Supplementary Material S5

Alignments of deletion markers

Chiroptera+Cetartiodactyla

1.1 Marker D_Cb026

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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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>Ceratotherium simum simum
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>Canis lupus familiaris
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--TGAC-------------------------CCACCCT-GCCAGCATGCCATC--TCTTGCACATCCCTC-ACCCAACT
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>Felis catus
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>Manis pentadactyla
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>Condylura cristata
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GA-AGGGAATTGGGCAGC
>Homo sapiens
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>Heterocephalus glaber
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GG-AGAGA-TTGGGCAGC
>Choloepus hoffmanni
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1.2 Marker D_Cb043

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GTGGCCTTGCCACCATGCCACT-GATGGCAATTCATTTTGAGATTTAAGAAGCGAAATAATG
>Balaenoptera acutorostrata scammoni
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>Erinaceus europaeus
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>Choloepus hoffmanni
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1.3 Marker D_Cb089

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CACTG
>Balaenoptera acutorostrata scammoni
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CATTG
>Equus caballus
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>Ceratotherium simum simum
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CACTG
>Canis lupus familiaris
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CAAG--------------GAACTGATGCTCATTTGTAGCTTTTCTTGATCAGGTAAATTAGTCTC--TGCTTATACTTGG
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CACTG
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CAGG--------------GAACTGATGCTAGTTTGCAGCTTTTCTTGAACAAGTAAATTAGTCTC--TGCTTATACTCAG
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>Manis pentadactyla
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CATTG
>Erinaceus europaeus
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>Homo sapiens
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>Choloepus hoffmanni
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CATTG
>Dasypus novemcinctus
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TAGG--------------GAAATTATGCTCATTTTCAGCTTTTCCTGAGAAGGTAGATCAGTCTCATTGCCTATCCTTAG
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CATTG
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1.4 Marker D_Cb002n

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>Bos taurus
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AACTAAACTTAG-TGAGA-------TGTTTTCC-----TTAAGTGACTTC------------------------------
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--------------------------------------------------------------------------CCTCTGCC
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>Balaenoptera acutorostrata scammoni
AGCCAATATTTCTAGGTTCTGCTCACGGAACTTGGAGTAAACCTTTGTCTGCTTTGAAAAAA-GATTTTTCAATATTCTA
AACTAAACTTGG-TGAGA-------TGTTTTCC-----CTAAGTCACTCC------------------------------
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>Myotis lucifugus
AGCCAATATTTCTAGGTTCTGCTTATGGAACTTGGAGTAAATCATTGTCTGCTTTGAAAAAA-GATTTTAAAATGTTCTA
AACTAATTTCAG-TTTCC--------------------------------------------------------------
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1.5 Marker D_Cb006n

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1.6 Marker D_Cb013a

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1.7 Marker D_Cb019a

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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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AACTATTCAGCT--GT------GTAAAAATTA----------------------------------------------
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ATAAA-----TGACAATGTTAACGTTCTGTTAAGCTTCCAAGAGATATTGTAATTT
>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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>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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1.8 Marker D_Cb026n

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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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--------------ACTAAGAAGAAATTGGATG-------------------------------------------
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>Myotis lucifugus
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>Equus caballus
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>Ceratotherium simum simum
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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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>Marmota marmota marmota
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>Choloepus hoffmanni
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Chiroptera+Carnivora

2.1 Marker H_Dc002

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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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TAAATAAGAAAATCCTTAAAAAAAAAAAAAAAAAAAAAANNNNNNNNNNNNNNNNAAAAAAAAAAAAAAAAAAAAAGACATGT
TTCTATAATGGTAGAGTTTTAAGTAAA-AGTAGTAATATC----TTTTTTTTTTAATGTGCTGACTCGTTTTCAGACAA
GATAATAAACTCTCTCCACAATATCTCAAACTCTGATCTGTTTGCT-------TCTACCTACTGCACCTAGGACCT----
---AACCACTGAAATCTACCTGTGTGGAAGAC-CACGTTGACAGGAATGTCTGCCACACGATGGTCAGCCAGAGGTACCA
CACCC-TCTGCCTACAGGCAAAGGTG------ACTCAGAGAGAA------------TTGACCCCTCACTCTCAG---GGT
GACATATCC--TCCCATTGAGGTGAGAATTTACCTGGCTTCCAGAGATGAGGTGGCAGAAGGGGAGGGGGATTCCTAAAC
CTTAGCTATTGCTGAGGGAGCAGTTTTCTGTCACA
>Condylura cristata
--------------------------------------------------------------------------------
-------------------------------------------------------GATCCGAAATGGCTGCA-GA----G
GGTGAAGGAA-TTTAAGGAA-GCCTT-------------------------------------------------------
--------------------------------------------------------------------------------
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-TCTAGTAGTAGAG--ATTTAGGTAAA-AGCAATGTAGAC-----TTTGCAAAATAATGTGCTTATGAGTTTTCAGACAA
GCTACTCTGCTCTTCCCACAAGATCTCAGTCT--GATCTGTTCAGTT---GATGCTACAAGATGCACCTGGCAGCTAGCC
ACC---------AGTCTACCTGCCTGGAGGGCACACGTGACCAGGAAATTCCTCCACATAAT---CACTGGACAGAGGCA
CCAAGGTCTGCTTATAGACCAACGTA------GCTCTGACTGAGAATTAGCTCT----------TCTGTCTGAGGTGGGT
AACACTTCC--TTCCC-TGAGGTGAATGTCTGCCTAGCTTCTGGGCATGACTGACAGAAGGCGAAG-TTGAGGCCTAAGC
CCGATTTGCT---AGGGGAAAAGTTTTCTGTCACA
>Homo sapiens
GTCTGGCTGTTGTAGCTTCCCTAGAAAA----GCTCCCT--AGGAAGGTCATCGGTGATACAGATTTATACTTGATGCTG
GTAACTTAATGAG--TACATCTATCAGGGAAATTGGCATCAATGACTGTGCATG-GAGGTG--CAGTGGGCAGGAGTGGG
GGTGTTTAAC-TTAAAGAAATGCTTC-------------------------------------------------------
--------------------------------------------------------------------------------
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-TCTGTTGGTAGAG--TTTTAAGTAAA-AGCAATG--------TCTTCTTCTTTAAGTAGGGTTACTAGGTTTCAGACAT
GATACTAAGCTCTTCCCAAAATACCTCAAACTCTGGTCTCTTTGCCTTTTTATACTACATACTCCA--------------
-CTTAGTACTGAAATCTACCTGGTTGGAGAGCA---------------------CATGTGATGGTCAGTCCAAGGGAACA
CTCAT-CCTGCCTATAGGTGAAGGTG------GCCCTGATAGAGAATTGGCTGGGATCCCTC--TCATTGCCAAG---AT
```

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GACATTTCCA-TCCAATGGATACGGGTATTGATCTGGCTTCTGGAGT-----TGACAGAGGGTGCAGGGGATTCCTGAAC
ACTAGCTGCTGCTGAGGGTGCAGGTTTCTGTCACA
>Choloepus hoffmanni
CCTTGTCTGCTCAAGCTTCCCCATATCACTTCTCTCATG-TAGGAAGGTGATA---AATCTAATGCTA-ACTGAGTATTG
GTAACTTAATTAGG-TGCCTCTGTCAGGGGAATTGGCATTTAAAAAAG-CCATG-CATGTGAGTAGAGTGGAGGA----T
GGTGTTTAAC-TTAAAAGAATGTTTC-------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
-TCTCGTGGTAGAG--TTTTAAGTAAA-AGCAATGACACC-------TTTTTATGGATGCGTTTACTAGGCT--------
----------TCTCCCCATAATATCTCAAACTCTGGTCTGTTTGCTTTTTGATTCTGAAGACTCTACCTGCCACCCAGCC
ACCGAAGTCCACTGAGTGGAGGCAT-GGGTGCA------GACAGGAGGGTCGTCCCCGTGATGGTCA-CCAGAGGTACCA
CCCAC-TCTGTCTGCACCTGCACGTGAGAGTGGCTCTGATACACAATTAGCTGAGACCCTCCCCTCACTCTCA-GCATGA
TGGTTTTCCCCTCGCATTGAGGTGGGTATTCACCTGGCTGCTGGAGG-----TGGCAGAGGGTAAGGGGGATTCCTGAAC
CCTGGTTATAACTGAGGAAGCAGATTCCAATCACG
```

2.2 Marker H_Dc019

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>Canis lupus familiaris
GATTCTGTAATTCTTATTTTGAATATGTAAAATTTTTACTCAGCTAACTGGGAAAAAAA---CCGGTAGTTTTATTCTT-
--ACATTATGATTTTATATTAATAACAA-------------------------------------------------------
-----------------------------------------------------------------C--AGAA------
TATGGGTGATCTTCTCCAGCTGTGGAGCATTATTTTCTTTCTCAGGAATATCATGACTCTTT-AAAGGAGAGTAAGTTGC
ATAAGTTTACATGTTGGTTC
>Felis catus
GATTCTATAATTCCTGTTTTGAATATGTCAATATTTTACTGAGAAAATTGAAAAAAA----CCCAGT---TTTATTCTT-
--ATATTATTATTGTATATTAATACCAA-------------------------------------------------------
-----------------------------------------------------------------CATAGAA------
TATGGGTTATTTTCTCTAGTTGTGGAGCATTATTTTCT----TAGGAATGTCAGGATCCTTT-TAAGGA---GGAGTTGC
ATAAGCTTACATGTTGGTTC
>Manis pentadactyla
GACCCTATAATTATTATTTTTAATATGTAAATGTTTTGCTGAACCAACTGGAAAAAAA---CCCAGTAGTTTTATTCTG-
--ACATTGTGATGGTATATCAATACCAA-------------------------------------------------------
-----------------------------------------------------------------GGTGGAG------
TATAGGTGATCATCTCTAGTTGTGGCACATCACTTCCTATCCCAGGA-TAT---GACTCTTT-AATGGAAGAAGAGATGC
ATGAGCTTAAATATTTGTTT
>Myotis lucifugus
GATTTCATCATTCTTATTTTGAATATATAAATATTTTACTCCGCAAACTGGAAAAAGAA-TTCCAGCAGCTTTGTTCAT-
--GCGTGTGGTTGC-ATATTAATTCCGA-------------------------------------------------------
-----------------------------------------------------------------GGTGAAG------
TGTGGGTGATCATCTTCAGCTATGGAGCATTGCTTCCTATCTCAGGA-TATTAGGACTCATC-ACAGGAGGAAGAGATGC
ATGCACTTAAATGTTGGTTC
>Pteropus vampyrus
GATTTTGTAATTCTTATTTTG-ATATCGAAATGTTTCACTCAGAAAACTGGAATAAAA-----CTATAGTTTTATTCTT-
--TCATGATGATTATATATTAATGCCAA-------------------------------------------------------
-----------------------------------------------------------------GGTGAAA------
TATGGGTGGTCATCTCTAGCTGTAGAATATCACTTCCTATTCCAGTA-TATTAAGACCCTTT-AAAATGAGAAGAAATGC
ATGAGCTTAAATGTTAGTCA
>Equus caballus
GATCCTATAATTCTTATTTTGAATTTGTAAATATTTTACTCAGCAAACTGGAAAAAAAAACCCCAGTAGTTTTATTCTT-
--ACATTATGCTTGTATATTAATAATAAACCTCAGAATTTATCTATACTGAGTAAAATGTATCCATCGCAAAGGGAGAGA
GGAAATGAATGATTCTGAACTTTTGGAGAAGTTCTGGGAATTCACTGAGGGTTGATCTAAATGGTGTGATGGAA------
CATGGGTGATCATCTCCAGCTGTGGAACATCACTTCCTATCCTGGGA-TATCGGGACCCTTT-AAAGGGAGAAAAAATGC
ATCAGCTTAAAAGTTAACTC
>Ceratotherium simum simum
AATCCTGTAATTCTTATTTTGAATATGTAAATATTTTACTCAGCAAACTGGAAAAAAAAAA-CCAGGGGTTTTATTCTT-
--ACATTATGATTGTATATTAATACTAAACCTCAGAATTTATCTATACTGAGTAAAACATATCCATTGCAAAGGGAGAGA
GGAAATGAATGATTCTGAACTTTGTGAGAAGTTGTGGGAATTCACTGAGGCTTGAACTAAATGGCATGATGGCA------
TATGGATGATCACCTCCAGCTGTGCAACATCACTTCCTATCCCAGGA-TATCAGGATCCTTT-AAAGGAAGAAGAGATGC
ATGAGCTTAAATGTTGGTTC
>Bos taurus
GATCCTATAATTTTTATTTTGAATATGCAAATATTTTACTCA---AACTGGGAAAAAA-----CAGTAGTTTTATTCTT-
--ACATTATGATTGTATAATGATATTAAACCCCCAAATGTATCTATACTGAGTAAAATTTATGCATCACAATGACAGAGA
GGAAATGAATGATTTTGAACACTGTGAGAAGCTCTGAGGACTCAATGAGGGTTGAACTGAATGGCATAGTGGAA------
TATGGGTGATCATTTCCAGTTATGGAACATCCCTTGCAGTTCCAGGA-TACCAAGACTCTTT-AAAGGAAAAAGAAATGC
ATGAGCTCAAATGTTGGTTC
>Balaenoptera acutorostrata scammoni
GATCCTATAATTTTTATTTTGAATATATAAATGTTTTACTCA---CACTGGGAAAAAAA--CCCAGTAGTTTTATTCTT-
--ACACTGTGATTGTATAATAATACTAAACCCCCAAATATATCTATACTGAGTAAAACTTATCCAGTGCAATGGGAGAGA
GGAAATGAATGATTTCAAACTTTGTGAGAAGCTCTGAGAACTCAGTGAGGGTTGAACTGAATGGCTTAGTGGAA------
TATGGGTGATCATCTACAGCTTTGGAACATCCCTTCCAGTTCCAGGA-TATCAGGACCCTTT-AAAGGATAAAGAAATGC
ATGAGCTCAAATATTGGTTC
>Sorex araneus
AGTCTTATAATTCTTGTTTTGAGTAT-------ATGTTCT------ACTAAATAA-------ACTATAGTTTTATTCTT-
--ACTTTATTACTGTGT-TTGATAGTAATCTCCCCAGTT------------------TTTTTCTGTGAGTAAAGGAAAGA
GGGAATAAATA-TTCTATATCTTTTGAGAAGTTCTGAGAATTCACCGAGGGTTAAACTACATTGAATG-TG-AAGAAGGC
TATGTGAGATTATCTCCAGCTGTGAAATATCACTTCCAGTCCCCAAA-TATCAGGGTCCTTA-AAAGGAAGAAGACATGC
ATATGCTTAATTATTGGTTA
>Homo sapiens
GATCCTGTAATTCTTATTTTGAATATGTAAATGTACTCTTCAGAAAACTGGAAAAAAA--TCCCAGTAGTTTTATTCTT-
--ACATGGTGATTATATATTAATACTAAAACTCCAAATTTATCTATACTAAGTAAAACTTATCCATTGCAC--------A
GGAAATGAATGATTTCGTACTTTTTGAGAAGTTCTGAGAACTCAGCAAGCGTTGAACTAAATGGTATGATGGAA------
TATGGATGATTATCTCCAGCTGTGAAATATCTGTTCCAATCCCAGGG-TATCAGGACCCTTTAAAAAGAAGAAGAGATGC
ATGAGCTTAACTGTTGGTTC
>Dasypus novemcinctus
GATCCTGTAATTCTTATTTT-AATATGTAAATTTATTATTTCATGGACTGGGGGAAAAAA--AGAGTAGTTTTATTCTTC
TTACATTGTGTTTGCATATCAATACTAAACCCCCAAATTTATCTATATGGAGTCAAACTTGTCCATTGCAAAGGGGCAAA
GGAAACCAATGA-CCCTTACTTTGTGGAAAGGCTTAAGAACCCAACAAAGGTTGAACTAAATGTCTTGATGGAA------
TATGGATGATCATCCCTAGCTCTGGAACATCACTTCCAATCTTACAA-TCTCAGGACTTTTTAAAAGGAAAAGAAGCTGC
ATGAGCTTAAATGTTGGTTT
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2.3 Marker H_Dc021

