGTAACTAG-TTGTGGCCATGTGACATAATTCTAAAGAGA--GAAGGA
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>Trichechus manatus latirostris
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GAGAAT-------GAGAGTCAGAAGTGAAAGT----CAGCT---------------------------------------
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----------------------------------------------------------------------------
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GAATAGGGAATGACCTAACATCATT-GGT-GGGCACGCTGGGTTGAATAA
>Dasypus novemcinctus
AACGTGTACTCTTACTAGCTCAGTC--TCCCTTGCAGATAG-CTGTGGCAA--TATGAAAATTCTGAAGAAAGAAATAAA
GA-AAT-------AATGGAAGGAAGAGGG------GAAGGA---------------------------------------
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7.6 Marker D_BC0034

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CATCACGTTGTAC-ACCTTAAATATATACAATTTTTATTTGTCAATTATACCTCAATAAAGCT----GGAAA--------
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>Canis lupus familiaris
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>Felis catus
GGATTATCCATGACTCTGCTCCATACTATTA---GTAGAGATATTTG-----AAACA-TGACCATACTATA--AAGTCCG
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ACACAAAATTTC---ACATAAATGTTC--GATACTGAACTGAATAACACATATTTTATAAAATCCTGAAGCTACAACAAA
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>Manis pentadactyla
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>Bos taurus
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AGACAACCTTTT---ATGTAAAGGTTA--GATACTGAACGGAATAATGGATA----------------------------
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>Balaenoptera acutorostrata scammoni
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AAAGTCCCTAACACATTATTACATGT-----AACTT---AAGACAATTTTTT-----TCTCATCACAAGAAAAAAAA---
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>Myotis lucifugus
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>Pteropus vampyrus
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ATCTAAGAGCATCTTACTGAGCTGGATACTGGCTGGC
>Equus caballus
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---------------ATGAAAAAGTTA--GTTATTGAATGGAATAACATACAGAACATAAAATCCTCAAGCTACAACAAA
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>Ceratotherium simum simum
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---------------ATGAAAAAGTTA--GTTATTGAATGGAATAACATACATAATATAAAATTCTGAAGCTACAACAAA
AGCTAAGAGCATCTTACTGAGCTGGACACTGGCTGGC
>Condylura cristata
GGATTATCCACAATTCTGTTCCATATTAATA---GCTGAA------------AAATCATCATACTGTTAAATGAAGT-CT
TAAGTCCATAACACATAGTTACATGC-----CACTT---TAGACAATACTTT----------------------------
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---------------ATGTACAAATTA--GTAATTGAATGAAACAATATGTATAATGTAAAATTCTGAAACTACAACAAA
ATCTAAGAGTATCTTACTGAGCTGGATACTGGTTGGC
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>Homo sapiens
GGAT--GCCATGACTCTGGTCCATACTACTA---ATGAGGATATTTG------AAAAATGACCATGTTGTA--AAGTCCC
AAGGTCCCTAATGTATTATTACATATTATTGCATTT---AAGACAAAATTTT----------------------------
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---------------ACATAAAAGTTA--GTTGTTGAATAGTATAATATGCATAATATAAACTACTGAAGCCGTAACAAA
ATCTAAGAGCATCTTACTGAGCTCGATGCTGGCTGGC
>Trichechus manatus latirostris
GCATCATCCATGACTCTGCTCCATACTATCT---GTGGAGATCTTTGAAAAATATCAATCACAATGCTGTA--AAGTCCC
AAATTCCCTAAGACATTATTACATGC-----CATTT---AAGACAAAATTTT----------------------------
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---------------ATGTAAAAGTCACACCTATTGAATGGAATAACATGTATAGTATAAA-TCCTGAAGCCATAGCAAA
ATTTGAGAGCATCTTACTGAGCTGGATACTGGCTGGC
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7.7 Marker D_BC0051

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TTGTGAAATGATTACCACAATCAAGCTAATTAACATATCCATCA-CCTCACATAGTTA----------------------
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>L1_Carn7_rc
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-TTTTATTTGAGTATAATTGACATA-CAATGTTATATTAG-TTTCAGGTGTACAACATAGTGATTCGACATTTGTATACA
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>Canis lupus familiaris
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AGTCTT---TACCCCACTTGTGTTCAT---TCCTTT-TTGTTA---TATTTTGTTTTGGGGGTTTTG-----TTTCCCCG
CTTTTACTGGGATATAA-TCAGCA--CATCACTGTATGAG-TTCCAAGGATATGGCGTAAAGGTCTGACTTCTGTATA--
TTGTGAAATGATGACCACGATAAGTGTAATTGACACC--CACCA-CCTCATAGAGATA-ATTAAA---TCATTCGTTGTT
TATCCAGATGAGTTCTGGGCC---ATGACTAGGTGCTGAATTTAATGCTGCCACTGAGGCAGAGATGAACCGGACACGTT
CCCCACTCAAGACAGGG---GCAGCCTGGACTAAGCATT-------------------TCTGAC
>Felis catus
ATAGGCACACTCAATGTACAG----GAGAGCAGAGGG--------------CCATGGGAGCCAAGAGCTAAAGAAGAGCT
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TATCCACATGAGTTCTGGGTC---GTTACTAGGTGCCGAACT-----------------------------GGACACATT
CCCCACTCAAGACAGGG---GCAGCCTGGACTAAGGATTTCACTTGTTCGCACTGGAATCTGAC
>Manis javanica
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GCTCTT---CATCCCACTTGTGTCCCT---TCAATCTGTGTTTTTTTCTTTTCGTTTTTTGGGGGTT---TCTTTTCCTA
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---------AGAGAAGG---GCTGCCTGGACTAGGGATTTAGCTTGTTGGCGCCAGAATCCAGC
>Bos taurus
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GTCTGCTCAAGAGA-----------CTGGACTAGGAATTTATCTTGTTGGCGCGGGAATCTGAC
>Balaenoptera acutorostrata scammoni
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TACCCA------------GTG---ATAACTAGGGGCTGAATTTAATGCT------AAGGCAAAGATGATCTGGACACAGT
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>Myotis lucifugus
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>Pteropus vampyrus
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CTCGTCTCAAGGGTGGGTGGGCAGCCTGGACTAGGGATTTAGCTTGTTGGCACTGAGATC-GAA
>Equus caballus
ACGGGCTCCTCTGATGCACGG----GAGAGGAGAGCG-CCTGCTTCAGGCGTT-GGGGAGCCAAGAGCTGAAGAAGAGCT
GGTCTT---TATCTGAC-TGTGTTCCC---TCATTCATTGTT----TATCCAGATGTTTTCTGGGTG-------------
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>Ceratotherium simum simum
ACGAGCTCCTTTGATGTACAG----GAGAGCAGAGGG-CCTGCTTCCAGGCTT-GGGGAGCCAAGAGCTGAAGAGGAGCT
GGTCTT---TATCCCAC-TGTGTTCAC---TCATTCATTATT----TATCCAGATGTTTTCTGGGTG-------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------ATTACTAGGTGCTGAATTCAATGCTGCAGCTGAGGCAAAGATGAATCAGACACGTT
CTCCACTCAAGA-AGGG---GCTGCCTGGCCTAGGGATTCAGCATGTTGGCACCGGAATCCAAC
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>Condylura cristata
ACTGGCTCCTTTGATGCACAG----GAGAGCAGAGAA-CCTCCTTCCCAGGCC-CTGCAGCCAGGAGCTGAAGA---GTT
AGTTTC---TGTCCTAC-CAGG-TCAC---TCACCCATTGTT----TATCCACAGGCTTTCTGGGTG-------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------GTTACAAAGTGCGGA-TTTAATGCCACAGCTGAGGCAAAGATGCAATGAACACATT
CTTTGCCCACAAGAG------------------------GAGCAGCCTGGCACCAGATTCTAGC
>Homo sapiens
CCAGGCTGCTTTAATACACAG----GAGAGCAGCAGG-CCTGCTTTGTGGGTCACTGGAGCCAATAGCT-AAGAAGAACT
ATTCTTCTTTATCTTGGTTGAGTTC-T---TCGCTAATTGTT----TATCCAAACATTCTCTGGACG-------------
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>Loxodonta africana
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7.8 Marker Rd_Dcb12

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>L1MA9
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T-------------ATATACAATTTTTATTTGTCAATTATACCTC-AATAAA--GCTGGAAA-AA---------------
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>Canis lupus familiaris
T-AATCAACTAGAAACCTGTAGGGAAGTTCCTTAAGAATT---------------TCTGACTATTCCCACTATATCTCTC
TTTGCTT-----------------------GCCAAACTCTACGTTCATCTGATAAGTAA---ATACAGACTAAGCCT---
ACTGTAGTAATCATTTCACAA--------------------TATATG---TAACTCA-TTTATA--TCACTACCCCTTAAA
C-------------TTATAC-AGAGATGGATGTCAATTATTTCTC-AATAAAACTGAAACGA-AACATTTTTTAA-TTAA
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GTAGGTAAGCTGTCTCTTGTGGATTGCCTCTGAAG-TTTTTGCT-AAGTGCATTTTAGATGCTCCTCT-AAAAATAGAA-
TCC
>Felis catus
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C-------------TTACAC-AGTGATGTCTGTCAATTATTTCTC-AATAAAACTGAAAAGA-AACATTTTAAATT--AA
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GCAGGTAAACTGTCTCTTGTGGATTGCCTCCGAAG-TTCTCACTAATGTGGATTTTAGATGCTTTTCT-AAAAATAGAA-
TTC
>Bos taurus
TCAATCAACCAACAACCTGTAGGGAATTTTCTCAAGGATA---------------TCTGTCTGTCCTCACTACA-CCCTC
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TTC
>Balaenoptera acutorostrata scammoni
TCAATCAA-CAACAACCTGTAGAGAATTTTCTCAAGGATT---------------ATTGGCTGTCCCTGCTGTATCCCTC
TTAGCTT-----------------------GTCAAGCGGTATATTCATCTGA----TAA---ATAAAGACTAAACCT---
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C-------------TTATAC-TGGGATGTATGTCAATTATTTCTC-AGTAAAACTGGAAAAA---CTATTTTTTAACTTA
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TTC
>Myotis lucifugus
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C-------------ATATAC-AGTGATGTATGTCAATTATTTCTC-AATAAAACTGGCAAAA-TAATAAAAATACACTTA
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TTC
>Pteropus vampyrus
TCAATCAACTAACAATCTATAGGAAAGTTCCCCCCAAATT-------------------------CCTAG-CTGCCCCTC
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CTCAGGGATATATGTTATAC-AGGAATATATGTTATTT----CTC-AATAAAACTGGAAAAAATAATAAAAATGAATTTA
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GCAGATAGATTGACTCTTGCAGGTTGACTCTGACA-TTTGTACTGAAGTGCATTTTAAATGCTTTTCT-AAAAATAGAA-
TTC
>Equus caballus
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TTGGCTGTCCTTGTGGCATCCGTTTTAGCTGTCCAACTGTGTATTCATCTGA----TAA----------------------
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>Ceratotherium simum simum
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TTAGCTT-----------------------GTCAAACCGTATATTCATCTGA----TAA----------------------
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>Erinaceus europaeus
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>Trichechus manatus latirostris
CCAACCAGCTAACGACCCCTACAGAAGTTTTTCAGGAGGATCCGGCTATTAAAAACTACTCTGTCCCTGGTGTATCCCTC
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>Choloepus hoffmanni
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CTAGCTT----------------------GTCAAACTGTATATTGATCTAAT---AAA----------------------
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TTT
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Chiroptera+Perissodactyla+Carnivora

8.1 Marker DHB_0002

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>L1_Carn7
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>Canis lupus familiaris
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>Mustela putorius furo
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>Manis pentadactyla
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GAGCAGTTTTTCCTACTCTCATCCAG
>Myotis lucifugus
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ACTA------ATGTTATATGACAATGATTTCTCGATAAAA-----AAATACGTCATTAAAAAAA---TTAATAGTCT---
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>Balaenoptera acutorostrata scammoni
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>Condylura cristata
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>Homo sapiens
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8.2 Marker DHB_0017

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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Equus caballus
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CGTCAGGTGG
>Ceratotherium simum simum
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CGTCACCGGG
>Myotis lucifugus
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>Pteropus vampyrus
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Condylura cristata
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>Trichechus manatus latirostris
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CGTCACTCAC
>Choloepus hoffmanni
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8.3 Marker DHB_0031

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>Canis lupus familiaris
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>Equus caballus
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>Ceratotherium simum simum
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>Myotis lucifugus
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>Pteropus vampyrus
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Condylura cristata
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8.4 Marker DHB_0060

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8.5 Marker DHB_0062

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>Felis catus
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>Equus caballus
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8.6 Marker DHB_0208

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----------------AAAT-ATTTTAAATCT-AAGCTCATA---GATACAGAGAGCAGATTGGTG---GTTGCCAG---
-----GCTGAGGAGTGGGAGATGGATGAAATGGGGATAA--------AGAG-----------------GATATAAAAGTA
CAGGTATAA-ATAATTAAGTCATGA-------GGAAGTAACATACAGCATGGTGACCAT-AGTTAATAATACTGTATTGC
ATACTTGAAAGCTATTAAGAGAG---------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-----------------------------------------------TAGATCTTCAAAGTTCTCATCACAAGAAAAAAAAA
TAATGTTCAGACTGTGT--GGTGACAGATGT--TAACTAGACTT-ATTGTGGTG-------------------------
--------------------------ATTATTTCACAATATATGCAAATATTGAATTATTATGTTATATATCCAAAGC-
TAGTG-----TTATATGTCAATTATACCTC------A-AA---AACAAATTCAAATCTAAAAACTAAA---CAATCACAT
ATTT-CAGATACAAAA--CTAACATCTTCACCATGATCTTTTATCTAA
>Felis catus
AAGCTTTTGTATTTTCCCTTGAAAT-------TTTTTTTAGTCTTTTTAGATTTTCTGTGGCATATATGAACATC---TT
TTATCAGGTT-------AAAAAGTTGTA---ATATA---------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
----------------AAATAAGTTCAAATCT-AATCTCATA---GATACAGAGAACAAATTGGTA---GTTGTCGG---
------GAGGGAGGTAGTTGTCGGGAG----GGAGGTAGTTG-ATGGATAGATGAAATGGGTGAAGGGGGTACAAAGTTA
CAGTTATAAAATAAATAAGTCATAA-------GGAAGTAATGTACAGCATGGTAACTAT-AATTAATAATACTGATTTGC
AAT-TTGAAAACTGCTGAGAGAGGGGCTCCTGGGTGGCTCACTAGGTTAAGCGTCTGACTTCAGCTCAGGTCATGAGCTC
TCCGTTTGTGAGTTTTGAGCCCTGTGTCAGGCTCTGTGCTGACAGCTCAGAGCCTGGAGCCTGCTTTGGATTCTGAGTCT
CCTTCTCTCTCTCTGACCCTCAGCCGCTCATTCCCTTCCTCCCTCCCTGCCTCCCTCCCTCCCTCTCTCTCTCTCA
AAAATAAACATTTTTTTAAAAAGTATTTGAAAGCTGCTAACAGAGTAGATCTTAAAAGTTCTCATCACAAGAAAAAAAAA
AAATGTTGTGACCGTGTGGGGTGACAGGTGT--TAACTAAACTT-ACTGTGATC-------------------------
-------------------------------ATCTCACAATACATGCAAATACTGAATCATTATGTTGTACATCCAAAGC-
TAATG-----TTATATGTCAATTTTACCTCAAT---A-AA---AAAAAATTTAAATCTAAAAATTAAA---CATTGTATA
CTTT--AGATACAAAA--CTAACATCCTCATTGTGGTCTTTTCATTGT
>Manis pentadactyla
GAGCTTTTGTATTTTTCCTTGAAAC--------TTTTTTTAGTCTCCCAAATTTTCTGTAGCATATATGAATATCTC---
TCATCAGGTT-T-----AAAAAGTTATA---AAGCA---------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
----------------AAATAAAATAAAATCT-AAGCTCATA---GATACAGAGAACATATTCGTA---GTTGCCAG--G
GACAGGGCAGGAGG-AGC------CTGAAATGGGTAAAGGGG-ATC-AAAA-----------------GGTACAAACTTC
CAGTTATAAAATAAATAAGTCATAG-------GTGCACAATGTACAGCATGGTGACTAT-AGTTCATGATACTGTATTGC
ATATTTGAAAGTTGCCAAAACAG---------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-----------------------------------------------TAGATCTTAAAAATTCTTAT---AAGAAAACAAAA
----TCTGTGACTATTTATGGTGATGGATGT--TAACTAGACTT-CCTGTGCTC-------------------------
-------------------------------ATTTCAAGATAGATACAAACAGTGAATTGCTATGGTGTACATCCAAAAC-
TAATACAATGTTATATGTCAAATATGCCTCAAT--TTAAA------AAAATCAAATT-GAAAAATAAA-------CACAT
ACTT-CAGATAAAAAAAACCACCATCATCATTGTGGACTTTCTTTTAA
>Equus caballus
GGGCTTTTGTATTTTCACTTGAAAC-----ATTCTTTTTAAGTCTTTCAAATTTTTTGTAGCATATATGACTATCTCTTA
TTGTCAGGTTAA-----AAAAGCTTGTA---AAATA---------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
----------------AAATAAATTCACATCT-AAGCTCATA---GATACAGAGAACAGATTGGTG---GTTATCAGA--
---GGCGGGGGGTGTGAGGTGG--GCGAAATGGGTGATGGTA-GTG-AAAA-----------------GGTACAAACTTC
CAGTTGTAAAATAAATAGATCATGG-------GGCTGTGATGTACCACATGGTGACTGT-AGTTAATGATACTATATTGT
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GTATTTGAAAGTTGCTAAGAGAG-------------------------------------------------------------
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-------------------------------------------TAGATCTTAAAAGTTCTCACCACAAGAAAAAAA--
----TTTCAAAGTATGTAAGGTGACAGATGT--TAACTAGACTT-ATCGTGGTG--------------------------
--------------------------ATCATTGTGCAATACATATAAATATTGAATCCTTGTGTTGTACACGTGAAGC-
TAATATAATATTCTATGTCAATTATACCTCAAT---AAAA---AATAAATTCAAATCTAAAAAATAAG---CAATCATAT
CCTT-CAGACACAAAA--CCAGCATCGTTGTTGTGGTCTTACTTTTAA
>Ceratotherium simum simum
GGGCTTTTGTATTTTCACTTGAAAC------TTTTTTTTGAGTCTTTCAAATTTTTTGTAGCATATATGAATATCTCTTA
TTATCAGGTTAA-----AAAAAGTTGTA---AAATA-----------------------------------------------
-------------------------------------------------------------------------------------
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-------------------------------------------------------------------------------------
----------------AAATAAATTCAAATCT-AAGCTCATA---GATACAGAGAATAGATTGGTG---GTTATCAGA--
---GGTAGGGGGTGTGGGGTGG--GGAAAATGTGTGAAGGGG-GTC-AAAA-----------------GGTACAAATGTC
CAGTTATAAAATAAATACGTCCTGG-------GGATGTGATGTACAGCATGGTGACTAT-AGTGAATAATGCTGTATTAT
ATATTTGAAAGTTGCTAAGAGAG-------------------------------------------------------------
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-------------------------------------------------------------------------------------
-------------------------------------------------TAGATCTTAAAAGTTCTCATCACAAGAGAAAAAAT
----TTTCTAAGTATGTGAGGTGACAGATGT--TAACTAGACTT-GTGGT-------------------------------
--------------------------GATCATCTTGCAATATATACAAATATTGAATCATTATGTTGTACACCTGAAGC-
TAATATAATGTTATATGTCAATTAAACCTCAAT---AAAA---AATAACTTCAAATCTAAAACATAAG---CAATCACAT
TCTT-CAGATACAAAA--CTAACATCAT---TCTGGTCTTACTTTTAA
>Myotis lucifugus
GGGCTTTTGTATATTCATGTGAGAC---------TTTTTTTGTCTTTCAAATTTTCTGTAGTATATATAAATATCTCTTA
TAAACAAGTTTT-----AAAAAGTTATA---AAGTA-----------------------------------------------
-------------------------------------------------------------------------------------
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-------------------------------------------------------------------------------------
----------------AA-TAAATT-----CT-AAGCTCATA---GATACAGAAAACAGATTGTTGATGATTGCCAGAGG
CAAAGGGTAGGGTATGGGCA-------AAATGGGTACT---------AAAA-----------------GGTACAAACTTC
CAGTTATAAAATAAATTAGTCCTGAGGCTATAGGATGTAATGTACAGTAGGATAACTAT-AGTCAGTAACACTGT-TTGC
ATATTTGAAAACTGCC---TGAG-------------------------------------------------------------
-------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------
-------------------------------------------TAGATCTTAAAAGTTCTCATCACAAGTAAAAGA--
----ATTATAACTCTGTATTCTGACAGATGT--TAACTAGACTC-ATTGTGGTG----------------------------
----------------------------CTCATTTCCTAATATATACAAATATTGAATCATTATGGTGTACAGCCAAAGC-
TGATATAATGCTGTATGTTAATTATACCGCAAT---AAAAAACAATAAATCCACATCTGAAAAATAAA---CAATGACAT
ACTT-CAGACACAAAA--CTAATATC---ACTGTGGTCTTACCTTTAT
>Pteropus vampyrus
GGGCTTTTGCATTTTCACTGGGAACTTTTTTTTTTTTTTGAGTCTTTCAAGTTTTCTGTAGCATACGTGAATATCTCTTA
TTATCAGATTTT-----TTAAAGCTGTA---AAATA-----------------------------------------------
-------------------------------------------------------------------------------------
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-------------------------------------------------------------------------------------
----------------A-----TTTCAAACCT-AAGCTCATA---GATACAGAGAACAG-TTTCTG--------GAG---
-ACAGGGATGGGGGTGGACA-------TAATAGGTAAAGGGG-GTC-AAAA-----------------GGTGCAAACTTC
CAGTT-----ATAAATTAGTCCTGG-------GGATGTAACATACAGCATGGTGACTATAAGTTAATGATACTGTAGTGC
ATATTCGAAAGTTGGTAAGAGAG-------------------------------------------------------------
-------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------
-------------------------------------------TATATCTTACAAGTTCTCATCACAAGTAAAAAT--
----ATTGTAACTGTGTAC-ATGACAGTTGT--TGTCTAGACTC-GTTGTAGTGATATACAATATATACAACATATATAT
AGTATATACAATATATCCAACATATATATTGTTTCACAATATATACAAATATCGAATCATTACTTTGTACATTTGAAGC-
TAATA---TATTATGTGTCAGTTATACCTCAAT---AAGTA--AATAAATTCGAATCT------CAAA---CAATCACAT
GCTT-CAGATACAAAA--CTAACACCATCATTGTGGTCTTACCTTTAC
>Bos taurus
GGGCTTTTATGCTTTTACTTTAAAC-TTTTTTCTTTTTTTTAGTCTTTCAAAGTTTCTGTAGCATATATTGATATCTCTTA
TTATCAGGTTAA-------AAATTTAGA---AGATA-----------------------------------------------
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----------------AAATCAATCCAAATCTAAAAAATAGA-----------------------------------------
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-------------------------------------------------------------------------CCATCACAC
ACTT-CAGTTACAAAG--CTGACATAGTCACTATAGTCTTACCTTTAA
>Balaenoptera acutorostrata scammoni
GGGCTTTTGTGTTTTCACTGGAAAC--TTTTTTTTTTTTAAGTCTTTTAAATTTTCTGTAGCATATATGGCTATCTCTTA
CTATCAGGTTTA-------AAATTTATA---AAATA-----------------------------------------------
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---------------A-----ATTCAAATCTAAAAC----A-------------------------------------
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----------------------------------------------------------------TAATCGCAT
ACTT-CAGATACATAA--CTAACATCATCATTGTGGTCTTCCCTTTAA
>Sorex araneus
AAGC-TTGGTATTTTCACCTGGAAC-------TATTTGTGAGTCTTTTAGATTTTCAGCAGCATCTGTGCAAGT------
-GATTATGT-TA-----GGAAAGTTGT----AAGAA-------------------------------------------
----------------------------------------------------------------------------
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----------------------------------------------------------------------------
---------------AAAAAAGTTCAAGTCA-AAAAAAATGAA----------------------------------
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----------------------------------------------------------------------------
----------------------------------------------------------CAATCACAG
ACTT-CGAATTAAATA-----ACATCACCCTTG------TATCTTTAT
>Homo sapiens
AGGATTTTGTATTTCCACTTGAAAC--------TTTTTTGAGTCTC---AGTTGTTTGTAGTATATATGAATATCTGATA
TTATCAGATTTA------AAAAGTTGTA---AAATAGGCCGGGTTTGGTGGCTCACACCTCTCATCCCAGCACTTTGGGA
GGCCGAGGCAGGTGGATCACTTGAGGCCAGGAGTTTAAGACCAGCCTGGCCAAGATGGTGAAACCTCATCTCTACTAAAA
CTACAAAATTAGCCGTGCATGATGGTGCACACCTGTAATCCCAGCTACTTGGGAGGCTGAGGCATGAGAATTGCTTGAAC
CCAGGAGGCAGCGTTTGCAGTGAGCTGAGATCGGGCCACTGCACTCCAGCCTGGGCAACAGAGCAAGATTCCGTCTCAAA
AATAAAAGTTGTAAAATAAAAAATTCAAATAA-AAGAATAGA-------------------------------------
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----------------------------------------------------------------------------
----------------------------------------------------------CAATCCCCT
ATTGGCAGGTACAAAA--CTAACGTTATCATTGTGATCTTACTTTTAA
>Trichechus manatus latirostris
GGGATGTTGTATTTTATTTTTAAAT--------TTTTTTGCATCTTTTAAATTTTCCATAGTATATATGAATATCTCTTA
TTATCAGGTAAATTAAAAAAAAGTTTTG---AAATA-------------------------------------------
----------------------------------------------------------------------------
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---------------AAATAAATTCAAATCT-AAAA--ATA-------------------------------------
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----------------------------------------------------------------------------
----------------------------------------------------------------------ACCT
AATTACAGGTACCAAA—CTAACATCATCATTGCTATCTTACCCTTAA
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8.7 Marker DHB_0209

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>LTR7C_ML_rc
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---------A-TAATTAAATTGACATAAGACAGATTAACAGG--------------AGAAAAACAAATTTAATTTCGTAC
GTACGGGAGCCCCATAAAAATATGAGACTCAAAGGCCAGTCGGGCAATTGAGGCTTATATACCATCCTGAGCTAAG--GA
ASGGGATAGGGGCCTGGGGCTTCAAA-------GGGGA---GGAAGGCAATTCACAGGAAGATAAGAAGAGCAGATGTTT
GGTAAACAGATGTTTGCCCTGTCATGCAGATAAGTCTTTC-AGAT-----------AAAAAGTTATCTCT-------GGT
AATA--GCTCTCTTCTCTGGGACA-GGC-CCCCTATCTAAATTCTTTTAGGC----------------------------
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-------------------------------------------------AGTTAAGGGAGAGGTAAAA-GTTTTTCTTGAG
TCTGCTGGGTCTTGATTGCCTTCAGCTCAAAATAATCCACATGCCAAAGTGGCACATTTTGG------------------
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--------------------------------------------------------------------------------
-----------------------------------------------------GGTGGCATATTCTGCTCCC-----------
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-----------------------------------------------------------------
>Canis lupus familiaris
ATGTGTATGGCCAATGGGTCTGCATCAGAGTCCTAAACCCTGCCCC-CTTTGTATCCATATCATCTTGGTTTTCAAACAG
CCATGCTTTT-ATATTATCATTT---GACAC---TATAATGGC-AGATACATTTTCCCTTCTTCTCTTCTAGGTTCTTGA
ACTGACCTAA-TAACTAAATTGACATAAGACAAATTGACAGG--------------AAAAAAATAAATTTAATTTTGTAT
ATACAAGAACCCC--AAAGATATGAGACTCAATAGC-AGTCAGAGAACTAAGGCTTAGATGCCTCCCCGAGCTAGG--GA
ATGAGAT-GGGGCATGGGGCTTCCAAGTATGGGGGGGAGGGTAGGGGCAACTCACAGAAAGATAACAAGAGCTGATGTTT
GGTAATCAGATGTTTGTCCTGCCATGCAGATAAGTCTTTC-AGAT-------AAAAAATAAGTTATCTCT-------GGT
AATA--GCTGTCTT-TCTGGGCCAGGGC-CCCCTATCTAAATTCTCTAAGGC----------------------------
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-------------------------------------------------AGTTAAGGGATAGGTAAAA-GTTTTTCTTGAG
TCTGCTGGCTTTTGGCTGCCTTCCACTCAAAGCAATCCACATACTAAAGTGGTCCCTTTCAG------------------
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-----------------------------------------------------GGGGGCGTGCTCTGCTTCCGTGC---AACA
C---CAAACACTACTTTTCCTTGTCGGTCACAACTCAGCTTACAG--------------------------AATGAGTA
TACCCC-ACCCA---CTGCTTCATCACT---TTCCATCAGAATTCTTGC--AGTAGTACTACT
>Felis catus
CTCTGTGGGGCCAATGGGTCTGCATCAGAGTCTTAAACCCCGCCCC-TTTTGTGTCCATATTATTTTGGTTTTCAAGCAG
CCATACCTTT-ATATTATCATTT---GACAG---TATAGT----------------------------CTAGGTTCCTTG
GCTGGTCTAAATAATTAAGTCAACATAAAACAAGTTAACAACAACAACAACAACCAAAAAACCTAAATGTAATTCTGTAC
AAACAAAACCCTCC-AAAGATATGAGACTCAGTGGC-AGTCAGAGAATTGAGGCTTATGTGCCATCCTGAGCTAAG--GA
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AGTAATCAGATGTTTTCCCTGCCATGCAGGTAGGTCTTTCAAGAA------------AAATGCTATCTCT-------GGT
AATA--GCTCTCTT-TCTGAGCCC-GGA-CGCCTATCTAAATTCTTTAAGGCCAAGTAGTATTCCATGGTGTATATATAT
ATATATATATATATATATATATATATATATACTACTTCNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNA
AGGAGTCAGAGAAAGACAGATATCACATGATCTCACTCATAAGCGGAATTTGGGAAACACAGCAGACGAACATAGGGGAA
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TCTACTGGCTCTTGACTGCCTTCAGTTCAAAGTAATCCACACGCTAAAGGGGTCCATTCTGGGGCGCCTGGGTGGCTCGG
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AGCTCAGAGCCTGGAGCCTGCTTCGGATTCTGTGTCTCCCTCTCTCTCTGCTCCTCCCCTGTTCATGCTCTGTCTCTCCC
TGTCTCAAAAAATAAACGTTAAAAGAAAAAATTACAGGGGTCCATTCTGAGGTGGTATACTCCACTCCCCTTC---AATA
C---CAAATACTACTTTTCCTTATGAATCACAACTAAACCTACAG--------------------------AACGAGGG
TTCCCC-ATCCA---CTGCTTT-TCACC---TCATATCAGAATTCTTAC--AACAGTACTGCT
>Manis javanica
ATCTGTGTGGCCACTGGGTCTGCATCAGAGTCCTCAACCCTCCTCCCTTTTATATCCCTGCCATCTTGGTTTTTAAGCAA
CCATATTTTT-ATATTACCTTAT---GACAC---TAGAGGGACGGAAAAAAATTTCTCTTCCTCCCCTTTAGGTCCTTTG
GCTGGTCTAA-TAATTAAGTTGACATACAACAGAGTAACAGG--------------AGAAAAACAAATTTAATTTTGTAT
GT-----------------ATGAGAGCCTCACAGGC-AGTCAGGCAGTTGAGGAACGCACACCATCCTGAGCTAAG--GA
ATGGGATTAGAGGTCTGGGCTTCAGA----GGGCAGAA--------GGTGATTCACAGGAAGATAACCAGAGTGGACTTGG
GGTAATCAGATGTTTTCCCTGCCATGTGGGTAAGTCTTTC-AGATTTTTAAAAAAAAAAATGGTTTTCTCT-------GGT
AATATAGCTCTCTT-CCTAGGCCAGGCCTTATCTATCTAAATTCTTTTAAGC----------------------------
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-------------------------------------------------AGTTAAGACAGAGGCAAAA-GATTTTCCTGAG
TCTCCTGGGACTTGATTGCCTTCAGCTCAAAATATTTCACATGCCAAAGTGGCACATTTTGG------------------
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--------------------------------------------------GGTAGCATATTCTGCTCTCCTTT---GACA
C---CAAATATTACTTTTCCTTATTTATTACTGCTAAACTCCAAG----------------------------AATGGGTA
CTCCCCCATCCA---CTGCTTCTTCATCACATCACATCAGAATTCTTGG--AATTGTATTTTT
>Equus caballus
ATCTGTGTGGCCAACGCATCTGAATCAGAGTCCTAAACCCTGCCAC-TTTTGTATCCGTACCATCTTGGTTTTCAAGAAG
CCACTCTTTC-ATATTATCATTT---GACAC---TGTTGGGGC-AGAAAA-TTTTCCCTTCTTCTCTTCCAAGTTCTTTG
GCTGGTCTAA-TAATTAAATTGACATAAGACAGATTAACAAG--------------AGAAAAACAAATTTAATTTCATAC
ATACAGGAGCCCC--AAAGGCATGAGACTCAAAGGC-AGTCAGGCCGTTGAGGCTTGGATGCCATCCTGAGCCAAGGAGA
AGGGGGTAGGGGCCTGGGGCTTCAAA----GGGGAGGA------AGGCAGTTCACAGGAAGACAGCAAGAGCAG-TGCTG
GATAGTCAGATGTTGGCCCTGCTGGGTAAGTAAGTTTTTC-AGGT-----------AAAAAGTTATCTCTCTTTCTTTCT
GATA--GCTCTCTT-TCTGGGTCA-GG--CCCCTATCTGAACTCTTTTAGGC----------------------------
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--------------------------------------------------AGTTAAGGGAGAGGTAAAA-A--CTTCCTGAG
TTTGCTGGATCTTGATTGCCTTCAGCTCAAAACAATCCACATGCCAAAGT-GCACATTCTGG------------------
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--------------------------------------------------GGTGGCACATTCTGCCCCC--TC---AACA
C---CAAATACCACTTTTCCTTACAGATCATAGCTAAATTTCTGG----------------------------AGTGGGTG
CTCCTC-AGC-----CTACTTCACCACT---TCATGTCAGAACTCTTGG---ATTGTACTACT
>Ceratotherium simum simum
ATCTGCTTGGCCAATGCGTCAGCATCAGAGACCTAAACCCTGCACC-TTTTGTATCCGTACCATCTTGGTTTTCAAGAAG
CCACACTTTT-ATATTACCATTT---GACAC---TGTAGGGGC-AGAAAATTTTCCC-TTCTACCCTTCCAGGTTCTTTG
GCTGGTCTAA-TAATTAAATTGACATAAGATAGATTAACAGG--------------AGAAAAACAAATTTAATTCCATAC
ATACAGAAGCCCC--AAAGATATGAGATGCAAAAGC-AGTCAGGCAGTTGATGCTTAGATGCCGTCCTGAACTAAGGAGA
A-------GGGGCCTGGGGCTTCAAA----GAGGAGGA------AGACAATTCACAGGAAGATGAGATGAGCAGATGTTT
GGTAAACAGATGTTGGCCCTGCCATGTAAGTCAGTCTTTC-AGGT-----------AAAAAGTTATCTCT-------GGG
AACA--GCTCTCTT-TCTGGGCCA-GG--CCCCTATCTGAATTCTTTCAGGC----------------------------
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--------------------------------------------------AGTTAAGGAGGAGGTAAAAAGCTCTTCCTGAG
TCTGCTGGGTCTTGAGTGCC------------------------AAAGTGGCACGTTCTG------------------
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--------------------------------------------------GGGTGTATATTCTGC------TC---GACA
C---CAACTACCACTTTTCCTTACAGATCATAGCTAGATTTCCGG----------------------------AACAGGTG
CTCCTC-ATCCT-----GCTTCATCACT---TCACATCAGAATTTTTGG--AATTGTACTACT
>Myotis lucifugus
-------------------------CAGAGACCTAAATCCTGCCCC----TATATCTATACTATCTTGGTTTTCAAGCAG
CCATGTTTTTGACATTATCATTT---GACAC---TGTAGGGACTCCAGAATTTCCCCCTTCTTACCTTCTAGGTTCTTTG
GCTGTTCTAA-TAATTATACCGACATAAAATAGATTAACAGA--------------AGAAAAACAAATTTAATTTCTTTT
GTATAGGAGCCCC--CAAAATATGAGACTCAAAGAC-A-TCGGGCAATTGAGGCTTAGATGCCATCCTGAGCTAAG----
----------------GAGCTTCAAA---AGGGGAGGA------GGGCAATTCACAGA---ACAAGAAGAGCAGATGTTT
GGTAATTAGATGCTACCCCTGCCATGCAGGTAAGTGTTTC-AGAT-------------AAGGTTACCTGT-------GGT
AACA--GCTCTCTT-TCTGGGCCA-GT--CCGCCCTCTAAATTCTTTTAGGC----------------------------
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--------------------------------------------------AGTTCAAGGA---------------------G
TCTGTTGGAACTTGATTGCCTTCAGTGCAAAATAATCCACATGCCCAAGTGGCACATTTAGG------------------
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--------------------------------------------------GACGGCCTAGCCAGCTCCCCTTC---AACG
C---CAAACACTACTTTTTCTTACTTATCACGGCGAAACTTCTGC----------------------------TATGGGTT
TTCCCC-AGCCA---CTGCTTCCTCACC---TCCTATCAGAAGTCTTGG--AATTGTGCTACT
>Pteropus vampyrus
ATCTATGTGGCCAACAGGTCTGCAACAAAGACCTAAACCCT-------TTTGTATCCAAACCATCTTGGTTTTTAAGCAG
CTATACTTCT-ACATTATCATTT---GACAC------AGGCAG-AAAAAA--TTTCTGTTCTTCCTTTCTAGGTTATTTG
GCTGGTCTAA-TAACTAAATTGACAGAAGACAGATTAATAGG--------------AGAAAAACAAATTTAATTTCTTAT
GTATGGGAGCCCC--AAAGATA--AGACTCAAAAGC-AGTCAGGCAATTGAGGCTTACATGCCGTCCCGAGCTAAG--CA
ATGGAATAGGGGCCTGGTGCTTCAAA----GGTGGGGA------GAACAATTTGCTGGAAAATAACAAGAGCAGGTGCTT
GGTAATCAGATGTTTG-CCTGGTATGCAGGTAAGTCTTTC-AGAT---------AAAAAAAGTTATCTCT-------GGG
AGCA--GCTCTAGT-TCTAGG-CATGTC-CCCTTATCTAAATTCTTTTAGAC----------------------------
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--------------------------------------------------AGTTAAGGGATAGGTTAAA-GTTTTTCCTAAG
TCTACTGG-TCTTGGTTGCTTTCAGCTCAAAATAATCCACATGCCAAAGTGGCACATTTTGG------------------
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------------------------------------------------------------------------------
-----------------------------------------------------GGTGGCCTATCCTGTTCCCCTTC---GACA
C---TAAATATGACTTTTC---ATTTATCACAGCTAAACTTCTGG--------------------------AATGGGTG
TTCCCC-ATCCA---TTGCTTCATCACC---TCACATCAAAATTCTCAG--AATTGAACTATT
>Bos taurus
ATCTGTGTGGCCAATGGATCTGCATCAGAGTCCTGAATCCTGCTCT-TTTTGTATTTTTGCCATGTTGGTTTTCAAGCTG
CTATACTTTT-ATATTATTATTT---GACAG-------------------------------------------------
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----CAAACACTACTTTTCCTAATTTGTCATGGCTAAATTTCTGA--------------------------AAAGTGTG
CTCCCA-ATCCACTGCTGCTTCATCACA---TCATGTGAGAATTCTTGG--AATTGTACTACT
>Balaenoptera acutorostrata scammoni
ATCTGTGTGGCCAGTGGATCTCCATCAGAGTCCTAAATCCTGCCCC-TTTTGTATTCGTGCCATCTTGGTTTTCAAGCTG
CCGTACTTTT-ATATTATCATTT---GACAC-------------------------------------------------
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----CAAACACTACTTTTCCTAATTTGTCATGGCTAAACTTCTGGGGAATGGCTAAACTTTTTGTCATGGGGAATGCGTG
CTCCCC-ATCCA---CTGCTTCATCACG---TCACATCAGAATTCTTGGGAAAAAGTACTACT
>Sorex araneus
ATCTATGT-AAACATGGGTTTTCTTCACAGCCCTCAGTCCTTCCCC-TTTT-AATTCATGCCCTTTTAGCTTTCAAGTAG
CTGTGCTCTT-ATGTTATAACTT---GACAC-------------------------------------------------
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----CAAATACTGCTTATTCTTATTTCTCTCAGCTGAGTTTTTAC--------------------------AATGGGGG
TTCCCC-TTCCA---CTGCTTCATCAGC---GCACATTGAAATTTTGGG--AATTGGGTAACT
>Homo sapiens
GTCTGTGTGGATAATGGGTCTGCATCAGAACCCTAAACCCTGCTCC-TTTTGTAGTTACAGCATCTTGGTTTTCAAGCTG
CCATTATTTT-TTATTATCATTA---GACAC-------------------------------------------------
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----CACATCCTACTTTTCTTTCTTTATCACAGCTCAACTTCTGG-------------------------AATGGGTA
TTCCCC-GTCCA---CTGCTTCATCATC---TCACATCAGAATTGTTGA--AATTGTACTTTT
>Dasypus novemcinctus
ATCTGTGTGG--------------------AACATACCCTGTCCT-TTTTGTAGTCATGTCATCTTGGTTTTCAAGAAG
CCATATTTTT-TGATCGTCACTT---AACAC-----------------------------------------------
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------------------------------------------------------------------------------
----CAGATACTACTTCTCTTTGTTTATCACAGGTAAACGTCTAG-------------------------AATGGCTG
TTCTCC-ATCTA---CTGCTTCATCACT---TTGCATTAGAATTCCTGG--AATTGTACTACT
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8.8 Marker Rd_Dhb13

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>L1_Carn7
--------------------------ATGGTGACAGATGGTAACTAGACTTA---TTGTGGTGAT-CACTTCA-CAA--
-TGTATACAAATGTCGAATCACTATGTTGTACACCTGAAACTAATATAACATTGTATGTCAATTATACTCAAATA--AAA
AAA---------------------------------------------------------------------------
-------------------------------------------------
>Canis lupus familiaris
CATGGCAAAAGAGTTTACTAAGTTTGCTGTCAGTTTGACTCAAAGATATATTT---AAGATAATGC-TAAGAC--TAG--
-TATTTACATACATCAAATCATTGTGTTATACACCTAAAACTAAAACAATGTTCTATGTCCATTATATCTAAATT--TGT
TGGTGTGG-----------GGAGGGGGTCTAAGGATAG---AGGGCAGTAGCTTTACTAAGAAGGGGCTGCATTCCAGTT
AATACTATTCTCCATCAAAA-CTGTTCTTGCCAGAAATAAAA-TTAATG
>Felis catus 1
CATGGCAAAAGAGTTT--------TACTGTCCGTTTGACTC--AGATACATTT---AAGGTGGGGC-CAAGGC--CGA--
-TATTTATATATATCAAATCATTGTGTTGTACAGCTAAAACTAAAACCGTGTTATATGTCAGTTATATCTCAATT--AAA
AAAAAAA------------AAAGTGGTGCTAAGGATAG---AGGGCAGTAGCTCTACTAAGAAGGGGCTATATTCCGGTG
AACACTGTTCTCCATCAAAA-CCGTTCTTGCCAGAAATAAAA-CTAATG
>Felis catus 2
CATGGCAAAAGAGTTT--------TACTGTCCGTTTGACTC--AGATACATTT---AAGGTGGGGC-CAAGGC--CGA--
-TATTTATATATATCAAATCATTGTGTTGTACAGCTAAAACTAAAACCGTGTTATATGTCAGTTATATCTCAATT--AAA
AA-----------------AAGTAGGTGCTAAGGATAG---AGGGCAGTAGCTCTACTAAGAAGGGGCTATATTCCGGTG
AACACTGTTCTCCATCAAAAACCGTTCTTGCCAGAAAATAAAACTAATG
>Manis pentadactyl
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>Equus caballus
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>Pteropus vampyrus
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>Balaenoptera acutorostrata scammoni
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>Marmota marmota marmota
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8.9 Marker Rd_Dhb18

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>Felis catus
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>Manis pentadactyla
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>Equus caballus
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>Myotis lucifugus
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-----------------------AATAGCT
>Balaenoptera acutorostrata scammoni
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>Sorex araneus
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-----------------------------------------------------------------------------ATT
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>Galeopterus variegatus
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Perissodactyla+Cetartiodactyla+Carnivora

9.1 Marker DH_C0002

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>Felis catus
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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9.2 Marker DH_C0004

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>Canis lupus familiaris
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>Felis catus
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---AGGGATGTAGGTCATTTATTTCTCAGTACAA-TGG---GAGGGAATAGA-------TTGTGTTTCTGGCAT---GAA
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GTTCT---TTATGTGTTGTCATGAAGT
>Manis pentadactyla
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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GTTCT---GCGGTTTCTATTGTGGAAT
>Homo sapiens
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ATTATATTTGCAACAATTAT-ATTGAGTATTCT---GAATAAGACTTGTGTTTCTGACAT--------------------
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-------------------------------------------------------------------------AAG
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TCTCT---CACTGTGTT---ATGAAAT
>Trichechus manatus latirostris
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9.3 Marker DH_C0005

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CCCCA-------GCCCCTGGCAACCACC----ATTCTACTCTCTGCTTCTAT---GAGTTTG------------------
--------------ACTTTTTT--------------------------------------------------------
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>Canis lupus familiaris
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>Felis catus
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>Equus caballus
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>Ceratotherium simum simum
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-CACAGT-AAGTCTAGTTAACAT--CTGTCACCACACATAGTTGCAAATTTTTTTTCTTGTGATGACAACTTTTAAGG--
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Condylura cristata
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9.4 Marker DH_C0006

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>Canis lupus familiaris
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>Felis catus
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>Equus caballus
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>Bos taurus
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9.5 Marker DH_C0007

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>Bos taurus
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9.6 Marker DH_C0008

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>Myotis lucifugus
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>Condylura cristata
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>Dasypus novemcinctus
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9.7 Marker DH_C0009

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>Balaenoptera acutorostrata scammoni
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9.8 Marker DH_C0010

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>Balaenoptera acutorostrata scammoni
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9.9 Marker DH_C0012

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>Felis catus
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>Equus caballus
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Homo sapiens
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9.10 Marker DH_C0015

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>Canis lupus familiaris
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TAGATCTCA---TATATCAGCCATA---TAGGGTACTTGTCCTTCTCTGTATGACATGGTTAACTTAGCATAATTGCTCC
CGAGGTCCACCTGTGTTACTGCAAATGGCGGAATTTTC-TTTTTTCTCATGGCTAATATATATAT---------------
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>Felis catus
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>Manis pentadactyla
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
CAGGGAAGTCCC-AGTCACATCTTTTTAAC-TCCTGAACCCAAGCTCTTAAAAACGATGCCCTCCTGTATTTAA------
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>Myotis lucifugus
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>Pteropus vampyrus
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>Condylura cristata
AGTGGAGGTGGGAAGTCACATCTCGTGGAC-TTTTGACACTCAGCTCTCAAAAAA-ATTCACTCCCATCTTTACA-----
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------------------------------TGAATAATCA-ATAGTAATCAT--------------TCCTCCAGCTTT-
---------ATTGCAATCTGAAGGGCG--CATAACAAAGTGGAGGTTAAGATGG-ATAA-CTTGTCTTTGTG
>Homo sapiens
GATAAAATT-GGAACTCACATCTTCTTTAC-TCATGAACCCAGGCTCTTAAAAACTATGCACCCCTGCTTTTTGA-----
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------------------------------TCAACAAT-------TAATAAT--------------------------AA
TCATCT---TTCTTATTAGCAATGGT---GATGATGA--AGATGATGGAAATACCACAATATTTTTTATGTT
>Heterocephalus glaber
GATGGGATCAGGA---CCAATAT--CTAAC-TCCCAAAGTCAAGCTCTTAGATACTCTTTGCGAGTGATTATTTA-----
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------------------------------------------ATAAT--------------------------GA
GCACTT---TTATTATTAGTGATGAG---GATGACAA---AATGATGGAGATACATAATTGCTTTTTATATC
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9.11 Marker DH_C0017

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>L1MA9_rc
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ATTAC-------------------------------------------------------------------------
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-------------------------------------------------------------------------CACAAT--
-------------------------CAAGCTAATTAA-----------------------------------------
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>Canis lupus familiaris
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TTGAATTCTG---TCAAGTGAGCCTAG-CTTC-ACAATTTTT---------TCTTTTTTTTAATTGAGGTACAATTGACA
T---AACAGTATATTCGTTT-------------CAGGG-ATGCAACTTAATGATTTGATACTTGTATATTTTGCA-AATG
ATCAC-------------------------------------------------------------------------
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AGGTGTGATACTGACTGTG
>Felis catus
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AGGTGCGATGCTGACTGTG
>Manis pentadactyla
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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ATCAC-------------------------------------------------------------------------
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>Myotis lucifugus
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AGGTGTGGGG-TAACAGTG
>Pteropus vampyrus
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TTGAGTCCTG---CCAAGTGAGCCTAG-CTTC-ACAACTTCT------------------------------------
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GGATGTGAGGCTGACAGTG
>Condylura cristata
ACCCC--CCACAA-CTC---A-TTTCTTTAGAATATGCTATTA-----TCTTTTTCTTAAAATAATTTTAGTGAAATATT
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AGATGTGATGCTGACAGTG
>Homo sapiens
ACAGCAACCACTATATT---AGTGACTTTAAGCTACTCTTTTT------------CTTAAAAT-ACTTAAAAGAGGATTT
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>Trichechus manatus latirostris
ACAGTTACCACTATCT----AGTGATTTTAAACCACTCTATTG-----TCTTTTTCTTAAAGT-ATTTAAATGAGGATTT
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----------------------TAAATAGAGTCATTTCATCTTGCTGAACTTTTCTGGTAGCAGAGCTGCTCCTTCAGAT
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9.12 Marker Rh_Hdc13

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>L1MA9
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----------------------------------------------------------------------
>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Equus caballus
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>Bos taurus
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AACAT----------------------------------------------------------------------
>Tursiops truncatus
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9.13 Marker Rh_Hdc19

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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Equus caballus
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>Bos taurus
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>Myotis lucifugus
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>Trichechus manatus latirostris
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9.14 Marker Rh_Hdc27

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>Felis catus
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>Canis lupus familiaris
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>Manis pentadactyla
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Condylura cristata
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>Trichechus manatus latirostris
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Chiroptera+Perissodactyla+Cetartiodactyla

10.1 Marker HCB_0012

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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Pteropus vampyrus
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>Canis lupus familiaris
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>Orycteropus afer afer
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10.2 Marker HCB_0015

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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Felis catus
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>Manis pentadactyla
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>Condylura cristata
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T-TTTTTTGTTGCTCGTACAAG-AATAAATCA-TTTTTTAGTC---TGGTTATAAAAC-TTTG-----------------
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CTACTGTT-----------------------------------------------------------------------
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TTTCTCCTCTTG---CTTTTTTTCTACTT
>Trichechus manatus latirostris
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TTCCTCCTCATACTTCTCTCTTTCTACTT
>Dasypus novemcinctus
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TATTATTTGTTGCTTGTGCAAA-ATAAAATTAATTATTCTGAA---TGGTCCTATAAC-TTTT-----------------
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-------------------------------------------------------------------AAAGATATAATA
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TTCCTCCCTTA-CTTCTCCCTTTCTACTT
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10.3 Marker HCB_0016