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>Canis lupus familiaris
TCGTCACTCAGG-----TTTGTCTAATTAGGA------TCCTACTT-GGACC--TTAA---CTCACTTACTTATCCCACA
GA-TTTATTTACT--------GAGCACTTTCTATGGGC------------TAAGCACTGTTC------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
----------ACTGAGTTCT---CTGAGTATTATTCATATTTATCTCTGGTATCCCCACTGTAGGAAAT-CACTACCATT
TA-TCAGATGTCCCTG--TTTACCTTGCTGGACATGAAC
>Felis catus
TCATCACTCAGG------CTATCTCATTAGGA------TCCTACGTTAGCCC--TTAA---CTCATTTACTTATTCAACA
GATTTATTC-ACT--------GAGCACCTTCTATGTGC------------TAAGTACTGTTC------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
----------ACTGAGTTCC---CTGAGTATTATTCATGCTTATCTCTGGTATCACCATTATAGGAAGT-CACTATCATT
TA-TCAGATATCCCTA--TTTACCTTGTTGGACTTGAAC
>Manis pentadactyla
TCATCCCTGACA-----TTATTTCCTCTAGGA------TTCTACTC-TGACC--TTAA---TTCATTTACATATTCAACA
GACTTTATTCTGT--------GAGCACCTTCTACAGGC------------TAAGTAGTGTTC------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
----------ACTGAGTTCC---CTACCTATTATTCATGCTCACCTCTGGTATCACCATTGCAGGATGT-CACTACCCGT
TA-TCGGATGTCCCCA--TTTACCTTGGCAGACTAAAAC
>Myotis lucifugus
TAACCCCTGAGG------TTGTTTCATTAGGA------GTCTACTT-GGACC--TTAA---CTCATTTACTTATTCAACA
GGCTTTCGTTATT-------TCAGCACCTTCTATGGAC------------TGTAAC---TTC------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-------------------C---GTACCTATTTTTCAAGCTCATCTCTGGCATCCCCACTATAGGATGT-CACTACCAGC
TA-CTGGATGTT-CCA--TTTACCTTCCTGGGCATGAAC
>Pteropus vampyrus
TCATTACTGTAG------TTGTTTCATTAGGA------TCCTACTT-GGACT--TTAA---CTCATTTACTGATTCAACA
GTCTTTAGTTATT--------CAGCACCTTTTGTAGAC------------TAAGCACTATTC------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
----------ACTAAGTTTT---CTGCCTATTATTCATGCTCA-CTCTGGTATCCCTGTTGTAGAAAGT-CACTACCAGT
TA-TTGGATATACTTC--TTTACCTTGC------TGGAC
>Equus caballus
TCATCACTGAGG------TTGTTTTGTTAGGA------TCCAACTT-GGACC--TTAA---CTCGTTCAGTTATTCAACA
GACTTTATTCATT--------GCACACCTTCTGTGGGC------------CAAATACTGTTCACAATCCATTAGGAAGAC
AGACAAGGAATCACAATGCATTAAAAAAAGAGAGAGAGAAGTATAACATTATAACATCAGAGGCAAACCAGAGTAATAGG
AAATATGGACTGAATCCTCTAA----------------GAAAGGTTTTCACTTATATACCAGTTATC-------------
TACCCTGTT-ACTGAGCTCC---CTGCCTAGTATTCATGCCCATCTCTGGCATCCCCATTGTAGGAAGT-CACT-CCAGT
TA-TAGCATGTCCCCA--TTTACCTTGCTGGACTTGGAC
>Ceratotherium simum simum
TCATCAGCAAGG------TTGTTTTGTTAGGA------TCCAACTT-GGACC--TTAA---CTCATTCACTTATTCAATA
GACTTTATTCACT--------GAGCACCTTCTATGGGC------------CAAGCATTGTGCACAATCCAGCAGGAAGAC
AGACAAGGAATCACAATGAGTTAAAAAAAAAA---------TAGAGAAGTATAACATCAGAGGCCACACAGAGTAATATA
AAACATAGAGTGAATCCTCTTTCTGTGAAACATAGAGTGAAAGCCTCTCACTTATGTACCAGTTATA-------------
TACCCTGCT-ACTGAGTTCC---CTACCTAGTATTCATGCTCATCTCTGGCATCCCCATTGTAGGAAGT-CACTATCAGT
TA-TCAGATGTCCCCA--TTTACCTTGCTGGACCTGAAC
>Bos taurus
TCATTACTGAGG------CTGTTGGGTTAGGT------TCCTACTT-GAACT--TTAC---CTTACTCCCTTATTCAACA
GACTTTATTCTTT--------GAGTACCCTGTGTGGGC------------TAAGTGTTTTTCACCATCTAGTAGGAAGAC
AGGCAAGGGATATAG-TAAGTTTAAAAAA-----------CTAGAGAAGTATAACATCAGAGACAA----------TAAG
TAATATAAAGAGAATCCTCTAA--------------------------------TATACCAGTTTTC-------------
----TTGTT-ACCGAGTTCC---TTACTTATTATCCATACTCATCTCTGGTATCTCCACTGTAGGAAGT-CACTACCAGT
AACTGGCTAGT-CCCATTTTTAGTTTGCTGCACTTGAAC
>Balaenoptera acutorostrata scammoni
TCATTACTGAGG------TTGTTTTGTTAGGT------TCCTACTT-GAACC--TTAA---CTTATTCACTTATTCAACA
GACTTTATTCACT--------GAGCCCCTTCTGTGGGC------------TAAGCACTACTCACAATCTAGTAGGAAGAC
AGGCAAGGAATAACAATGAGTTAAAAAA-----------AATAGAGAAGTATAACATCAGAGGCAACACAGAGTAAT--A
TAA-ATAGAGTGAATCCTCTAA--------------------------------TATACCAGTCATC-------------
----CTGTT-ACTGAGTTCT---CTACCTATTATCTATGCTCATCTCCGGTATCCCCACTGTAGGAAGT-CACTACCAGT
TACTGG-ATGTTCCCA--TTTACCTTGCTGCACTTGAAC
>Condylura cristata
TAATCACTAAGGTTAAGGTTATTTTCTTAGACCATTTTTCTTAGA--CATATTGACAATTTGCTGTTTACTTATTCAATG
GACTTTATACATTGATATGTAGA-TACCATGTAATAGAATATCTATATAATAAGTAATATTTATAGTGTAGGAGAAAGAC
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TTCTCCTTT-CCTGAGTTCCC-GCTGCCTATTATTCATGTTCATCATTGCTATCCTCATTGCAGGAAGT-CACCTCTAGT
TA-CTGAAAGTCCCCA--TTTACAGTG---TATTTGAAC
>Homo sapiens
TCATCACTGAGG------TTGTTTTGTTAGGA------TTCTACTTTGACCTTGCTAA---CTCATTCATTTATTCAATA
GACTTTATTTATT--------CAGCACCTTCTATGGGC------------TAAGTACTGATCACAATCTACTAAGAAGAC
----AAGGAATAGTAATGA-TTAAAAAAA------------TAGACGGGCATAATATCATAGGCAACACTAGGAAATTTA
AAACACACAGTGAATCCTCTAA--------------------GTTTCTCCCTAATATATCAGTTCCCATATATATGAATA
TCCCCTAATATATGAGTTTCCTTCCTATTATTGTTCATGCTCATTTCTGGTACCCCCATTGCAGAAATTGCACTACCAAT
TT-TTGCATGTCCCCA--TGTACCTTGCTGGACCTGAAC
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>Trichechus manatus latirostris
TCATCACTGAAG------CTGTTTGGTTAGGA------TCCTACTTTGACCTTGCTAA---CTCATTCACTTATTCAGCA
GACTTTATT------------GAGTACTTTCTATGGTC------------TAAGCACTGCTCATCATCTATTAGGAAGAC
AGACAAGGAATCACAA-AAGTTAAAAAAT-----ATATAGAGAGAGAAGTATTAAGTCAGAAGCAACACAGAGTAATATA
TAACCCACAGTTAATCCTCTAA----------------GTAAACTTCTTT-TTACATACTAGT-----------------
TTCGCTGTT-ACTGAGTTC-------CCTATTATTCATGCTCACCTCTGGTATCTCCATTGCAAGATGT-CCCTATCACT
TA-CTGGCCACACCCA--TTTACCTTGCTGGTCTAGACC
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2.4 Marker H_Dc023

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>Canis lupus familiaris
AGCCTCAGAAGTTTGCAGTAGCTCATCCTAAGGTCCTGCTGCTGCTTGGTGCAGAGCTTGGGCTTGAT--CCCCGGTCTG
TGT-GGCTCTAGAGCCT-----------GGTGACTCCCATGGGA-----------------------------------
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-GGAGAGTTGTCA---------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------GG
TTCAA-AAG-CTGTCA-GGGGAGCTCAAGTCTGC--TAACACTGG---------TGGCCTGGCCCTGGGCGGACCCCTTT
CTCA-TGGCATCCCACAA-GCCC
>Felis catus
AGGCTCAGAGGGTTTGAGCGGCTCACCCCAAGGGCCTGCTGCTGCT------------------TGAT--CCCCGGTCTG
TGT-GGCTCTGGAGCCT---GGGGACTAGGTGACTCCCATGGAAGG----------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
---AGAGTTGTCG----------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------CG
TTCAA-AAG-CTGTCAGGGAGAGCTCAAGTCTGCTACCGCACTGG---------TGGCC-GTCCCCGCCCCCATCCCTTT
CTCA-GGGCATCCCACAA-GCCC
>Manis pentadactyla
AGGTTCAGCTGGCTAGAGCAGCTCACCCCAAGGCCCTCCTGCTGCTTGGTGTGGAGCTGGA-CTTAAT--CCCCGGTA--
--T-GGCTTTAGAGCCG---GGGAACTAGATGACTCCTATGGGAGG----------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-GCAGAGTTATCA---------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------TA
TTCAA-AGG-CCATCATGGGGGGCTAAAGGCTGCTGCCACAAT-GTGGTGCTGTTGGCCCTTCCCTGCCCTGGCTTCTCC
CTCA-TGGCGTCCCACAA-GCCC
>Myotis lucifugus
GGGCTCAGAGGGTTTGGGTAGCTCACCCCGAGGGCCTGCTGCTGCTCGGGGCAGAGCTGGG-CTGGCT--CCC-GGTCTA
TGT-GACTCTAAAGCCT---GGGGACTAGGTGACTCCCA-GGAAGA----------------------------------
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--------------------------------------------------------------------------------
-GCAGTGTTGTCA----------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------ACTGCG
TTCCGGAAG-CCA---CCGGGAGCTCAGAGCTGCTGCCACACTGGCCGAGCCG-TGGCCCATCCCTGCCCCGACCCCTCC
CTCAATGGCAAACCACAA-GCCC
>Pteropus vampyrus
AGACTCACA-----------------------------------------------AGCTGGG-CTCGATCCCTCGTGTGCG
TGT-GGCTCTAAAGCCT---AAGGATGAGGTGACTCCCATAGGAGG----------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-GCTGAGTCACCA----------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------CG
TTCAAAAAG-CCATCATGGGGAGCTTGAGGCTATTGCCACACTGGCTGGACTG-TGGCCCATCCCTGCCCTGCCCCCTCC
CTCA-TGGCATCCCATAA-GCCC
>Equus caballus
AGGCTCAGCGGGTTAGAGTAGCTCACCCAAGGTGCTGCTGTTTGCT----GCAGAGCTGGG-CTTGAT--CCCTGGTCTG
TGT-GGCTCTAGGGCCT---GAGGCCAAGGTGACTCCCCTGGGATGGGGGGTGTGGCAGCCAGCTG-TCTCCCCAGTTGC
CTGAGCCCTCAAGGCAGAT----------------------------------------------------------
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-GTTGTACCTGCTGGTCTCTGAACCCTGTAACCAGGAACATGAGCAAATGCTCTCAACAGGGCCAACAGCGGCCTTGGAG
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-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------CG
TTCGAGAAG-CCATCGTGGGAAGCTCAAGGCTGCTGCCACACTGGCCGTGCTGTTGGCCCGTCCCTGCTCTGACCC-TCC
CTCA-GGGCATCCCACAA-GCCC
>Ceratotherium simum simum
AGGTTCCG-AGGTTAGAGTAGCTCA-CCCAAGGTCCTGCTGCT-CT--GTGCAGAGCTGCG-CTGGAT--CCCTGGTCTG
AGTTGCCTCTAGAGCCT---GGGGACAAGGTGACTCCCATGGTATGGGGGGTGTGGCAGCCAGCTG-TCTCCCCAGTTGC
CCAAGCCCTCAAGGCAGAT-----------------------------------------------------------
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-ATTTTAGCTTCTGGTCTCTGAACCCTGTAACCAGGAACATGAGCAAATACTCTCAACAGGGCCTATAGTGGCCTTGGAG
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GGATCCAAACCCGGGCTGCCAGCAGCAGACCGCGTGCATGTAACCGCTATGCCACTGGGCTGGCCCCCAGAGTTGTCAGT
TTTAAGAAC-CCATTGTGGGAAGCTCAAGGCTCTTGCCACATTGGCTGTGCTGTTGGCCCATCCTTGCCCTGACCC-TCC
CTCA-GGGCATCCCACAA-GCCC
>Bos taurus
AGGTTCAGAGGGTTAGAGTAGCTCGCCGGAGGTCCTTTTGC-TGCTGAGTGGAGAGTCGGG-CTTGAT--CCCTG-----
--T-GGCTCTAGAGCCT---AGGGACAGGGTGACTCCCATGGGATAGAGGGTGTGGCAGTTAGTCA-CCTCTCCAGATGC
CCAAACCCTCAAGGCAGAT-----------------------------------------------------------
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-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-ATTTTACCTGCTGGTCCCTGAATCCTGGAACCAGGAACATGAGCAAATGCTCCCATCAGGGCCAACAGCAGCCTT-GAG
GGCAGAGTTGTCA-----------------------------------------------------------------
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-----------------------------------------------------------------------------
-----------------------------------------------------------------------------CC
TTCAAAAAG-CCACAA--GGGAGCCGAGGGCCGCCGTCTCACTGGCAGCATCGTTGGCCCG-CCTGGCCCTGACTC-TCC
GTCG-TAACGTCCCACAA-GCCC
>Balaenoptera acutorostrata scammoni
AGGTTCAGAGGCTTAGAGTAGCTCACCCAAGGTCCTGCTGC-TGCTCAGTGCAGAGCTGGG-CCTGAT--CCCTGGTCTG
TGT-GGCTCTAGAGCCTAGGGAGGACAAGGCGACTCCCGTGGGATGGAGGGTGTGGCAGCCAGTCA-TCTCACCAAATGC
CCAAGCCCTCAAGGCAGAT-----------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-ATTTTACCTACTGGTCCCTGAACCTTGTAACCAGAAACATGAGCAGATGCTCTCAACAGGGCCAACAGTGGCTTT-GAG
GGCAGAGTTGTCA-----------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------TG
TTCAAAAAA-CCATCATGGGGAGCCCAAGGCTGCTGTCAAACTGGCAATGCTGTTGGCCCATCCCTGCCCTGACTC-TCC
ATCC-TGGCATCCCACAA-GCCC
>Condylura cristata
AGGTGAGCAAGAAGAGAGTCACTCACCCCAAGGCCTGGCAGCTGCTCAGTGTGGAGCTGGG-CTGG----CCCTGGGTTT
GTGT--------GGCCT----GGGGAAGGGGGTGTC--CTGGGGTGGGGGGC-GGACAGCCAGCCA-TCTCCCCAGTTGT
CCAAGTCCTCAAGGCAGAG-----------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
--TTTTACCAGCCGGTTCCTGAGCCCTGCAGCCCGGAAGAGGGGCTAACGGTCCCCCCAGGGCCAGCAGCAACCC-GGAG
GGCGG---TCTCA-----------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
----------------------------------------------GGGCTGGAGTCTCCTGGGGGCCATGGCTGCTGG
GGC--TGC---TGCACA---CCC
>Homo sapiens
AGGCTCAGACAGTTAGAATAGCTCACCTCAAGGTCCTGCTGCTGCTCAGCATGGAGCTAGG-CTTGAT--CCCTGGTCTG
CAT-GGCTTTAGAGCCT---GGGGTCAAGGTGGCTGCCATGGGATGCAGGGCGTG-CAGTCAGCAGGGCCTCTCAATTGC
CCAAGACCTCA-GGCAGATTTTTTTTTTTTTTTTTTTGAGACAGTTTCCCTCTTGTCATCCAGGCTGGAGTGCAGTGGCA
CAATCACTGTAACCTCCACCTCCCGGGTTCAAGCGATTCTCCTGCCTCAGCCTCCTGAGTAGCTGGGATTACAGGAGTGC
ACCACCATGCCCAGCTAATTTCTGTATTTTTAGTAGAGATGGGGTTTTGCCATGTTGGCCAGGCTGGTCTCGAACTCCTG
ACCTCAAGTGATCTGCCCACTCTGGCCTCCCAAAGTGCTGGGATTACAGGCGTGAGCCACCGCGCCTGGCCTTAGGGAGA
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G-CAGAGTT--CA-----------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------TG
TTCCAAAGG-CCGTCATAGTT-GCCCAAGGCTGCCACCACAATGGTCATGCTG-TGGCCAGCCCCTGCCCTGGCCCCTCC
CCAA-TGGCATCCCACAG-GCCC
>Trichechus manatus latirostris
AGGCTCCGAGGGTTAGAACAACTCACCCCAACCTCCTGCCACTGCTCAGAGCAGAGCCAGG-ACTGAT--CCCTGGGCTG
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CTGTAGCTCTAAGGCCT----GGGACAGGGTGCCTATCATGAGATGTGAGGG-TGACAGCCAGCAGGTCACCCCAACGGC
CCAAGCCTTCAAGGCACAT-----------------------------------------------------------
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-GTTTAACCTGCTAGCC-CTGAACTCTACAATGAGAGACATGACCAAGTGCCCCCAACAGGGCCAATGGAAGTCTT-GAG
GGCAGAGCTGTCA-----------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------CA
TTGCAAAG--CTATCGAAGGTGAACCAAGGC----CGGTCACTGGCTGTGCTGTTGGCCGGTCCCTGCCCCTTG---TCC
CTCA-TGGCACCCCACAAAGCCC
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2.5 Marker H_Dc026

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>Canis lupus familiaris
AGTGAAGGGAGGGCCAACAGATCAGCCATCGGTCACTGCCACGGTCATTCAGAGCTGGGAGGGCAAAGCAGGG-------
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--------------------------------------------------------------------------------
-------------------------------------------------------CTGGAGCA-GGGGTAGGTTCCTGAA
GCATTCCAAGCCTCAGTTTACTCATCTACTAAAT-AGGGTTATTGGTGATGCCAATCTCATGAGATTGTTGTGAGCA
>Felis catus
AGTGAAGGGAGGGCCAGCAGATCAACCACCAGTCACTGCCATGGGCGTTCAGAGCCAGGAGGGCAAAGCTGGG-------
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--------------------------------------------------------------------------------
-------------------------------------------------------CTGGAGC--GGGGTAGGCTTCTGAA
ACATTCCAAGTCTCAGTTTACTCATCTCCTAAATGGGGGATACTGGCGATGCCAATCTCATGAGACTGTTGTGAGCA
>Manis pentadactyla
GTTGAGTGGAGGACCAGTGGACCAGCCACCAGCCACTGCCACGGGCATTCAAATCC------------------------
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--------------------------------------------------------------------------------
--------------------------TGTTAGAA-AGGGATTTTG---ATGCCAA--TCTCGAGGCTGTGGTGAGAC
>Myotis lucifugus
ATCGAATGGAGGGCCAACAGGTCAACCACTAGTCACTGCCATGAGTGTTTGGAGCTGGTAGAGTACAGCAGGG-------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
-------------------------------------------------------CAGGAGCAGGGGGCAGGCTCCTGAA
ACATTCCCAGCCTCAGTTTATCCATCTATTAAAT-GGGGATATTGGCGATGCCAATCTCATGGGGGTGTTGTGAGGA
>Pteropus vampyrus
GCGGGGGGAGGGGGCAATGGATCAACCATAATTCACTGCCATGGGTGGTCAGAGCC---AGGGTACAGGAGGG-------
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2.6 Marker H_Dc028

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2.7 Marker H_Dc035

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2.8 Marker H_Dc036

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-TT---CTGCAGGAGGGTTCTGGAGGCTGGGCCAGGCGG-------------------------------------
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-------------------------------------------------GA------GAGGGAGGTAAAGG-CGGTGCTGG
GGTT----------------------GATTTTGG-CCCCAAAGAGAGG
>Pteropus vampyrus
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ATC---CTGTGGGAGGGTTGTGGAGGTTGGGCCAGGCAGAAGC---------------------------------
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>Rhinolophus ferrumequinum
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GCCCAAA-TCGAGACAAGAGGGGG--CATTCTTGGCCCCAAAGAGATG
>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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>Erinaceus europaeus
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>Homo sapiens
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>Trichechus manatus latirostris
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2.9 Marker H_Dc037

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>Canis lupus familiaris
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T---AT-----GACTCAACTTTTCCTATTATA------AAATCTTAGT
>Felis catus
CACACATTTATAAAACCTTTGTGTCTTTCACATCTTCCTGGCTGGTGCAGTTTTTTTTAC--------TGCTTCTGTTTG
GTTCAAA-------------------------------------------------------------------------
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>Manis pentadactyla
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CCTCAAA--------------------------------------------------------------------------
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--------------ATA--TTTGGTCAAAAGTGTTAATTTGAAAATGTCTACACTTTTGTACATGAAAA-CACAATTTAA
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>Myotis lucifugus
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CCTCAAA--------------------------------------------------------------------------
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--------------ATA--TTTGTTCAAAATAGTTACTTTTAAAATTTACAAACTTTGGTACATGAAAA-CACAATGTAA
C--AATTC---GGCTCAACTTTTCATA---TA------AAATCTTAGC
>Pteropus vampyrus
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CCTCAAA--------------------------------------------------------------------------
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C--AATTTAACAACTCAACTTTTCATATTATA------AAATCTTAGT
>Equus caballus
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>Ceratotherium simum simum
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>Balaenoptera acutorostrata scammoni
CACACATTTATAAAATC-TTGTGTCTTTCACATCTTCTTGGCTGATGCAGTTTTCTTTTC--------TGCTT-TGTTTA
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>Erinaceus europaeus
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>Homo sapiens
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>Trichechus manatus latirostris
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2.10 Marker H_Dc039

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>Canis lupus familiaris
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>Felis catus
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--------------------CACACTTGCTG---TTATTCAATGGCACAAACTGCTCTGCAGTGAATGAAAGACACCTGC
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>Manis pentadactyla
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--------------------CACACTTGCTGCTGTCATTTGATAGCACAAACTGCTTTGCAGTGAATAAAAGACACCTGC
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>Myotis lucifugus
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--------------------CATACTTGCT---ATTATTTGATAGTACAAACTACTTCACAATGAATAAAAGACACCTGC
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>Pteropus vampyrus
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Erinaceus europaeus
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AAT-------GTTGCAGATGTAGTTAGTATGATGCAGGCAAGACACCAGGAAGA
>Trichechus manatus latirostris
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GGGGCAATTCTACTCTGTCCTCTAGGGTTGCTATGAGTCAGAATGGACTCCACAGCAGTGGGTTTGGTTTTTTGGGAATG
TGTCTAGCATTTCCTGCTGTTAAGGGATGGA-CATAGGA---------------TTTGACTCCAGAGTCTGTGCACTTGA
TCTCTTCACTGTACA-GCCACTTAATTATATGGGTAATGAGAGTACAATA-----------TTTAATTTTTTTATCAGAT
CTGGAGTACAGAAATCTATTTCCAAGCCTTATTTGCTATCATAATCTGATGCTGTTG-------------TTTTAAACTA
GCATTTTAGAAGACTTTAAAAAAGAATATCAACATCTAGATCATTTCAGATTTCTTTGCAATTATTTTGTACCCTGTCTC
T-GATTTTCAG-TCCTGGTGCACATTTACTGTTGTTATTTGATAGCACAAAGTGC-TTGCAATGAATAAAAGACACCTGC
AGT-------GTTGCAGATGCAGT----ATGATGAGACCAAGACACCAGGAAAA
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2.11 Marker H_Dc046

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>Canis lupus familiaris
AATCATGTGTAAAAT-GTACTTGGAC---------------AGATTT-TTTGAATAGGCCA--------GTGGAGGTATT
ATT-AGGGAGAGGAATGGAAAGTTCAGAAGGGCTGGATGGTAAGAGACA------------------------------
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-------------------------GAAACATTATAA---AACATTTGCATTGCACTACTCCAGGAGAGTGGTTCAGAT
ATTAATTAGCATTTTAGTGGGGAA-GTAGAGAGTCTTTT
>Felis catus
AATCA--TGGAAAAT-ATCCCTGGAC---------------AGATTC-TTTGAGTGGGCCA--------GTGGAGGAGTT
ATT-AGGGAGAGGAGTGGGGG-TTCAGGAGGACAGGAATGTAAGAGAGG------------------------------
--------------------------------------------------------------------------------
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-------------------------GAAACATAATAAAACAACATTTGTATTACACTAGTCCAGAAGAGTGGTTCAGAT
AT----CAGTGTTTTAGTGGGGAA-GTAGTGAGTCTTTC
>Manis pentadactyla
AATCATGTAGAAAAT-GTACTTGAATAGATGAA------CTAGATTT-GGTGT-TGGGCCA--------GAGAAGTGGTT
TTT-AAGGAGGGGAATGGGGAATTGAGGATGGCAGGATGGTAAGAGAGA------------------------------
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-------------------------GGGACATTATGAAAAGGCATTTTCATTACACTAGTTCACAACAGTGGTGCAGGT
TATTATTTGTGTTTTGGTGGGGAG-GTAGTGAGTCTTTT
>Myotis lucifugus
AATTACATAGAAAGT-GTACCTAAATAGGTAACTGATTTCTAGATTT-GTTGATTGGGCCA--------GAGGAGGGGTA
ATT-ATGGAAGAGAGTGAGGAGGTGAAGAGGGCTGGATGGTAAGAGAGA------------------------------
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-------------------------GGAGCATTATAAAACAGCATTTGCATGACACTAGCTCAGACTAGTGGTACAGGG
ATTAATTAGTGTTTTAGTGGGAAA-GTAGTGAGTCTTAT
>Pteropus vampyrus
AATCATATAGAAAAA-GTTCCTGAGGAGGTAAGTTATTTCTACATTT-GTTCATTGGGCCA--------GGGGAGGGG--
-------------AGTGATGAGTTAAAGAGAGCAGGATGGTAAGAGA-A------------------------------
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-------------------------GGAATATTATGAAACAGCAATTGCATGACACTAGTTCAGAACAGTGGTACAGGA
ATTAATTAGTGTTTTAGTGGGAAA-GTAGTGAGTCTTTT
>Equus caballus
CATCATGTAGAGGGTTGTACCTGAATAGATAACTGATTTCTAGATTT-GTGGATTGGGCCA--------GGGGATGGGTA
ACT-AGGGAGGGGAGTGGAGAGTTGAGGAGGGCAGGATGGTAAGAGACA----GGGAATTAAACAGGATCCCTGCTG---
----TTTGATGGCCACGTCCAACTGTGGGCTGGGCTGAATATATGGCATGCTCATGTAGTGAAATAAGAATGACGGAATT
ATTA----------------------------------------------------------------------------
--------------GCACACATTGAAAGGATGTGATAAAATAGCATTCACACTACATTAGTTCAGAATAGTGATACAGGT
ATTAATTAGTGTTTTAGTGGAGAA-GTAGTGAGCCTTTT
>Ceratotherium simum simum
TATCGTGTAGAGAAT-GTACCTGAATAGATAACTGATTTCTAGATTT-TTTGATTAGGCCA--------GGGGAGGGGTT
ACT-AGGGAGGAGAGTGGGGAGTTGAAGAGGGCAGGATGGTAAGAGAAA----CAGAGTTAAATA-GATCCCTGGTG---
----TTCAATGGCCACATCCAACTGTGGGCCAGGCTGATTATATGACACTCTCATGTAGTGAAATAAGAATGATGGAATT
ACTA----------------------------------------------------------------------------
--------------ACACACATTGAAAGGATATTATAAAATAGCACTTGCATTACATTAGTTCAGAATTGTGATACAGGT
ATTAATTAGTGTTTTAGTGGAGAA-GTAGTGAGCCTTTT
>Bos taurus
CA---TGTAGAAAAT-ATACCTAAGCAGTTAACTCATTTTCAGATTT-GTTGATTGGGCCA--------GAGAAGGG-TT
ATTGGCATGGAGAAATCGGGGATTGAGGAGGGCAGGATGGTAAGAGAAA---ACAGAGTTAAATAGGATGTCA-CTG---
----TTCAATGATTACCTCCAACTGTGGGCCAGGCTGGAAAAAAGACACTCTCATATAAGGGAATCAGAATGATGTAATT
ATTA----------------------------------------------------------------------------
--------------GCACACAGTGGAAGAATACTATAAAACAG-TTTTGCACTACACTAGGTCAGAAAAGTGGTACAGAT
ATTAATTAGTGTTTTAGTGGAGAA-ATAGTGAGTCCTTT
>Balaenoptera acutorostrata scammoni
CA---TGTAGAAAAT-GTACCTGAATAGTTAACTAATTTCTAGATTT-GTTGACTGGGCCA--------GGGGAGGCATT
ACT-TGGGTGGGGAGTGGGGAATTGAGGAGGGCAGGATGGTAGGAAAGA---ATAGAGTTAAATGAGATATCTGCTG---
----TTCAATGGTCACCTCCAACTGTGGGCCAGGCTGAAAATATGACACTCTCATGTAGGGGAATCAGAATGATGGAATT
ATTA----------------------------------------------------------------------------
--------------ACACACATTGGAAGACTACTATAAAACAGCTTTTACATTACACTAGTTCAGAATAGTGGTACAGAT
ATTAATTAGTGTTTTCGTGGGGAA-ATAGTGAGTCCTTT
>Condylura cristata
CATCAT-TCCAAAAA-TTTCCTGGATAGGTAACCTGTTTATATACCT-GTTGATTGGGCCA--------AGACAGAGTTT
ACT-AAGGAGTAAAATGAGTTAT---GGAAAGTAAGATGATAAACGGGAGGAACAGAATTAAATAGGATCCCTGTTC---
-------AATGATGACATCCAAACATGTGCCATGCTGATAATAGGTCATTCTCAACATGGGACT--------------TA
ATTA----------------------------------------------------------------------------
-------------TACACAG-TT-AAAGAAAATTACAAAACAGGATTTATATTACACTAACTTAGAATAGTGGTATAGGT
GTTAATTGGTACTTGGG-GGAGGC-AAAGGAAGCAGTAA
>Homo sapiens
CATTATGTACAAAAA-GTACCT----------CTGATTTTTAGACTG-GTTGATTGAGATA--------GGGGAAGGGTA
-CT-AGGGAGGGGAGTAGAGAGTTGAGGG------------------------CAGAGTGAAACAGAATCCTT-CTG---
----TTTAATGGTGTCATCTGACTGTGGGCCAGGCTGCTAATACAGCACTCTCAAGTAGAGGAATAAGGATGACGGAATT
ATTA----------------------------------------------------------------------------A
GGATGATGGAATTAACACATATTGAAAGGATATTATAAGACAGAATTTACATTACACCTGTTCAGAATTATGGTACAGGT
A--------------ATAAGGGGC-AAAACAGTTCTTTG
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>Orycteropus afer afer
CATCATGTAGACAAA-GTACTTGAATAGATA--TAATTTCTAGGCTTTATTGATTGAGAAGGAATAATTGGGGAGGAGAG
TATCAGGGAGATTAGTGGGAAATAGAAGAGGGCAGAATGGTAAAAGAGA----------------GGATCCCTGCTGTGT
AAGATTTAATGGCTACATCTAACTGTGGATCTAGCTGATAATATCACACTCTCA-GTATAAGACTAAGAATGATGGAAGG
TTGGGCAATCTACTTCCATAGTGATATTGCTTTGGAAACCCAAAGGAGGGGTCGCTATGAGTCAGGACTGACTCAAGGGC
ACATAACAACAACAACAACAATAG-AAGGATATTATATGACAGCATTTTCATTACACTGGTTTACAATAGTAGTACAGGT
ATTAATCAGTGTTTTAAGCAGAAACATTGTGAGTCCTTT
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2.12 Marker H_Dc059

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>Canis lupus familiaris
AGAAATTTTAGAGCTACAGAGATAAA----GGCGTACAGAGAAAAGAATACA-ATCACTTCAAGTTGTCCATTTTCCTGA
TAATTGC-CCTAAT-TTTCTTT-------------------------------------------------------------
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---------------------------CCCTGTGCTTTCTTTCT--CAG-TTAA-GGCACCTCAAGTGTTCTCTTTATTC
ATAGCTAAAACCTTA----CAGTCATTTT-----------------------TAATCATGCTCT-AGTCCCGATGTCCCC
AC
>Felis catus
AAAAAATCTAGAGTTACAGAGATAAA----GATGTATAGGGAAA-TAACATA-AAAGTTTCAAGTTGCCCATTTTCCTGA
TAGTTGC-CCGAGT-TTTTT---------------------------------------------------------------
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----------------------------CCTGTGCTTTTTCTCT--CAC-TTAA-TACAACTCAAGTTTTCCCTTTATTC
AGAGCTAAAAGCTTA----CAGTCATTTT-----------------------TAATCATGCTCA-AGTCCCGATATTCCT
AT
>Manis pentadactyla
AGAAATTTTAGAGTTACATAGATAAAAGAAGAGGCATACAGAAA-GAACA---ATCATTTCAAGCAG-------TCCTAA
TAGCAGC---ACAA-TTATTTTTT-----------------------------------------------------------
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----------------------------TCTGCGCTTTCTTGTT--CAG-TTAA-TGAAACTCAAGTTTTCCCTTTATTT
GAAGCTAAAATCCCA----CAGTCCTATT-----------------------CAATCATGCTGG-AGTCCCGAAGTGCCC
TT
>Myotis lucifugus
AGAAAATTTAAAGTTACAGAGATAAATAGAGATGTATAGAGAAA-AAATATA-ATCATTTCAAGCTGTCCACTTTCTCAA
TAGGTGCGCCCTAC-TTTTTT--------------------------------------------------------------
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---------------------------TCCTGTC-TCTCTGTCT--CAT-TTAT-TGTAACTCAAGTTTTTCCTTTATTC
AGAGATAAAACCTTATATATAGTCATTCT-----------------------TAATCATGCTAG-AGTCCGAATGCTTCT
AA
>Pteropus vampyrus
AGAAATTTTAGAGTTATAGAGATAAA--CAGATGTAAAGAGAAA-GAATATA-ATCATTTCAAGTTGCCCGTTTTCCTAA
CAGCTGC-CCTCAC-TTTTTTT-------------------------------------------------------------
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----------------------------CCTGCGCTTTCTCTCTC-CA--TTAA-TATAACTCAAGTTTTCCGTTTATTC
AGAGCTAAAACCTTA----CAGTCATTTT-----------------------TAATCGTGCGTG-AGTCCAGATGTTCCC
AT
>Equus caballus
AGAAATTTTAGAATTACAGAGATAAAGGGAGACGTATACAGAAA-GAATATA-ATTATTTCAAGTTGTCCACTTTCCTGA
TAGTTGC-CCT-ACATTTTTACAACAGTCAGAACAACTTAAAATATTCTTTTAAA-------------------------
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--------------------------ATCAGTGTTCAAC---------------------------------------
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------------------------AAATAATCTGGCGGTTTCAGAACAGGATTTAGTTCACTGGGCCCCATTTGTGGGT-
------TGTACAAATGAATCCAAGCACAGCCACATCTGGGGAACACAGGGAGAGGCTGGTGTTTAGGATCTGAAAGAGAA
CCAGCAAAAATCAGT-------GCCTTTCCTGCATTCTCTCTCT--CAGTTTAA-TGCAGCTCAAGTTTTCCCTTTACTC
AGAGCTAAAACTTTA----CAGCCACTTT-----------------------TAATCATGCTTG-AGTCTGAATGTTCCT
AT
>Ceratotherium simum simum
AGGAATTTTAGAGTTACAGAGATAAAGGAGGATGTATACAGAAA-GAATATA-ATTATTTCAAGTTGTCCATTTTTCTGA
TAGTCGC-CCTAAT-TTTTTACAATAGTCAGAACAACTTAAAATACTCTTTTAGA-------------------------
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-------------------------ATCAGTGTTCAACAGGGGGCTGGCCCAACAGCGTAGTGGTTAAGGTTAAGTTCA
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TGTGTTCGGCTTCAGCAGCCCTGGGGTTCGCCAGTTCGGATCCCAGGCTCAGACCTGTGCACCGCTCATCAAGCCATGCT
GTGGCAAGTGTCCCACATAAAATAGAGGAACATGGGCACGGATGTTAGCTCAGGGCCAGTCTTCCTCACACACACACACA
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------TGTACAAACGAATCAAAGCACAGTCACATCTAGGGGACACAGGGAGAGGCTGGCCTTTGGGATCTGAGAGAGAA
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AGAGCTAAAACCTTA----CAGTCATTTT-----------------------TAATCATGCTCG-AGTCTTGATGTTCCT
AT
>Bos taurus
AGAAATTTTA--GTTACAGAAATAGATGGAAATGTATAAAGAAT-TGTTCCTTATTATTTCAAGTTCTCCATTTACCTAA
TAGTTGC-CCTGAC-TTTTT----CAGTCAGAA---CTTAAAATATTCTTTTAAC-------------------------
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--------------------------ATCAGTGTTCAAC-------------------------------------------
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----------------------AAAAAAAAATTAGTGGTTTCAGGAGAG----TAGTTTAGTGGGGGCTGTTTGTAGGT-
------TGCATGAATGAATAAAAGTGTGGCCACATCTGGG-AACACAGGGAGAGGCTGGAGTTTAGGGTGTGAGAGAGAA
TCAATGAGTGTTTAT-------GCCCTTCGTGTC-T-TCTCTCT--CAG-TTAAGTGCAACTCACATTTTCATTTTATTC
AGAGCTAAAACCTTA----CAGTCATTTT-----------------------AAATCCTGCTTC-AGTCCCTGGGTTTCT
AT
>Balaenoptera acutorostrata scammoni
AGAAATTTTAGAGTTACAGAGATAAACGGAAATGTATAAAGAAT-TATTCCTTATCATTTCAAGTTGTCCATTTTCCTAA
CAGTTGC-CCTGAC-TTTTTACTATAGCCAGAA---CTTAAATTATTATTTTAAA-------------------------
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--------------------------GTCAGTGTTCAAC-------------------------------------------
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------------------------AAAAAAACTAGTGGTTTCAGAAAAGTATTTAGTTCAGTGGGCCCTGTTTGTGGGT-
------TGTACGAATGAATAAAAGCACGGCCACATCTGGGAAACACAGGGAGAGGCTGGAGTTTAGGGTTTGAGAGAGAA
TCAGGGAGAGTCTGT-------GCCCTTCCTGTGCACTCTCTCT--CAG-TTAG-TGCAACTCACATTTTCACTTTAGTC
AAAGCTAAAGCCTTA----CAGTCATTTT-----------------------AAATCATGCTTC-AGTCCCCGCGTTCCT
AT
>Condylura cristata
AAAAAATCGAGAGTTAGAAAGATAAA--CAGATGTATAAAGAAA-GATTA---GTTATTTCAAGTTGTCCATTTTCCTAA
TAACTGC-CCTAAA--ATTTATAATAGTCATAGCAATTTAAACTATTCTTTGTAA-------------------------
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--------------------------ATCTGTTTTCAAG-------------------------------------------
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------------------------GAAAGAACCAGTGGTTTCAGAGGAGTCTTCAGTTCACTGGGTCAC-TGGGTGATCT
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TCAGTGAG-TCAGC---------ACCTTCTTACTTGTGTGTTTTCTCAG-TTAA-CACAACTCAAGTTTCCCCTTTATTT
AGAGCT-AAACCTTG----CAGTCCTCTT-----------------------TAATCCTACTTG-AGCCCCAAACTTCCT
AT
>Homo sapiens
AGAAATCTTAGTATTACAGAGATCAATGGAGATGTACAAATAAT-GAATATA-ACCATTTCAAGTTGTCC-TTCTCCTGT
TAGTTGC-CCTAAT-TTCTTATGACAGTAAGAATAACTTAAAATATTCTTTTAAATCCCAGCTACTTGGGAGGCTGAGGC
AGGAGAATCGCTTGAACCCGGGAGACAGAGGTTGCAGTGAGCTGATCACACCACTGCACTCCAGCCTAGGCAACAGAGTG
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CCACTAAAAGTCGGT-------GCCTTTCATGTGTGCTCTCTCC--CAG-TTAA-TGCAACTAGAGGCTTCCCTC-----
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--
>Trichechus manatus latirostris
TGAAATTTTAGAGTTACAGAAATAAA----GATGTATACAGAAA-GAATATA-ACCATTTCAAGTGGTCTATTTTCCTGA
CAGTTGC-CGTAAT-TTTTTATGACAATCAGAATAACTTAAAATATCCTTTTAAA-------------------------
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--------------------------ATCAGTGTTCAGT-------------------------------------------
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------------------------AAATAAATTAGTGGTTTCAGAAAAGCATTTAAGTCACTAGGTTTTAGGTGTGGAC-
--------AACATG---AAAAAAGCATGGCCACTTCTGGGAAACAGAGGGAAGGGCTGGA-TTTAGGGTCTAAGAGGGAA
CCAGTGAGATCCGCC---------TATCTCCTGTGCACACTCTCTTACAG-TTAA-TGCAACTCAAATTTTCCCTTTATTC
AGAGCTTAAACCTTA----CAGTCATTTTTATAGTTTCTTTTATCCCAAGTCTAATCACACTCCAAGTCCTGATATTCTT
AT
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2.13 Marker H_Dc066