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>L1MA9
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Condylura cristata
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>Trichechus manatus latirostris
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>Choloepus hoffmanni
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10.4 Marker HCB_0040

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>L1_Carn7
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>Ceratotherium simum simum
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>Tursiops truncatus
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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Erinaceus europaeus
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>Homo sapiens
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>Trichechus manatus latirostris
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10.5 Marker HCB_0042

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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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AAA-TACTTATATACCATTCTGATAAGTAATA-----TTCTTTTGTTCTTT----------------------------
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CAAAATGATCACCACAATAGCTCTAGTTAAC--ATCCTTCATCATACA----GTTACAGAATTATTTTTTCCTTGTGATG
AGAAGTTACAAGGTCTACTCTCTT-AGTAACTGTCAAATATGCAGTATAGTATTACTAAACTGGAGTCAACCATGCTATA
CATTACATCCCCATGACTTACTCAT--TTTATAAGTGGAAATTTGTGCCTTCAACCCCCTTCACCCTGTTCCTTGTTTTC
TTTC----TT---TTTTTTTTTTTTATTT---AAAGCCACTGGATGTGGACAAAGATTCATCTCTGGTGACTCTTTGTTA
TGGACTCTGTGTTCTGGGACGGAGAGCTTTGGGGACTGCATCCCACCATATG
>Balaenoptera acutorostrata scammoni
CTGGAGAGATAGAAAGTTATGTACTAGTTGAGT-TCCTTAACTTCTCTGATTTATTAAATAGATATCTTC-TGATTTGTT
AAA-TACTCATATTCCTTTCTGATAACTAACA-----TTCTTTTGTTTTTC----------------------CTTTTTT
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CATTACACCACCATGAC--ATTCAT--TTTGTAACTGGAAATTTGTGCCTTTTGACCCCGTCACCCCATTCTTTG-----
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>Myotis lucifugus
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TTTTTTGAGGTATAATTGACA------------------TTCAGGAGTACATCATAATGATTTTGTATTTGTATATATTG
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AGAACTTTTAAGATCT-CT--CTT-AACAACTTCCAAATATGCAATATGGTATTGCTACGTATAGTC--ACT-------A
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>Pteropus vampyrus
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CATTACATCCCCAGGAC----TTAT--TTTATAGCTGGAAATTTGAACTTTTTGACCC----------------------
--------TG---TTCTTTGGTTTTTTTT---AAAGCCACTGGATGTAGACAAAGATTCCTCCCTGGTGACTCTTTGTTA
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>Canis lupus familiaris
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AAA-TACCT-TTTGCCTTTCTGATAACTATAATA----TTCTTTGTTTTTT----------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
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>Felis catus
TTGAAGACATGGAAATT-GTATGCTAGTTGAG--TTCTTCA---TTCTGATTTGT----TAAATATCTTC-TGATTTGTT
AAAATACCTTTATACCTTTCTGATAACTAATG------TTCTTTGTTTCTT----------------------------
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------------------------------------------------------------------------------
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------------------------------------------------------------------------------
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>Manis pentadactyla
TTAAAGA----GAAATT-ATGTACTAGTAGAG--GTCTTTATCCTCT-GATTTATTAAATAGGTATTTTA-TGATTTGTC
GAG-TACTTATATACCTTTCTGATAACTAAAA------TTTCTTGTTTTTT----------------------------
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------------------------------------------------------------------------------
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>Condylura cristata
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AAA-TGCTTAAGTACCTTTCTAATAACT------------GATTGTTTTAA----------------------------
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------------------------------------------------------------------------------
----------------------------------AGCCATTGGATGTGGACAAAGATTCATCCCTGGTGACTCTTTGCTA
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>Homo sapiens
TTGAGGAGATAGAAATT-ATGTACTCTTTGAA--TTCTTTATCATTTCGCTATAT----TATTTCGATTTATGATTTGTT
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------TAAAGCCTGTGGATGTGGACAAAGATTCATCCCTAGTGACTCTCTGTTA
TGGACTCTGTGTTCTGGGACGGAGAGCTTTGGGGACTGCATCCCATCATATG
>Choloepus hoffmanni
TTGGATAGAAATTAACA----TTCTAGTTGGTTCTTTATTCTGGCATTGATTTATTAAATAGATGTCTTC-TGATTTGTT
AAA-TACATATCTACCTTTATGATACCTTGTA------TTGATTGTTTTTT----------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
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10.6 Marker HCB_0045

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>L1_Carn7_rc
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CAATAA------------------------------------------------------------------------
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>L1_Carn5_rc
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CAAGTG---TAGCTACCATCT---------------------------------------------------------
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>L1MAB_EC_rc
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TGACATATAACATTGTATTATGTTTAAGGTGTACAACA--TAATGATTTGATATATGTATATATTGTGAAATGATTACCA
CAATGA------------------------------------------------------------------------
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>Equus caballus
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TAAAAGCCACAGAAAAGTTAGAAGTAGGATT---TAGGAAGTTCTT------------TTTTTTATTATCGAGGTTTAAT
TGG--CATAACACTGTATTA-GTTTTAGGTGTA-AACG--TAATGATTCGATCTTTGTATATATTGCAAAATGATTACCA
CAATAA---TACCA-AGCTTTT---TTTT---ACCTTATGTTTTTGTAAACCAAACACTTAGTCTTTTTATTT-TTGTTC
ACT---------------------------------------------------------------------------
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>Ceratotherium simum simum
AAAAGATGAGGAATCTTCTCAACAGCCGTAAGTTC--------------------------ATATC-AAAGATAATGAG
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CAATAA---CACCA-AGCTTTT---TTTGTT-ATTTTATGTTTTTGTAAACCAAACACTTAGTC-TTTTATTA-TTGTTC
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>Bos taurus
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CAGTAA---TACCG-AG---------TT-GTTTT--TTCTG---TTGTAAAC----CACTTAATCTTTTTATTA-TGTTTT
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>Sus scrofa
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T-------GATATAATATTA-GTTTTAAAGATACAACA--TAATTATTTGATATTTGTATAAACTACAAACTGATCACCA
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AT----------------------------------------------------------------------------
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-----------------------------------------------------------------AT--TT----A
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>Myotis lucifugus
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CAATAA---TAGCA-AGCA--T---TTTGTTCATTTTATGTTTTTATAAACTGAACACTTAG-CTTTTTATTA-TTGTTT
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>Pteropus vampyrus
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>Canis lupus familiaris
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ATT-------------------------------------------------------------------------------
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>Felis catus
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TCAAAGTCACAGAAAAGTTAGAAGAAGAATT---CATCAAGTCTTT-----------------------------------
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>Manis pentadactyla
AAAACATGAGGAAACTTCTCACCAACCGTAAGTTCCAAAACTCACAGTTAA----CTATCTCATGGC-AAAGGTAATGAA
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AGT-------------------------------------------------------------------------------
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>Erinaceus europaeus
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>Homo sapiens
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>Choloepus hoffmanni
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10.7 Marker HCB_0049

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TCACGTTGTACACCTTAAATATAT-ACAATTTTTATTTGTCAATTATACCTCAATAAAGCTGGAA---------------
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-----------------
>Bos taurus
G--TATATAAT-GTGAAGCA-AGTGCTCTCAAG-TTTCCCC--A-TCGTTTTAAAAG---AAAAGA---TT---GTATTG
TCCAACAGATATTTGCTAAGAAAATA-AATTTGAAAGTCCCAGCCAAAAATAAATAAATAAA---TGCATAAAAATAAAT
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>Balaenoptera acutorostrata scammoni
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ATGTTTGTTCA-TAGGT
>Myotis lucifugus
G--TGTATAAT-ATGAAACA-GCTGCTCTCAAGATTCCCCC--A-TCTTTTTAAAGG---AAAACG---CT---GTATTA
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TCATGATGTACAC-TTAAATATCTTACAGTTCT-GACTGTCAATCACACTTCCATAAAGCTGAAAAAATTTT-------G
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>Pteropus vampyrus
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ATGTGTTGA----------------------------------------------------------------------
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>Equus caballus
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>Ceratotherium simum simum
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--------TCAGTTGGT
>Canis lupus familiaris 1
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ACGTTTGTGCAGTGGGT
>Canis lupus familiaris 2
GTGTATATAAT-ATGAAAAA-GCTGCTCTCAACTTACCCCCCAA-CCTTTTCAAAAG---AAAACT---TT---------
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>Canis lupus familiaris 3
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>Canis lupus familiaris 4
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>Canis lupus familiaris 5
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>Canis lupus familiaris 6
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ACGTCTTGTAAATGCCTGTTTGTTTTTT-----------------------------AAATCATAGAAA-AG--AAAT
GTCTTTTT--------------GAAATGGAATTGTTAGATCACTTCTAGAAGCGACGTCAGGAG----CGACACACGTTC
ACATTTGTGCAGTGGGT
>Felis catus
GTGTATATAAT-ATGAAAAA-GCTGCTCTCAACTTACCCCCCAA-CCTTT-CAAAAG---AAAACT---GT---------
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ACGTCTGTTCAGTGGGT
>Manis pentadactyla
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----------------------------------------------------------------------------------
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-------------CTTCATCCTGGCCGTCTAGGTGTTAAAGAGGTTGCCAACGTATGACAA-GTGGAGTTAGAAAATTAC
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AGGTTTGTACACCGGGG
>Condylura cristata
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----------------------------------------------------------------------------------
----------------------------------------------------------------------------------
----------------------------------------------------------------------------------
-----------TGCAACATCTAGGTCTTCTAGATGT-AAAGAGGTTGCCGACATATGATAAAGTAGAGTTAGAAAATCAC
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GTCTTCTGGAAATGACTTATTTTAAAATGAGT----AGACCACCTCTACAAGCAACATCAACAG----CGACACATGGGT
CACGTTTCTTAAAGTAG
>Homo sapiens
GCCTGTAGCAT-ATGAAAGA-GCTGCACTCAAGTTTCCCCCC-A-TTTTTTGAGAGG---AAAACTTATTT---------
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----------------------------------------------------------------------------------
-----------TGCTATATCTTGGCCTTCTGTATGT-AAAGAAGTT-CTAAGGTATGT-----------TAGAAAATCCC
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GTCTTCTGAAAATGACTTTTG-GATATGGAATTGTGAGACCATCTCTAGAAGTGACACCAAGAG----ACACACAAGTCC
ATGTTCACTCACTGGGT
>Choloepus hoffmanni
GTGCAAGTAAT-ATTA-----GCTGCCC-------CTCCCCC-A----TTTTAAATG---AAAACACATTT---------
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10.8 Marker Rh_Hcb06

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>Equus caballus
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>Ceratotherium simum simum
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>Balaenoptera acutorostrata scammoni
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>Rhinolophus ferrumequinum
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>Canis lupus familiaris
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10.9 Marker Rh_Hcb07

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>Canis lupus familiaris
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>Felis catus
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>Manis javanica
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>Condylura cristata
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>Homo sapiens
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10.10 Marker Rh_Hcb12

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>Equus caballus
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>Canis lupus familiaris
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>Condylura cristata
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>Dasypus novemcinctus
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10.11 Marker Rh_Hcb15

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>Bos taurus
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>Myotis lucifugus
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10.12 Marker Rh_Hcb17

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>Canis lupus familiaris
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Supplemental Material S3b

Chiroptera+Cetartiodactyla

Marker BC_0002

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ATCT
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>Manis javanica
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Marker Rh_Cb16

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>L1MA9
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>Myotis lucifugus
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>Canis lupus familiaris
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----------------------------------CAACTGAGACTGTCTCAACACA-GAATCAATCACACATTTCCATC
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>Daubentonia madagascariensis
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-AAAATGAAACACAAAGAAAATT---GAGGAAGCAATGTTATACAAATCAG----------------------------
------------------------------------------------------------TTT---------------------
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----------------------------------CGTCTCAGCATGTCTAAAGACA-GAGTTAGTCATACATTTGTATC
CTAGTCA
>Choloepus hoffmanni
TGGGAAAGT--ATGAATAAAGAGGTAAGAGACTTGGGGAAATCATA-TAAGTTCTAACATCCAAATTACAGGAGTGTCAG
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TTAAGCA
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Marker Rh_Cb26

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>Bos taurus
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>Vicugna pacos
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>Myotis lucifugus 1
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>Myotis lucifugus 2
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>Pteropus vampyrus
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>Canis lupus familiaris
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-------------------A---CTACC------------------------------------------------------
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>Leptonychotes weddellii
AGTTTGGACAGGGT-TTCCAAAACATTTTATGAAGAACACT---AGTACCTCAGATACCCTGTGGAAAAA--TGTTCCAT
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----------CCCCACTTTGAGATTCTTATTTCATATTACCATA--TTATCTTTAAAAAAA
>Felis catus
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CCCCATATAAGTTGGGGAAA---CTATC------------------------------------------------------
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>Manis pentadactyla
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----------TCTCCCACTGCGATTTGTATTGCATCGCAGCATA--TCATCTTTAACAAGT
>Equus caballus 1
AGTTTGGACAGGATTTCCCAAAATATTTTCTGAAGAACACT---AGCACCTGAGACGCTCCGTGGAAAAA--TGTTCCAT
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>Equus caballus 2
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>Equus caballus 3
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>Ceratotherium simum simum 1
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TCCCATATAAGTTGGGGAAA---CTACC-------------------------------------------------
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----------CCTCCCTTTGAGATTCATATTGCATATTAACATA--TTCTCTAAAAAATTC
>Ceratotherium simum simum 2
AGTTTAGACAGGGTTTCTCAGAATATTTTATGA-----------AGGATTCTTGATGCTCTGTGGAAAAA--TGTTCCAT
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>Ceratotherium simum simum 3
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>Ceratotherium simum simum 4
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TCCCAAATATGTTGGGGAAA---CTACC-------------------------------------------------
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>Homo sapiens 1
AGTCTGAACAGGGTTTCCCCAAATATTTTCTGAAGAACACT---GGTACCTCAAATGCTCTGTGGAAAAAAATGTTCCAT
TCCCATACAAGTTGGGGAAA---GTAGC-------------------------------------------------
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>Homo sapiens 2
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>Homo sapiens 3
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----------CCTCCTTTTGAAATTCATGTTTCATATCAGCATA--TTATCTAAAAAATTG
>Trichechus manatus latirostris 1
ATTT-GAACAGGGTTTTCCAAAATATTTTCTGAAGAACACCAGTAGTACTTCAAATGCTCTGTGGAAAAA--TGTTCCAT
TTCCATATAAGTTGGGGAAA---CTACC-----------------------------------------------------
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>Trichechus manatus latirostris 2
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TTCCATATAAACTGGGGAAA--------------------------------------------------------------
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-----------CTTCCTTTGAGATTCATGTTGCATACTAGCATA--TTATCTAAAAAACCC
>Trichechus manatus latirostris 3
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>Trichechus manatus latirostris 4
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TCCTATGTAGGTTGGGGGAA---TCATC------------------------------------------------------
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>Trichechus manatus latirostris 5
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TTCCATATAAGTTGGGGAAA---CTACC-----------------------------------------------------
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Chiroptera+Carnivora

Marker DB__0041

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>L1MA9
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>Canis lupus familiaris
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--TTTCAGATTTTATCCCCA
>Felis catus
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AATTTTGATCAGTGTAAGGATC-----------------------------------------------------
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--TTTCAGATTTTATACCCA
>Manis pentadactyla
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AAGTTGGATCAGTGTAAGGGTC-----------------------------------------------------
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--TTTCAGATTTTATACCAA
>Myotis lucifugus
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--TTTCAGATCTTATACCCA
>Pteropus vampyrus
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>Bos taurus
TCAGGACGATAAACCATTCTCACAGCTTCCCAGAATCAGCATCGTTTTGACAGCTGTGGAATTGGCACTGGGT----GTG
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-----------------------------------------------------------------AAAATA-GACC
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>Balaenoptera acutorostrata scammoni
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>Equus caballus
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>Ceratotherium simum simum
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>Homo sapiens
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--TTTCAGATTTTATACCCA
>Trichechus manatus latirostris
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-----------------------------------------------------------------CAAATA-GTCC
TGA-AA------------------------------------------------------------------------
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--TACTTCATTTTATACCCA
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Marker DB__0052

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>LTR7C_ML
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T--CTGAAAGACTTATCTGCATGACAGGGCAAACATCTGTTTACCAAACATCTGCTCTTCTTATCTT--CCTGTGAATTG
CCTTCCTCCCCTTTGAAGCCCCAGGCCCCTAT--CCCWTTCCTTAGCTCAGGATGGTATATAAGCCTCAATTGCCCGACT
GG-------CCTTT--------------------------------------------------------------
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-G--AGTCTCATATTTTTATGGGGCTCCCGTACGTACGAAATTAAATTTGTTTTTCTCCTGTTAATCTGTCTTATGTCAA
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>Canis lupus familiaris
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>Felis catus
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>Myotis lucifugus
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>Pteropus vampyrus
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GTCTTTCT-GCCTTGAGACCCCAGCCCCCCCGCGCCCGCTCCTTGGCTCAGGGTGGTAGTTAAGCCTCAATTACCTGACC
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
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ATTTCTTGG---CA--AGTCTGG---TTTTTTTTTTTTAAAAA
>Bos taurus
TTCCTTCAGGC--AAGTGTGAAGTGTGATGGGAGGGGGTGTCGACT-GCCCTCTG-----AAAGGAAATACAGACTCAGA
GTGGAGGAGGAGCCTGGGAACCAAGATGCTA---G---GCTT---------------------------------------
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-----------------------------------------------------------------------------CT---
-TT-TCT--------------------------------------------------------------------------
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------------------------------------------------------------------------------
--------------------AGCTAGAA-------------TTACTTTATTCCAGTCAGACCATGGGCAACTTATTTT
ATTTT-TGG---CA--CATCTGT---TATTTCCTTAATTCTTG
>Balaenoptera acutorostrata scammoni
TTACTTCAGGTATAAGTGTGAAGTGTGATGGGAGAGGG-TGTTGACTGCCATCTGAATGGCAAGGAATTATGGGCTCAAA
GTGGAGAAGGAGTTTGGCCACTATGATGCTTGGCT---TCTT---------------------------------------
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-----------------------------------------------------------------------------TT---
----TC---------------------------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
--------------------AGCCAGAA-------------TTGCTTTATTCCAGTCAGACTATGGGCAATTTATTTT
ATTTT-TGG---CA--CATCTGTATATATTTTTTTAATTCCTA
>Equus caballus 1
TTGCTTCAGGT--AAGTGCGGAGTGCGATGGGAGAGGGGTGTTGATTGCCATCTGCCCTGTAGGGGAGCGTGGGCTCAGA
GTAGGGGAGGG-TTTGGCCACCATGATGCTT---G---GCTTC--------------------------------------
------------------------------------------------------------------------------
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-----------------------------------------------------------------------------CT---
-TT-TC---------------------------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
--------------------AGCCGCAA-------------TTGTTATACTGTGGTCAGACTAT-GGTAACTTATTTC
ATTTCTTGG---CA--CATCTGT---TTGTTTTTTAATTCCTA
>Equus caballus 2
TTGCTTCAGGT--AAGTGTGAAGTCCCACGGGAGAGGGGTGTTGATTGCCATCTGCCCTGTAGGGGAGCGTGGGCTCAGA
GTAGACGCAGGGTTTGGCCGCCATGATACTGTGAT---TCATG--------------------------------------
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-----------------------------------------------------------------------------GCTTT
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CTTTTC-------------------------------------------------------------------------
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---------------------AGTCACAA-------------TTGTTATACTTT-----------GGGCAATTCAATTC
ATTT-TTGG---CA--CAACTGT---TAATTTTTTTATTCCTA
>Ceratotherium simum simum 1
TTGCTTCAGGT--ACGTGTGAAGTGTGATGAGAAAGGGGTGTTGATTGCCATCTGTCCTGTAAGGAAGGGTGGGCTCAAA
GTAGAGGAG---TTTGGCCACCATGACGCTATGAT---GCTTT-------------------------------------
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---------------------------------------------------------------------------GCTTC
TTTTTC-------------------------------------------------------------------------
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---------------------AGCCACAA-------------CCGTTTTACTGTGGTCAGACCACGGG-AATTTAATTC
ATTT-TTGG---CA--CTACTGT---TAATTGTTTTATTCCTA
>Ceratotherium simum simum 2
TTGCTTCAGGA--AAGTGTGAAGTGTGGTGGGAGAGGGGTGTTGATTGCCATCTGCCCTGTAGGGGAGGGTGGGCTCAAA
GTAGAGGAGGAGTTTGGCCACCATGATGCTATGAT---GCTTG-------------------------------------
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---------------------------------------------------------------------------GCTTC
TTTTTC-------------------------------------------------------------------------
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---------------------AGCCACAA-------------TTATTTTACTGTGGTTAGACTATGGGCAACTTACTTC
ATTTCTTGG---TA--CATCTGT---TTGTTTTTTAATTCCTA
>Homo sapiens
TTGCTTCAGT---AAGTG-GA-GTGTGATGGGACAGGGGTGTTAAGTGCCCCC-------TGAGGAAGTGTTGGCTCTAA
GAAGAGAAGAAGTTTGGCCATGATGATGCTTGGCC---TCTTT-------------------------------------
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---------------------------------------------------------------------------T---
----CC---AGCCATGTCTCAGTCAACCCTAGCTGCTGGGAAAATTATCACCGACTGGTAAACAGCAAACATTTATTTCT
CGCAGTTCCGGAGACTGGAAGTCTGAGATCAGAGTGCCAGCGTGGTCAGCTTCTGGTGAAGCCCCTCTTGTGCCCCACAT
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TAATTACCTCCCAAAGGCCCCACCTCCAAGTATGATCACATGGGGGACTCGATTTCAACATATGAGTTTTGGGGGACACA
AACTTTTAGTCTGCAACA---AGACAGGA-------------TTGTCTTACTATGATCAGACTGTGGGTGATTTACTTC
GTTTCTTGA---CA--CATCTGTTTTTA--TTCTTAAG-CCTG
>Dasypus novemcinctus
TCATTGCAGGT--CAGGGCGGAATGTGAAGGGAGAAGGGGGTTCAGGGCCAGCTGTTCTTTAAGGAGGGGTAGGAACAAA
GAGAGGAGGAGTTTGAGGCC--ATGATAGTTGGCT---TCCTT-------------------------------------
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---------------------------------------------------------------------------TTT--
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---------------------CAGGGTAA-------------TGGTTTCACTATGGACAGACTGTGGGAAAACTTCTTT
CT----TTG---CA--CATCTGTTAATT-TTTGAAAGCCCTA
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Marker DB__0056