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>Canis lupus familiaris
CTTTCTTCTTCTGATGTGTTCCTTTTCTCTCTTGGACCTCCTCCACAGGTTTCT-AACGACAGCCCTAGAGTT----TTT
ACCCCTATGATCCTGCTTGCTT-CC-------------------------------------------------------
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-------------------------CCAAGTCCAGGCCTT-GCCC-AGCTGTCCTAAATA-TGGGAAAGGCCAACCACAA
CTTCCTT
>Felis catus
CTTTCTCCTTCCACTGTGTTCCTTTTCTCTCTTGGACCTCCTCCACAATCTGCT-AACAGCAGCCCTAGAGCT----CTT
ACCCCTACAACCCTGCCTACTT-CC-------------------------------------------------------
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-------------------------CCAAGTTCAGGCCTT-GCTC-AGCTGTCCCAAATG-TGTGAAAGGCCAACCACAA
CTTCCTT
>Manis pentadactyla
TGTTCCTGTTCCACTGTGTTCCTTTTCTCTCTTGGACCTCCTCCACAGACCGCTTACCTACAACCCTGGAGCT----GTT
ACCCC-ATGACGCTGCCTGCTT-CC-------------------------------------------------------
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-------------------------ACAGGTCCAGGCCTCTGTCC---------CAAATG-TGTGAAAGGCCAACCAT-A
CTTCCTT
>Myotis lucifugus
CTTTCCCTTTCCACTGTGTTTCTTGTCTCCCTGGGACCTCCTCCACAGACTACT-AACCA-AGCCCTA-AGCTGTTAGTT
ACCCTTATGACCCTGCCTGCTTTCC-------------------------------------------------------
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-------------------------CAAGCCCAGGCCTCTGCCCCA-CTGTCCCAAATG-TGTCAAAGAACAACCACAA
CTTCCTT
>Pteropus vampyrus
CTTTCCCCTTCTACCATGTTCCTTTTGTCTCTTGGACCTTCTCCACGAACTTCT-AACTA-AG-CCTT-AGCC----GTT
ACCCCTATGGCCCTGCCTGCCTCCC-------------------------------------------------------
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-------------------------CAAGTCCAGGCCTCTGCCCCAGCTATCCCAAATG-TGTGAAAGGCCACCCATCA
CTTCCTT
>Equus caballus
CTTTCCCCTTCCACTGTGTTCCTTTTCTCTCTTGGACCTCCTCCACAGA-TTCT-AACTACAGCCCTAAAGCT----GTT
ACCCCTATGACACTGCCTGCT--GCTATTGCCTCCACTGCTCCTGCACACGTTCTGTGTATCTGAATCA---AACTTGCC
TTCCTTCCAGTTCCCTTTCCCGCCCAGCACCCCGCC----------------------------GTAAACACACACACA
GTCTCTCTCTCCCCTT--------CCCAAGTCCAGGCCTTTGCCCCAGCTGTCCCAAATG-CATGAAAGGCCAACCATAA
CTTCCTT
>Ceratotherium simum simum
CTTTCCCTTTCCACTGTGTTCCTTTTCTCTCTGGGACCTCCTCCACAAA-TTCT-AACTATAGCCCTAGAGCT----GTT
ACCCCTACAACCCTGCCTGTC--CCAATTGCCTCCACTGCTCCTGCACACATTCTGTATATTTGAATCA---AACTTGCC
TTCCTTCCAGTTACCTTTCCCACCCAGCAACCCCCT----------------------------ATACACACATACACA
GTCTCCATCTTCCCTTCCCCCTTCCCCAAGTCCAGGCCTTTGCCCCAGCTGTCCCAAATG-CATGAAAGGCCAGCCATGA
CTTCCTT
>Bos taurus
CTTTCGTCTTCCACATTGTTCCTTTTCTCTCTCAGACTTCCTCCACAAA----T-GTCTACAGCCCTAGAGCT----GTT
ATCCCTGTGGCCTGGCCT-CT--CCAATTGCCTATACTGGTCCTGTGCACATTCAGTGTATTCAAATCA---AACTTGCC
TTCCTTCTGGTCACTATTCCCATCTGGCACTCCCC-------------------------------ATATACACACACA
CTCTCCATCTTCCCTTC-------CCCAAGTCCAGGCCTTTGCTC-AGATATTCCATATA-CATGAAAGGCTAACTGTAG
TTTCCTT
>Balaenoptera acutorostrata scammoni
TTTCCCCCTTCCACAGTGTTCCTTTTTTCTCTCGGACCTCCTCCACAAACTTCT-AACTACAGCCTTAGAGCT----GTT
ACCCCTATGGCCCTGCTCTCT--CCAGTTGCCTCCACTGGCCCTGCACACATTCTGTGTATTCACATCA---AACTTGCC
TTCCTGCTGGTCACCATTCCCATCCGGCAGTCCCCT----------------------------GTACACACACACACG
GTCTCCATCTTCCCTTA-------CGCAAGCCCAGGCCTTTGCCCCAGATGTTTCAAGTG-CGTGAAAGGCCAATCATAA
CTTCCTT
>Sorex araneus
CTTTACTCTTCCACCATATTTCTTGTCTTTCTTGGACTGGCTCCACAAACTTCT-AACTATGACTTTAGAGCT----GTT
TCCCCAAAGATTCCGCCTTCT--CTGGTTGCCCCCACTGGTCCCTCA-TATGTCTACACATTCAAATTA---GATTTG--
-------------ACCTCTTCATCCAGCAATA-----------------------------------TACACATGGCCA
CTTTTCATTTTCCTTTA-------TCCAAGCCCAGACCTTTGCCCCAGTTTTCCCAAATGGTGTAGAATGTCCATGATAG
CTTCCTC
>Homo sapiens
CTTTTCCCTTCCACTGTGCTCCTTTTCTTTCTTGGGCCTGCTCCACAAACTTCT-AACCACAGTCCTAAATTG----GT-
ACCCC-ATGACCCTGTGTGCT--TCGATTGCCTACACTGGTTTCAGACCCACGCTGTGGATTCAAATCA---AACCTGCC
TTTCTCCCTGTTACTATGTCCACCCAGCACCCTCCT----------------------------------TGCACACACA
GTCTTTCTCTTCTTTCC-------TCCATGTGCAGACCTTTACCACAGCTGTCCCAAATG-TGTGAAAGGCCAACCATAA
CTCTTCC
>Trichechus manatus latirostris
CTTTCCTCTTCCACAGTGGCCTTTTTATCTCTTGGACTTCCTCCACAGACTTCT-CACCACAGCCCTAGAGCT----GTC
ATCCCTACAGCCACACCTGCT--CTGATCGC-TCCACTGGGCCAGGACCCACTTTGTGTATTCAAATCATCACACTTGCC
TTCCTCCGAGTTACCCCTCCCCCTCAGTCACGCGCGCGCGCGCACACACACACACGCACACGCACACGCACGCACACACA
GTCTCCATCGTCCTTTC-------CCTAAGTCTAGGCCTTTGCCCCAGCTTTCCCAAATA-TATGAAAGGCCAACCATAG
CTCTTTG
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2.14 Marker H_Dc094

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>Canis lupus familiaris
TACAGGAGGGGAGATAAATACACATGC-TAGGTATCCATC-TAAA-ACCCAGCC-TTGCCACTGTATCAAAAAGAACCAA
AAGGTCAGGAGGGTCATCAGAGCT--------------------------------------------------------
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---------------------------------------------------CACCTTGCTTTCACTCCTA-CTCTTCTAT
GGTAAACTCTCAAAGAC----CCAAGTAAAAGATGGAAGATG-TAATGGGA-AACAG----AGGACCTTGGAAGAGCTG
TTTCT
>Felis catus
TAAGGGAGGGGAGATAAACGCAGATGCTAAGTTGTGCATCTTAAA-TAGAAGCTTTTGCCACTGGATCGCAGAGAACCCA
AGGGCCACCAGGGCTT----------------------------------------------------------------
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--GCCTTGCTTTCA-TTCCAGCTCCCT-AC
AGTAACTTCTCAAAGAC----CCAAGAAAAAGGTGGACGATG-CCATGGGAA-AACTG----AGGGCCTCGGAAAAGCTG
TTTCT
>Manis pentadactyla
TAAAGGAAAGGAGATAAATATGGATGCTTGGTTTTTCATCTTAAA-TAGAAGCC-ATGCCACTGGATCACAAAGCGCCC-
AAGACCAGCAGGGTCTCCAGGGCTCAC---

---CCTGACTT-CATTTCTA-CTCTCT-CC
AGTGAGTTCCCAAAGAT----CCAAGTAAAGGATGGAAGATG-TGACGTGGA-AGCTG----AGGGGTCTGGAAGAGCTG
TTTCT
>Myotis lucifugus
GCAGGGGGAGGAGATGAGCACAGGTGTTTAGTTTTCCATTTTAAA-TGGAAGCC-GTGCCCCTGGATCACAAAGAACCCA
AAGGCCAGTGGGGTCTCCAGG-CT--

---CACCTTGCTTTCA-TTTCATCTC-----T
GGTCAATTATCCAAGAC----CCAGGTG-AAGATGGAAGACCATAATGGGGA-AACTTGGGAAGGGCGTTGGAAGAGCTA
TTTCT
>Pteropus vampyrus
GGAGGGAGGGGAGGTAAACACAGGTGCTTAGTTTTCCATCTTAAA-TAGAAGCC-ATGCCTCTGGATCACAAAGAACCCA
AGGGCCAGCAGGGTCTCCAGGACT--

---CACCTTGCTTTAA-TTTCATCTCTCT-AT
GGTAAATTATCAAAGACTCAACCAAGCAAAAGATGAAAGATT-T---GGGGA-AGCCGAGGGAGGGCCTTGGAAGAGCTC
TTTCT
>Equus caballus
TAAAGGAGCAGAGATAAACACAGGTGCTTAGGTTTCCATCTTAAA-TAGAAGCC-CTGCCGCTGGATTACAAAGAACCCA
AGGGCAAGCAGGGTCTCCAGGTCTCAC---

--TGCTCCAGCAATTTGAAGCCTTCCT-----ATATTTGAGC
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TTTTCCT-TAGAGCTCTGGAATCTCTGAAATCCTCTTGCAGACCTTCTGAGGCCTGCCAAACTCTGAAATGGGGAGAGCC
TGCCCCATCTTCTTCTAGG-CATCCTATCCCACAATTCCTCATCA-----CCAG----------TACTTGCCAGCAAGTC
CA--GCTGGCCTTCTTTCGGCTTT--AGATCAGTATCAGGCACAGA-----ATGTGACACCTGTCAAGTAGCACCCTACC
ACCCCAGCCCCAGCT-TAAGTTTAACC--GTTTCCTATTCCCAGTCATCCTTG---AAAACTGAGCAAGCCTAGAATCAG
ATGTACTCTAC-ACGATTACCCCA-TCCCACAGTGTGAGACGGCAGCCAGTCATGGACACAGAGCCTGCTATCCAATACT
CCCAGGTGAGGAGCTCCTGG--------TCTGTCCTTCCAGAGCCCTCTGCCCCTTTCCT-TC-AAAGAAGAAGCCCAAA
CCCAAGATTTTGCTTTTGGTCAG------CTGCCAAGTCATCCTTACAAACCACCTTGCTTTCA-TTTCATCTCTCC-AT
GGTAAGTTCCCAAAGAT----CCAAGTAAAAGATGGAAGATG-TGA-GGGAAAAGCTG----AGGGCCTTAGAAGAGTTG
TTTCT
>Ceratotherium simum simum
TAAAGGAGAGGAGATAAACACAGGTGCTTATGTTCCAATCTTAAA-CAGAAGCC-CTCCCACTGGATCACAAAGAACCCA
AGGGC-AACAGGGTCTCCAGCGCTCAC---

--TAGTCCAGCAATTTGAGCCTTTCCTG----TAATTTGAGC
ATCTGATGAGCCGGTAGAGG------AAA-CTCACGGACAA------------TCTCACAATTCCTGCCCCTCCATGTT-
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TGCCCC-TCTGCTTCCAGG-CACCCTATCCCACAATGCCTCCTCACCGGTACTGCTGGCAAGCACACCT-CCAGCCAGCC
TT-----------CTGTTGGCTCT--AGACCAGAATCAGGTACAGA-----ATGTGACACCTGTCAAGTAGCCCCCTACC
ACCCCAGCCCCAGCT-TAGGTTTAACTCTGTCTCCTATGCCCAGTCGTCCTTG---AAAACTGAGCAAGCCCACAATCAG
ATGTACTCCAGCAGGATTACCCCGTCC-CACAC--TGAGATGGCAGCCAGTCATGGACACAGAGCCTGCTATCCAACACT
CCCATGTTTGGAGCTCCTGG--------CCTCTCCTTCCAGAGCCCTCTGGCCCTCTCCT-TC-AAAGA---AGCCCAAA
CCCCAGGTTTTGCTTTCGGTCAG------CTGCCAATTAATCCTCATAAGACCCTTTGCTTTCA-TTTCACCTCTCC-AT
GGTAAGTTCCCAAAGAC-----CAAGTAAAAGATGGAAGATG-TGAGGGGGG-AGCTG----AGGGCCTTAGAAGACTTG
TTTCT
>Bos taurus
TAAGGGAAAAGAGACAAACACAGGTTCTTAGTTTTCCTTCTTAAACTAGAAGTC-ATGCTGCTGGATCACAAA-------
GGGCCAACCAGG-TCTCCAGGGCTTAC---


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>Balaenoptera acutorostrata scammoni
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AGGGCCAGCCAGGTCTCCAGGGCTCAC-----------------------------------------------------
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>Condylura cristata
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>Homo sapiens
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>Trichechus manatus latirostris

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2.15 Marker H_Dc113

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>Canis lupus familiaris
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>Felis catus
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TGAA-CCTCTCTTCCCCC-AAGTCT-ATACTGGAGACTTAATGCC-----------------------------------
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>Manis pentadactyla
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>Myotis lucifugus
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Homo sapiens
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>Loxodonta africana
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2.16 Marker H_Dc134

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>Canis lupus familiaris
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ATTTA
>Felis catus
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>Manis pentadactyla
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>Ceratotherium simum simum
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Erinaceus europaeus
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2.17 Marker H_Dc150

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>Bos taurus
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CAGAAATTTTCCTCTCAACAGTGGTTTGCTACTGTCCATGCAATTTTCCAGTCAATTTGAAAGTGTATCAAATTCTGAGT
AATATGTCTATATCATG-GGACTCTCAATGTCTTAT-------AAA-----CTGTCTCAAAAAAAAAAAAAAAAA-GAAAG
AAA---CAGACTTCCACTTCCATCGAGTAATAAAATTACAGTACAT--TTGGT
>Balaenoptera acutorostrata scammoni
TTTTCCCTTTATTGATAAAAAGAGAAAACTTGAC-AAAAGATCCCTTTTGCTACTACC------CAGATTCCTGACATCG
AA---------TATGACTGTTTTATACTTGAGCTATGGAAACCATTCTGAGACTATGAGGGAAGAGTACAAAGACAAACA
AAAATCCAACAAAAAGAGAATGACAGAATGGAAGGATAGATGGAGCCAGGTTCTTCCATAATA-TTTGTTAAGTCCCTGC
ACCAGA---CCAGCACCAGACCTGTTAAGC-----TATGTTCTATGTTATTTACAGTCAAAAGATAACTGATTCAAGTCA
TAGAAACTTTCCTCTCAATAGTGGTTTGCTATTGTTCATGGAATTATTCAGTCAATTTGAAAGTAT--CATATACTAAGT
AACATCTCTATTTCATT-ATATTATGAGACTCTGAACTT--ATAAA-----CTATCTCAAAAAAAAAACCCAAACAGGTTT
CACTTTTGTATTTCCACTTTAGTCAAGTAATAAAATTATAGCAAAT--TTAGT
>Sorex araneus
CCCCTTGACTGATTATATGAAGGCTTGACTAAAA------GTTAGTT--CTCTTTACTAACACCCTGATTCTTGATACAA
CTGACAGTGAATGTGGCTCTTCTTTGCTTGGCCC-------AGGAGACTGGAGACTAAGGCAAGAGAATAAAGACAAAC-
AAAAGCTAAGGACAAGAGAATGACAGAATGGAAGGTTGAGTGGACCCGGGAATATACTCAAT--TTTGGTTACGCC-CAT
CACAGA------ACCGAAGTTTCTGTAATT-----TCTACTTTTTGTGACTTACAGCTAAAATATAACCT-TTCAAGACA
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CATACACTTTCTTCCCCAAAG-AGTTTGTTATTTTCCT-TGAAACTACCAGTCAATTTGTCCATGTTCCA---TATACTA
AGCAGTTTTATTTGAATTATATTACAGAATTCTGAACTCTTTAATAA----CTATCTTCC--AAAATTCCA----GGTTT
TACCTTCATATTTTTATTTTGCTCAAGACGTTACATTCTTGGAACAAATTAGC
>Homo sapiens
CTTTTGCTTTACTGTTAAAAATAAATAACTAAAA---------------------------------------------
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--AATC-AACAAAAACA----GACAGAGTTGGGAGATCAATGAGCTCAGAGTCTTAGGTAATTTTTTGTAAACTCC-TGC
ACCACA------TCTAAAGTCTGTGTTAGTTGTTTTCAACCAAAAGTTGTCTATAACC-AAAGATAACTGATTCAAGTCA
TACAAAACTTTTTCTCAATATTTGTTTGCTATTTTGCACAGTATTACCCAGTTGATTTGAAAGTGTAGCATATGATAAGT
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CACCATTTTATATG-ATTTCGGTCATGCAAGAAAAGTATAGTAAAA--TTAGT
>Choloepus hoffmanni
TTTTTAAACTGGTATAAAGGGAAAGAAACTTGACTAAAAGGCTCCTTTTGCCCCCACT------GTGATTCCTTATTTTA
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----TCCAACAAAAAGAGAATGATGGAGTGGAAGGATGGATGAACCTGGGGACCTATATGATATTTTGTG-TGCC--TAT
AACAGA------TCTGAAGTCTCTGTTACT-----GATGTTTTCTGTTACTTATACCCATGAGACAACTGAATCAAGTCC
TACAAACTTTCCTCTTGATAGTGGTTTGCTATCATCTAATGTATTATCCAATCAATTTGAAAGTGTATTGTATACTAAGT
AGCAATTCCGTTTTGATCATATTGTAGGACTCTGACATCTTTTAAAAA---GTGTCTCA-GAAAAATTCCA----TATTT
TACCATTTTATGTCCATTTTGGTATGTAAATAAAATTATGGGAAA---TTAGT
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2.18 Marker H_Dc157

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>Canis lupus familiaris
CTCAAAGAGCCCTAGTCTGGTGGG------CTGTGCTCTCT-CAT-------------------------CCCC-ACTAT
TCTAGGTGGTGCCCTCAGCTTGGCCTTCCAGATTCTCAGGTGGCTTGCTC-----------------------------
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--------------------------TTCTTCCAGT------------------------------------------
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-----------------------TACCACTT-TGTGTTCTAGTG-----GATGAGCAGAAACCTCCCAAATAATGTCTTC
CCTTCC
>Felis catus
CTCAAAGAGTC-TAGTCTGGCAGG------CTGTTGACTCC-CAC-------------------------CCCC-ATTAT
GCTAGGTGGCACCCTCAGCTTAGCCTTCCAGATTCACAGGTGTCTGGCTC-----------------------------
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-------------------------TTCTTCCCAT-------------------------------------------
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-----------------------TACCCCTT-TGTATTCCAGTGGAACAGAAGAGCGGAAACTTCCCAAACATTGCCTTC
CCTTCC
>Manis pentadactyla
CTAGAATAA---TAGTCCCAGCGGA-----CTGTGCACCCC-GAC-------------------------CCCT-AGCAA
GCTAGGTGGCCCTCTCGGCTCAC---TCCAGATTCTCAGGTGACTTGCTT------------------------------
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-------------------------------------------------------------------TTCAGAAATT
A--------GAG-ATGATTGGAT---TGTTTCCCATTGATAGAATCTGGACCTGAGTACCCCCTTTTCAAATAAGCCCAC
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ATCCCCTCACTTCTTTCACCCATCACCCTC--TGTG-TCCAGGGGAACAAATGAGCAGAAACTCCCTGAACATTGCCTGC
CTTTCT
>Myotis lucifugus
CCCAACAAGTCCTAGTTTAGCAGG------CTGTGCATCCCCGGC-------------------------TCCT-ACCCT
GCCAGGCAACCCTCTCAGCTCGTTCTTCTAGATTCTCAGATGTCTTGTTC------------------------------
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-------------------------------------------------------------------TTCAAAAACT
C--------AAATCAATTTGAAT---TATTTTCCAT-------------------------------------------
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-----------------------TACCCTCT-TGTGCTCCAGTGAAGCAAATGAGCAGAATATCCTCAAATATCCTCCCC
CGTTCC
>Pteropus vampyrus
CTCAAAGAGTCATTGTCT-GGAGGG-----TGGTGCACTCTCTGC-------------------------CCCT-ATTAT
GCTAGGCAA-CCTCTCAG-TTGTTCTTCCAAATTCTCAAGTGGCTGGCTC------------------------------
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-------------------------------------------------------------------TTCAAAAATT
G--------AAG-AGGTTTGAAT---TGTTCCCTAT-------------------------------------------
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-----------------------CACTCTCTTTGTGCACCAATAGAATAGATGAGTATAAACTCCCCAAACACA--TTCC
TTTTCC
>Equus caballus
CCC--AGAGTCACAGTGAGGCAGG------CTGTGCACCCCCCAG-------------------------CCCTGAC-AT
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--TCCAAGCCACACTAGGAGCCTTAGGAAACTCTGAGAGTGACTTGGGCACTACTCCTTCTCATTACTTCGACCTTGTCG
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GAAAAATTGAAGACAATTTGAAT---TGTTTCGTGT------------------------------------------
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-----------------------CACCCTCT-TGTGCCCCAGTGGAACAGATAAGCGAAAACTCCCCAAACACTTCTTCC
CCTTCT
>Ceratotherium simum simum
CTCAAACAGTCATAGTCACGTGGG------CCGTGCACCCCACAC-------------------------TCCT-ACAAT
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--CCCATGCCATGCTCAGATCCTTAGAAAACTCTCAGAGTGACATGGGCAC-------GCCTCACACCCCTGCCTTCTCA
GCAAAGTTGCCACCAACTATGCGTGTGATGGTTCAGATAAAGTTCAAATTCATTTTCCACTTCTTTGCTCCTCAAAAATT
G--------AAGACAATTTGAAT---TGTTTCCCCT-----------------------------------------
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-----------------------CACCTCAT-TGTGCTCCAGTGGAGCAGACGGGCAGAAACTCCCCAAACATTGCCTCC
TCTTCC
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>Bos taurus
CTC--AGCATCACAACA------------------CATCCTCCCA-------------------------TCCC-ACCCC
---ATGTAGCCCTCTCAGCTCATCCTTCCGGATTCTCAGGGGACTTGCTCTGGGTACAGGGGTCATTTCTAGATTCTCT-
--CCCAAGCCACACTAGGCGCCTCAGGAAACTCTGAGAGTGACACCGGCGT-------TCCTTACACCCCGATCT-CTTG
GCAAGGTTGCCACTGACT--ACACGTGGTG-TGCAGGTGAAGTGCAAATTCATT---TTCTGCCTCATTCCTCAAATACA
G--------AAGACAGTTTGAAT---TGTTGCCCAT-------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------CACCCCAC-TGTGCTCCAGTGAAACAGACAGGCAGAAACTCCCCAAACACTGCCTCC
GCTTCC
>Tursiops truncatus
CTCAAAAAGTCATAGA----CAGG------CTTTGCATCCTCCCGCCTCCCCCTGCCCGCCATGTGC---CCCT-ACCAT
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CCTTCC
>Condylura cristata
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GAAAAGTTGCCGCTGATTCTGAATGGTGAAGGTGAGATGAAAGCTCA--------TTTTCTTCTTTGTTCCTCAAAAACT
G--------AAGACCATCTGAAT---TGTTTCTCAT-------------------------------------------
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-----------------------CCCCTCAT-GCTGCCCCAGTGAAATGAATGAGCACAAAATCCCGAGATACTGCGCCC
CTTTTT
>Homo sapiens
CTC--AGAGTCATGGTCAGGTAAGG-----CTGTGCATGACCTCCCGCTCCAGA-----CCATACACAGCCCCT-ACATT
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--TCCGTGCCACACTTGGAACCTCAGAAAACTCTGAG--TGATATGGGCAC-------ACCTCACACTCCTTCCTTCTCA
GCAAATTTGCCACCTACTATGCATGTGGTGGATCAGATAAGGTGCATTT------TCTTCTCCTTTGCCCCTTGAAACTT
G--------GAGTCCATTTGAAT---TGTGTCACAT-------------------------------------------
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
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CTTTCC
>Trichechus manatus latirostris
CCC--AGAGAGGCGTAGCCACCACACTCTCTTTTGCTCTAGACAGGCTGTGAACAGCTCCCATGCATGTCCCCT-GCCTT
GCTAGGTGGCCCTCTTACCTTGCTCTTCCTAATTCTTATGTAGCTCCCTCTGGGTGCATGGGTCATTTATGGGTTTTCT-
--TCTATGCCATACTTGGGGCTTCAGGAAATTCTGAGAGCAACATGG-TAC-------TCCGCATACCCCTGCCTTCTCG
GCAAAGTTGCCACCTATTTTGAATGTAATGGGTCAAGTGAGGTGCAAGTTTATTTTCTTCTATTTTGCTCCCCCAAAATT
T--------GAGTCAA-TTGGATTTCTGTTTCCCAT-------------------------------------------
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-------------------------------------------------------------------------------
-----------------------CACTCCAT-TGTACATTAACAGTACAGAGGAGCAGAAACTTCCCCCAAACTGCCTAC
TCTTCC
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2.19 Marker H_Dc168

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>Canis lupus familiaris
AAACAAAAC----------------------CTTTA--TCCTAATCAATCTAGTGAACTTTTCATTGCATTGTAATTTT-
--TCATTGGTTTGA---AAAAACTCAGACATTTTTAACTATCAT-----------------------------------
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-------------------------------TATG-GTGTAA--ACATCCCCAAGTATGTAGAGAATCTTT---TCTTAG
AGTGTATCTGCTTAGAATATTTTGAATTAAGAGTTC--AA-AAACAGTTTACTACAGCTAAA
>Felis catus
AAACAAACAAAA-------------------CCCTCATCAGTAACCAATTTAGTGACCTTTTCTTTGCATAGTCATGCT-
--------GTTTGA---AACAACTGAGGCATTTTTAACTATCAT-----------------------------------
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-------------------------------TCTGAGTGCAA--ACATAGCCAAGTATGTAAAGACTCTTTAA-TCTTAG
AGTTTATTGACTTAGATTATTTTGGATTAGAAGTTC--AA-AAACAGTTTACTACAGTTAAA
>Myotis lucifugus
GGAAAAACAAAATCTTAC-------------CTGTAA-TC--ATTCCAGTGACC---TTTGTCTTTGCATAGACATGTG-
--------GTTTGAAACAACAATGCGGGCATTTTTAACTGTCAT-----------------------------------
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-------------------------------TCTGACTGGAA--ACATAGCCAAGTATGTAAAAAGCCTCTAATTCTTAT
AGGTTATCTGCTTAGAATATTTTGATTAGGAAATTT--GAGAAACAGTGTACTACAGTTAAA
>Pteropus vampyrus
AGGGAAAAAAGAA---------------------------------CATTGCCT---GTAATCATTTCAGTGACTTTTTC
TTTGTGTAGTATGAAACAACAATTCAGGAACTTTTAACTGTCATTCT---------------------------------
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------------------------------GATGATTGGAA--ACCTAGCCAAGTATGTAAAGAGTCTTTAATTCTTAT
AGGTTTTCTGCTTAGAATATATTGAACTAGATGTTT--GAAAAGTAGTTTACCACATTCGAA
>Equus caballus
ATATATAGACCC---------------TAATCTATAACTC--AATCTAGTGAC----TTTCTCTTTGCATAGATGTGTA-
--------GTTTGA---CACAACTCAGGTATTCTCAACTGT---TTTGCCTGGAAACAGTTCAATATGTGTACTAAAA--
-----------------------------------------GATCTTATATTCATGCAGCTGTTTCATACGTATTTTCT
CATGAGATATTCAGAAGAGTATGGAGAGGTGGAACACATTCTGTTTATTATTACCATCTTCCAGTTTA------------
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>Ceratotherium simum simum
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CAAGAGATATTCAGAAGAGTATCGTGAGATGGACAGCATTCTTTTTATTATTATCATCTTCCAGTTTA------------
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>Bos taurus
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--AAGATAATATATGTCAAATTTTTATGTAAGATATGAAAAA----TCAGTGCAAAA-AATA-TGGAAGACCGATGAAT-
-GTATAAAAACTTAGTGTTGATAATCTTATTCCTGTAGATCAGGAAGACAAATACACAGAATCAAC--------------
--TATTAGGAA-AAATAACAGAATCATAGAATCATAACTCAA--GCATAGTCAAGTATGTAAGG-GTTTCTAATTCTTAT
AAATTATCTGCTTAGAATATTTTGAATTACAATAAA--GA-CAGTAC---ACTATAGTTAAG
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>Balaenoptera acutorostrata scammoni
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CATGAGATATTCAGAAGAGCATAGTGAAATGGACAGTATTTTCTGTATTACTAAT-TCTTCCAGTTTA------------
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-GTATAAAAACTTAATATTGATAATCTGATTCCTGTAGATCAGGAAGGCAAGTACACAGTAACAAC--------------
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>Condylura cristata
-----------------------------------------------------------------TTTGCATAGACATGTA-
--------GTTTGA---AACAACTCAGGCATTTTTAGCTGTCCTTCTCACTGGACACTGTTCCAA-TGTGTACTAACAA-
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-ATATAAATGCTTAATGCTGATAATATGCTT-CTGTAGATCAGTAAGTCAAACATACACTATCAATTTTCAAATGAATAA
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AGGTTATCTGTTTAGAATGTTTTGAATTAGAATTTC----AAAACACTAA---ACACTTTAC
>Galeopterus variegatus
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--------GTTCAA---AACAACTCAGGGACTTTTAACTGTGATTCTGACTGGAAATGGTTTGAA-TGTGTTCCAGCAA-
-----------------------------------------AATCTTATATGCATGCAGCAATTTCCTACACATTCTCT
TGTAAGATCTTCTGATGGGTACAGTGAGGTGGATAGCTTCTCCCTTATTATTCCCATCTCCCAGAT--------------
-------------------------GAAGCACAGAGTTGGC-ACAGATTG-CTCA------A-CCAGCTGGTGAGCCACA
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GGAGGATAATTAGCATAAAATTTTATTCAAAAATGAAAAAAA-----TAATGCTGAAGAATA-TGGAAGACTGAAAAAAA
TATTTAAAAAAATCATGTTGGTAATCTGCTTCCTGTAAATCAGAAAGTCAAAGACACAGTATCAGC--------------
--TATTAGAAA-GAGTAACAGAATCACGGAATCATAACTCAA--ACACAACCAAGTATATAAAGACTTTTTAATTACTAC
ATGTTTTCTGTTTAAATATTTTGT---TAAAAGTTC---AAAAAAAGTTTACGACACTTAAA
>Trichechus manatus latirostris
AAAAAAAAAAAGA------------------ACCTCTCCTGTTATCAATCTAGTGACCTTAGCTTTGCATAGAAATGCG-
--------GTTCGAAACAAAAACTCAGGTATTTTTAACTATCATTCTGAGTGAAAACAGCCCAGA-TGTGAACTAATAG-
--------------------------------------------------GATCATGCAGCAGTTTTATACACATTTTCT
CAGAAAATCATCTAAAGAGTTGAATTAGATGGACAGTGCCCCTC---ATATTTTCATCTTCCAGTTTA------------
-------------------------AGCACAAAGAGGTGGTAGTGGCTTG-CTCATAATCAA-ACTGCTGGTGCACAGCA
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GAAAGATGATATAACTATTTTTTTTGTTTAAAATAGAAAAAAAAAATCAATGCAATATAATA-CAGAAGGCTGATGAAA-
-GCATAAAAACTTAATGTTGAAAATTTGTTTCCCATAGATCAAAAAGGCAAGTCCACATTATCAAC--------------
--TATTAGGAA-GAGTAACAGGATTACAGAATCAT-----AA--ATACGGGCAAGTATGTGGAAAGTCTTTAATTCTCAC
ATGTCATCTGCTTAGAATATTTTAAATTCAAAGTTT---------AAAATATTACAGTTAAG
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2.20 Marker H_Dc172