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-GTCTCATAGAAATG-GGACCTAAGAAGTGGCCAAAGCAGGCAGCTTT-----TATACTTTTTAGACAAAGAAACAATAA
ATTTGTGAGGAATTGACAGGACAAAGAAACTTAGGTTTTGGGTGCTCAATTAGTGAAGAATCTAAACAGAGTTTGGGCTT
-GGG--GTAGTAAATTAAAGAAGTAACAAGGTTTGTTTATACAGGCTTCTCGGCCC-GAATTCCCTATCTCTGGTGATAA
GGGTGTCC-TTCTAC-CTCCAGATGCAGGGAGTGCACCTTTCACATGGGAGATTTATTTCCTGCTTTCAGGGAG-ACAGA
GAGGAGGGTCAGAGTGTCCCTCTTGCATTGGCCGTTTCTTAAGTAACTTTAATTCAAAATAATCA-ATATGCCATTG--G
GCATA--------------------------------------------------------------------------
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-----------------------------------------------------------TTTTGGGGCGGCCTGC
CCTGGGCCCCAACA-------------------------------------------------------------------
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>Canis lupus familiaris
TGTGCTTTGC-------------GCCCATAATCCCTGG----CACCACTGTTTTGACTGTGTCCATAATTTTGC--CTTC
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GCCGGTCTAATAATTAAATTAACAAAAT----AGATTAACAAGAGAAAAAAAAA-----------------ATATGGGA-
-AACTCAAAGATAGGAGGATCCAAGAAGTGACCAAGATAGGCAGCTTT-----TGTATCTTTTTGGCCAAGAAAACAGAA
GTTCGTGAAGAATTGACAAGACAAAG----------------------------------------AAGTTTGGACTT
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GG--ATCCCTTCTACTCTCCTGGTATAGGAAGGATACCC-TCGCACAGGAGATTTAGTTTCTACTTCCAGGAGG-AGA-A
GGACA--GTCTGAGGGCCCTTCTTAACCCAGATATTTCCCAAGTAACTTTAATTTAAAATAAGTA-ATATGCCAAAGGTG
GCATA--------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
TTTGCTCCCCTTCA---GAA---TCATAAAGATGTACAGCTTTTTCAGATTGGCTTCTTTCACCTGGTAACATGCATTGA
AGCTTCTTCCATGCATTTT-----CATGAC-TTGAAAGCTCATTTCTTTT-AATCATTG
>Panthera tigris
TGTGCTGTGC-------------CTTCCTAATCCCTGGCAACCACTG----TTTTACTGTGTCCATAATTTTGC--CTTT
TTCAGACTGTCACACAGTG----AGA---ATTATAGGT--GTGGAAA-----ACTTTTCTTCCCTTCTAGA-TTCTT-TG
GCTGGTCTAGTAATTAAATGGACATAAAAC--AGGTTAACAGGAGAAGAAAAAA-----TTTCATA----TGTATGAGA-
-GCCTCAAAGA-ATGAGGTTCCAAGAAGTGACCAAAGCAGGCAACTTT-----TATATCTTTTAGGCAAAGAAAAAAAAA
---TGTGAAGAATTGACAAGACAAAG----------------------------------------AGGTTTGGGCTT
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GT--ATGCCTTTTCCTCTCCTGTTATAGGGAGGATACCT-TCACATGGGAGATTTATTTTCTACTTTCAGGAGGGACAAA
GGACAGTCAGAGTGTCCTTCTTGC--ACCAACTATTTCTCAATTA--------TGAAAATAATCAGAGGTGCCTGGG-TG
GCTTAGTCCATTAAGCATCTGACTCAGCTCAGGTCATGATCTCACAGTTCACAAGTTCAAGCCCCACATCAGGCTCTGTG
CTGACAGCTCAGAGCCTGGAGCCTGCTTCAGATTCTGTGTCTCCCTCTCTCTCTGCCCCTCCCTTGCTCTCTCTCTCTCT
TAAAAATAAATATTTAAAAAAAAATAAAAAATATAATAAAATAATCAATAGGCCAAAGTGGCATATTTGGGGTGGCATAT
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AGTTTCTTCCATATCTTTTCATTTCATGGC-TTGATAGCTCATTTCTTTT-TAGCATTA
>Manis javanica
TGTACTGTGC-------------CCCTCTAACTCCTGGCAATCACTAATATTTTCACTGTGACCATA-------------
TTCAGACTATCACATAGTT----GGA---ATTGTAGAG--GTAGAAAACTTTTCCCTTCATGCCTTCCAGG-TTCTT-TG
GCTGGTCTAATAATGAAATTGACATACAACATGGATTAATAGGAGAAAAACAAATTTAATTTCATA----CATATGGTA-
-GCCCCAAAGACATGAGG-CCCAAAAAGTGACAAAAGCAGGCTGCTTT-----TGTATCTTTTAGATAAAGAAACAAGAA
ATTTGTGAAGAATTGGCAAGACA--------------------------------------------AAGTTTGAGCTT
GGTGCAGTAAATTAGTAAGGAGGTAACAAGGTTTTTT-ATACAGCCCTCTCAGCCTTAAATTCTCT--CTGGGG--ATAG
GG--ATGCCTTCTACCCCCCTGGTACAGGCAGGATGCCT-TCACTTGGGACATTCATTTCCTGCTTTCAGAGAG-ACA--
-GAGAGTCCGAATGTCCTTGCACT--AGCTCT----------------TTAATTTAAAATAATCA-GTATGCCACAG-TG
GCATA--------------------------------------------------------------------------
--------------------------------------------------------------------------------
-----------------------------------------------------------TTTTGGTGTAGTATAT
TCAGATTTCCTTCA---GAA---TCATACAG-TATGTAGCTTTTTCAGACTGGCTTCTGTCAGTTAGTAATATGCATTTA
AGTTTCCTCCATATTTTCC-----CATGGT-TTGATAGCTCATTTCTTTT-TATCTCTA
>Myotis lucifugus
TGTGTTCTGC-------------CCCCCTAGCCTCTGGCAATCACTAATCTTTTCACTGTGCCCATAATTTTGC--CATT
TTCACAGTCACATAGTTGAA---ACT---GTTAAGGAGGGGGAGAAA-TTCACCCTTTGTACCCTTCTTGAGTTCTTATG
GCTAGACTAATAATAAAATTGACACAAAACC-AGATTAACAGGAACAAAACCAAT-CAATT--ATATG--CACAAGGGA-
-TCATAAATG--ATGATGGTCCCAGAAATG-ATGAACCAGCCAGTTATTTTAATATACTTTTTAGACAAAATAAAAATAA
AAATATGAAGAAATGTCAGAACAAAG-CACTTTGGGTTGGGATGGTC-ATTAGTGAGGACTCTAAACAAGGTTTGGTCTT
-GGGTAGT-AATTAATAAAAGAGTAACAAGGTTTGTTTATGCACGTTTTCCAACTCTGGATTTATTAACTCTAGCAATCA
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GGGAAGGGTCAATGTGCCCTTCTTGCATTGGCTGCTTGTCAAGTAACTTTAATTCAAAGTAATCG-ATATGCCATTG-TG
GGATA----------------------------------------------------------------------------
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-----------------------------------------------------------TTT-GGGGCAGCCTGC
CCTGGGCCCTGACA---GAA---TCCTACAG---------------AATTTGATCTTTTCAGCTTAGTAATATGGATTT-
-GTTTCCCCCATGTCTTTT-----CATGGC-TTGATAGCTCATTTCCTTT-TAGCATTT
>Pteropus vampyrus
TGTACTCTGC-------------CTCCTTAACCCCTGGCATTCATTAATTTTTTCACTGTGTCCATAATTTTGC--TTTT
TTCACACTGTCATATGATTA---AAA---TTTAGGGGGAGTGAGAAT-TTCACCCTTTCTACCCTTCTTGAGTTCTAATG
GCTAGATTAATAATAAAATTCACACAAGACC-AGATTGACGGGGGAAAAAAAAA--CAATTTAATATGTGCATTTGGGAG
ATTATAAATG--ATGATATGCCCAGAAATG-CTGAACCAGCCAACTCTT----TATACTTTTTAGACAAAGAAACCACAA
ATTTATAAAGAAATGATGGGGCAATGACATTTTAGGTTTGGGTGCTC-GTTAATGAGGAATCTAAACAAAGTTTGGGCTT
-GGGTAGTAAATTAGTAAAGTAGTAACAAAGTTTATTTATGTGAGTTTTTTGTCAATGAATTTCCTA-CTCTAGCAGTTA
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AGGTGTCTTTCTTATAGTCTGCATCAAGGA-GGACACCTTTCGCAGGGGAGAATTATTTCTTGCATTCAAGGAA-ACA-A
GAG----GTCAACATGCCCTTCTTGCACAGACTACTTGTCAAGTAACTTTAATTCAAAGTAATCA-ATATGTTGTTG-CC
GGATA-------------------------------------------------------------------------
-------------------------------------------------------------------------
-----------------------------------------------------------TTTTGGGGCAGCTTGC
TCTGGGCCCTGACA---GAA---TCATACAG-TATATAACCTTTTCGGCTTGGCTTCTTCCACTTAGTAATATGCATTTG
AGTTTCTTATATATCTTTT-----TATACC-CTGATAGCTCATTTCTTTT-TAGTACTG
>Bos taurus
TGTGCTCTGC----------CCGCCCCCTAAGCCCTGGTGACCACTAAACTCTTTACTGTGACCATAATTTT----CTTT
TTCAGACTGTCGCATAGCTG---GAA--------------------------------------------------
-------------------------------------------------------------------------
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-------------------------------------------------------------------------
----------------------TCATCTGG-TATGTAGCTTTTCCAGATTGGATTCTTTCACTTAGTAATATTCATTAA
AGTTTCTTCCATGTCTTTT-----CGTGACTTTGATAGTTCATTTATTTT-TAACAGTG
>Balaenoptera acutorostrata scammoni
TGTGCTCTGT-------------CCCCCTAAGCCCTGGCAACTACTAATCTTTTTACCATGTCCATAATTTTGT--CTTT
TTCAGACTATCACATAGTTA---GAA--------------------------------------------------
-------------------------------------------------------------------------
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-------------------------------------------------------------------------
-------------------------------------------------------------------------
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-------------------------------------------------------------------------
----------------------TCATATAG-TATGTAGCTTTTTCAGATTGGCTTCTTTCACTTAGTAATATGCATTTA
AGTTTCTTCCATGTTGTTT-----CATGGC-TTGATAGCTCATTTATTTT-TAACACTG
>Equus caballus
TGTGCTCCAT-------------CCCCCTAGCCTTTGGCAACCACTAATCTTTTTACTGTGTTCAT-GTTTTCC--CTTT
TTCAGACTG--------------------------------------------------------------------
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-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
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-------------------------------------------------------------------------
----------------------TCACCTAG-TAG----CCTTTTCAGATTGGCTTCTTTCTCTTAGTCACGTGCATTTA
AGTTTCCTCCGTGTCTTTT-----CATGGC-TTGATAGCTCATTTCTTTT-CAGCACTG
>Ceratotherium simum simum
TGTGGTCTTT-------------CCCCCAACCCCTGGCAACCACTAATCTTTTTACTGTGCCCATAATTTTGC--CTTT
TTTAGACTGTCACATAGTTG---GAA--------------------------------------------------
-------------------------------------------------------------------------
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-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
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-------------------------------------------------------------------------
----------------------TCATACAG-TATGTCGCCTTTTCAAATTGGCTTCTTTTGCTTAGTCATATGCATTTA
AGTTTCCTCCATGTCTTTT-----CATGGC-TTGATAGCTCATTTCTTTT-TAGCACTA
>Homo sapiens
TTGTATCTGCCTATTTCTACCTTCCTCCTAATCCCTGGCAATCACTGACCTTTTTACTGTCTCCGTAGTTTGGGGATTTT
TCCAGGAAGACATATAATTG---GAA--------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
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-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------------------------------------------
----------------------TCACACGA-TACATAGCTTTTTCTGATTGTCATATTTAACTTAGTGATATGCATTTA
AGTTTCCTCCATGTCTTTT-----TATGGC-TTGATAGCTTATTTTTTTTTTAGCACTG
>Heterocephalus glaber
TTGGGTCTGCCTATTCATTCTGACCTCCTAACCCCTAGCAAGCACTGACCTTTTTACTGTTTCTATAATTTTGA--CTTT
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TCCAAAAA-------------------------------------------------------------------------
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-------------------------------------------------------------------------------
----------------------ACACACAA-TATATAACCTTTTCAGGTTGACTTCTTTCATTTACTAATACACATTTA
AGTTTCCTCCATGGCTTTT-----TGTGAT-GTGGTAGCTCATTTCTTTT-TCGTGCTG
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Cetartiodactyla+Carnivora

Marker D__C0058

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>L1MA9
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------------------------AT--GTACAGCATGGTGACT---AT----------AGTTAATAATACTGTATTGT-
--ATACTTGAAATTTGCTAAGAG-AGT-----------------------------------------------------
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------------------AGA-TCTT-AAGTGTTCTCACCACACA--CAAAAAAAT-GGTAACTATGTGAGGTGATGGAT
ATGTTAATTAGCTTGATTGTGGTAATCATTTCACAATGTATACGTATA-TCAAAACATCACGTTGTACACCTTAAATATA
TACAATTTTTATTTGTCAATTATACCTCAATAAAGCTGGAAAAA-----------------------------------
------------------------------------------------------------------------------
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>Canis lupus familiaris
TATACAAATGAATAAGCACTTAA---TGCTGGGGAGAGAGAAACATGAAGACACTA---GGTTTAGATT---AAAACTGT
GAATATGAAAAAAACT--GA----ATATGGACAGCATAGTGACTATAGTTAA----------------CACAATATTGC-
--ATATTTGACAGTTGCTACAAC-AGT-----------------------------------------------------
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------------------AAAATCTT-AAAAGTTCACATCACAAG--AAAAAAATTCTGTCACTATGTACAGTGATGGAT
GTT--AACTAC-----------TTA-CATTTCACAATATATATAAACACTG-AATCATTAGGCTGTATACCTGAAACCA-
-ACATG--TTATATGTCATTTATACTTCAATAAA--------------------AAAAAAGTGCACA---TGGGTACAA
C-TTGATGGATATAAACTAAACAGATTGGGTACAGTCACCCTTGGGAGACTCCTG-ACCATTTTCATATCAAA-AAAGTG
TTAATTT
>Felis catus
TATGAAAATGGATAAGCACTTAT---TGCTGGGGACAGAGGAACACGAAAACACTA---GGCGTGGTTT---TAAAC---
-------------AGT--GA----ACACAGACGGCATGGCGACTATTGTTAA----------------AACTGTATTGA-
--ATATCTGAAAGTGGCCAAGAC-AGTAAATCTTTTTTTAAAAAAAAATTTTTTTTAACGTTTATTTATTTTTGAGACAG
AGAGAGACACAGCATGAACGGGGGAGGGGTAGAGAGAGAGGGAGACACAGAGTGAGAAGCAAGCTCCAGGCTCTGAGCCA
TCAGCCCAGAGCCTAATGGGGGCTCGAACTCGCGGACCGTGAGATCGTGACCTAAGCCGAAGTTGGACGCTTAACTGACA
GAGCCGCCCAGGCGCCCCAAA-TCTT-AAAAGGTCTCATCACAAG-AAAAAACATTTTGTAACTATGTATGGTGATGCAT
GTT--GACGAGACTTATTA---TGATCACTTCACAATATATACAAA-TGTCAAATGAGTATGTTGTTCACCTGAAACTA-
-ACACAA-CGTTATGTCATTTGCACTTAAGTAAAAAACGAAGATT----------CAAACAGCTAACA---CGGGTACAA
C-TTGATGGATATAAGCTAAGCAGACTGAGTGCAGTCATCTTTGGGGGGCTATGG-ACCATTCTCCTATCAAA-AAAGTA
TTAATTT
>Manis pentadactyla
TATAAAAATGAACAAGCATTTTTTTTTTCTGAGGATAGAGAAACACAAAAACATTA---GGTTTGGTTT---AATAC---
-------------AGC--AA----ACATGGACAGCATGGTGACTAT-------------AGTTAATGATACTGTGCTGC-
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----------------------TCTT-AAGAGTTCCCATCACAAGAAAAAACATTTTCCTAACTATGTGTGGTGATGGAT
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C-TTGATAT-------CTGTGCAGATTGGGGACAGACATCCTTAGGAGGCCACTT-ACAAT-CACGTACCAAT-AAAATG
TTAATTT
>Bos taurus
CATAAAAATGAGTAAGCCCTTAC---TGCTGAGGGCAGAGGAACAT-AAAATGCTA---GGTTTGGT------AAAC---
------------ACAG--CA----ATACAGACAGCATGGTGACTATAAT----------AATTAATACCATATTATTAAC
ATATATTTAAAG---GTTAAGAG-AGT-----------------------------------------------------
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------------------AAA--CTTTAAAAGTTCTCATCACAAG-AAAAAAAATT--GTG-CTGTGTATGGTGACAGCA
GTG---ACTGGATTTATGGTGGGTTTATATTCACAACATATACAAAATATGAAATCATGATATTGTAC-CCTGAAAA---
--------TAATATGTAAATTATACCTCAATGAAAATTTCAGAAAAATAAAT---AAAACCAGGAACA---CAGGTACAA
C-T---TGGATA-AAAGTCAGCAAACCAGGTGCTGGCATCTTTGGGAGGCCACTT-GCCATTTTCCTATCAGTAAAAATG
TTAACTT
>Tursiops truncatus
CCCAAGAAAGAATGAGCCCTCAC---TGCTGAGGATAGAGAAACCTGAAAACACTA---GGTTTGGT------AAAC---
------------ACGG--CA---AACATGGACAGCATGGTGACTATAATTAATAATAGAAATAAATA-TATAGTATTAT-
--ATATTTAAAACTTGCT--GAG-AGT-----------------------------------------------------
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------------------AAA-CCTT-AGAAGTTCTCATCACAAG-AAAAAAAACT--GTGACTATGTATGGTGACCGTG
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--------ATATATGTCAATTATACCTCAATAAAAATTTTAGAAAAATAAA---------AGA----------GTGAACT
C-TT--TGGACACAAAGTAAGCATATCAGATGCAGGCATATC----AATAAAGGG-TTAATTTTCATATCAAA-AAAGTG
TTAATTT
>Myotis lucifugus
TATAAAAAGGAA----CACTTAC---CACCGAGGACAGAAAAACATGCACACACTA---GTATTGTTTT---AAAAT---
------------AGTGAACA-------------------------------------------------------------
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-----------------------------------------------------------------------T-GGTACAA
C-CTGAAGGACACAAACTAAGCAGATTGGGTGCAGG-GTCCTTGGGATACCA---------TTTCATATCAAT-AAAGTG
TTAGTTT
>Pteropus vampyrus
TATAAAAATAAATGAGCAATTAC---TGCTGAGAACAGAGAAACACGAAAATATTA---AT-TTGGTTT---GAAAC---
------------AGTAAACA------------------------------------------------------------
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-----------------------------------------------------------------TGGGTATAA
C-TTGATGAACACAAACTAAGCAGATCAGGCGCAGGTATCCTTGGGAGGCCGCTTAATCATTTTCCTATCAAT-AAAGTG
TTAATTT
>Equus caballus
TATAAATGTGAACGAGCACTTGT---TGCTGAAGACAGAGGAACATGAAAATCTCA---GGTCTGGTTT---AAAAC---
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-------------------------------------------------------------------------GTTACAA
C-TTGATGGACACAAACTATGCAAA-CAGCTGCAGGTGTCCCTGGGAGACCACTT-ACCATTTTTGTATCAAT-AAACTA
TTAATTT
>Ceratotherium simum simum
TATAAAAATGAATGGGCACTTAT---CGCTGAGGACAGAGATACATG-AAACATTA---GGTCTGGTTT---AAAAC---
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C-TTGATGGACACAAACTGAGCACACTGGGTGCGGGCATCCTTGGGAGGCCACTT-ACCATTTTTGTATCAAT-AAAGTA
TTAATTT
>Trichechus manatus latirostris
TATACTACCGAAAGGCCACTTTT---GGCTGACGAGACACACGAA----AGCA--CCAGTGTTTGGTTT---AAAAC---
------------AGTTCCCG------------------------------------------------------------
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CTAATTT
>Orycteropus afer afer
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-----------------------------------------------------------------TAGATACAA
CCTCGATGAACACAAACTAAACTGACCTGGTACATGCAGTC-CGTGAAAGGTCACGTACATTCTCGCATC-AT-GAAGGG
TTAATTT
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Marker Rd_Dc05

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>L1_Carn7
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--------------------ATGGTGACAGATGGTAACTAGACTTATTGTGGTGATCACT---TCACAATGTATACAAAT
GTCGAATCACTATGTTGTACACCTGAAA----CTAATATAACATTGTA---TGTCAATTATACTCAAATA-----AAAAA
A-----------------------------------------------------------------------------
------------------------------------------------------------
>L1MA9
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
----------------------------------------------TTGTGGTAATCATT---TCACAATGTATACGTAT
ATCAAAACATCACGTTGTACACCTTAAA------TATATACAATTTTTATTTGTCAATTATACCTCAATA-----AAGCT
GGA---AAAA----------------------------------------------------------------------
------------------------------------------------------------
>Canis lupus familiaris
TAATTGGTCAGTCACCAACCAGAATGACAGTGATGACCTTCTTATGGAGGA----ATTCCTTGACTATTCATGTGGGAAG
CAAAAGAGGTAAAATGCAGCCCCTGC------------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------AGAA---AATATCAAGACCT---TTGCAAGATATACAAAT
ATCCAATCATTGTACTGCATACTTGAAA------CTAATATAATGTTA-TATGCTAATTATATTTCGATAAAAAGATATT
TTT---AATGTTAAGAGCA---GAGCTTAAATAAGAACTGGTAAACTAAGGATGAAAACTAATTTTTTTTTTTTTTGGTA
TA-TTTTTCCTTGCTTG---TTCTGGAAGAATCTTAAAATCAGATACTATATTCTTTCCGTTTT
>Felis catus
TAAT-----AGTCACCAACCTAAATGACAGTGATGACCTTCTTATGGAGGC----ATTTCTTGAATATTCATGAGGGAAG
CAAAAGAGACAAAATGTAGCACCTGT------------------------------------------------------
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---------------------------------------AAAA---AACGTTAAGACCT---TCACGAGATATACAAAT
ATTGAATCATTATACTGTATACCTGAAA------CTAACATAATGTTA-CGTATCAATTATATCTCTGAA----ATTTTT
TTT---AATGTTAAGAGCT---GAGGTTAAATAAGAGTTGTGAAACTAAGGATGGAAAATAA--------TTTTTTGGTA
TTTTTTTTCC-TGCTTGTTCTTCTGGAGGAGCCTTAAAATCAG--------TTTTTTCAGCTTT
>Manis pentadactyla
TAAG-TGTCAGTCACCATCCAGAATGACAGCTTTGTCCTTCCTATGGAGAA----GGTCCTTGGATATTCATG-GGGAAG
CAAAAGAGATAAAAAGTGGTGCCTGC------------------------------------------------------
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ATCCGATCATTATGCTGTATACTTGATA------CTAATATAATGTTA-TTTGTCAATTATAGCTCAATAAAAAGTTTTT
TTT---CAGGTTAAGT--T---GAGGGTAAATA-GAATTGTTAAACTAAGGATGGAAAAA-------GTGTTTTTTGGTA
C-TTTTTTTC-TGCTTGTTCTACTGGAAGTATCTTCAAATCA---------TATTTTCAGCTTT
>Bos taurus
TAAT-----AGTTGTCAATCAGAATGACAGGGCTGTTCTTCTTTTGGGGGA----GTCCCTTAAATATTCATGAGGGAAG
AAAAGGAGATAAAATATAACATCTGA-------------------------------------------------------
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---------------------------------------AAAA---TATATTAAGATCT---TCCCAATATACACAAAT
ATTGAATCATTGTGTTG--TACATCAAAATTAAGATGATACA-TGTTA---TGTATAAACTATATCAATAA-----TTTT
TTT---AATCTTAAGACCT---GAGGTT-----AGAATTGTTATACTAAGAATGGAAA--------------TTTTTTTA
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus 1
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>Myotis lucifugus 2
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>Equus caballus
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>Ceratotherium simum simum
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>Homo sapiens
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>Ictidomys tridecemlineatus
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Perissodactyla+Carnivora

Marker DH__0033

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>Canis lupus familiaris
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>Mustela putorius furo
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>Felis catus
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>Manis javanica
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Pteropus vampyrus
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>Homo sapiens
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>Trichechus manatus latirostris
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Marker DH__0035

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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Capra hircus
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>Myotis lucifugus
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>Pteropus vampyrus
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>Homo sapiens
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Marker DH__0040

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>Felis catus
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>Bos taurus
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>Pteropus vampyrus
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Marker Rh_Hd28

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>Felis catus
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Loxodonta africana
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Chiroptera-Perissodactyla

Marker H_B_0007

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>Ceratotherium simum simum
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>Myotis lucifugus
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>Canis lupus familiaris
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>Orycteropus afer afer
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Marker H_B_0010

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Marker H_B_0014

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GCCAC
>Canis lupus familiaris
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GAAAC
>Felis catus
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>Manis pentadactyla
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GAAAC
>Homo sapiens
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GAAAC
>Galeopterus variegatus
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GAAAC
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Marker H_B_0033

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>L1MAB_EC
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>Ceratotherium simum simum
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>Myotis lucifugus
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AGGTAAATTT
>Canis lupus familiaris
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AGGTAAATTT
>Balaenoptera acutorostrata scammoni
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>Homo sapiens
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CGGTAAGTTT
>Choloepus hoffmanni
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Marker H_B_0043

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GACTATATTCNCC-----------------------------------------------------------------
>Equus caballus
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>Ceratotherium simum simum
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>Myotis lucifugus 1
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>Myotis lucifugus 2
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>Pteropus vampyrus
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>Canis lupus familiaris
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>Bos taurus
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>Condylura cristata
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Marker H_B_0055

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>Canis lupus familiaris
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Marker Rh_Hc10

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>Marmota marmota marmota
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Marker Rh_Hc13

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>Canis lupus familiaris
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>Balaenoptera acutorostrata scammoni
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Perissodactyla+Cetartiodactyla

Marker Rh_Hb05

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>Bos taurus
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Chiroptera+Cetartiodactyla+Carnivora

Marker D_BC0039

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Marker D_BC0040

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Marker D_BC0062

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>Canis lupus familiaris
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Chiroptera+Perissodactyla+Carnivora

Marker DHB_0065

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Marker DHB_0206

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>Equus caballus
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>Ceratotherium simum simum
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Marker Rd_Dhb17

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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Equus caballus
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>Myotis lucifugus
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>Bos taurus
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>Choloepus hoffmanni
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Perissodactyla+Cetartiodactyla+Carnivora

Marker DH_C0001

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>Felis catus
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Homo sapiens
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>Trichechus manatus latirostris
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Marker DH_C0016

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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Bos taurus
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Marker Rh_Hdc05

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>Felis catus
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>Equus caballus
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>Ceratotherium simum simum
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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Marker Rh_Hdc12

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>Canis lupus familiaris
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>Felis catus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Homo sapiens
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>Trichechus manatus latirostris
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Marker Rh_Hdc23

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>Canis lupus familiaris
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>Balaenoptera acutorostrata scammoni
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>Trichechus manatus latirostris
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Marker Rh_Hdc25

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>Canis lupus familiaris
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>Acinonyx jubatus
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>Manis pentadactyla
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>Equus caballus
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Rhinolophus ferrumequinum
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-----------------------------------AAAG---------------------------------------
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-------------------------------------------------------------------------AAAGT
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-------------------------------------------GTTGGGTG
>Homo sapiens
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ATTA------AGTACCTGAGGGACACCTGGGGTTTGGCAGCGGATGGGAG
>Marmota marmota marmota
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Marker Rh_Hdc26

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>Canis lupus familiaris
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Chiroptera+Perissodactyla+Cetartiodactyla