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>Canis lupus familiaris
GAGTGGTGACTAGAAAGTCACATCTGAGCC-ATCACATTCACCAAGAATCC-TTTTATGCCTTTGTTCTCAGCTGAC---
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--------------------------------TGGTAGGGCAGACTGTTCCTGCTACAGTAGAGCTTCCAAAGGTGGCAA
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>Felis catus
GAGTGGTGACTAGAAAGTCACCTCTGAGCC-ATCACATTCACTAAGAATCC-TTTTATGCCTCTGCTCTCGGTGGAC---
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>Manis pentadactyla
GAGTGGTCACTAGGAAGTCACTTCTGAGCC-ATGATATTCTCTCAGTATGC-TTTCATGTCTCCAGTCTCCAATGGA---
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>Myotis lucifugus
GAGTGGTGAGGAGAGAGTCACTTTTGAGCC-ATCATGTTCACGAAGAAACCCTTTTATGCATCTGCTCTCAGCTGAC---
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>Pteropus vampyrus
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>Equus caballus
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CTTTACGGGTCAGAAGGGTTATGAGTGTATTTGTGATTATGAGTAGTCCTAAAGGGCAAAGAATAAAA-T----------
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CCTCAC--CCTTCATGGCCCAACTCCAGTCTCACCTCTTCCAGGAA--GCCTTGTCTAGC---------TACTTCCGCAC
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GTTTGCTCTGTCCCTAAACTCTCTTCCTCTCTGCTTTGCCAGAGCGCCTGACATGGCCCCAGGTTCAAGCATTAGTT
>Ceratotherium simum simum
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ATTTATGGGTCAGAAGGGTCACGAGTGTATTTGTGATTATGAGCAGTCCTAAAAGACAAAGAAGAAAAAA----------
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>Bos taurus
GAGTGGTGAC--TACAGTCACTT--CTGTC-ATCATGTTCACTAAGAATCC-TTCTATGCCTCAGCTTCCAACCAACCCG
TCTGCCCTCCCCG-CCCCT-CTCCCTC--------------ATTTCAGTGGGAAGCCCACCAGGAGAGACTTCTTTAGCT
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GTTTATGGGTCAGAAGTGTCACCAGTGTGTCTGTGATTGAG--CGGTCCCGAAGGGAAAAGAAA----------------
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Cetartiodactyla+Carnivora

3.1 Marker H_Db007

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>Canis lupus familiaris
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3.2 Marker H_Db014

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>Homo sapiens
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3.3 Marker H_Db016

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3.4 Marker H_Db024

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3.5 Marker H_Db025

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3.6 Marker H_Db033

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>Manis pentadactyla
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-----------------------------CGTCTG--ACGTCTAC-AGGAG-TTTTTGCACGAGGGCCTATA--ATAAT
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>Bos taurus
TGTGACTTCAGG-----TATGAAAACCAGCTTGGCTGAGAGCCAGCAAGATCCA-GAGGAAATTGCAGGGGAGGGCTCTG
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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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>Homo sapiens
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>Choloepus hoffmanni
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GCCAAAA-GCACGTCCACTCATACCTCAATGCCCAC-AGGAGCAGGAGGCCTCCCTGAACATCGAGCAAGGATGGTGGC-
AGTGGAGGAGACACCAC----TTGGCCATTGAAACCAATCCCT------------TATTTAGACAGCGAGGAA-------
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3.7 Marker H_Db040

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>Canis lupus familiaris
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>Felis catus
CTTCCCAGTTAAAATAGAGA-GTTCAGTT-TGGTGTTT-TGAGAGAGGAGGTGGGGCCAGAGGATAGGTGGCTCCACATC
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>Manis javanica
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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>Pteropus vampyrus
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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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>Choloepus hoffmanni
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3.8 Marker H_Db053

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>Felis catus
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
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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
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>Trichechus manatus latirostris
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3.9 Marker H_Db054

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>Pteropus vampyrus
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>Equus caballus
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>Condylura cristata
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>Trichechus manatus latirostris
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GATTTAA--CCAAACTACAATGTGGGAACAGAATGGCTCTTTGCCCTTACA-TAGGCCACAAAGTGAAGTACTCTAAGCT
GTCTTCATTAAGAATAAGATAGCA-----------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------CTCTTTGGACAGA-TG-ACCCTT-CTCCATCTGT---
-----------GCATCCCAGACCTGCAAAA--CAACTCAGTTACACCAGTTCTGTGTTGGTGGGTGAGTGATGCAATGCA
GAAAGCTGAATTGTAGTCCA
>Homo sapiens
AGCTTGTTATTATTTTCCTTTGCCAAAGATTGCAAAATTTT-GTATGTTTTAAATAC----CAAACATTTCCACAGAAAA
-TGACTTGCTGCCAATATCTGGTGTGT--------CCGGGAATGCAAACTGATCTTGT-ACCTAATGCACATCATCACAT
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GATTTAA--CTAAGTTATAGTGTGGTAATGGAGTGATTCTTTTTCTTTACA-TGGGCT----------------------
---------AAGAGCAAGAGAGCA-----------------------------------------------------
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-----------------------------------------------------------------------------
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GCTAGTTGCAAGCATGCCCGCCCTTCAGAA--CAGTCCAGTGACACCAGTTCTGTGTTGGCAGTTGAGTAATTCAAGGTA
GAATGCTGAATTAGAATTCA
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3.10 Marker H_Db056

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>Canis lupus familiaris
CTGCAGAGACTCTCCTCAAAACATAGCAGAGAACAGAGTGAGCGCAGGTCCCTG-GCGCAACCTAGCTATTCTCCAGTCC
T-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
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AGTAGTT---TTTCCAGCTTTATTTCCACTATAATTTGCAGAATA
>Felis catus
CTAGAGAGGCTCTCCTCTGAGGGTGCCAGAGGAC--AGTCAGCACAGATCCCTG-AGGCAGCCTAGCTTTTCTCCAGTCC
T-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------------------ACACTTGGC
CACATTCTTC---------------AAACAAAACTGGA---------------ATGTTAATGGCCCAGTAGGTTGCCT-A
ATTACCT---TTTCCACCTTTATTTTCATTATGATTTGCAGATTA
>Bos taurus
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T-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------------------ACCCTTAGC
CACTTTCTTTAAGCAAAACAAAACAAAACAAAACCAGG---------------ATGTTTAGGATCCAACTGGTTACCT-A
CTTAGCT---TTTCTTGTTTTATTGCCAGTATTATTTGCAGGGTA
>Balaenoptera acutorostrata scammoni
CCAACGAGGCTGCCGTCCAAGCCTAGCAGAGAGCAGAGCTAGTGCAGGGGCCTGCAGGCCACCCAGCTTTTCACCAGTCC
T-------------------------------------------------------------------------------
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>Myotis lucifugus
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>Pteropus vampyrus
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>Equus caballus
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GCAGG--TCTTGTCATTTCCTCTTATCTTGCCAGCCCCGTGATCTG---------------------------------
---GCGTCATTCAGT-CTACCT-ACTCTATTAGCACATTTCTCATCCTCTGCCC-AGTTGGAGCTCCAAGGACACTTGGC
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>Ceratotherium simum simum
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ATTAGCT---TCCACTGCTTTGTTACCACTATTATTTGCAGGATA
>Erinaceus europaeus
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GCATG--CTGTGCCACAACCCATTGTCTTGCCAACCCCTAGTCTAG---------------------------------
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CACATTATTG---------------AGAAAAAACTGAATGAAAGAAAACTGCCACATTTAAGGCCCAATTAGTTACC-AA
ATTAGCT---TTCCTTGCTTTACTACCACTTTCATTTGTATATTA
>Orycteropus afer afer
---TTTTTTTTTTTTAAAGACAATACA---------GCTGCAGAAAAACAAT------AGCTATATTGTTTCTTTCCTT
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CACATTCTCT---------------GAACAAAAGTGGA---------------ATATTTATGACCCAACTGTTTACTTTT
ATCACCT---TTTTCTGCTTTTGTAC---TACCATTTGCAGGACA
>Dasypus novemcinctus
TCAAGGAAGCTCTCTTCAAT-CATAGCAGAAAGAAGAGGAAGCAGGAGCCCCTC-------TTCAACTTTTCACCAGTTT
TTTGCATTATTTGTCCACTGTGACACAGT-GGGTCCATGCTGATCCTTCAGGTTT-TTCTGGCAGCTGCTACAGCTGACT
GTGAA--CTTTGCCATCGCCTCTTTTCCTGTCTGTCCCATGATCAA-------------------------------
---GAATCTCTCAGC-CTACCT-GCT-------------TCTCATCCTCTCCCT-------------------GTATGGC
G---------------------------CTCAACTGAA---------------ATGCCTATGATCCAATTGGTTACCTAT
ATTGGCTCTCTTTTCTGCTTTACCACC-----CATTTTCAGGACC
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3.11 Marker H_Db058

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>Canis lupus familiaris
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GGACCACTGAATTACCTACCTGCCT-------------------------------------------------------
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---AGAAATCAGTGAGTTTCTAAACAGATA-AATGACATAA--------------ATACTGCTGCATTTCCAAGAAACTA
TTTC-ACTATAACTGC-----ATAAATAAGTTTGGGAAGTGATGGACTGGAGTGC
>Ailuropoda melanoleuca
ATGGGCTTTGTGAGATAGTCAAGGCATTCTGGGAAGAAG---GAACAGCACAGAGGTGGGAAGTAAGGAACCACTTATT-
GGACCATTGAATTACCTAACAGCCT-------------------------------------------------------
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---CAGAACCAGTGAGTTTCTAAACAGATA-A-TGATATAA-----------ATCATGATGCTGCATTTCCAAGAAATTA
TTTC-ACTATAGCTGC-----ATAAATAAATTAGGGAAGTGATGGACTAGAATGC
>Manis pentadactyla
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GGACCCCCGAATTGCCCAACTGCCT-------------------------------------------------------
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--TAGGAATCACTGAGCCTCTAAGTGGACA-AATGATGTAA--------------GTGAAGCTGCACTTCCAGGAAATTA
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>Bos taurus
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GGACCTTTCAGTTGCCT---------------------------------------------------------------
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--------------AACTACTAAGCAGATC-AATGATACAA--------------ATGAGGCTGCACTTTCAGGAAATTA
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>Balaenoptera acutorostrata scammoni
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GGACCCCTGAGCTGCCTAACTGCTA-------------------------------------------------------
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TTTC-ACTATAACTGC-----ATAAATAAATCAGGGAAGGGATGGGCTGGAATGC
>Vicugna pacos
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GGACCACTGAATTGTCTAACTGCTA-------------------------------------------------------
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---AGGAACCGCTGAGCTTCTAAGCAGATC-AATGACATAA---------------TGATGCTGCACTTCTGGGAAATTC
ACTG-----TACATGC-----ATAAGTAAATCAGAGGAGGGATGGACTGGAGTGC
>Myotis lucifugus
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>Pteropus vampyrus
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GGACCACTGAATTGCCCAATTGCTTAAAAGTTGGAGAAAATACAGGAG--------GCTAGCAAGAAAAACCGGAGGTCA
CATAAAGGCAGCTTTTATATGCGT--CTCTCGATATTTGTTTTT-----------------------AATTTATTAGTCA
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TTTC----ATAACTGC-----ATAAATA-----GAGAAGGGATGGACTGGTGTGC
>Equus caballus
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CTTC-ACCATAACTGC-----ATAAATAAATCAGAGAAGGGATGAACTGGAGTGC
>Ceratotherium simum simum
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CTTC-ACCATAACTGC-----ATAAATAAATTAGAGAAGGGGTGAACTGGAGTGC
>Condylura cristata
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>Homo sapiens
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>Heterocephalus glaber
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CTTC--ACATAACTGCATAAAATAAAGAAGGAAT-----------------GTAC
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3.12 Marker H_Db061

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>Canis lupus familiaris
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CCGTAATAAAACCC--ACTA------------------------------------------------------------
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--------------------------------------------------------------------------------
----------------------------------------------------------------TCTTT-CCTTT-ATGT
TCTATTGTTTATAATAGTTTTCTGTGAAGGAGATTTTGAAGACTGAACACTAGGTACTTTCTCGCA--------------
-----------TTTCAGGAATAGTTCTACAATC
>Felis catus
GACTGCTAAAATTTCATATCCAGTTTATGAGACCAACATAGATTTACCTGCTTTT-ATTTTGCATAGTAAAGCATTAAAG
CCATAATAAAAACA--ACTA------------------------------------------------------------
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>Manis pentadactyla
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CAAT-ATTAAAAACC-ACTA------------------------------------------------------------
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>Bos taurus
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>Balaenoptera acutorostrata scammoni
GACTGCTAAAATTTCATATCTAATTTATTAGACCAGCA-AGAATTGCCTGCTTTT-GTTT-----AGTAGAGTATTAAAA
CAATAATAAAACACC-TCTA------------------------------------------------------------
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----------------------------------------------------------------TTTTT-CCTTT-ATGT
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>Myotis lucifugus
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ACAAGATA--------AGTCCATATGGAAATTAGTATCATTGTTGTAGAACTTT----ATCTAGTAGCCACTGAAGAATT
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-CGTGGCTCTTTTAGGTGATGC-AATTCAGAATTTTAAATGCCCATTTCAAAAG--ATGGGTCTTCAGTATAGATCATGG
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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
GAGTGCTAAAATTTCATATCCA-TTTATGAGAACAACATATATTTGCCTACTTTT-CCATGGCAAAG-----TACTTAAG
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ACCATTGTTT---ATAATTTTCAGTTAAAGAGATATTACAAGTTGAACACTAGGTATTTGCTCATA--------------
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>Homo sapiens
TACAGCTAACATTTTATATCCAATTGATG-GACTA--ATAGAGTTGCCTTCTTTT-ATTTTGTAAAG-------------
CAATAATGAAAACC--ATTATCTTACTTAAAATATCAGAGAGCTCTTAAAA--GACTTTATTTTTCACTTGACAATGGTG
GCAAAATAAATCCTAGAGTCAATATAGAAATTATTATAATTATC--ATGACTTT----ATTTTTTAATTAATGAAGAATT
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>Trichechus manatus latirostris
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3.13 Marker H_Db062

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>Canis lupus familiaris
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3.14 Marker H_Db064

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3.15 Marker H_Db069

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>Balaenoptera acutorostrata scammoni
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>Homo sapiens
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GATGGGAAA-TTTCCTGAG
>Choloepus hoffmanni
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GTTTGGAAA-TC-CATGAG
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3.16 Marker H_Db070

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>Canis lupus familiaris
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---TGACCT--GGGTTCAAGTCTTGGCTCTGCCCATGCCCGTTCCCATGTCTCCTAATAATACCATAATAGTTCATTGAC
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>Felis catus
CTCTTAGCAGATGCTTATTTTCTGCCTCATAGCAC---------AATCTTCTCATATGTGTGCC--------TTCTGGTC
TGTATTCTTCCCCCTTTCTTTTC-CTGTCTGTCTCTCCATGTCT------------------------------------
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---TGACCT--GGGTTAAAGTGTTGGCTCTGCTCATGCCCGTTTCCATGTCTCCCAATAATCCCATAATAGTTTGTTGAG
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>Manis pentadactyla
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-TCAT--CTCCCCATTTCTTCTCTCTCCCTGTCTCTGCATCCCTATGTCA------------------------------
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>Bos taurus
CTCTTAGCAGATA-TTATTTTCTCGCTCGTAACAC-TTCATCACAACCTTCTCATAATTCTGTC--------TTTTGGCC
TGCGT--CTCCCCCTTTCTTCTCTCTCCCTGTCTCTGAGTTTCTGTGTCT------------------------------
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---TGATCT--GGATTCAAGTCTTGGCTCTGCCCATGCCCATTTCTCTCTCTCCAAATATTCCCATTGCCGTTTATCTGG
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>Balaenoptera acutorostrata scammoni
CCCTTAGCAGATGTTTATTTTCTCCCTTACAGCAC-TCCCTCACAACCTTCTCATAGTTGTGTC--------TTTTGGTC
TTCGG--CTCCCCCTTTCTTCTCTCTCCCTGTCTCTGATTCT--------------------------------------
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>Myotis lucifugus
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-GCCCTGGACTTCCCCCTAACCTGTCTGCTTTTTATGCCATTATAT----------------------------------
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>Pteropus vampyrus
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-TCTCTGGACTTCCCTCTAACCTGTCTGCTTTTTATACCATTGTAT----------------------------------
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>Equus caballus
CTCTTAGAAGATGTTTGTTTTCTCCCTCACAGCAC-TCCCCTACTGTGTGCTCATACTTGTGTC--------TTTAGGTC
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----------------------------------CATCTTGTT-CAAA
>Ceratotherium simum simum
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TTCCCTGCACCAGGTGCCTCTTTAGGAGAGCAGGCAGT-------------TGGGCCTGCTAGTTTGTCTGTGTCATCCT
TATATTCTGGCAAAACAATTAAGAAAGTTGT-------------------ACTCTGAATGTCCTCCACAC--AGAGAGAA
-GCCATGGGCTTCCCTCTAATCTGCCTGCTTTTTATGCCATTGTAT----------------------------------
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----------------------------------CATCTTGCTCCAAA
>Condylura cristata
CTTGGTGTATACTGATTTCCCCCACTTACAACAAC---CCCCAGCATCTGCTCATATTTGTCTC--------TCTTGGTC
TCCGTGTTCCTTTTTCATTTCTCCTTGTCTCTAAGTCCATC--------------------TCTGTCTCTGTGTTTCTAT
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TATTTT-TGGCAAAACAATCAAAAAAGTCAT-------------------ACTCTGAATGGCCTCCATCT--GGAGACAG
GAG-CTGGGCTTCCC-CAAATCAGCATGATTCCTATGCCTTTCCAT----------------------------------
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----------------------TGAGGGGTGCCTTTCTCCTGTCTCACAAAGAAATTTCAAATTTC----------CTTT
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CTGTGACCT--GGGTTCAAGTTTT-----------TACCTATTCCTATCTCTCCCAATACTTCCCTAACAGTTTATTTGA
ACTGC--AAGGTAAAAAGCTGGA--CTCATTAGACATTTTACTTCAAA
>Homo sapiens
CTCTTAATAGATGTCTGTTCTCTTCCTCACA-TAC-TCCCCAACCACCTGCTCATAATTCTGTCTTTATGTTTTTTGGTC
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TGGATAAGTAGGGACTACTGTATGGAAAAGTTT------CTCTCTAAC-TTGAAATTTAGTTT-------------CTAT
GGGAATTCAGAG-------TTGAATGTGACTTTCAATTTTGTGGTTTTGATAAATAGCCTGCATTTATCAACA-GATAGG
TGATATGATTTTTCA-ACTAAATATTCTTGGTTGGTTTTTATTAGATGCTAGTTATAGTGGAAAATGCAGGGTTCAAGGT
CTGTGACCT--GGGTTCCAGTCTTGGCTCTGCCTATACCCATTCCCATGTCCCCCAGTATTACCATAAGAAGTTATTTGG
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>Choloepus hoffmanni
CACTTCATAGATG-TTATTCTCTCTATTGCAGCAC-TCCCCACTCA-CTGCTTACACCTGTGTC--------TTTTGGTC
TTTGT--TTCTCTCTCACTTCTCTTTCTCTAGTTCTCTCTTCC-------------------------------------
----CTACACCAGGTGCCTTTCTAGGTGAGCAGGGAGCTTGGTCTGGAATACAGGCCCACTGC--TTTCTGTGTCATCCT
TATATTCTGACAAAAAGATCAAGAAAGTTATACATGAAAGGAGGGATGTGACCCTGAACAGCCTCCATGCCAAGTGCGGG
GACCCTGGGCTTCCCTCTAATCTGCCTGTTTTTTATACCATTGCAC----------------------------------
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----------------------TAGAGGGTTCC--------TTCTCAT-TTGAATTTTAGTTT-------------ATTT
GGGAATTTGGATTCTTGGGTTGAATATCAGTTT-AATTGTGTGTTTTCAATGTATGGCTTGCATTCATCAACA-AAAGTG
CAATATGATTTTGCAGAGTAAATATTCCTGATTCCTTTTT-TCAGATGCTACCCATCTTGGAAAGAAGAGGACTTAAGGT
CTATGAGCT--GGGTTCAAGTCTTGATT-TGCCCATGCCTGTTCCCATCAATCCCAATATTCCTATAATAGTTTATTTAG
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3.17 Marker H_Db071

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>Canis lupus familiaris
TGCCAGGACCCCT-----------TCCTTCTAGGC---AGGCCTTCACCAGATTATTTGA-----GTCAGGAATAGTGTT
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-TTGCTCCTCTTGGTAGTG-ATAAGACAT----------TTTTTAAAAAATCCAAGCACTTGGTAATTGTATTTTATGTC
TCCTCCTGGGAG
>Felis catus
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TTGCTTTAGGC-----------------------------------------------------------------------
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-TCGCTCCTTTTGGTAGTT-ATGAGACAT------------TTTAAAACACCCAGGCACTTGGTAGTTGTATTTTGTGTC
TT---CTGGAAG
>Manis pentadactyla
TGCCAGGACCACTGAGAGGGGCT-TCCTTTTGGGC---ATGTATTTACTAGGCTGGTTGG-----GTTTGGAATAGAATT
TGGCTTTGGAC-----------------------------------------------------------------------
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-------------------------------------CTTAAGCCTTT-TCATGTC-TGAGGTGGGACTAGATTGCCCT
-TTGCTTCTTAGGGTAGTC-AGAAGACTT----------T-TTAAAAAAGTCCAGGTACTTTGTTTTTACATTTTACATC
TTATACTGGGAG
>Bos taurus
TGCTAGGACCACCGAAAAAGTGC----------------TGCCTTCACCAGGTTGGTGT------GTTTGGAGTAGTACT
TGGTTTCCTGT-----------------------------------------------------------------------
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>Balaenoptera acutorostrata scammoni
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TGGCTTCCAGT-----------------------------------------------------------------------
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TTATCCTGGGAG
>Myotis lucifugus
TGCCAGGACCACCGGGGAGGGGCTTCCTTCTGGGC---CTGCCTTCC---AGTTAGTTGG-----GTTTGGAATAGGACT
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-TTGCTTTTTTGGGTAGTT----AGACAT----------TTTA----AAGTCCAGGCGTGTTGTAGTTACACTGTACGTC
TTATCCTGTGAG
>Pteropus vampyrus
GGCCAGAAC--CTGAAGAAGTTC------CTGAGT---GTGTCCTCACCAGGATAGTTGG-----GTTTGGAACAGTACT
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-TTGCCCCTTTTGGTA------AAGACAT----------T-TTTAAAAAGTCCAGACAC--TGTACTTATATTTTG----
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>Equus caballus
CCCCAGGGGCACCGAGAAGGCGT-TCCTTCTGGGC----TGCCTTCACTAGGTTAGCTGG-----GTTTGGAACAGTACT
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TTATTCTGGGAG
>Ceratotherium simum simum
CCCCAGGACCACCGAGAAGGCAT-TTCTTCCAGGC---ATACCTTCCCCAGGTTGGTTGG-----GTTTGGAATAGTACT
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-TTGCTTCTTTTGGTAGTT-ATAAGACAT----------T-AACAA-AACTGCAGGCACTTTGTA-TTATGTTTTATGTC
TTATCCTGGGAG
>Condylura cristata
TGCGGGACACA----GGAGGCGCTTCCTTTTGGACT--TGGCTTCCCAGGGT--GGCTGA-----GTTTGGAATAATACT
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-TTGCTTC-TGTTGTGGTT-GGAAGACAT--------------CAAAAAGTCCAGGCATGTTGTTATTACCTTTCATG--
TCATCCTGGGAG
>Trichechus manatus latirostris
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-TTGCTCCTTTTGGTAGTT-GTAAGACGT----------TTTAAAAAATG-----------------------------
-CCTTATGATGT
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>Choloepus hoffmanni
TGCCAAGACCA--GAGAAGGTGCTTCCTTCTGGGCATGATGCTGTCACTGGTTTGGTTTGGTTCAGTTTGGTACAGTGGT
TTGTTTCAGATCTTAGGGAAAGAAAACAAATTGATTTAAACAACTAGA--GCCGAATCCCAAGAAGCTGATTCCCATGGT
ATGTCTTCC---CTCCTCCCTTTTCCTGTAATCCAGAGGGACAGAGGAGGAAATGGGAGGACTGAGGGGTGACATACCTG
TTTTCTTCTGCCTTCTGGGTAAATTT-GTTTTTCTGTACATTAGCCTTC-TCATCTC-TAAGA--AGTCTTGGCAGACTT
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3.18 Marker H_Db077

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>Canis lupus familiaris
GTACTTGTTTATTAATATT-CTTTATTAAATCTTTCTAGAATAATCATAATTGGAGTATTCATTCTATTTCCTATTGGGA
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----------------------------------------TCTTATTTTTATACTC------TATGCTATAATATCAAAA
CATCACCTTTCTCAAAAA-GAGTCTGA-CATGT----TATG------ATTTTAAGACAAACTTTAGGAAAA-TAGT
>Panthera tigris altaica
ACACGTGTTTATTAATCCT-CTTGGTTAAATCTTTCTAGAAGAATCATAATTTGAATATTCATTCTGTTTTCTATTGGGA
CCCTGCAAGAAAAGACCTTT------------------------------------------------------------
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----------------------------------------CTTATTTTTATGCTG------TGTGCTACAGAATCAAAA
CATCACCTTTCTCAGGAAAGAGTAACATGATGT----GAT------AAT--TTTGAGAACCTTTAGGAAAA-TCAT
>Bos taurus
ACGCTTACTTGTTAATATC-CTTTGTTAAATCCTTCTGTAATGATTATAATTGG-GCATTCGATCTACTTCCTATTGGGA
CCCCACAAAAAAGAAAGTTT------------------------------------------------------------
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----------------------------------------CCTTACTTTTGTGCTT------AATACTACAGTATCAGAA
CACCATGTTTATCAAAAA-GACTCCAA-CTTGA----TATG---ATAATGTTAAGAGAACCTTTAGGAAAAATAAT
>Balaenoptera acutorostrata scammoni
ATACTTGTTTATTAATACT-CTTTGTTAAATCCTTCTGGGATAATCATAATTTGAGCATTCAATCTATTTCCTGTTGGGA
CCCCACAGGAGGAAAATTTT------------------------------------------------------------
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----------------------------------------CTTACTTTTGTGCTCAATATCAATACTACAGCATCAAAA
CACCATCTTTCTCAGAAA-GACTCCAA-CTTGA----CATG---ATAATGTTAAGAGAAACTTTAGGAAAAATAAT
>Myotis lucifugus
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ATCCCACATGAAGAAAGATTTGAGTGATATTTATGGAAACT----AATACTAAAATGTTTTAATTTGCTGGATTCAA-GT
AGACAACATTTATAATTAATGTATTAATGTTTTTAGAGAATATTGATTAATCATCTCTGAATACTCATGTTTACCTTAAT
TACTAGTTGTGGAGCTACAGAAGAAAACAAAACCTAATTACTGGATTTAAATTAAA-TACAACTAAATACTGTTAAATAC
AATAACAAATTTGCCAGAATGGAAAATGTAAAGAACCTTAACAATTGCTAAAAG-----CAATATTTCACAATTATGT--
-CATATTTTAATTGTTCTTAATATTTAAGGTACACATTTCATAAGCTATTGAT--------------------TATTATT
T-TCAGTTTGGTCCT--------------------------------AAACAAACTGAGTCTTCTATGGAAGTAATGATA
GCAATATCAGGATCGTAACTGAAATGAGAGAGTGCCTCTTTCTTACTTTTATGTTC------TGTACTATGGTATCGGAA
CATCACCTTTCTCAAAAA-GACTTCAA-CATAA----CACG---ATCATTTTATGAGCGCTTCTAGAAAAA-TAAT
>Rhinolophus ferrumequinum
ACACTTGTTTATAAATAAT-TTTTGTTAAATTCTTCTAGAAGAATCATAATTTGAGTA----GTCTTTTCTCTCT-TGGA
ACCCAACAAGAAGAAAGTTTTGAATGGTATTTATGAAAATCCTTCAATACTGAAGTG-CTTAATTTGCTTGATTGAATGT
AGAAAATTTTTATTATTAATGTAGG----TTTTTAGAGAATGTTGATTCATTTTCTCTGAATACCCATGTTTACACTAAC
TTCTGGTTGTGGCGGTATAGAAAAAAACAAAACCTCATTACTAGCTTTAAATTAAA-TACAACTAAATACTGTTAAAGAC
AATAACAAGTTTGCCAGTTAGGAAAATATAATGAGCCTGAACAATTGCTAAAAG-----CAATATTTCACAGTTAACTCA
CAATATTTTAATGGGCCTTC-TATTTGAGGTAGACATTTCATAAGCTATCAGATGTAATACATTCCAGTTGAATAT----
--TATTTTTGGTTCATTCGCT----ATGATTTCTCTTCAATTATCCTGAACAAACTGAGTCTTCTCTGGCAGTAAAGATT
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>Equus caballus
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-CATATTTTAATTGGTCTTAATATTTAAAGTAGATATTTCATAAAATATTCATTATAATACATTCCAATTGGACGTTGTT
TTTCAATTTGGTCCAAGAGGCCCCAATAATTTCTCTTCAATTATCTTAAACAAACTGAATCTTCTCTGGCAGTAACAATA
GCATCGTCATGATCATAATTGAAAGGAAATAGTGCCACTTTCTTCCTTTTATGCTC------TCTGCT-CACTATTAAAA
CATCACCTTTCTCAAAAA-GACTCCAAACATGA----CACG---ACAATTTTAAGAGAGCCTTTAGGAAAA-CAAT
>Ceratotherium simum simum
ACATTTGTTTATAAATATT-CTTTGTTTAATCCATCTAGAATAATCATAATTT----GAGTAATCTGTTTCCTAT-TGGA
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GTCTGGTTGTGGAGTCACAGAAGAAAACAGAAGATAATTACTGACTTTAAATTAAG-TGCAACTAAATAGT----AAAAA
AATGACAAATTTGCCAGATAGGAAAACACAAAGATCCTTAACAATTGCTAAAAG-----TAATATTTCACAATTATTTCA
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TTTCAATTTGGTCCAAGGGGCGACGATAATTTCTCTTCAATTATCCTAGACAAACTGAATCCTTTCTGGCAGTAGCAATA
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CATCACCTTTCTCAAAAA-GACTCCAA-CATGA----CATG---ATAATTTTAAGAGAGCCTTTAGGAAAA-CAAT
>Sorex araneus
CCTAGGCTTGTTAGAAAA--CATGGGTAAATCCTT--TGAATACTCATATTTTGAGTGTTCAATTTGTCTGATG--TTGG
AATCCTACACT-GCTGGTTTCAAGTGGCCGTTATGAAAACTCCTCCTCAGTAAGATG-CTTAATTTGCTT-ATCCA--CG
ATAGACG---------TCATCACTA----TTTTCAGAGAATGTTGAGT-ATTGTGTTAGGATACATATGCTAATTCTAAC
ATGTAGTTGTAGAGGTACT---GAAAAAAATCTCTAATTATTGATGTTAAATGATGTTAAAGATAA--------------
--CAGCAAGTTTGACAGAGAAGAAAGTAT---GGTTTTGATAACTGCTTAAAAGCTGCACAATATTTCCT----------
-AATATTTTAATTGGCCTTAATGCTTAAGGTAGACTT----TTCATAAGCAATTGTAATATATTCTAAGTGGGTACAATC
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GCATCATCAGTATCATAATTAAAAAGAG--TGTCTCT-TCTCTGA-TTTTATGCTC------CATTTTATTGTATCAAAA
CAAAACCGCTCTTAAAAAAGACTATGC-AACAT----GATGCGATCATTTTTAAGAGACCCTGTAGGAAAA-AAAT
>Homo sapiens
AGACTTGTTTATAAAAA---CTTTGTTAAATCCTTTGAGAATAATAATGATTTGAATATTAAATCTGTTTTGTTT--GGG
CCCCCATGAGAAGAAGGTTTTGAGTGGTACTTATGAAAACTTGAAAATATAAGAATG-CATAATCTGCCTTATTCAATGT
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>Trichechus manatus latirostris
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AATAACAAGTATGCCAGAAAGGAAAACATAGAG--TTTTAACAATCGCTAAAAG-----AAATAGTTCAC----------
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3.19 Marker H_Db083

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>Canis lupus familiaris
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---------------------------------------------------------------------------CTGTT
CTATGCATTATAGGCTGTGTAGCAGC--ATCTCTAGTCTCTATCCACCAGATGCCAGGAACACACACACACACACACACA
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>Ailuropoda melanoleuca
AATAACAATTTCCTT--TGGCCACTATCTTGGCTAACCATCTCCAAAGCCTGTGAGGTCGGTCTTATTAAACCCTATGTT
AGAGGTGAGAAAACTGAGACTTGGGGG-----------------------------------------------------
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---------------------------------------------------------------------------CTGTG
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CACACGCAC-------------ACTCTTCCCAGGTGTGATAACCAAAAATGCCTGCAGAAAT
>Felis catus
AATAGCGATTACCTT--TGGCCATTATCTTGGCTGACCCTCACCAAAGCCTGTGAAGTCAGTATTA---AGTCCTACTTT
AGAGGTGAGAAAATGGAGCCTCGGGGC-----------------------------------------------------
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--------------CTGTTCAGCAGC--ATCTGTGGCCTCTACCCACCAGATGCCAGCATCACACACG------------
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>Manis pentadactyla
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---------------------------------------------------------------------------CTGTC
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>Bos taurus
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---------------------------------------------------------------------------CTGGT
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>Balaenoptera acutorostrata scammoni
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AGGGATGAGAAAACTGAGACTCAGGGG-----------------------------------------------------
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---------------------------------------------------------------------------CTGGG
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>Myotis lucifugus
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AGGCTTCCCAGCCTCCTACTG-TTTCTTATGGGTCTTGGCAAAGGAAAGTGGCCGTCCA--------------------G
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CTATGCATTGTAGGATGTTCAGCAGC--ATCCCTGGCCTCTACCCACCAGACGTTGGCATCACACACACACACACACACA
CACACACACACA----------CCTCTTCCCAGTAGTGAGAACCAGAAATGCCTCCAGAAGT
>Pteropus vampyrus
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>Equus caballus
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>Ceratotherium simum simum
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>Condylura cristata
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CTGGCCAGGGAGCTGACCCACATGGCATAGCAGATCTCTCCTGACCCACCCACTGCACCCCTCAACAGTGTATCTCTGTA
GATCCACCTATTCTGGTCCCCACTCTGTCTCTGGTGAATCCTCTCAGCTCCCACACCTCTGACCTACACCCCAATTCGTC
TACAAATAAATAATGAAAATTAAAAAACAACAAAAGATGAAGGGTCTCGGCAGCCTGCTGCATTT-GGAAATTTATACCC
ATCCAGTAGGCACTGTGGGGT------------ATTTGGGGCCATGGAG-CAGGGTCAT-GCCAACTGATA---CTTCCT
GATGTCCTGAG----------------------------AAAGGCAAGTGGTCATCCAGGGCATGCCATGACGGAGCTG
GG-TTCT--------------------GGAGGAGCTAGCAGCTAAGAAGTCTTTGTCAGCCGCTATCTCCTCATGGAAGC
TTAGCAGTGCCCGGGCTTCTACCCGCTGGACGCCGGCCTC-ACGCACATAC----------------------------
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>Homo sapiens
GACCACAATTACCCTCGTGGCCATTACCTTGGCTGGACCTCACTAGAGCCTGTGGAATCAGTATTATTACCTCCTCCCTT
AGAGAT-AGGAAACTGAGCTGCAGGGA----------------------G-TTAGAGCATGGAC----------------
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ACAGA-------------------------------------------------------------------------
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-------------------------------------------------------------------------------
-------------------------------------AGAGGAGGCCTGGCAGCCAGCTTCATTTGGGGATTTGTAGTGA
ATTCACTAATCACCCTGATTT------TGGGGTGCTTGGGCCCGTGGAGGCAGGACCATTTGGGGGT-AGC---CATGCA
ATGCCTCC--------TGTCA-TGTCTTAAGG-ACTTGGAAAAGCAAAGTGGGCATCCAGGGTATCTCATGACCAAGCT-
GGCTTCT--------------------AGAGCAGGATTTCTCAAGCTTGGCCTGGATACATCTTTATTGTAGGGGCCGTC
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----------------------CCCTTCCCCAGTTGTTATAACCAAAAATGCCTCCAGAAAT
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>Choloepus hoffmanni
AATAGTAATTACCTTTGTGGCCACTATCT--------------CAAAGCTTGTGAAGTCAGTATTATTAAATCCTACTTT
AGAGACAAGAAAACTGAGGCTTAGGGG----------------------GGTTAGGTAACAGAT----------GCTTGG
CCATGTAACTGGTAAGAGGCAGAG----TCAAAAA-GTTGGAACTTGGTTCCCCAAAGCTCTACTCT-CTTTCCTAGGCA
ACACA-------------------------------------------------------------------------
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-------------------------------------------------------------------------------
-----------------------GCCATCCAACAGA-TGAGGAGGCACGGCAGCCCTCTGCGTTTGGGAATGTGTAGTCC
ATGCACTAGGCACCTTACCTGTAAGTGTCGGGTATTTGGGGCCATGGAGGTAGAGCCATTTGGGGG--AGC---CATGCC
AGCCTCCCCAGCCTTCTATCATTGTTTCAAAG-CCTTGGCAAAGGAAAGTGGTCATCCAGGGCTTCTCATGATGGAACTG
AGTTTCC-----------------------------------CAGCTTGGATGGGGTAATTCTTTGTAGTGGGGGCCAAC
CTGTACAATGCAGGATGTTTAACAGC--AT-CCAGGCCTCTCCCCATTAGATGTCTGTATCACAGCCCTTCCC-------
----------------------CCATCCCCCAGTTGTGACAACCAAAAATTCCTCCAGAAAC
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3.20 Marker H_Db084