Marker HCB_0009

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Marker HCB_0018

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Marker HCB_0021

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Marker HCB_0027

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AAAATATAACAAAC-TGCATGTGAAACCTCTC-------------------------
>Dasypus novemcinctus
TTAAGCAAAATCTTA---CAAAATATAAAGTATATTTATGAGGGGTTGATAATAACAAAAGGGGAGTTTGGAGGTGAAAA
GTGGGGGATTCAGTATCC-CAGCCTACAAA----ATAAGAAT-----------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
--------------------------TTTTATCCTTAATATTTGTTCTTGAAAAGATAAAGAAATTTAGAAATACAGAGA
AAAATATAACAAAC-TGCATGTAACCTTTCCCTGGAAGAAGAACTGTTCATGTTTT
```

Marker HCB_0031

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>L1_Carn7
-----------------------------------------------------TATAGTCAATAATATTGTAN--TA
ACNTTGTATGG-----------------------------------------------------------------
------------------TGA---CAGATGGTAACTAGACTTATTGTGGTGATCACTTCACAATGTATACAAATGTCGAA
TCACTATGTTGTACACCTGAAACTAATATAACATTGTATGTCAATTAT---A-CTCAAATAA---AAAAA----------
-----------------------------------------------------------------------------
------------
>Equus caballus
TTTTATATAAAAATACTT-TATAATCATCACAAATAACTT----------------GTTTTTCCTTAAAGTCTGTCTC--
----------------------------------------ACGCATATGCTTATA-------GGTAAAAACTTTAGCTAT
GAAATA---ACTCCAAATTGA---TGGATGTTCACTAAAC--ATTGTGGTGATCATTTTACAACATATGCAAATGTCAAA
TCATTATATCATATACCTGGAACTAATATAA-----TATGTCAATTAT---ATCTCAGTAGA---AAAAA--ATTAATTC
ATGTGATGTTATTTTAGTAGCAGTCTCTCTTCAG--AAATAGTGTTCTT-ACCTTTG-TTATTTT-TGTCCTTCATTTTT
ACAGGAACTCAC
>Ceratotherium simum simum
TTTTATATAAAAATACTT-TACAATCATCACAAATAACTT----------------TTTTTTCCTTAAAGTTTGTCTC--
----------------------------------------ATGCATATGCTTATA-------GGTAAAAATTTTAGCTAT
GAAATG---ACACCAAATTGA---TGGATGTTAGCTAGAC--ATTGT-GTGATCATTTTGCAATATATACAAATGTCAAA
TCATTATGTCATACACCTGACACTAATATAGTATTATATGTCAATTAT---ATGCCAGTAGG---AAAAAACGTTAATTC
ATGTGATGTTATTTTAGTAGCAGTCTCTCTTCAG--AAGTAGTTTTCTT-ACCTTTG-TTATTTTGTGTCCTTCATTTTT
ACAGGAGCTGAC
>Bos taurus
TTTTATATAAAAAT------ATAATTACCGTGAAGAGTTT-----------------CTTTTTCTTAAAGTCTATCTC--
----------------------------------------TTATGCGTATGCTTACA------GGTAAAAAATTTTAGCTCT
GAAATA---ACTCCAAACTGA---TAGATATTAACTAGACTTACTGTGGTGATCGTTTTGCAGTATACACAA----TGAA
TCATCGTGTTGTATGCCTAAAACTAGTACAACATTATATGTTAACTAT---ATCTCAATTAA---ATGAAA-CCTAATTC
ATGTGATGTTGTTTTGGCAGCAATCTCTCTTCAG--AAATAGTTTTCTT-ACCTATG-TTATTTTGTGTCCTTCATTTTC
ACAGGAGCTGAC
>Balaenoptera acutorostrata scammoni
TTTTATAGAAAAATACTT-TAT------CGTGAACAACTTT----------------TTTTTTCTTAAAGTCTGTCTC--
----------------------------------------TTATGCATATGCTTATA------GGTAAAAA-TTTTAGCTAT
GAAATA---ACTCCACATTGA---TGGATATTAACTAGACTTATTGTGGTGATCATTTTGCAGTATACACAA----TGAA
TGTTCATGTTGTATACCTAAAATTAATATAATGTTATATGTCAATTAT---ATCTCAATTAA---AAAAAAACCTAATTC
ATGTGATGTTGTTTTGGTAGCAGTCTGTCTTCAG--AAATAGTTTTCTT-ACCTTTG-TTATTTTGTGTCCTTCATTTTC
ACAGGAGCTGAC
>Myotis lucifugus
TTTTATATAAAAAT-----TATAATCTTCATGAATAACTTCATAACCATCATCAA-CTTTTTTCTTAAGGTTTGTCTCTT
ATGCAATAACTTTTCTCTTAAAATTTGTCTCTTAATACTTATGCATAATCTCATATGCATAGGTTAAAATATTTAGCTAT
GAAATA---ACTCCAAATTGA---TGTATG-TAGCCAGACTTAATGTGCTGATCAATTTACAATATATATAAATACTGAA
TCATCATGTTATACACCTGAAACTAATATAATGTTATATATCAATTAT---ATCTCAATTAA---AAAAA----CAATTT
ATGTGATGTTATTTTAGTACCAACCTATCTTCAG--AAATAGTTTTCTTAATTTTTT-TTATCTTGTGT---CCTTTTTT
GCAGGAGCTGAC
>Pteropus vampyrus
TTTTATATAAAAAT-----CATAATCTTCATGAATAACTTCATAATCTTCCTCAATAACTTTAATTAAAGTCTGTCTC--
----------------------------------------ATGCATATGCTTATA-------GTAAAAA-----AATTGT
AAAATA---ACTTCAACTTGA---TGGATTTTAACTAAATTTATTATGGTGATCATTTTGCAATATATAAAAATATCG--
-CATCATGTTATATAGCTGAAACTCATACAGTGTTCTATGTCGATTGT---ATCTCAATTTA---AAAA---ACTAATTC
CTGTGATGTTATGCTAGTAGCAGTCTCTCTTCAG--AAATAGTTTTCTT-ACTTTTG-TTATTCCATGT---CCATTTTT
GCAGGAGCTGAC
>Canis lupus familiaris
TTTTGTATAAGAAT----------------------ACCTCTT----------TTTTTTCCCCCTTAAAGTCCATCTG--
-------------------------------------TTATGTCTATGTTTAGA-------GATAAAG-----AACTCT
GAAATA---ACTCCAAATTAA-------------------------------------------------------
-----------------------------------------------------------ATTAATTT
ATTTGATGTTATTTTAGTAGCCGCCTCTCTCCAGAAAAATAGTTTTCTT-ACCTTTA-CTGTTTTGTGTCTTTCATTTTT
GCAGGAGCTGAC
>Felis catus
TTTTATATAAAAAT----------------------ACTTCTT-------------TTTTTTCCGT-AAGTCTGTCTA--
-------------------------------------TTCATGCTTAGAGGTAAA-------------AATTTTAGCTCT
GAAATA---ATTCCAAATTAA-------------------------------------------------------
-------------------------------------------------------------AA-----ACTCATTT
ATTTGATGTTATTTTAGTAGCAGCCTTTCTTGGGAAAAATAATATTCTT-ACCTTTG-CTGTTTTGTGTCTTTCATTTTT
GCAGGAGCTGAC
>Manis pentadactyla
TTTTATATAAAAGCACTT-CTTCATCATCATGAGTAACTTTT----------------TTTTTCTTAAAGTCTCTCTT--
----------------------------------------GCTCG-------------TAGATAAAAATTTGAGCTAT
AAAATA---AATCCAAATTAA-------------------------------------------------------
-------------------------------------------------------------AA-----ACTAACTC
ATATGACGTTATTTGAGTAGCAGTCTCTCTTCAG--AAACAGTTTTCTT-ACCTCTG-CTGTTTTGTGTCCTTTATTTTT
GCAGGAGCTGAC
>Homo sapiens
TTTTAAACAAAAATACTT-TATAGCCTTCATGAGTAACTTTT----------------TTATCTTGCATTCTGTCTT--
-------------------------------------GTATGCATATACTTA-------TAGATAAAAATTTTAGCTAT
GAAAAA---ACCCAAAATTAA-------------------------------------------------------
-----------------------------------------------------------GA-----ACTAACTC
ATGTGATGTTATTTTAGTAGGGATCTCCTTTCAG--GAATAGTTTTCTT-ACCTTTGTTTATTTTGTTTCCTTAATTTTT
CCAGGAGCTGAC
```

```
>Loxodonta africana
TTTTGTATCAAAATACTTTTCTAATCATCATGAGTGACTTTT----------------TTCCTTTGAAGTTCTGCCTC--
-------------------------------------TTAGGCATGTGTGCA-------CAGACAGAGCTTTTAACTGT
GAA---------CTAACTGTA-----------------------------------------------------------
-------------------------------------------------------------ATCAAGCACTGATTT
ATTTGATGTTGTTTTAGTAACAATCTCTATTCAG--AAGTAGTTCTCTT-ACGCTTTTTTATTTTGTGTCCTTCATTTTT
CCAGGAGCTGAC
```

Marker HCB_0050

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>L1MA9_rc
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AAATTGTATA-TA-TTTAAGGTGTACAACGTGATGTTTTGATATACGTATACATTGTGAAATGATTACCACAATCAAGCT
AATTAACATATCCATCACCTCACATAGTTACCA---TTTTTTTGTGTGTGGTGAGAACACTTAAGATCTACTCTCTTAGC
AAATTTCAAGTATACAATACAGTATTATTAACTATAGTCACCA---T--------------------------------
--------------------------------------------------------------------------------
-----
>Equus caballus
ACATTTAAGATG-----TCAAACACTCTATTCTAAAATAAAATTAATTAAA-GAGGAAAACATAATTAATGAAAGAGGAT
GAAA-CTGGGATATATCAT---GAGATATTAG---GAATTATTTAAATT----TTTTAGTGAGGTATAATTGACATATAA
CAACATTATATTAGTTTCAGGTATATAACATAAAGATTCAATATTTGTACATATTGTGAAATGATCACCACAATAAGTCT
AGTTAAAAT--CCATCACCATACATAGTTACAAA-ATTTTTTTTCTTGTGACGAGAACTTTTAAAATCTACTCTCCTGGC
AACTTTCAAAGATGCAACACAGTATTA---ACTATAGTGATCA---TAGGAACTGTTTTCTTT---AATCACCAGTGTCA
GTGT---ATGATTGAAAACTTAGTGTTTAAGAGAATTATGCTGCCATCACATAGGAAAACGTATCTGGGAGTTTTCTCTA
TGTCC
>Ceratotherium simum simum
ACATGTAAGATA-----TCAAACACTCTATTGTAAAATAAAATC----AAA-GAGGAAAGCATAACTAATGAAAGAGGAG
GAAGATTGGGATTTATCAT---GAGGTAT-GG---GAATTATTTCCTTT----TTTTACTGAGGTATAATTGACATATAA
CAT---TATAAAAGTTTCAGGAGTACAACACAAAGATCCAATATTTGTATATATTGTGAAATGATCACCACAATAAGTCT
AGTTAACAT--CCATCATCATACATAGTTACAAA-CTTTTTTTCTTGTGATGAAGAACTTGTAAGATCTACTCTT--AGC
AACTTTCAAATATACAATACAGTATTATTAACTATAGTGACCA---CAGGAATTGTTTTCTTT---AACCACTAGTGTCA
GTCT---ATGATTGAAAATCTGGTGTTAAAGAGAATTATGCTGCCATCACATGGGAAAACATAACTGGGAGTTTTCCCTA
TGTCC
>Bos taurus
ACATTTAAGATG-----TCACACACTCTATTCTAAAACAAAA----------GAGGAAAATACAACTGATGAAAGAGGAG
GAAAATTGGCATATATCAT---GAGCTATTAG---GATTTTTTTTTTAT----------TGAGGTATAGCTGACATAC--
-----------TCGTTCCAGGTATACAACACAATG--TTAATATTTGCATCTATTGTGAAAGAAT---CACAATAAGTCT
AGTTAACAT--CCTTCACTACACCTAGTTACAACATTCTTTTTCCTTGTGATGAGAACCTTTAAGACCTACTCTCTTAGC
AACTTTCAAATATACAATACTATATTATTAACTGCAATCACCA---TAGGAATTATTTTCTTT---GACCAACAGTGTCA
GTAT---ATGGTTGAAAATCTGGTATTTGAGAGAATTATGCTGTCATCACATGAGAAAA--TAACCGAGAGGTTTCCTTA
TGTCC
>Balaenoptera acutorostrata scammoni
ACATTTAAGATG-----TCAAACACT-----CTAAAATAAA----------GAGGAAAATATAATTAATTAAAGAGGAG
GACAACTGGG-TACATAAT---GAGGTATTAG---GAATTATTTTCTTT---TTTTTATTGAAGTATAACTGACATAT--
-----------TAGTTTCAGGTACAAAACATAATGATT-------------------GAAATGAT---CACAATAAGTCT
AGTTAAAAT--CCTTCGCTAC--------ACAAAAGTTTTTTTCCTTGTGGTAAGAACTTTTAAGATCTACTCTCTTAGC
AACTTTCAAATATACAATACGATATTATTAACTACAGTCACCA---CAGGAATTATTTTCTTT---AACCACCAGTGGCA
GTCT---ATGGTTGAAAATCTGGTATTTGAGAGAATTATGCTGCCATCACATGGGAAAATATAACTGAGAGTTTTCCTTA
TGGCC
>Myotis lucifugus 1
GCATTAAAGATG-----TCAATCACTCTATTCTAAAAC-AAATTACTTAAC-GAAGAAAACATATTTAATGGAAGAGGAG
GAAATTTGGAATATGGCAT---GAGATATTAG---CAATTATTTTTTAA--------ATTGAGGCATAACTGACATATAC
CAT---TATATTAGTTTCAGGTATACCACATAATGATTCAATATCTGTATATACTGAAAAATTATCACCACAATAAATCT
AGCTAA------C-TCTGTCACCATAGTTATAAA--TTCTTTGTTT-GTGATGAGAACTTTTAAGTTCTACTCTCTTAGC
AACTTTTCAAT-------------------ACTATAGTCACCA---TAGGAATTATTTTTTTT---AACCTGCTGTTTAA
GAGAAGTATG--TGAAAATCTGCTGTTTAGGAGAAGTATGATGCCATA----AGGAAAACATAACTGG-AG-TTTCCCAA
TGTCC
>Myotis lucifugus 2
GCATTAAAGATG-----TCAAACACTCTATTCTAAAATAAAATTACTTAAC-GAAGAAAACATATTTAATGGAAGAGGAG
GAAATTTGGGATATGGCAT---GAGGTATTAG---CAATTATTTTTTAA--------ATGGAGGCATAACTGACATATAC
CAT---TATATTAGTTTCAGGTATACCACGTAATGATTCAGTATCTGTATATACTGAAAAATTATCAGCACAATAAATCT
AGCTAA------CTTCTGTCACCATAGTTATAAA--TTCTTTGTATTGTGATGAGAACTTTTAAGTTCTACTCTCTTAGC
AACTTTCCAAT-------------------ACTATAGTCACCA---TAGGAATTATTTTTTTT---AACCTGCTGTTTAA
GAGAAGTATG--TGAAAATCTGCTGTTTAGGAGAAGTATGATGCCATA----AGGAAAACATAACTGG-AG-TTTCCCAA
TGTCC
>Pteropus vampyrus
ACATTTAAGATG-----TCAAACACCCTGTTCTAAAATAAAA----TTATA-GAGGAAAATATATTTAATGAAAAAGAAG
GAAATTTGGGATATATCAT---GAGGTATTTG---AAATTTTTTTTTAAT----------TGAGGCATAACTGATATAT--
---------ACCATTATATGGTATACAGCATAACAATTCGATATTTGTATATATTGTAAAATGATCGCCACAATAAA--C
AGATATAAT-------------------TACAA-----TTTTTTCTTGTGATGAGAACTTTTAAGACCTACTCTCTTAGC
AACTTTCAAATATGCAGTATAGTATTATAAACTAAAGTAAACA---TAGGAATTATCTTCTTT---AACCATCAGGGTCA
GTCT---ACGGTTGAAAATCTGGTGTTTAAGAGAATTACGCTGCCGTA----AGGAAAATACAGCTGGTCGTTTTCCCGA
TGTTC
>Canis lupus familiaris
GGATTT--GATG-----TCAAACACACCATTCTAAAATAAAATTACTTA----GGAAAAATATAATTAATGAAAGAGGAC
GAAAATTGGGACATGTCATCACGACATATTAG---GTGTTATTTTCTTT-------------------------------
--------------------------------------------------------------------------------
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-----------------------------------------------------------------AAACACCAGTGCCA
GTCA---TAGGTTGAAAATCTGTTGTTGAAGAGAATTATGCTGCCATCACAAGGAAAAATATGACCAGGAGCTTTCTCCA
TGTCC
>Felis catus
ATATTT--GATG-----TCAAGCACACCATTCTAAAATAAAATTCACTAGC-GAGGAAAATATAATTAATGAAAGAGGAC
GAAAATTGGGACAGGTTACCATGAGATCTCAG---GCATTGTTTTCTTT-------------------------------
--------------------------------------------------------------------------------
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------------------------------------------------------------------AACCACCAGTGGCA
GTCG---AAGGTTAAAAATCTG-------------------------------GGAAAATACAACAGACAGCATTCTCCA
GATCC
>Manis pentadactyla
AAATGGA-GATAGTCCATCAAATACCCTATTGTAAAATAAAATTTAA-----AAGGAAAATGTAATTAATGAAAGAGGAA
GAAAATTGGGATATATCATCATGAGGTACTAG---GCATTACTTTCTTT-------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
------------------------------------------------------------------AACAACCAGGGGCA
ATCC---ATGGTTGAGAATCTGGTGTTTAAGAGAATTATGTTGCCATCATA-AGGAAAATACAACGGGGAATTTTCCCCA
TGTCC
>Homo sapiens
ATATTTAAGAGA-----TCAGTCACGCTATTCTAACATAAAATTAATTAATTAAGGAAAATATAATTAATGAAAGAGAAG
GAAATTTGGGACAAATCATTATGAGGTATTAG---GAATTGTTTGCTTT-------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
------------------------------------------------------------------AACCATCAGTCTTG
GTCT---GCGGTTCAGAATCTGGTGTTTAAGAGAATCATGCTGCCACGGTGCAGGAAAACGTAACTGGGAGTATTCCTG-
TGTCC
>Trichechus manatus latirostris
ACATTTAAGATA-----TCAAACACCTCATTCTAAAATAAAATTAACTAAA-GAGGAAGACATAATTAATGAAAGAGAAG
GAAAACTGGGATGCA-CATCATGAAGAATTAG---GAAGTATTTTCTGT-------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
------------------------------------------------------------------ACACACCAGTCTCG
GGCT---TGGGTTGAAAATCTGGTGTTTGGGAGAATGAGGCTGCCATCCCATGGGAAAATATAACTGGGGGCTTTCCCCA
CATCC
```

Supplemental Material S3c

Carnivora-Pholidota conflicting markers

Cetartiodactyla+Carnivora

Marker D__C0057

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>L1MA9
------------------------------------------------------------------------------
------------------------------------------------------------------------------
----------------------CAGAGAGTAGAATGGTGGTTGCCAGGGGCTGGG----GGGTGGGGGAAATGGGGAGAT
GTTGGTCAAAGGGTACAAAGTTTCAGTTATGCAGGATGAATAAGTTCTGGAGATCTAATGTACAGCATGGTGACTATAGT
TAATAATA--------------------CTGTATTGTATACTTGAAATTTGCTAAGAGAGTAGATCTTAAGTGTTCTCAC
CACACACAAAAAAAT-------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------------------------------G
GTAACTATGTGAGGTGATGGATATGTTAATTAGCT-TGATTGTGGTAATCATTTCACAATGTATACGTATATCAAAACAT
CACGTTGTACACCTTAAATATATACAATTTTTATTTGTCAATTATACCTCAATAAA-----------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------
>Canis lupus familiaris
GAGTGTCAATAGGCTTAGTTACCAAGGACCTAAAATGTTGCAAGACCTCATACTC-------------------------
-------------------------TTT-------TTCTAATATCA-TAAAGCAACA---GGTACCTAT--GGGAGGTTT
T---AGTATTTATTTCCTA---TAGAGAACAGACTGGTGGTTACAAGAAGCAGGCATGGGAGCAGTCGAAATGGGTAAA-
GGGAGTCAAAAGATACAAGCTTCCAGTG--CTAAAATAAATACATCATGGAGATGTA-----CAGCATGATGACTATAGT
TGTT--------------------ACTACTGTACTGCCTATTTGAAGATTGGTAAGAAAGAAAATCTTAAAAGTTCTCAT
CTCAAGGAAAA-----------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
---AAATTGTATGTGGTGACAGATGTTAATTTGAC-TTATTGTGGTGATCATTTGTTAATATATACAAATAGTGAATCAT
TATATTGTACATCTGAAGCTAATGTAATA-TTGTATGTCAATTATATGTCGATAAAAA---CAAATTTACTTCTTA---A
CTTTTATCCTGTTTGCAGTTTTAACTA-GCA---------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------TATGCTATATTTGTAA--TTCTTGTTTACAATCTCTGCTTA-CTGACACA
>Felis catus
GAGTGTCAACAGGCTTAACTACCAAGGACCTAAGATGTTCCAAGAGCGCCTACTT-------------------------
----------------------TGTTTTTGGATATGAGCACTCCA-TAAAGCAACAATGCATACATAT--GGGAGGTTT
T---AGTATTGATTTTCTA---CAGAGAACTGACTGGTGGTTACCAGAGGCAGGGGTGGGAGCGGGCAAAATGGGTGAA-
GGGGGCCAAAAGGCACAAACTTCCAGTT--ATAAAATAAATACATCATGGGGATGTAATGTGCAGTGCGATGACCATAGT
CGTT--------------------AATACCGTACTGCATATTTGAAAGTTGCTAAGAGAGTACATCTTACAAGTTCTCAT
GACACGAAAAAAAAT-------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
TTGTAACCATATAGGGTGACAGATGTTAACCAGAC-TTATTGTAGTGATTGTTTCTCACTATGTACAAATAACGAATCAT
GCTATTGTACACCTGAAACTAATATAATG-TTGTATGTCAACTTTATCTCCATAAAAA---CAAATTTACTTCCTA---A
CTTCTGTACTATTTGCAGTTTTAATGA-GCA---------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------TTCACTATTTTTGTAA--TTCTTGTTTAAGATTTTGGTTTA-TGGCCATG
>Manis pentadactyla
GAGCGTCAACAGGCTTAATTACCAAAGACCTAAAAAGTATCAAGAGCTC----------------------------
------------------------TTTTGGGATATTAAAACATCA-TAA-GGCAATATAGAATATATACGGGGAA-TTT
T---AATATATATTTCCTA---------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
CTTTTATCCTGTTTACAGTCTTAATTA-GTA-------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------TACACCATTTTTGTCA--------------TTTTTGTTTA-C-ACCATG
>Bos taurus
GAATGTCAACAGGCTTAATTACCAAGGACCTAAAAAGTACCAAGAGCTCACACTCTT-----------------------
-----------------TTTGGATATTTTTGGATATTAGACCATCA-TAAAGCTGTATAGGGTATATACAAGGGAGGTTT
G---AACATGTATTTTCTA---CAGAGAACCGGTTGCAGGTTACCAGAGGTG-----AGAGGTGGGCAGAATGAGTGAA-
GGGGGTCGAAAGGTACAAACTTCCAGTT--ATAAACAAGTCATGGGGGGTGTAATGTA-----CAGCATGGCAGCTATAGT
TAATAATAGTGCATTGTCTAAAAAAATACTGTATTGCATATTTAAAAGGTGCTAAGAGAATAAAATTTAAAAGTACTCAT
CACAAGAAACATTTT-----------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
TTGTAGCTATGTGTGGTGACAGATGTTAACTAGAA-TTATTGTGACCATTTCTCAGTA------TATACAAATATGGGAT
CGTGTGGTACACCTGAAACCAATATAATG-TTGCCTGTCAACTGCACCTCAATTAAA----AAACTTTATTTCCTA---A
CTTCCATCCTGTTTGCAGTTTTAACTAGGTG-------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------TATGTTATTTATGTAATTTTCCTGTTTAAAATTTTTGTTTA-CTACCACG
>Tursiops truncatus
GACTGTCAACAGGCTTA-TTATCAAGGACCTAAAAAGTATCAAGAGCTCACACTC-------------------------
------------------------TTTTTAGATATTAGAACATCA-TAAAGCAACATAGAGTATACAT--GGGACGTTT
T---AATATTTATTTCCTA---TAGAGAACCGATTGGTGGTTGCCAGCGGTGGGGAGAAGGGTGGGCAAAATGGGTGAA-
AGGGGTCAAAAGGTACAAACTTCCAGTT--ATAAAATAAACAAGTCATGGGGATGTAATGTATAGCATGGCAACTATAGT
TAATAATACTGTATTGTCTAAAAAACGACTGTATTGCATATTTAAAAGGTATTAAGAGAACAAATCTTAAGTACTCATAA
AAAGAAAAAAATTTTGCAGGACTTCCCTGGTGGTGCAGTGGTTAAGAATCCACCTGCCAGTGCAGGGGACACGGGTTCAA
TCCCTCGTCCAGGAAGATCCCACATGCCCTGAAGCAACTAAGCCCATGCGCCACAACTACTGAGTCTGCACTCTAGAGCC
CGCAAGTCACAACTACTGAGCCCACGTGCCACAACTACTGAAGCACGCGTGACTAGAGCCCATGCTCCACAACAAAGACA
AGCCACTGCAATGAGAAGCCTGAGCACCATAACAGAGTAGCCCCCGCTCTCTACAACTAGAGAAAGCCTGCGCATAGCAA
TGAAGACCCAACACAGGCAAAAATAAATAAATAAATTTATTTAAAAAAGAAAAAGAAATAAACAATCTTTAAAAAAAAAT
TTCCAGCTATGTGTGATGACAGATGTTTACTAGACTTAACTGTGATCATTTCTCAGTA------TATACAAATATAGAAT
CATGTTGTACACCTGAAACTAATATAATG-TTGCATGTCAATTGTATCTCGATTAA-----AAATTTTATTTCCTA---G
CTTCCATCCCATTTGCAGTTTTAACTAAGCA-------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------TATGCTATTTTTGTAA--TTCTTGTTTAAAATTTTTGTTTA-TTAGCACA
>Myotis lucifugus
GAGTGTCCA---GCTTATT-------------------ACCAAGACATCACACTC-------------------------
----------------------TTGGGGAATATTAAAACATTG-TAAAGCAACGCGG-------------------T
T---GATATTTATTTCCTA--------------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
CTTTCATTCTGTTTGCAA-TTTAACTA-GCC--------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------TATGCTATTTTTCTAA--TTC----------------------TGCCAGG
>Pteropus vampyrus
GAGTGTCAACAAGCTTAATTACCAAAGACCTAAAAAGTACCAAGAGTT--CACTC-------------------------
----------------------TTTTTGGACATTAAAGCATCA-TAAAACAATATCAAGTATATGT--GTGGGGG-T
T---GATATTTATTTCCTA--------------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
CTTCCATCCTGTTTGGAATTTTAACTA-GCA--------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------TATGCTATTTTTGCAA--TTCTTGTTTAAAGCTTTTATTTA-CTGCTATG
```

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>Equus caballus
GAGTGTCAACAAGCTTAATTACCAAGGACCTAAAAAGCACCAAGAGCTCACACTC-------------------------
-------------------------ATTTTGGATTTTAGAATATGA-TAAAGCAACACAGAGTATATAT--GGGAGGTTT
T---CATATTTATTTCCTA-----------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
CTTCCATCCTGTTTGCAGTTTTAACCA-GCA-----------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
--------------------------TATGCTATTTTTGTAA--TCCTTGCTTAGAATTTTTGTTTA--TACCATG
>Ceratotherium simum simum
GCGT--CAACAGGCTTAATTACCAAGGACCTAAAAAGCACCAAGAGCTCAGACTC-------------------------
------------------------ACTTTGGATATGAGAAT-TGA-TAAAGCAACATAGAGTATATAC--GGGAGGTTT
T---AATACTTATTTCCTA-----------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
CTTCCATCCTGTTTGCAGTTTTAGCTA-GCA-----------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
--------------------------TATGCTATTTTTGTAA--TTCTTGTTAAAAATTTTTGTTTA-CAGCCATG
>Condylura cristata
GATGGTCAACAGGTGTCAGTAACAGAGACCAGGA-CGGCACTGAGGCTCATAC-----------------------------
------------------------TCTTTGG-TAGTCGAAGATCA-TAAAGCAACACAGTGCCCACAG--GGGAGGCAT
C---AATGTCTATTCCCTA-----------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
CATTAATCCTGTTTGTAGTTTTAACTA-GCG-----------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------TATGATATTTTTCTAACTACTGTTTTACCAAAAAAAGTTCAATTGCTGTG
>Homo sapiens
ACCTGTCAACAGGCTTAATGATCAAAGACCTAAGAAGCACTGAGATCTCATTCCCTTTTTTCCCCCTTCTTTTCACAGGT
GTTGAGATCTCACTCTTTTTTTTTTTTTTGGGTATTAAAA---CAT-TATAAATAAAGAAGATAG---------------
----------TATTTCCTA----------------------------------------------------------
-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
TTTCCATTCTATTTGCAGTGTAACATCTGCTATTTTTCTGATACCTTTTTTTTTTTTTTTTTTTGAGACAAGGTCTTGCTC
TGTCACCCAGACTGGAGTGCAGTGGCACAATCTCAGCTCATTGCAGCCTTGACCAAGATCCCAGGCTCAAGTAATTCTCC
TGCCTCAGCCTCCCAAGTAGGTGGGACTACAAGCATGTGCCACCATGCCCAGCTAACTTATTTTTACTTTTTTTAGAGAT
GGGGTCTCACTATATTGCCCAGGCTGGGTTTGAACTCCTGGGCTCAAGTGATCCTCCCACCTCAGCCTCTCAAAGTGCTG
GGATTACAGGTGTGAGCCACCATGCCTAGCCTATTTTTGTAACTCTTATTTTTGTAATTTTTATTTA-TTGCCATG
>Choloepus hoffmanni
AGCTGTCAACAGGCTTAATTGCCAAGGACCTGAAAAGAACAAAGGGCTCATTCTTT-----------------------
--------------------------TTAGATATTAAAATATCAT-TAAAAATAGAGAGGATATAATG--GGGAGG---
T---AATATTTGCTTCCTA-----------------------------------------------------------
-------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
CTTCAGTGCTGTTTGCAGTTTTTATTA-CAA-----------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
--------------------------TATGCTATTTTTTTTTA-TTATTAATTCAAATTTTTGTTTA-CTGACTTA
```

Perissodactyla+Carnivora

Marker DH__0081

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>L1MA9_rc
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------------------------------------------------------------------------------
-------------------------TTTTTCCAGCTTTATTGAGGTATAATTGACAAATAA---------AAATTGTAT
ATATTTAAGGTGTACAACGTGATGTTTTGATATACGTATACATTGTGAAATGATTACCACAATCAAGCTAATTAACATAT
CCATCACCTCACATAGTTACCATTTTTTTGTGTGTGGTGAGAACACTTAAGATC-TACTCTCTTAGCAAATTTCAAGTAT
ACAATACAGTATTATTAACTATAGTCACCATGCTGTACATTAGATCTCCAGAACTTATTCATCCTGCATAACT-GAAACT
TTGTACCCTTTGACCAACATCTCCCCATTTCCCCCACCCC------------------CCAGCCCCTGGCAACCACCATT
CTACTCTCTGCTTCTATGAGTTTGACTTTTT-TAGATTCCACATATAAGTGAGATCATGCAGTATTTGTCTTTCT--GTG
CCTGGCTTATTTCACTT------------------------------------------------------------
-------------------------
>Canis lupus familiaris
CTTTATAGAAGAAAAAACTAAAGTCCAGCATGTTCTGGCACA-ACTAGGACAAGAAATCTGGCCTCAG------------
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>Ceratotherium simum simum
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Chiroptera+Perissodactyla+Carnivora

Marker DHB_0207

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Perissodactyla+Carnivora

Marker DH__0026

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>Manis javanica
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>Equus caballus
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>Bos taurus
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>Myotis lucifugus
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>Choloepus hoffmanni
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GCTCAAAATATGTG---GATATGAATACA----------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------------------TTTTAAACATT----GGAG----ACCAAGT
AGCCAATGTTTTTGAGATGTTCTCAATCTCATAGAGAAC-ATCAAACTCTTAAAATGCATCTCA--------------GC
CCA----CAGCCTTTGGAATC-CATCCAC-TGTGCCC
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Marker Rh_Hd06

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>L1MA9
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------------------------------TGTTGGTC---AAAGGGTACAAAGTTT---CAGTTATGCAGGATGAATAA-
---GTTCTGGAGATCTAATGTACAGCATGGTGACTATAGTTAATAATACTGTATTGTATACTTGAAATTTGCTAAGAGAG
TAGA-TCTTAAGTGTTCTCACCACACACA------AAAAAATGGTAACTATGTGAGGTGAT----GGATATGTTAATTAG
CTTGATTGTGGTAATCATTTCACAATGTATACGTATATCAAAACATCACGTTGTACACCTTAAATATA-TACAATTTTTA
TTTGTCAATTATACCTCAATAAAG--CTGGAAAAA-----------------------------------------------
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----------------------------------
>Canis lupus familiaris
TAGACAACCAGGGCCATTCTATTAGAAAGGTGACCCATTAGTAGTCATCCAGGGGTGACAAA----------------CA
ACATTAGGTAGAACCACCCCTTCCCTAATTCACCACT---AAAATCATTCACAAAT---CACTTGTAACTAGTAGATAGC
TAAGTCCTGGAGACCTAATATACACTACAATGATTATAGACAACAAAACTGTATTATAAACATTAAACTTACTAAGGTAC
TAGAATCTTAACTGTTCCCAACAC-----------TAGAAGAAATAATTATGTACCATGTTATTTAGGCATGTTAGCTAA
TGCTACAGTGACAATCATACTACAATATACATGC--ATTAAACCAATACACTGTATGCCTTAAGCTTA-CACAATGTTT-
AATGTCAAATATATCTCATTAAAATTTTTAAAATTTT---AAAGTCATTCACAAAT---GAT-TGTTGGAAATGAAATGC
AGTTTCCAATATAC-TTTTGCAACTCTGCATTGTT--GCATTTTAGTGACATAAA--TATTTAAA---------------
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>Felis catus
TAGACAATCAGGGCCATCTTATTAGAAAGGTGACCCATGAGTAGTTATCCTCATGTGACAAAACATTAGGGGTGACAAAA
ACATTAGGTAAAACCATCCCTTTCTTAATCCGCCACT---AAAATTATTTGCAAAT---CATTTGCAACTAGTAGATA--
--AGCCCTAGAGACCTAATACACCCTACAGTGATTATAGCCAAAAAAACTATATTATAAACATTATACTTGCTAAGATAC
TAGAATCTT----GTTCCCAACAC-----------TAGAAGAAATAATTATGTGGTATGAT----AGACGTGTTAGCTAA
TGCTACAATGACAGTCATATTACAATATAAATGC--ATTAAATCAATATGCTGTACACCTTAAGCTTA-TACAATGTTG-
AATGCCACATATATCTAAATAAGATTTTTAAAATGT----AAAATCATACACAAAT---CAAACA---------------
--TTGCCAATATAT-TTTTGCAACTCTGCATTATT--TCATTTTAGTGACATAAA--TATTCAAATATT--AT---TACT
CAATTGTGAATG---------CTTTGCTTAAAA
>Manis pentadactyla
TAGACAACAAGGGCCATTCTATTAGAAAGATGACCCGT-AATAGCTTCTTAGAGGTGACAAA------------------
-CATTAGCTGGAACCATTTCTACCTTGGTTCACCAGT---AAAATCAA--ACAAAT---TACATATAATTAATAGTTAAA
GTAGCCCTAGAGACCTAATA-ACAGTACAGTGACTACAGACAACAAAACATTATTATAAACATTAAAACTGCTAAGACAC
TATA-TGTTAACTATTCCCAACACTAGAAC-----TAGAAGAAATAATTATATGGCA-GAT----AGACATGTTACCTAA
TGATAGAATGACAATCATATTACAATG-AAATGC--ATCAAATCAAGACTGTA-AGCCCT-AAACTTA-CACAATGTTG-
GATGTCAATTACATCTCAGTAAAA---TAAAAAAAGT---AAAATCATTCACACAT---CAAATG---------------
--TTGCCAATATAT-TTTTGAAAC--TTCATGGTT--GCATTTTATTGATATGAA--TATTTAAATGTTT-AA---TACT
CAATTGTAAATA---------TTTTGCTTAAAT
>Equus caballus
CCGACAATCAGGGCCATTCTATTAGAAAGGTAACCCATTAATAGTTACCTAGGGGTGACAAA----------------CA
GCA-------------TCTCTTCCCTAATCCACCACT---AAAATCGCTCACAAAT---CACTTGCAACTAGTAGATAAA
TGAGTCCTGGAGACCTAATACACAGTACAATGATTACAGACAACAAAACTGTTTTACAAACATTAAACTTGCTAAGAGAC
TAGA-TCTTGACTGTTCCCA-CAC-----------TAGAAGAAATAATTATATGACGTGAT----AGACGTGTTAGCTAA
TACCACAATAGCAATCATATCACCATATAAATGC--ATCAAATCAATATGCTGCAGACCTTAAACTTA-CACAATGTTG-
TATGTCAAATACATCCCAATAAAA--TTAAAAAGTGT---AAAATCGTTCACAAAA---CCAACA---------------
--TTGCCAATATAT-TTTTCCAACTCTGCATTGCT--GCATTTTAGTAATATGAA--TATTCAAATGTTT-AA---TACT
CAATTGTAAATA---------CTTTGCTTAAAA
>Ceratotherium simum simum
CTGACAATCAGGGCGATTCTATTAGAAAGGTGACCCATTAATAGTTATCTAGGGGTGACAAA----------------CA
ACATTAGGTGGAACCATCTCTTCCCTAATCCACCACT---AAAATAATTCACAAAT---CACTTGCATCTAGTAGATAAA
TAAGTCCTGGAGACCTAATACACAGTACAATGATTATAGACAACAAAACTATTTTACAAACATTAAACTTGCTAGGAGAC
TAGA-TCTTGATTGTTCACA-TAC-----------TATAAGAAATAATTATGTGACGTGAT----AAATGTGTTAACTAA
TGCCACACTGATAATCATATTACAACATAAATGC--ATCAAATCAATATGTTGTACACCTTAAACTTA-CCCAATGTTG-
TATGTCAAATATATCTCTATAAAA---TAGAAAAAGT---AAAATCATTCACAAAA---CAAACA---------------
--TTGCCCATACAT-TTTTCCAACTCTGCATTGTT--GCATTTTAGTGATATGAA--TATTCAAATGTTT-AA---TACC
CAATTGTAAATT---------CTTTGCTTAAAA
>Bos taurus
TAGACAACCAGTACCATTCTATTAGAAAGGTGACCTACTAATAGTTACCTAGGGATGACAAA----------------CA
ACATTAGTTGGAAAAATATCTCCCCTAATCCACCACT----------------------------------------------
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------------------------------------------------------------------------------
---------------------------------------AAAATCATTCAGAAAT---CAAATG---------------
--TAGATAATTTATTTTTGGGAACTCTGCATTGTT--T-ACTTTAGTGATATAAA--CATTTAAATATTT-AC---CACT
CAACTGTAAATATGCTTGCTGCTTTGCTTTACA
>Balaenoptera acutorostrata scammoni
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ACATTAGGTGGAAAAATCTCTTCCCTAATCCACTACT----------------------------------------------
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------------------------------------------------------------------------------
---------------------------------------AAAATCATTCAGAAAT---CAAATG---------------
--TTGATAATATAT-TTCTGCAACTCTGCATTGTT--T-ATTTTAGTGA----------TACAAATATTT-AA---CACT
CAACTGTAAATA---------CTCTGCTTTATA
>Myotis lucifugus
AAGACAGCCAGGATCATACTATTAGAAATTTGACCCACCAACAGTTACC-AGGGGTGCCAAA----------------CA
ACATCAGATGGAAGCATCCCTTCCCTAATCCACCACT----------------------------------------------
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-----------------------------------------AATAT---TGGCAAAT---CCCAGG---------------
--TTGCCAACATA--TTTTGCAATTCTGCATTTTT--TCATTTAAGTGA--------TATTTAAATATTG-AA---TGCT
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>Pteropus vampyrus
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---TCAGGTAGAAGCATCTCTTCCCTAATCCAACACT----------------------------------------
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CTATTATAAATA---------TTTTGTATAAAA
>Condylura cristata
TAGCTAACCAGGGCCATTCAATTAGAAAGGTGACCCATTAATA-TTACCTAGGGATAACAAA----------------AA
ACAGTAGGTAGGACAAGCTCTTCCCTAATCCACCATT---AAGGACATTCACAAAT---TATTTGCAACTAGATGATAAA
AATGTCCTAGAGACATCATA-------TAATGATTACACACAGCAAAACCATTGT--AAACATTAAAGCTGTTGAAA--C
TAGA-TCTTAATGGTTTTCT-CAAAC---------TGGAAGAAGTTAT---GTGATGTGAC-------------AGTTAA
TGCTACAATTGTAAGATAAATATAGTAA--------ATCAAA-ATGTTTGTTGCACACCATAATTTTA-CAC-ATTCAAA
TATGTCAAATCTGTCTCAATGCAG---TAAAAATACA---AAAAACTT--ACAAAT---CAT------------------
--ATGTCAATATAA-TTTTGCAACTGTGCATTGC--TGCATTTTAGTGATATGAA--TATTTAAGATGTTTAAAATTACC
TG-TGG-ATACT---------TG--GCTTAAAT
>Homo sapiens
TAGGCAATCAG----ATTCCACTACAAAGGTGACCTATTAATAGTTACCTAGGGGTGACAAA----------------TA
ACAGTAGTTGAAAACATTTCTTCTTTAATCCACCACT----------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------AAAATTATTCACAAAT---TAAATG---------------
--TTACCAACCTGT----CATAATTCTGTGTTGTT--GCATTT-AGT--TATGTAAAAATTTAAATATTTTAA---TACC
GAACCGTAAATA---------CT--GCTTCTAA
>Choloepus hoffmanni
TAT-CAGCCAGGACTGTTATATTAGAAAGGTGGCCTATTAGTAGTTACCCAGAGGTGACAGA----------------TA
ACCTTAGATGGAAGCATCTCTTCCCGAATCCACCACT----------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------ATAATCACTCACAAAT---CAGAAG---------------
--TTACCAACATAT--ATTGTAA-TCTGCATTGTTGTACTTTT-A-TGATATGAA--TGTTTAAGTATTTTAA---TACC
CAATGGTATATA---------CT—GATTATAA
```

Chiroptera-Perissodactyla

Marker H_B_0044

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>L1_Carn7
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-----------------------------------------------------------------------ATGGTG
ACAG---ATGGTAACTAGACTTATTGTGGTGATCAC-----------------------TTCACAATGTATACAAATGT
------CGAATCACTATGTTGTACACCTGAAACTAATATAACATTGTATGTCAATTATA-CTCAAATAAAAAAA------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
---------------
>Equus caballus
TTTCTATGTCCTGCTTTAGTTTGTATAGAACTTATTA----GAACA-GACATTGTCCCATCCTCTTTCTTCTTT---GTT
ATTCCCAACAACTATGAG-TTTTTAC---------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------------------AAATGAAG
ACCC---ATGTTAACTATACTTATGGTGCTGATCAT-----------------------TTCACTAGATACCTAGTC--
------TGGATCATTATGTTGTACATCTGTAACTAATTTAATGTTATATGTCAATTACATCTCAAAAACAAA-----AAA
ATAAGACCC-----AGAGAAATG-----ACTTGCTCAA---------------------------------------
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----------------CTAGTGACTAGTGGTGGAATTACAATTTTAATTTTACCCTCTCTGAATGCAAAGCCTAGGCTAT
TTGCACATGTTATAT
>Ceratotherium simum simum
TTTCTATATACTGCTTTAATTTATATAGAATTTATTA----AAACA-GACATTGTACCATCCCTTTTCTTCTTT---GCT
ATTCCCAATAACTATGAGACTTTTAC----------------------------------------------------
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-----------------------------------------------------------------------AAATGAAG
ACCC---TTGTTAAACAGATTTATGGTGGTGATCATCATATATACTTATGGTATATAGATATGATCTGATATCTATATAC
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AGAAGACCC-----AGAGAAGTG-----ACTTGCCCAAAACTAT---------------------------------
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------------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------ATTCCTAGTAACTATTGATGGAATTACAATTTTAATTTTACTCTCTCTGAATGCAAAGCCTAGACTTT
TTGCATATGATATAT
>Myotis lucifugus
TTTCCATGCACTGCTTTAATTGATGTAGAATTT----------------------------------------------ATT
ATTACCAACAACTATGAGACTTTTAC----------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
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ACCT---ATGTTAACTAGACTTAATGTGGTGACCAT-----------------------TTCACAATATATATGTTCA-
------TGGATCAGAATGTTGAATACCTGAAGCTAATATAATCTTATGTGTCAATTACATCTCAATTA---------AAA
CAAATACCC-----AGAGAAGTG-----ACTTGCCCAAAGTCAT---------------------------------
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------------ATTCCTAGT-GTGAGTACAGGAACCATCACTTTATTTTTATCTTCTCTGAATCGAAATCCTAGGCTTT
TTGCACATGCCATAT
>Pteropus vampyrus
TTTCCATCT--------------------ACTCATTA----AAACA-GACATTGTACCATCCCCTTTCTTCTTC---ATT
ATTACTAATGGTTATGAAAATTTTAC----------------------------------------------------
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-----------------------------------------------------------------------AAATTATG
ACCC---ATGTTAACTAGAGTTATTGCAATGATCAT-----------------------TTCACAATATATACATTTAT
------TGGATCGTTATGTTGTACATCTAAAGCTAATA---TGTTATATGTAAATTATATCTCAATTAAA-------AAA
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AAAATACCC-----AGAGATGTG-----ACTTGCCCAGAGCCAT-----------------------------------
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-----------------------------------------------------------------------------
------------ATCTCTAGTAACTACTGATGGGACCACAATTTTAATTTTACCCTCTCTGAATCAAAAGCCTAGGCTTT
CTGTACATGTTATAT
>Canis lupus familiaris
TTTCCGTGTACTGTTGTAATGTATATAGAACTTACTA----GAACC-CAGACCATACCATTCACTTTCTTCTTCGG-ATT
ATTCCCAACAATGGTGAGACTTTTGC-----------------------------------------------------
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-------------------------------------------------------------------------AAATTAAG
ACCA--------------------------------------------------------------------------
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---------------GAGGAGTGAAGTAACTCGCTCAAAGCCTT-----------------------------------
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-----------------------------------------------------------------------------
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-----------------------------------------------------------------------------
------------ATTCCTAGCACTTAGAGGGTGAACCACAATTGGAATTTTGCGCTCTCTGGGTGCAAAGCCGAGGCTTT
TTGCACAGGAGAAAT
>Felis catus
TTTCCAGGTACCATTTTAACTTATATAGAACTTATTA----AAGCA-GGCAAAATACCATTCAATTTCTTCTTCTTGATT
CTTCCCAACAGCTGTGAGAC-----------------------------------------------------------
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-CCA--------------------------------------------------------------------------
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---------------CAGGAGTGAAGTAACTTGCCCAAAGCCGT-----------------------------------
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------------ATTCCTAGTAACTAGTTGTGGAGCCAGTC-TGCATTTT-ACCCTCTCTGAGTGCAAATCCTAGACTCT
TTGCACATGTGAAAT
>Manis pentadactyla
TTTCCATCTAATGTTTTCATTTGTATTAAAGTTACTA----AAATA-GATATTGCACTGTTCACTTTCTTCTTCTTTAGT
ATTCCAAACAGCTATGAGACATTTAC-----------------------------------------------------
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TCCA--------------------------------------------------------------------------
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CTGCACATATGATAT
>Bos taurus
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ATTCCCAACAACGATAATATTTTTAC-----------------------------------------------------
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ACTT--------------------------------------------------------------------------
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-------TGCAATAT
>Balaenoptera acutorostrata scammoni
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GTTCCCAACAACTATGACATTTTTAC-----------------------------------------------------
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-------------------------------------------------------------------------AAATTAAG
ACCG--------------------------------------------------------------------------
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----------------GGAAGTGAAATAACTTGTCCAAAGCCAT--------------------------------------
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------------ATTTCTAGTAACTAGTGGTGGAATGACAATTTGAATTTTACCCTGTCTGCATGCTAAGACT------T
TCTCACATGTGATAT
>Erinaceus europaeus
TGAGAATGTACTGCTTAAATTTGCATATAACTTATTTCAACAAGCATGATACTTTCCCA-----TTTCTTGTTCTCTATT
ATTCTTAACATCTA-GGAATGACAA----------------------------------------------------------
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----------------------------------------------------------------------------AAATTAAG
ACCC---ATGTTAACTGTATAGACTTATTGTGATTA---------------------CTTTGCAGTACTGAA-TATCT--
------CAGGTCAATATGTTGTATATCTGAAACTAGTACAATGTAACATGTCAATTATTTCTAAAAA----------AAT
CATAT---------TTAGGGAGGCAGACAGTAGTACACATAGTACGAAACACAAGCATCACAGTTCGAGCCCCCGGCTCC
CTACCTGCAGGAGGGTTGCTTCACAAGTGCTGAAACAGGTCTGCAAGTGTCTATCTTTTTCTCCTCCTCTCTGTCTTTCC
CGCTGTCCTATCCAACAACAAAATATAGCCGCCAGGAGCAGTGGATTCACAGTGTAGGCACTGAGCCCCAGCAATAACCC
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AAATGAAAAATCATGTCTAGTAAGGAATGGTAGAATCACAGTTTAAGATTTACCAT--CAGTATCAAAACCAAGCAACTT
TTGC--AAGTGATAG
>Homo sapiens
CTTCCATGCACTGATTTAGTTTCTGTACCACTTTTTA----AAGCA-GAACT-GCACCAGCCACTGTATTCTGCTTTGTT
ATTCTCAACAA-TATGATAC-TTTAA---GATCAGAGAAGGCACATACTGAGACCAGAGAAGTAGGCCAGGCCCAGTGGC
TCACGCCTGTAATCCCAGCAGATTGGGAGGCTGAGGCAGGCAGATCACTTGAGCTCAGGAGTTCAAGACCAGCCTGGCTA
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----------------------------------------------------------------------------------
--------------AGAGAAGTAAAGTAACTTACTCAAGGTCAT-------------------------------------
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------------GCTCCTAGAAACAAGTGTTGGAACAACAATTTGAGTTTCAGCCACTCTGAGTGCAAATCCTGAG-GTT
TTGCACATACCTTAT
>Choloepus hoffmanni
CTTCCATGTTTTGCTCTTATTTATGTAGAACTTCTTA----AAGCT-GACATTGTACCAGCCACTTT----ATTTTTATT
ATTCTCAAGAACTATAAGGC---TTC---------------------------------------------------------
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----------------------------------------------------------------------------------
----------------------------------------------------------------------------------
----------------------------------------------------------------------------AAATTAAG
GCTC----------------------------------------------------------------------------
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--------------AGAGAGGTGAAGTAACTTGCCCAAGGCCA-------------------------------------
----------------------------------------------------------------------------------
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------------GACTCTAATAACTAGTTGTGGAACCACAATTTGCATTTTAGCCTCTCTGAGTAAAAAGGCTGAACCTT
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Marker Rh_Hc14

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>MER57LA
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-------------------------------------------------T---GTTAAATTAATTAAACAAG----------
------------------------------GAGGCCATTAGACTGAGGTGGTTCTAATGCCTTAGCAGCCTACGTAAGC
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TAAAAGTCTTTCCCCTAGCTCCTGTCGGTGGAGCGCTCCTAACCACTTCCTGGTTTGGTGCTG-CCTGATTTGAATCGAT
TTTTGCTCAAATAAACTCTTAAAATTTTTAATATGCCTCAGTTTATCTTTTAACACA----------------------
--------------------------------------------------------------------------------
------------
>Equus caballus
CTTCCAAGGGTCTTAGATTAAGGCTCTGGTAATCCTTTGCTGCAAAGCAAAA-TATGACCCAAATATCCCAGAAGGTGCC
TCAAG----AAGGGTCAAACT------------GCTATTTGG---CTT---GTTAAATGAATTAAACAAA----------
------------------------------GAGGCCATTAGGCTGACGTGGCTTTAATGCTGTGGAGGCCTGTATAAGC
AAACCAA---------ATCTAA--GCCTCAAGGGTACAGAATCAAAATGCTAAGGGAA---ACCAGTCACAAACAGCCAA
CTAGGTGC--------------------TAAGCTATGGCCAGTCAAATGACTTCCTTCCTTTGCTTGCACGCCGTCTCTA
CCTCAATCTTTCTCCTGGCTGTTGTCGGCAGAGTGTACCTAACCACTT-CTAGCTTGGTGCTGGCCTGCTTCAAATTGAT
TTTTGTTGAAATAAACTC-TTAAAGTTGTAATTTGCCTCAGTTTATCTTTTAATAGG---CTG---AATATCGATTCCTT
ATGGCTTTTGGATTCA-GGATCTGTGAC-CTCTGATAAAGTG--TCTGAAGAACCCTTTGGATTAC-TGGAAGGTTAAGA
TGAAGGACTGTC
>Ceratotherium simum simum
CTTCCAAGGGTCTTAGATTAAGGCTCTAGCACTCTCCTGTTGCAAAGCAAAA-TATGACCCAGGGGTCCCAGAAGGTGCC
TCAAA-----AGGACCAAACT------------GCTATCTGG---CTT---GTTAAGTTAATTAAACGAG----------
--------------------------------GGGGCCATCAGACTGAGGAGGCTCTAAGGCCATGGAAGCCTACTTAAGC
AAAC-TGAATCTAAGCCTGTACGTGTCTCAAGGTCACAAAATCAAAGTGCTAAGGACT---ACCAATCACAAACAGCCAG
CTAGGCTC--------------------TACGCTAGAGCCGATCCAATAATTTCCTTTCTTTGCTTCCACACCTTCTCTA
TACAAGTCTTTCCCCTGGCTCCTGTTGGCAGAGTGCACCTAACCACTT-CTGGTTTGGTGCTG-CC----TCGAATTGAT
TTTTCTTCAAAT----GTTTAAAATTTTTAATTTGCCTCAGTTTATCTTTTAATAGG---CTG---AATTTCAATTCCTT
ACGGCTTTTGGACTCA-GGATCTGTGAC-CTCTGGTAAAGTA--TCTGAAGAACCCTTAGGGTTCT-TGGAAGATTCACG
TGAAGGAGTGCC
>Myotis lucifugus
CTTTCAAGGTTCTTAGATTAAGCCTCTAATACTTTTTT-----AAACCAAAA-TATGAGCCAAGGGTCCCAGAAGATGCC
TCAAG----GAGGGCTAAACT------------GCTATTCAA---ATT---GCTAATTTAATTAAACAAG----------
------------------------------GAGGCTATTAGACTGATGTGGCTCTA---CCATG-AGGGCCACATAAGC
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TTAGGCTT--------------------TAAGCTATAGCCAATCAAATAATTTTTTATTTTATTTTGTA-----------
--TGAATCTTTCCCCTGGTTCCTGTGGGTGGAGTGCTCCCAACCACTT-CTGGTTCAGTGCTGTCCC-ATTAGAATCAAT
TTTTGTTCAAATAAACTCTTTAAATTTTTAGTATGCCTCAGTTTATCTTTTAACAGG---CTA---AATATCAACCCC--
--------TGGACTCAGGGATCTGTGAC-CTCTGGTAAAGTG--TCTGAAGAACTGTTTTGATTCC-TGGAAGATT----
GAAATGATTGCC
>Rhinolophus ferrumequinum
ATTCCAAGGGTCCTAGATTAAAGCACTACTACTTTTTTGCTGCAAACCAAAA-TATGACTGATGGATTCCTGA-GATGCC
TCAAG----GAGGACTAGACT------------GCTATTTGG---CTA---GTTAA-----TTACACGAG----------
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ATACCAAAACCTAAGCCTGTAAATGCCTCAAGGTTATGAAATCTAAACACGAAGGACA---ACCAATTGCAAAGAGCCAA
CTAACCTT--------------------GAAGTTATAGCTGATCTAATAATTTCCTTTCCTTGTATA-------------
----AATCTTTCCCCTAGCTCCTGTGGTTGGAGTGCTCCTGACTACTT-CTGGTTTGCTGCTG-CCCAATTGGAATCAAT
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ATGGATTTTAGACTCA-GGATCTGTGAC-CTCTGGTAAAGTG--TCTGAAGAACCCTTTTGATTCC-TGGAAGATTAAGA
TGAAGGACTGTC
>Canis lupus familiaris
CTTCCAAGGGTCTTAGATTAATTTTCTAATACTCTTTTGCTGCAATACAAAA-TATGGCCCAGGGATCCCAGAAGGTGCC
TCAAAGACGGGGGTACAAACTGCTATTTGAAC-ACTATTGGG----------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-------------------------------------------------------------CTG---AATATAGA--CTGA
AGGGCTGTTGGACTCA-GGTTCTCC-AT-CTCTCGCAAAGTG--TTTGAAGAACTCTTTGGATTGC-TGGAAGATTAAGA
TTAAGGTGCATC
>Felis catus
CTTCCAAGGGTCTTAGATTAAGGTTCTAATACTCTTTTGCTGCAAAACAAAA-TATAACCCAGGGATCCCTAAAGA----
---AG--GGCCGGGCCCAACCACTATTCAAACTGCTATTGGC----------------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-------------------------------------------------------------CTG---AATATCAATCCCTG
ATGGCTTCTGGATTCA-GGTTCTGTGAC-CTCTGGTAAGCTG--TCTAAAGAACC-TTTGGATTCC-TGAAAGATTAAGA
TTAAGGACTATC
>Manis pentadactyla
CTTCCAAAGATCTTAGATTAAGTGTCTAATACTCTTTTGCTGCAAAGCAAAA-TGTGACCCAGGGATCCCAGAAGGTGCC
TCAAG----GAGGACCACACTGCTATTCAAACTGTTATTTGG----------------------------------------
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------------------------------------------------------------CTG---ACTATCAATCTCTG
TTCACTTTTGGAATCA-GGATTTGTGAC-CTCTGGTCAAGGG--TCTGAAGAACCTTGTGGATTCC-TGGAAGATTAAGA
TTACAAACTGTT
>Bos taurus
TTTCCAAGGGTCTTAGATGAAAGCTCTAATATTCTTTGGCTGC-----AAA---ATGACCCAGGGACCCCAGAAGATGCC
TCAAG----GAGGT-CATACTGCTGTTCAAACTGCTATTTGG-----------------------------------
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---------------------------------------------------------------------------
---------------------------------------------------------------------------
---------------------------------------------------------------------------
------------------------------------------------------------CCA---AATTCCGA-TCCCA
ATGACTTTTGGACTCA-GGGCCCGTGAC-TTCTGGCCAAGTG--ACTAAAGAACCCTTTGAAGTCT-TGAAAGATTAATA
TTAAGGAGTGTT
>Balaenoptera acutorostrata scammoni
TGTCCAAGTGTCTTAGATTAAGGCTCCAATACTACTCTTTTGC--TACAAA---ATGAACCAGGGACCCCAGGAGGTGTC
TCAAG----GAGGGCCAAACTGTTATTCAAACTACTATTCGG-----------------------------------
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------------------------------------------------------------CTG---AATACCAATCCCTG
ATGGCTTTTGGACTCA-GGGTCTGTGAA-CTCTGGTAAAGTG--TCTGAAGAACCTTTTGGATTCC-TGGAAGATTAAGA
TTAAGGAGTGTC
>Erinaceus europaeus
CGTCTAAGAATCCTTCATTAAATTCCTAATATTCTTTTTGTTGCGAAGAAAAATATTATCCAGGGACCCTAGGAGGTGAT
TCCAA----GAGGGCCAAAATGCTATTAGTTT-ATCATTATT---ATT---ATTA--TTAATTAAAGAAGAAGACAGAGA
AGAAGGAAGAGGAGGAGGAGGAGGAGGAGAAGCCGCCATTGGACTGA-----CTG-ATGTGTATCTAATGCCAC--AAGT
AAAACAAAACCAAAGCCTACAAATGCCTACAGGTTATCAAATATACATGCTAAGGACACTGATCATAGGCTAATAGCCTC
CACGGAGACTG-----------------TAAGCTCTAGTCAGTC----AACTTCCTTTCACTGCTTCCTTACTTTGTCTA
TGTAAGTCTTTCTCTTGACTTCTCTGGC-AGAGTTCTCCAAATCACTT-CTGCTTTGAT-CTA-CCTGATTTGACTCAAA
-TTTACTTATGTAAATTTCAACAAACATTAATATGACTCAGTTTGTATCTT---AGG---TAG---AAGACCA-------
-GTCTTTGAGGCTTTT-GAATTCTGGATCCTCTGCTGAAGTG--TCTG-AGAAATTCTTAGGTCCC-TAGAAAACTAAGA
-TAATGAGCTTC
>Homo sapiens
CTTTCCTGAGTCTTAGATTAAGCCTCTAATGCTCTTTTGCTGCAAAGCAAAA-TATGGCCTAGGAATTCCAGAAGGTGCC
TTAAG----GAGGGCCAAAGA------------GCGATTCGG-----------------------------------
---------------------------------------------------------------------------
---------------------------------------------------------------------------
---------------------------------------------------------------------------
---------------------------------------------------------------------------
------------------------------------------------------------CTG---AATATCAATCCCTG
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>Trichechus manatus latirostris
CTTGCAGGGGGCTTAGATTCAGGCTCTAATGTGCCTTTGTTGCCAGGCAAAA-TACTGTCCAGAGATTCTAGAAGGTGCC
TCAAG----GAGGGCCAAAGT------------CCTATTCTG-----------------------------------
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----GGAGTTTC
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Chiroptera+Cetartiodactyla+Carnivora

Marker D_BC0023

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>CarERVR1
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CTGC-----------------CTCTTTCTTCGGTCTCTCCCTGCCCTCTGCGTACGGGGGCCGGTTTCAGATTACACCCG
GG-AAG--CTCCCGAGGGGGTTGCGAACCAAC----------------------------------------------
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------------------------------------------------------------------------------
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>Canis lupus familiaris
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>Felis catus
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GCAAAGCATTC
>Manis pentadactyla
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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ACCAAGTATTC
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>Homo sapiens
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>Trichechus manatus latirostris
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Marker Rd_Dcb24

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>Canis lupus familiaris
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>Manis pentadactyla
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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>Equus caballus
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>Condylura cristata
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>Homo sapiens
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>Choloepus hoffmanni
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Perissodactyla+Cetartiodactyla+Carnivora

Marker DH_C0013

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>Canis lupus familiaris
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>Felis catus
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Homo sapiens
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>Heterocephalus glaber
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-ACTA-GTATATA-----------------------------------------------------------------
-------------------------------------------------------------------------GCC
TAAATACCTCTTAGCATCGCTGCCTTAA------TAGGATAACATACATATATAATTGAGCTCTTATATT--AATC-TT
>Choloepus hoffmanni
TGCTTTTATGCCAATAAATACTTTCAGCCCCACACAGTTGAACCACCTTAAATATATTCCCA-TTTGACATC---AGATC
-ATTC-ATCTATA-----------------------------------------------------------------
----------------------------------------------------------------------------ACC
CAAATGCCTCTTACAATCTCTTCCCTAT----TAAGAAAAAAAAGACTGCTGTAATTGAATCAATGCATT--ACTC-TT
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Marker DH_C0018

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>L1MA9_rc
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---------------------------------------TTTCCAGCTTTATTGAGGTATAATTGACAAATAAAAATTGT
ATATATTTAAGGTGTA--------------------CAACGTGATGTTTTGATATACGTATACATTG-------------
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------------------------------------------------------------------------------
--------------------TGAAATGATTACCACAATCAAGCTAATTAACATATCCATCACCTCACATAGT-------
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--------------------------TACCATTTTTTTGTGTGTGGTGAGAACA-CTTAAGATCTACTCTCTTAGCAAA
TTTCAAGTATACAATACAGTATTATTAACTATAGTCACCATGCTGTACATTAGATCTCCAGAACTTATTCATCCTGCATA
ACTGAAACTTTGTACCCTTTGA--------------------------------------------------------
------------------------------------------------------------------------------
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-------------------------------------------------------------
>Canis lupus familiaris
TGTATTTCAAACTTAAAGACTACCTCAGACTTT-ACCAATG-TATGTTATTAGGTATACAGAAATGAGGGG-AGGAAT-G
TTGTTTTCATTGTTGCCTTTTTTTT----------------TTGCAGCTTTATTGAGATACAATTCATATATAACA-TTTC
ATAAGTTTAAGATGTA-----------------------CCTGTT-----------------------------------
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--------------------------GATTATCACCACAGCATCAGCGAACACCTCCATTGTGTCATGTAAT-------
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-------------------------CACCGTTTCTTTTT-TGTGGTGAAAACA-TTTAAGACCTACTCTCTTAAC---
TTTGACGTATATAATACAGTATTATTAACTATAGTCATCAAACTGTACATTAGATTTCCAGAAATTATTTGTCTTT--AA
CCTGGAAGTTT-TACTCTTTG--------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-------------------------------------------------------------AAAGCACTTCCTACATCAAGATG
TTCCTGGCA--GAGAAAGTAATTCAAGTGC----TCTTCTCAAGACCAAATCA-TTTCCTA
>Felis catus
TGTATTTCGGAATTAACGACAGCCTCAGATTTT-ACAAATG-TAGGTTATTAGATGTACAGAAATGGGGGG-GGAGGA-G
TTGTTTTTATTATTACATGTATTTT----GGGTGTTTTTTTGGTAGCTGTACTGATATGT--TTGGCATATAATA-TTTC
ATAAGTTTAAGGTATA-----------------------CCTATTGATTTGATACACTTGTATATTA-------------
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------------------------------------------------------------------------------
--------------------CAAAATGATTACCACTGTAGCATCAGCTAACACCTCCATCATGTCACATAAT-------
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------------------------------------------------------------------------------
--------------------------TACCATTTCTTTTT-AGTGG-GAAAACA-TTTAAGATCTACTCTTTTAAC---
TTTGAGGTATG-AATACAATATTATCAAATAT---CACCAAACTGGT----ATATTTCCAGAACTTATTTGTTTTA--AA
ACTGGAAGTTT-TACTCTTTG--------------------------------------------------------
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------------------------------------------------------------------------------
-------------------------------------------------------AAAGCACTTCT--CATCAAGGTA
TTCCTGGCT--GAGAGAGTAATTTAAGTAT----TATTTTCAAGTCCAAATCA-TTTCCTA
>Manis pentadactyla
TATGTTTCAAAGTTAAAGACTGTCTCAGACTTT-ACTAATGTTATG---TTAGGTATGCAGAAATGGGGGG-AGGGTAAT
TTACTTTATTTTGTTTTATTTTATT----------------TCCAGCTTTATCAAGATACAATTGCCAAGTAACA-TTGT
GTAAATTCAAGGTACA--------------------CAACCTGTTAATTTGATCCACTTATATATTG-------------
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--------------------CAAAACGATTACCACCATAGCATTAGCTAACACCTCCATAGTGTCACATAAT-------
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--------------------------TGCCAATTTTT----TGTGGTAAGAACA-TTTAAGATCTACTCTCTTAGCAAC
CTCCAAGTGTATAATGCAGTATTATTAACTATAATCACCATACTGTACATTAGATTCCCAGACCTTATTCCTATTA--TA
ACTGGAAGTTTGTACTC--TG------------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------AAAGCACTCTTGACATCAATATG
TTCCTGGCT--GAGAAAGTAATGCAAGTGC----TATTCTTAAAACCAAATCA-TTTGCTG
>Equus caballus
TGTATTTCACAATTAAAGACTGCCTCATATTTT-ACCAGTG-TGTGTTGTTAGGTATGCACAAATGAGG-----GGTG-G
TTGTTTTTATTATTGCTTTTATTTT--------ATTTTATTTCCAGCTTTACTGAGATATAATTGACACATAACA-CTGT
GTAAGTTTGAGGTGTA--------------------TGACATGTTGATTTGATACACTTACATGTTG-------------
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------------------------------------------------------------------------------
--------------------CAAAATGATCACCACCATAGCATTAATTAACACCTTCATCACATCCCATAAT-------
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------------------------------------------------------------------------------
-------------------------GACCATTCCTTTTT-TGTGGTAAGAACG-TTTAGGATCTACTCTCTTAGCAAC
TTTCAAGTATATAATACAGTATTATTAACTATAATCACCGTACTGTACATTAGATCCCCAGAACTTATTCATCTTA--TA
ACTGAAAGTTTGTTCTCTTTA--------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------AAAGCACTTCTGACATCAAGATG
TTTCTGGCT--GAGAAAGTAATGCTAGTGC----TGTTCTTAAGACCAAATCA-TTTCCTA
>Ceratotherium simum simum
TGTATTTCAAAATTAAAGACTGCCTTGGATTTT-ACCAATG-TGTCTTGTTAGGCATGCAAAAAGGGGG-----GGAT-G
TTGTTTTTATTATTGCTTTTATTTT---GCTTTATTTTATTTCCAGCTTTATTGAGATATAATTGACATATAACA-TTGT
GTAAGTTTAAGGTGTA--------------------CAGCATGTTGATT-GATACACTTATATGTTG-------------
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------------------------------------------------------------------------------
--------------------CAAAATGATTACCACCATAGCATTAGCTAACACCTCTATCATATCATA-----------
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--------------------------TAATTACCACTTTT-TGTGGTGAGAACA-TTTAAGATCTACTCTCTTAGCAAC
TTTCAAGTATATAATACAGTATTATTAGCCATAATCACCATACTGTACATTAGATCCCCAGAATTTATTCATCTTA--TA
ACTGGAAGTTTGTACTCTTTG--------------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------AAAGCACTTCTGACATCAAGATG
CTTCTGGCT--GAGAAAGTAATGCAAGTGC----TGTTCTTAAGACCAAATCA-TTTCCTG
>Bos taurus
TGTGTTTCAAAATTAAAGACTGCC--AGACAT--ACAAATG-TCTGTTGTTAGGTATGCAGAAATGAGGGT---GGAG-G
TTGTTTTCA--GTTGCGTTTATTTT---GTTTTACTTTATTTCCAGCTTTATTGAGATAAAATGAACATGTAACA-TTGT
ATAAGTTCAAGGTATG-----------------------TATGTTGATTTGACATACTTATATATTA-------------
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--------------------CAAAATAATTACTACCATAGGAT-AGCTAATATCTCCAACATGTCACATAAT-------
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-------------------------TACCATTTCGTTTT-TGTGGTGAGAACA-TTTGAGATCTACTCTCTTAACAA-
ATTCAGGTAAATAATATGGTACGGTTAACTATAACCATC---CTGCAGATTAGATTCCCAGAACGTATTCATGTTA--TA
ACTGGTAGTTTGTACTCTTTG--------------------------------------------------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------AAAGCACTTTTGACATCATGATG
GTTTTGGCT--GAGAAGGTAATGCAAGTGT----TATTCTTAAGACCAAATCA-TTTC-AA
>Balaenoptera acutorostrata scammoni
TGTGTTTCAGAATTAAAGACTGCCTTGGATTTTTACCAATG-TATGTTGTTAGGTATGCAGAAAT--GGCAGT-GGAG-G
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TTGTTTTTATTGTTGCTTTTATTTT--------GTTTTATTTCTAGCTCTATTGAGATATAATTGACATGTAGTA-TTGT
ATAAGTTCAAGGTATA----------------------CATGTTGATTTGATACACTTATATACTG-------------
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---------------------AAAA-TAATTGCGA------------------TAGCTAACACCGTACCATTTCTTTTTT
TTTTAATATTTATTTGGTTGTGCTGGGTCTTCGTTGCAGCAGGCGGGCTCCTTAGTTGCAGCTCACAGGCTCCTTAGTTG
TGACTCACTGGCTTCTTAGTTGCAGCACATGGGCTCCTTAGTTATGGCTTGCTGGCTCCTTAGTTGTGGCAAGTGGGCTC
CTAAGTTGCAGCATGCATGTGGGATCTAGTTCCCTGACCAGGGATTGAACTCGGGCCCGCTGCATTGGGAGTGTGGAGTC
TTCACCACTGCACCACCAGGGAAGTCCCACCATTTCTTTTT-TGTGGTGAGAACA-TTTAAGATCTACTCTCTTAGCAAC
TTTCATGTAAATAATACAGTGCTATTAACTATAA-CATCATACTGTACATTAGATCCCGAGAACTTATTCATCTTA--TA
ACTGGAAGTTTGTACTCTTTAAAAACACTTCTGAGGGCTTCCCTGGTGGCGCAGTGGTTGAGAATCTGCCTGCTAATGCA
GGGAACACGGGTTCGAGCCCTGGTCTGGGAAGATCCCACATGCCTAGGAGCAGCTGGGCCCGTGAGCCACAACTACTGAG
CCTGCGTGTCTGGAGCCTGTGCTCTGCAACAAGAGAGGCCGCGATAGTGAGAGGCCCGCGCACCGCGATGAAGAGTGGCC
CCCGCTCGCCACAACTAGAGAAAGCCCTCGCACAGAAACAAAGACCCAACACAGCCAAAAATAAATAAATTTAAAAAAAA
AAAGAAAAAAAAAAGTGTGAGTCTGGCTGGAAAGATTCCTTTAAAAAAAAAAAAA---AAACCACTTCTGATATCATGATG
TTCTTGGCT--GAGAAAGTAATGCAAGTGC----TGTTCTTAAGACCAAATCA-TTTCCTA
>Myotis lucifugus
TGTAATTTAAAATTAAAGACTGCCTCAGATTAC-ACCAATG-TATGTTGTTAGGTATACAGGAGTTGGGAAGGGAACT-A
GAGTTTTTATTGTTACTTTTAAATC-------------------------------------------------------
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------------------------------------------------------------AAAATACTTCTAACATCAAGATA
TCCCTGGCT--AAGAAAGGATTGCAGGTAC----TGTTCTTAAGACCAAATCA-GTTCCTA
>Pteropus vampyrus
TGTAATTTAAAATTAAAGACTGCCTCAGATTTT-ACCAATG-TATG---TTAGGTATGCAGGAATTGGGAAG--GGGG-G
TTGTTTTTACTGTTACTTTTAAACC-------------------------------------------------------
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------------------------------------------------------------AAAGTACTTCTGACATCA-GATG
TCCCTGGCT--AAGAAAGTAATGGAAGTAC----TGTTCTTAAGACC-AATCA-CTTCCTC
>Condylura cristata
CTCTTTGTGGATCTAAACACTTTCTCAGATTTT----AATGATATATGTT-AAATATGCAGAAATGGGGGA-AA--TT-G
TTATTTTGACTGTAGCT-----------------TTTATTTCTAACTTTATGGAGATATACTTGACATGTAGCATTTGC
ATAGGTTTAAGATATACAAGTCAAGATATACTTTATCAAAGTGTCACTTTGATACTGTTATCTATTACAAAATGGTCACC
TCATGGGCAGCAGTTTTGGGAGTGCCGTAGGACAAAGGAAAGACAATAGAACGAGAGACCCAGAGGGCTCACACCTCAGT
GGTGCAAGCCCATCCCGGGCAGTCTCAAACTGACTGAGGAGCAGTTCAGAGACGGTAAGCAAGTATGTGGAGGGATGTCC
GTGTGTGTATGTGGGGGGTGTTATTGGGAATGTGTCATCATCTGGTGCAAGTTAGGGGCTACTGTTTGGGGTGGGTGCCA
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TGGTGAGAGGCCCCTGCCTGACTCTTCATTTAAATTTGAACAGCATGAACTCTGAGCACCAAGACAAAGCTCTGATAACA
TGGAAGGCTGGAGATTCCACACAAAATGATTACCTTCATAGTGTTAGCTAACACCTCCATCATGTCACATAAT-------
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-------------------------------TACTGTGTG-TGTGTGTAGAACATTTTAAGATATACACTCTCAATGAA
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A--CCTGCATATATAATATAATGCTA---TGTAATCACTATGCTATAAATTAGATTCCCAGAAGCTGTACATCTA---CA
AGTGGACGTTTGTGCCCTTTG----------------------------------------------------------
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-----------------------------------------------------------AAAGGTTGTGTGGTATCAAGATG
TTCTTATCT--AAGAAAATAATACAAGTGCTTTTTGTTGTTAAGGCC-AATCATTTTCCTA
>Homo sapiens
TGTAGTTCACGATTGAAGACTGCCTCAGATTTT-ACCAATGCTAATTTGTTAGGTATGTAGGAAATGGGGAGG-GGGT-G
TTGTTTTTATTGTTGCTTTTAAATC------------------------------------------------------
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-----------------------------------------------------------AAAGCAC-TTTAACAACAAGATA
TTCCTGTCT--GAGAAAGCAACGCAAGTGC----TGTTCTTAAAGGCATATCA-TTTCCTA
>Trichechus manatus latirostris
TGTATTTCAAAATTAAAGACTGCCACAGGTTTT-ACTAATG-TGGGTTGTTAGGTATGCAAGGATTGGGGGAGGGGGTTG
TTGTTTTTATTGTTGCTTTTAAATC------------------------------------------------------
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-----------------------------------------------------------AAAGCACTTCTGGTATCAACATA
TTCCTTGCTGTAAATAAGTAATTTAAGTGC----TGTTCTTAAGACCAAATCA-TTTCCTA
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Marker Rh_Hdc11

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>L1MA9
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-----------------------------------TTGCCAGGGGCTGGGGGGTGG---GGGAAA---TGGGGAGA--
-TGTTGGTCAAAGGGTACAAAGTTTCAGTTATGCAGGATGAATAAGTTCTGGAGATCTAATGTACAGCATGGTGACTATA
GTTAATAATACTGTATTGTATACTTGAAATTTGCTAAGAGAGTAGATCTTAAGTGTTCTCACCACACACAAAAAAATGGT
-AACTATGT---GAGGTGATGGATATGTTAATTAGCTTGATTGTGGTAATCATTTCACAATGTATACGTA-TATCAAAAC
ATCACGTTGTACACCTTAAATATATACAATTTTTATTTGTCAATTATA-CCTCAAT-----AAAGCTGGAAAAA------
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>Canis lupus familiaris
TCTCTTAAAATCCAGT-----------------------ACAATAAGTATTCTGTTAAAA-------ATGTTTCAGGAAA
AACTCATCTATTAGCATTGGTACTCCAAGTTGCATTAC--------------TGAATG---GAAATC---ATATTCTA--
-AGGTTGTCAAAAGGCACAAACTTCCAGTTAT--AAGATAAATAAGTCCTGAGGATGTAAAGAATAGAGTTGTGATGACA
GTAAACAACACTGTGGTATATATTTGAAAGTTGCTGAGAGAGCAGACCTTGAAAGTTCACATTATAAGAAAAAAAAT-AT
-AACTATGT---GAGGTGATGGAT--ATTAACCTGACTTATTGTCATAATCATTTCACAATACATACATA-AATTAAATA
ATTATGTTGTACACCTAAAATGAATGCAATGTT-ATAAGTCAATTACA-TTCCAATGT-AAAAAAAGAAAGAAA------
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--------------ATAATAA-TTAATGACAAATTTAA----AAATTTTA---GTTTGGTAATA-AAGTACCAACAATAT
TAT---TAGCCCATGAGAACGTGGGCCT--AAGTGTCTCTGGAATAAATTGATGACATATGCTGTTTTCCT-TTGGCCAG
------------------------------------------------------------------------------
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>Felis catus
TCTCTGAAAATCCAGT-----------------------ACAATAAGTATTCTGTTAAAA-------ATATTTCAGGAAA
AACTCATCTATTAGCATTGGTACTCCAATCTGCATCGT--------------TAAATG---GAAATC---ATATTCTA--
-AGACGGTCAGAAGGCACAAACTTAGAGAGAT--A----AAATAAGTCCTGAGGATGTAATGAACAGCATGGTGACTATA
GTTAACAACACTGTATTATATATATGAAAGTTGCTAAGAGTGTAGACTTGGAAAGTTCACATTGTAAGGAAAATATT-GT
-AACTATGC---GAGGTGGTGGAT--GTGAACTAGACTTATTGTTGTA-TCGGTCCACAGTCTATACCTAATATCAAATC
ATTATGGTGTTCACCTAGAATGAATACCATGTT-ATATGTCAAATATC-TCTCAA-CT-AAAAAAAGAAAGTAATA----
------------------------------------------------------------------------------
--------------ATAATAAGTGACAGATTTTTTTTA----AAGTTCAA---TTTTGGTTATA-AAGTACCGACGTTAC
TAT---TAGTCCATGAGAACATTGGCCT--AAGTGTCTCTTGAATAAATTGATGACATATGTTGTTTTTCT-CGGGCCAG
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>Manis javanica
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--------------------TACTCCTATCTGCACTGC--------------TGAGTG---GAAGGC---AAACTCCA--
-AGCTGGTC-AAAGGTATGAACTTCCAGTTAT--AAGATAAGTAAGTCCTGAGGATGTAAGGAATAGCACGGTGACTACA
GTTAACACTACTGTATTGTATGTTTGAAAGTTGTTGAGAGAGTAGATCTTAAAAATTCACATGACAAGGAAAAAAATTGT
TAACTGTAG---ATGGTGATGAAT--ATTAACTAACCTTAATGTGGTAATCGTTTCACTCTACATA-GTA-T-AAAAATC
ATTATGTTGTACACTTAAAACTAATACACTGTT-ATATCTCAATT------------T-AAAAAAGGAAAGAAGAAA---
------------------------------------------------------------------------------
--------------ATAATAA-TGAACAACAGATTTAAA---AACTTCTA---TTTGGGTAATA-AAGCACCAACATTAT
TATCA-GGCCAGAGGGGAACAGTGGCCT--TAGTGTCTCTCAACTGAATGGACGGCATATGCTGCTTCCCT-CTGGTCAG
ACTGCTCT-ACCGTAACTG----TCCCC--TTGGTCATATTTCAAAACTCATCTCAAGTTTCACTTTTT-GGTTCAGCCT
TCCCTGATCCTGTCTCCTCCCACC-----------ACCCACCGTAAGACATTATCAATCACACTCTTCTCT-GGATTGCA
CT--CTGGG-----------ACATCCAGTTAGTGTCATTTTGGATTGTACTTACTTGATTACACATTTAATTACTTCTCT
TTCTCATCCTAGACTGGGAAACTCT
>Equus caballus
TCTCTTAAAATCCAGT-----------------------ACAATGAGTATTCTGTTGAAA-------ATACTTCAGTGAA
AATTCATCTCTTAGCATTGGGGCTCCAATATGCATTGC--------------TGAATG--------A---AAATTCTA--
-AGGTGGTCGAAAGGTACAAACTTCCAGTTAT--AAGATAAATAAGTCCTGAGGATGTAATGAATGGCATGATAACTATT
GTTAACAATACTGTATTATATATTTGAAAGTTGCTAAGAGACTAGGTCTT-AAAATTCACATCACAAGAAAAAAAAT-GT
-AAGTATAT---GTGGTGATGGAT--GTTAACTAAGCTTACTGTGGTGATCATTTCACAATATATACATA-TATCAAATC
ATTATGTGGTACATCTAAAACTAATACACTGTT-ATGTGTCAATGATA-GCTCAATTT-AAAAAAAACCAGAAAA-----
------------------------------------------------------------------------------
--------------ATAAGAA-TGAATGATAGGTTAAA----AGATTCCA---TTTTGGTAATA-AAGTACCAACATTAT
TAC---TAGTCTTTGGGAACATTGGCCT--AAGTGTCTCGCAAATAAATTGATGATATATGCTGTTTCCCT-CTGGTCAG
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>Ceratotherium simum simum
TCTTTTAAAATTCAGT-----------------------ACAATGAGTATTCTGTTGAAA-------ATATTTCAGTAAA
AACTCATCTATTAGCATTGGTACTCTAATCTGCATTGC--------------TGAATG--------A---AAATTCCA--
-AGGTAGTCAAAAGGTGCAAACTTCTAGTTAT--AAGATAAATATGTCCAGAGGATGTAATGAATGGCATGATGATTATT
GTTAACAATACTATGTTGTGTATTTGAAAGTTGCTAAGAAAGTAGATTTT-AAAAGTGAC--------------------
----TATAT---GTGGTGATGGAT--GTTAACTAAGCTTATCGTGGTGATCATTTCATAATATATACATA-TATCAAATC
ATTATGTTGTACTCCTAAAAGTAATACACTGTT-ATATGTCAATGATAATCTCAATTTTAAAAAAG-AAACAAA--CATA
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TGA-------------------------------------------------------------------------------
--------------ATAATAA-TGAATGATAGCTTTAA----AAAATCCA---TTTTGGTAATA-AAGTACCAACATTAA
TAT---TAGTCTATGGGAACATTGGCCT--AAGAGTCTCTCACATAAATTGGTGACATATGCTGTTTCCCT-CTGGCGAG
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>Bos taurus
TCTCAGAAAATCTAGT----------------------ACAATGAGTATTCTGTTGACATTTGACAATATTTCAATAAA
AACT-ATCGATTAGTGTCCATATACCAATCTGCATCAAAATCAAATGATTTCTTAATG---GAAATC---AAATTCCA--
-AGGTG----AAAGGGACAAACTACCAGTTAG--GACATAAATTAGTCCTGAGGATGTAGTGAACAGCAGGATGACTATA
GTTAACAAGACCATATGATCTATTTGGAAGTTGCCAAGAGACTGGATCTT-AAAGTTCACATCACAGGAAAAAGAATTAT
-AACTATGTGTAATTGACATCTAT--GCTAATTAAACTTACCTTAATAATTGTTTCAAAATATACATATA-TATAAAATC
TTTACATTATATATCTAAAACTAATACAATGTT-ATATATCAATTGTA-TTTCTGTTTT-AAAAAGGAAAGAAAAACATA
TGA-GAAGAATATATATATATAACTGAACCATTTTGTTGTACACTTGATACCAACACAATAATGTATATCAAGTATAGTT
TAATAAAAAAACA-ACAAT-----------AGATTTAAA---AAATTCTG------TTATAATA-AAGTACCGACATTAT
TATTTTTAGTCCATGGGAACACTGGCCTCGCCGTGTCTCTCAAATGAATTGATGACATATGCTGTTTCCCT-CTAGCCAG
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>Balaenoptera acutorostrata scammoni
TCTCAGAAAATCTAGT----------------------ACAATGAGTATTCTGCTGACG-------GTATTTCAATAAA
AACTCATCTATCAGCATCCATACACTAATCTGCATTGT--------------TGAATG---GAAATC---AAATTCCA--
-AGGTGGTCAAAAGATACAAACTACCAGTTAT--AAGAAAAATAAGTCCTGAGGATGTAATGAACAGCATGATGACTATA
GTTAAT---ACTGTATAGTATATTTGAAAGTTGCCAAGAGGCTGTATCTTAAAAGTTCACATCACAAGAAAAAGAATTGT
-AACTATATTTAATTAACATCCAT--GTTAACTAAACTTATTGTGGTAATCATTTCAGAATATATATATA-TATCAAATA
TTAATGTTATGCACCTAAAACTAATACAATGTT-ATATGTCAATTTT------------AAAAAAGAAAAAATAA---TA
TGAAAAAGAATA--TACACGTAACTGAATCACTTTGC-ATACACCTGAAACTAACACAATAATGTATATTAATTATAGTT
CAATAAAAAGATAAAAAATAA-TGAATGATAGATTTAAA---AAATTGTG---TTTTCTTAATA-AAGTACCAACACTAT
TGT---TAGTCCATGGGAACATTGGCCT--CAGTGTCTCTCAAACAAATTGATGGCATATGCTGTTTCCCT-CTGGCCAG
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>Condylura cristata
TCTCTCAAAATATAGAATTCCTAGTACAAAATCTAGTAGAAGTCTAGCATTCTGTTGAAA-------ACA-TTTAGTAAA
ACTTCATCTATTAGTATCAGTATGGCTGATATCCTATA-------------TTGATAAGCAGAAATA---AAATTTAA--
-AGGTAGTC-AAAGGCACAGATTTCTAGTTAC--AAGAGAAATCTTGGGCATGGA----ATGTCCAGTATAGTGAA-ATA
GCTAACAATACTGTGTCGTGTATTTGATGTCTGCTTAGAGAGTAGATCTTAAAAGTTCACAGCACCAGAAAAAAAA----
------TGT---GTGGTAACAGAT--GTTAACTACATGCACAATGCTGATCATTTCAGTCTATATAAA---TAGTAAATC
ATTATGTG-TACACCTGAGATGAATACGATGTTTA-ATATCAATTAT--TTT--------AAAAAATAAAAATAA-CA-A
TGA-------------------------------------------------------------------------------
----------------------------TTGATAAAT----AAATTTAA---TTTTGATAATAAAAGGACCAACATTAG
ATT---AGTCCCATGAAAACACCAGCCA--AA-GGTCTCAGAAATAAACTAGTAACATAATGCTGTTTCCTTATGGCCAG
-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------
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>Myotis lucifugus
TCTCATAAAATACAGC----------------------ACAAGGAGCAATCTGTTGAAA-------ATATTTTAGTAAA
ATCTCATTTATTAGTGTTGGTACTCCAATCTTCATTAC--------------TGAATG---GAAATC-------------
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-------------------------------------------------------------------------------
-----------------------------------------AAATTCTA---TCTTGGTAATACAAGTAGCAACATTAG
TA----TAGTCTGTGGGAACATTGGCCT--AAGTGTCTCTCAAATACATTGATGACATATGCTGTTTCCCT-CTGGCCAG
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>Pteropus vampyrus
TCTCTTAAAATCCAGT----------------------ACAACGA----------------------GTACTCTTG-AAA
ATCTCATATATTAGTATTGGTACTCCAATCTACATTGT--------------TGAATG---AAAATC-------------
-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------AAATTCTA---TTTTGGTAATAATAATACCAACATTAT
TA----AAGTGTATGGGAACATTGGCCC--AAGTATTTCTCAAATAAATTGATGGCATATGCTATTTCCCT-CC-AGCAG
-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------
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>Homo sapiens
TCTCCTAATATTTAAT----------------------ACAATGAATATTCTATTGAAA-------ATATTTCAGTAAA
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TGCTTAACTATTTGCATTGGTGTTCCAATCTGTATTGC--------------CAAATG---GACATC-------------
------------------------------------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------AAATTCTA---TTTTGGCAATA-AAGTACTGACATTAT
TAT---TAGCCAATGAGAACATCGGCTT--AAGTGGCTCTCAAATAAATTGATGACATATGTTG--TCCCC-CTGGCCAA
------------------------------------------------------------------------------
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>Trichechus manatus latirostris
CCTCTTACAATTCAAT----------------------ACAATGAATATTCTGTTGAAA-------ATACTTCAGTAAA
TGTTCATTTATTAGCATCGATAACCCCATTAGCATTGC--------------TGAGTG---GAAATC-------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-----------------------------------------AAATTCAA---TTTTTATAACAAAAGTAC-ATTATCAT
TAGT--TAGTCCACTGGAACATTGGCCT--AAGTGACTCTTGAATAAATTGATGACATTTGATG-TTCCCT-CTGGCCAG
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Chiroptera+Perissodactyla+Cetartiodactyla

Marker HCB_0002

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>L1MA9_rc
------------------------------------------------------------------------------
-------------------------------------------------------------ATTGAG-------GTATAATTGA
CAAATAAAAATTGTATATATTTAAGGTGTACAACG---TGATGTTTTGATATACGTATACATTGTGAAATGATTACCACA
ATCAAGCTAATTAACATATCCATCACCTCACATAGTTACCATTTTTTTGTGTGTGGTGAGAACACT-TAAGATCTACTCT
CTTAGCAAATTTCAAGTATACAATACAGTAT-----------TATTAACTA---TAGTCA--------------------
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>Equus caballus
TTTCCCAGAACCCCTGGCAGTT--CTTTTTAAACAGCTTTATTGAAGTATGGTTGACATA--------------------
-CAACAAACTACACA----TATGTAAAGTGTGCAAGT---TGATCAG-TTTTTAAAAATTGAG-------ATATAATTGA
CATGTTACATCATATT-AGTTTTAGGTATACAATG---TAATGATTTCATATATGTATGTATTATGAAATGATTACCACC
ATAAGTTTAGTTAACAT--CTATCACCACACATAGTCATAATTTTTTTCTTTGTGATGATAACTTT-TAAAATCTGCTTT
CTTAGCAACTTTCGAATATACAATAGAGTAT-----------TGTTAACTG---TGATCAGTTCTGATATGTGTAT---A
CACA--TGAAACCATCACCACAGTCAAGATGGA----------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------------------GAATGTATCCTTT-ACTGTCAC
AAAATCTTTTCCAGGAGCCA-TTG-CCCAACCTAAAGATTTGTGGCTTTT
>Ceratotherium simum simum
TTTCCCAGAACCCCTGGCAGTT---TTTTTAAACAGCTTTACTGAGGTATGATTAACATA--------------------
-CAACAAACTACACA----TAGGTAAAGTGTGCAATT---TGATCGGTTTTTTAAAAATTGAG-------ATATAATTGA
CATATTACATTGTATT-AGTTTTAGGTGTACAACA---TAATGATTTGATATATGCATGTATTACAAAATGATTACCACC
ATAAGTTTAGTTAACAT--CCGTCACCACACATAGCTATAATTTTTTCTCCTTGCGATGAGAACTTT-TTAAATCTGCTTT
CATAGCGACTTTCAAATATGCGATACAGGGT-----------TGTTAACAG---TGATCAGTTCTGATATATGTAT---A
CATG--TAAAAGCATCACCACGATCAAGATGGT----------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-------------------------------------------------------------GAATGTATCCTTT-ACTCCCAC
AAAATCTTTTCCAGAAGCCAACTG-CCCACCCTGAAGATTTTTGAATTTT
>Bos taurus
-----------------------TTTTTTAAAACAGCTTTATTGAGGTATGACTAACATA--------------------
-CAGCAAGCTCCACA----TATGTAAAGTATATGGTT---TGATCTT-TTTTTTTAA--TGAG-------ATATAATTGA
C-TGTAATATTGTATTAAGTTTTAGGTGTGCAACA---TAATGATTTGATATATG----------------------------
--------------CAT--CCATCACCACCCATAGTTACCGTCTTTTTTCT--TAATGAGAACTTT-CAGG-TCAATTTT
CTCAGCAATTTTCAAACATACAACACATGTGTGTTAACCATGTATTAACCA---TGATCGGTTATGATACATGTGT---A
TACA--TGAAACCATCACCACCATTAAGATGGG----------------------------------------------
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AAAAGCTTTTCTGGAAGCCTACTC-TCCACTCTGAAGAGTTTTAAATTTC
>Balaenoptera acutorostrata scammoni
TTTCCCAGAACCCC-AGCAGAGATTTTTTAAAGCAGCTTTATTGAGGTATGATTGACATACTCCAATACTCCAACATACT
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CATATAACATTATATTAAGTTTTAGGTGTGCAACA---TAATGATTTGATATATGTATATACTGCAAAATGAT---CACT
ACAATAAGTTTAAACAC--TCATCACTACCCATAGTTACAATCTTTTTTCT--TGATGAGAACTTT-CAGA-TCTACTTT
CTCAGCAATTTTCAAACATACAATACAGTAT-----------TGTTAACTG---CGATCACTTCTGAT-----------A
CACG----AAACCATCACCACAATCAGGATGGT----------------------------------------------
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------------------------------------------------------------------------------
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>Myotis lucifugus
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CTTAGCAACTTTCAAATATGCAACACAGTGT-----------TGTCAACTG---TGATCACTTTCAACATATGTAC---A
TACA--TGAAACCATCACCACAGTCAAGACCAC----------------------------------------------
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------------------------------------------------------------------------------
-------------------------------------------------------------CAATGTCTCATTT-TCTCCCAC
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>Pteropus vampyrus
TTTCTCAGAACCCCTGGCAGAC-TTTTTAAAAACAGCTTTATTGAGGTATGACTGACAT--------------------
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CTTAGCAACTTTCAAATATACATTGCAGTAT-----------TGTTAACTG---TGATCACTTTTGGTATATGCAT---A
CATA--TGAAATCATTACCACAATCAAGATTGT----------------------------------------------
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-----------------------------------------------------------GAGTGTATCCTTC-ATCCTCAC
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>Canis lupus familiaris
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--AGCAAACTGTACG----TATGTGACCTGTACCTTT---TGATCAG-TTTTGAGAAGCGTAA-----------------
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------------------------------------------------------------------------------
-------------------------------------------------------------------------------A
CACG--TGGAACTATCATCATGATCAAGATGGC-----------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------GAGTGTATCCTCT-TCCCCAAC
AAAATCTTTTCCAGAAGCTTACCA-CCCACTCTGAAGATTTAGACATTTT
>Felis catus
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---ACAAACAGTACGCGGGTATGTAGCATGTACAATA---TGATCAG-TTTTGAGGAACGTAT-----------------
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------------------------------------------------------------------------------
--------------------------------------------------------------------------------C
CACA--TGAAACTATCACCACAATCAAGATGGC------------------------------------------------
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------------------------------------------------------------------------------
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AAAATCTTTGGCAGAAGCTAACTG-CTCACTCTGAAGACGTAAACATTTT
>Manis pentadactyla
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-CAA--AACTGCACA----TACATAAAGTGTACCACC---TGATCAG-TTTTGATA------------------------
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------------------------------------------------------------------------------
-------------------------------------------------------------------------------T
GCCC--GGGAACCATCACCACAGTCTAGATGGT-------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------GAATGTATCCTCT-CCCCCTGC
AAAATCTTTTCCAGGAAAG--ATG-CTCATCCTGAAGATGTTTAAGTTTT
>Erinaceus europaeus
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----GCTTACA-TTCAT--CAACACATAGTTACAGGTGGCATTTTTTTTGCCATG--TAAAGCCTTTTACAATACACTGT
T-AAGAAGCTTTCAAATACATAATAGACTAT-----------TTTTAACTA---TACTCA--------ATATATAT---A
GACG--TATCTCCATCACCCCAGTCAAGATAGTGAAGGCATTATTTTCTAATTTTTTTCCTTTATTTTATTTCATTGTAT
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>Loxodonta africana
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-------------------------------------------------------------------------------A
CACGTGTGAAACCATCACCACAATCAAAGTGAT-------------------------------------------------
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------------------------------------------------------------------------------
-----------------------------------------------------------GAGCACGTTCTTT-ACCTCC-C
AAA-TCTTTTGCAGAAGCCCCCCATGGCACCCTCCAGGCTTTAGAAGTGT
>Choloepus hoffmanni
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-CAACAAACTGCACA----TATTTAAAGTGAATGATT---TGGTAAG--ATTGACATCTTTAC-----------------
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-------------------------------------------------------------------------------A
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AAA-TCTTTCCCTGAAACC—CCACCCCACCCTGCAGATTACTTTCTGTT
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Marker HCB_0020

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AT----------------------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
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>Equus caballus
ACAATCAAAGGAGCTACCGGGC--GAGGAGTCTTCACAGCTCTACATCCTGTAACTTTTAAATGAGAGTGTTGAATTC--
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----AGAGCCTTG---AAACTCATGACCCA---ACAATTTTGTGTTATAATCATCAAGCTTGCTGAGAGTCTTGATTTTA
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ATCACAATGTATAAATATACCAAATCAATATATTGTACATCTTAAATTTA-TGCA--G-TTATATGTCAAATATATTTCA
ATTAGAAAAAAAGA-------AAACTCATGACTCA----------------------------------------------
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>Ceratotherium simum simum
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GTTACAATATATAAATATATCAAATCAATACGTCACACACACTAAATTTA-CACAATA-TTATATGTCAAATATGTTTCA
ATC--AAAACAAAG-------AAA-------CTCA----------------------------------------------
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C----AA----TTATTTTACTTTTA-TAGAAGGA------ACTCAAAATGATGATGCATTAAATTAATTTAAAGGAAACA
AGACCAAACAAG
>Bos taurus
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TC----------------------------------------------------------------------------
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-------------------------------------------------------------------------------T
AAAAAGAGCGCTG---AAACTCATGATTCA---ACAACATTGTATTATCATCATCAAACTTGCTAAAAGACTTGATCTTA
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-----AATATGTAAATAAATCAAATGAACATGTTGAACATCTTTAATTTA-TACAATG-TTGTATGTCAAATACATTTCA
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CACCAAG----TTATTTTACTTTTCTTAGAACGACAGAAGATAGAAAATGGCAATGCATAAAA-----TTAAAGGAAACG
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>Balaenoptera acutorostrata scammoni
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TC----------------------------------------------------------------------------
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-------------------------------------------------------------------------------T
AAAGAGAGCATTG---AAACTCATGACTCA---ACAATTTTGTATTATAATCATCAAACTTGCTAAAAGACTTGATCTTA
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ATTAAAAAATA----------AACCTCATGACTCA---------------------------------------------
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AGGCCAAATAAG
>Myotis lucifugus
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---------------------------------------------------------------------------------T
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>Pteropus vampyrus
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>Canis lupus familiaris
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TC-----------------------------------------------------------------------------
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---------------------------------------------------------------------------------A
AAAGAGAACATTG---AAATTCATGACTCA---------------------------------------------------
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AGATTA---AAG
>Felis catus
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-----------------------------------------------------------TCATTTTCATTCTCATTGAAA
CACAAAG----TTATTTTCCTTTTCTCAGAA-GA------AAT---------------TAAAA-----TGGAAGCAAACA
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>Condylura cristata
TAAATTAAAGGAGCCATCGGGCTAGAGATATATGCACTGGTTTACCTCCTGTTGTTTTTA---GAGATTGTCAAATTCAA
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-------------------------------------------------------------------------------T
GAAGAGAGCATTG---AAACCTATGACTCC---ACAATATTACATTATAATCATCAAATCTGCTAAGAGACTGGATCATA
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------------------------------------------------------------AAATTTTAGTTTAAGTTGAAA
TGCAGAA----TAATTTTGCTTTTCTTAGAT-GAAC----TCAATGTGACAATGT--ATAGCATTAATTTAAAGGAAACA
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>Homo sapiens
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AAAGAGAGCATTT---TAACTTATGACTCA----------------------------------------------
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------------------------------------------------------------GCGTTCA-----GTTGAGA
CACAAAG----TTATTTTGCTTTTCTTCGAAGGAGC----TCAGAATGACCCTGTGCATAAAATTAATGTAAAGGAAACA
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>Choloepus hoffmanni
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GAAGAGATCATGG---AAACTCATGACCAA----------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------TAGTCTTCATCTAGGTTGAGA
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Marker HCB_0026

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AAATAT-ATACAATTTTTATTTGTCAATTATACCTCAATAAAGCT-GGAA---AAA-----------------------
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>LTR1B_CCr_rc
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>Equus caballus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Myotis lucifugus
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GAA----------------------AATTATATCTCAATAAAACTAGGGA---GAAAATAATACCTACC-TCT------A
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>Pteropus vampyrus
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>Canis lupus familiaris
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>Felis catus
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-------------------------------------------------------------------------------C
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>Manis pentadactyla
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CAAGAAATAAGATAGCA-TTTCCTCTCAATTGCTTTTCTATTTCAGC---AGCACTAAGAAAAGCTACCA----------
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-------------------------------------------------------------------------TATA
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Marker HCB_0046

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>Myotis lucifugus
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