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>Canis lupus familiaris
TATCGAACACCTCCTTTGTATTAATGCTAGATATTGGACATGCCAAA---AAGAGGATAGTTCTTATCCGTAAGGAACTA
ACAGGCTAAG-------------------CATCATT-----------ATAATAAAATATGCTA-----------------
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-------------------------------------------------------------AGAGAAGCTA---TGGTAC
TGGACAAAGTCCTCATTTATCCAGAGGAAATCGGTCTTTATGCAGAAGTGACTGCACAGCACCTGTAC--TTCCGCTAC-
TGGCCCTGCAGTGGCCTGTGGTGCCA
>Felis catus
TATTGAACACCTCCTTGGTATGAATGCTAGATATTAGACATGCCAAG---AAAAGGGTAGCCCTTACCCCCAAGGAACTC
ACAGGCTAAG-------------------CATCATT-----------ATAATAAAACATGCTA-----------------
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-------------------------------------------------------------AGAGAAGGTA---TGGCAC
TATAGAAAGTCCTCATTTATCCGGAGGAAATCGGTATCTATTCAGAAGAGGCTGCCCAACACCCTTAC--TTCCCCTGC-
TGGCTCCGCAGTGGGGGGTGGTGCCA
>Manis pentadactyla
TATTAAGCACCTACTTTGTATTCATGCTAGTTGTTAGACGTGCAAAG---AGAAGGATAGTTCTCATTCTCCAGGAACTC
ATAGGTTAAG-------------------CTTC--------------ATAATAAAATATGCTA-----------------
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-------------------------------------------------------------AGAGAAGCTG---CGGTAC
TATGCAAAGTCCTCATTTATCCA-AGGAAACCCTTATTTATTTAGAAGTGACAGCACAACACCCTCATACTTCCCCTGA-
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TGAGCTGTGGGTGGCATGTGGTGCCA
>Bos taurus
TGTCGAACAGCTACT-TATATTAATGCTAGATGTTACATGTGCAAAG---AAGAGGACAGTTCGCATCCTCAAGAAACTC
AC------AG-------------------CATCCTT-----------ATCAAACAATAGGCCA-----------------
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---AGAGAAGTTA---TGATAC
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TGGCCCCTTGGTGCCACGTGGTACCA
>Balaenoptera acutorostrata scammoni
TATCGAACACCTACTTTGTATTAATGCTAGATGTTAGACGTGCAAAG---AAGAGGACAATTCTCATCCTCAAAGATCTC
ACAGGCCAAG-------------------CATCATT-----------ATAATAAAATATGATA-----------------
----

---C
TATAGACAGTGCTCCTTTATCCAGAGGAAATCCATATTTATTCAGAAGTGACTGCACAACACCCTCGTTCTTCCTCTGC-
TGGCCCCTCGGTGGCACATGGTGCCA
>Myotis lucifugus
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GGGTTTGCATGTG--GAGAAGGTGAT-GTGTGGGGGAGGTTGGAGGGTGC-ATGCTCTGTGATGTGTTTGTGT---CCCA
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TATAGAAAGTCCTCGATTATCCAGAGGAAATCCATATTTACTCAGAAGTGACCATGCAAGCCTCCTAC---TTCCTTGC-
TGGCTACTTGGTGGCATTCCGGCCTG

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>Pteropus vampyrus
TATTGAACACCTACTCTGTACCAGTGCTAGATGTTAGACATGCAAAG---GAGAGGACTGTTCTCATCCTCAAGGAACTC
ACAGGCTAAG-------------------CATCATTTTATATATATTAT-ATATTATATGTTA----------TATGTTA
TATACTATATACTATATATTATATATTACATGTTATATATTATATATTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTAT
AAATT-------------------------------------------------------------------------
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GAGGTTGCATATG--GAGAAGAAGGT---GTGTGGGAGGT--------GC-ATTCTGTGGGATGTATGTGTGT-----CA
CGT--GGGGGCTGTGTAATGTGAGGAGGAGCTTTCTTAGGTGT-AATTGGGGATATCTCTTAGAATTTA-AATTTTACCA
AATTTGAAACAATAAGGGATCATCATATCCATTTTT------------------------------------------
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-----AAGGAGCATCATCCAGGGACCCAGAGGGGTAGTAATAGGAAAAATAGTAAACTCCTTCAAGAAGTT-ACAATGCT
ACCAAGGAGACAGGGATGGAATGTTTGG--------------------------------------------------
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TGTGCACACATTCAGACACTCTGGGAGGATCTGTTCTAGGTGGATATTGGCCAAAAA-GTGAAAGAAGGTGGAGTGGTAC
TATAGAAAGTCATCATTTATCAAGAGGAAAACCATATTTATTTAGAAGTGCCTGCACAACACCCTCATGCTTCACTTGC-
TGGCCCTTGCAAGGCATGTGGTGCTG
>Equus caballus
TATTGAACACCTTCTGTGTA-TAATGCTAGATGTTACGTGTGCAAAG---AAGAGGACAGTTCTCATCCTCAAGGAACCC
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ACGGGGAACAGTGAGCGAGTCTGACTC--AG--GCTGCCTCACAGAGGTGACCCTTGACTTTGAACATGAAAGAGGAGTT
GGGGTTGCCCGTG--GAGAAGAAGGTGAGGTGCGGGGGAG--------GT-TGGAGGTGCATTCTGTGTGTG------CA
TGT-GGGGGGCTGTGTCATG---GGAGGGGCTTTCGTACGTCTAAATTGGGGATATCTCTTAGGATTTA-AATTTTACCA
AATTTGAAACAATAAGGGGCCA-CATGTCCATTTTT------------------------------------------
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-----AGGGAGCACT--CCTAGGCCCC-------CAGTAATAAAGGAA-----AAAAACCTTCAAGATGTTCACAAGGCT
TCTAAGAAGACAAGGATGGCA--TTTGG--------------------------------------------------
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-------TTGACAGTATAGATCTGAATCGTGACTGAATGACCGGTCACGGGGTGGGGGTGTGTGTGTGTGTACACGTGCA
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TGGCTCCTG-GCGGCTCATAGTGCTA
>Ceratotherium simum simum
TATTGAACACCTACTGTGTA-TAATGCTAGATTTTGGACGTGCAAAG---AAGAGGAAAGTTCTCATCCTCAAGGAACTC
ACAGGCTAAG--------------------ACTATT-----------ATAATAAAATATGCTA-----------------
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TGTGAGGGGGCTGTGTGATGTGGGGAGGGGCTTTCATAGGTCTAAATTGGGGGTATCTCTTCGGGTTCA-AATTTTACCA
AATTTGAAACAATAAAGGGTCATCATGTCCATTTTT------------------------------------------
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ACCAAGGAGACAAGGATGGAGTGTTTGG--------------------------------------------------
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CATGCATCCA----GACACTCTGGGAGCGTCTGCTCGAGTTTAATGTTGGTTGAA-------AAGAAGGAGGCGTGG---
---------TCCTCATTTATCCAGAAGAAATCCGTATTTATTCAGAAGTAATTGCATGAGACCCTCAC--TTCCCCTGC-
TGGCTCCTTGGTGGTGCTTAGTGCTA
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>Erinaceus europaeus
TATTGAGCACCTGCTATATG-TAATGTTAAGTGTGCA-------------AAGAAAACAATTCTCTTCCTCCAAGAATTC
ATAGTCTACTGGAGAAATGTGTAGACAAGTATCATA-----------ATAATAAAATATGCTA-----------------
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-------------------------------------------------AGAGAAGTTATGGATGGATCCCTGTAGGAGC
ACCGGCAACTGTGAGCAAGTCTGACCCAGAGACACACCCTCACAGAGGGAGCTTTGGACTTGGAACTTGAGAGAGTTGTT
GTGGTTGCTTATG--GATGAGGCCTGGATGTGCATGATGCTGGTGTGTGTAGCAT--------------GTGTATGGGGA
GG---GGTGGCTGGG--GTGTGAGGAGGGGCTTTCCTAGGTGTAAAATAGGGGAATCTTTTAGGATTTA-CATTTTACTA
AACTTGAAACAATGAGGGGTTATCATGTTCATTTTTTTATGTTTATTTATTTTCCCTTTTGTTGCCCTTGTTTTTTTTAT
TGTTGTTGTTATTGATGTCATTGTTGTTGGATAGGACAGAGAGAAATGGAGAGAAGAGGGGAAGACAGAGAGGGGGAGAG
AAAGATAGACACCTGCAGACCTGCTTCACTGCCTGTGAAGCGACTCCCCTGCAGGTGGGGATACAGGGCTCGAACCCGGA
TCCTTATGCTGGTCCTTGCGCTTCACACCACGTGCACTTAACCTGCTGCTTAACCTACACTCAACTGCCTATCATGTTCA
TTTTTAGGGAGCACCT-TCTAGGGATCCA-----------------------------GTAGTAGGTTTTAAAAAGGAG
GGGGAGGAGGAAGAGATGGAGGGGGGGG-------------------------------------------------
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>Homo sapiens
TACTGAGCGCCTACTATGTACTAATGCTAGATGTTAGATGTACA------AAGAAGACAGTTTTCATCCTCTAGGAACTC
ATAGGCTAATGGTGAGACACACAGACAAACATCATT-----------ATAATAAAATATGCTA-----------------
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-------------------------------------------------AGAGAAGTTATGAATAGATTTCTGTAGAAGA
CACCT--ACAGGC-----GTCTGACTCAGAG--GCAGCATCACAGAGGTGACCTTTGACTTTGAACAGGAAAGAGTGCTT
CGGGG-CCGAATGTAGAGAAGAAGGTGATGCATGTGGGGTGGTTGGAGAT-GCATTCTCTGTGATGTATGTGT---CACA
TGT-GGGGGGCTGTGTGATGTGGACAGGAGCATTCTTAGGTGCAAATTTGGGGTATCCCTTGGGATTTA-AATTTTACCA
AATTTAAAACAGTAAGAATC-ACCATATCTGTTTTT-----------------------------------------
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-----AGGGAGTACC--CCAGTAAGGGAAAA---CAAACAAACATAG---------CTTCTTCAAGAGATTTATAATCCT
ACTAGCAAGATAAGGATGGGATGTTTTGCCAGGTGTGGTGGTAAATGCCTGTGATCCCCAATACTCAGGAGGCTAAGGTG
GGAGGATCCCTTGAGCCGAGGGGTTCAAGACAAGCCCAGGCAACATAGTGAGACCCCTCTTCAAAAAGATAAAAGGGAGC
CGGGAGCAGTGGCTCATGCCTGTAATCCCAGCACTTTGGGAGGCTGAGGTGGGCAGATCACCTGAGGTCAGGAGTTCGAG
ACCAGCCTGGCCAACGTGGTGAAACCCCGTCTCTACTAAAAATACAAAAATTAGCTGGGTATGGTAGTGTGCTCCTGTAA
TCCCAGCTACCTGGGAGGCTGAGGCAGAAGAATTGCATGAACCAGGGAGGCAGAGGTTGCAGTGAGCCGAGATCACACCA
CTGCACTCCAGCCTGGACAACAGAGTAAGACTCTGTCTAAAAAAAATAAACAAATAAATAAAAAGAAAAAAAGGGTGGAA
TATTTAGATGACAGTGTAGATCTGAATC-TGAATGCATG--------------------------------------
------TGCATGCATTCACTCTGGGAA-----GCTTTAGTGTC-----GGCCAAAAA-GTGAAAGAGGGTGGG-TGGTTC
TGCAAAAAATCCTCATTTCTCAAGAAGAAATCCATACTTTTTCAGAAGAGCCTGCGCAAGTCCCTTATACTTCCCCTCCT
TGGTGACATGTGGTGTTCCATGGCTC
>Trichechus manatus latirostris
TATTGAGCACCTACTATGTACCAGTGCTAGATGTTGGATGTACAAAAGTGAAGAGGAAAGTCTTTATCCTCAAGGAACTC
ATAGGCTGATGGAGAGACACATAGACAAGCATCGTT-----------ATAATAAAATATGCTC-----------------
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-------------------------------------------------ATAGACGTTGTGGCCAGATTCCTGTGGGAGG
AGAGGGAACTGTGAGGGGATCTGACACAGAG--GTAGCATCACAGAGGTGACCCTTGACTTGGGACATGGAAGAGGAGTT
CGGGGATTGCACATGGAGAAGA---TGATGTGTGTGGAGAGATTGGGGGT-GCATTCTGTGTGATGTATGTGTATGCACA
TGG--GGGGGCTGTGTGATGTGGGGAGGCACTTTCTTAGGTGTCAGCTGGGGGTGTCCCTTAGGATATAGAATTTTATGA
ACTTTGAGACA--------------------TTTTT----------------------------------------
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-----AGGGATCACCT-TCTATGGCCCCAAT---AATAGAGAAAACCA--------TTCCTTCAAGAAGTTTATAATCCT
CCCAAGGAGACAAGGACAGAATGTTTGG-------------------------------------------------
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-------ACGACAGTACAGATCTGAATCATGACCGAATGACTGGCTGTGGCGTG--------------------TGTGCA
CATGCATGCATTCAGACCCTCTGGGAGGGTCTGCTCGAGCTTAGTGTTGGCTAGAAAGTGGACAAAGGAAGGGCTGATAC
TGCAGAAACTCCCCATTTATCCAGAGGAAATGCTTATTTATTTAGAAGTGACTGCACTAGCCCCCTCCTATTTCCCTGC-
TGGCCCCTCGGTGGCATGTGGTGCTG
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3.21 Marker H_Db086

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>Canis lupus familiaris
GAGTCTGAAT-TAACCATGACAT----TCCCTGTACC----CCATTCAAATCCTTTTCTTTCCACCACCC-ACTGTCTCT
CATTTTCCTTTTGCTGGGTATTACACAGAGCTT---------------------------------------------
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-----------------------------------------------------------------------------
---------------TTATTTGTGT-TTAAT-CTGTGTGACATCTTGAGTTTCTTA-GAGTAGGCAGGAAACTCAATA--
TATTTATAGTAGCCCAGCA
>Felis catus
GAGCCTGAAT-TAACTGTCATAT----TCCCTTTGCC----TCATTCAGATCCTTTTCTTTCTGCCACCC-ACTGTCTCT
CGTTGTTCTTTCCCTGGGTGTTGCACAGAGCTT---------------------------------------------
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-----------------------------------------------------------------------------
---------------TTATTTGTGTTTTAAT-CTGTATGACATCTTGAGTTTTTTA-GAGTAGGCAGGAAACTCAATA--
TATTTATAGTAGCCCAGCG
>Manis pentadactyla
GAGCCTGAAC-TTACTGTCCTGT----CTCCTCTACC----CTCTCCACGTGC---TCTCTCCACCACCC-GTGGTCTCT
CTTTTTCCTTTCTCTGTGTATTGCTTAAAGCTT---------------------------------------------
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-----------------------------------------------------------------------------
---------------TCATTTGTGTTTTAGT-CCTAATGACATCTTGAGTTGTTCA-GAGTAGGCAGGAAACTCAATA--
TATCTATGGTAGCCCAGCA
>Bos taurus
GAGCCTGA------CTGTTACCTGACCCTTCCCGCCC------TGTCATCTTTCCTTCCTTCCACCACCA-GT-------
---TTTCCTTTCCATGGGTAC-------AGCTT---------------------------------------------
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-----------------------------------------------------------------------------
---------------TTTTGTGTGTTTTAAT-CTGCATAGTATCTTGAGTCTTTTA-GAGTAAGCAGGGAATTCAGTG--
TGTTTATAGTAGTCCAGTA
>Vicugna pacos
CAGCCTGATCCTTGCTGCCCCGTCTCACTC-GCTGCC----CCATCCAGCTCCTT-TCTTGCCACCACCA----------
-TATTGCCTTTCCGTGGATATCACATACAGCTT---------------------------------------------
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---------------TGATTGGTGTTTTAAT-CTGTATGACATCTTGAGTTTTTCA-GAGTGGGCAGGGAACTCAATA--
TATTTATAGTAGCCCAGCA
>Myotis lucifugus
GAGCCTGACC-TGGCTGCCATGTGCTCCCCCTCTGCCCGCCCCATGCAGCTTCGTTACTTTCCACCACCC-ATTGTCTCT
--TTTTCCTTCCCCTGGCAATTGCATAGAGCTT-T-TCAGCTGTGAGTAGTGAATTGCCTTAAAATCTTCCAGAATTGCC
TTAAAATCTTCCAGAAAACAAC---TTTCCTTTGAGGTTTAGTTGCTTAAAATTT---ATATTGACTAGATTTGAACAAA
TTA-----------CAGGGGACTCTAGGAAGACTTCTATTTCATTTTTTTTTCTTCAGTTGGTTTCTTTTCTGATTTATT
CTTAAATGTCATAACTTATTTTCGTTTTAAT-CTATATGACATCTTGAGTTTTTTA-GAGTAGACAAGGAATTCAATATT
TATTTATAGGAGCCCAGCC
>Pteropus vampyrus
GAGCCTGAAC-TAGCTGCTATATCTCACTCGTCTGTG----CTGTCCAGCTCCCTTACTTTCTACTGCCC-ATTGTCTCT
TTTTTTCCCTTCCTTGGGTATTGCATAGAACTTTT-CCAGCTGTGAAT------------------------TAACTGAC
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TTA-----------TAGAGGATTATATGAAAACTTCTA------TTTTCTTTCTCCAATTGGGTTCTTTTCTGGTTTATC
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TATTTATAGTAGCCCCAGC
>Equus caballus
GAGCCTGAAC-TAACTGGCACGTCTCAATCCTTGGCC----GCAT-CACCTCCCTTTCTTTCCACCGCCT-GTTGTCTCT
CTGTTTCCTTTCCTTGGGTATTGCATAGAACTTTT-CCAGCTGTGAGT------------------------TAGCTGCC
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CTTAAACGTCATAACTTGTGTGTGTCTTCAT-CTGTATGACCT-TTGAGTTGTTTA-GAGTAGGCAGGGAACGCCGTG--
TGTTTACAGTAGCCCAGGA
>Ceratotherium simum simum
GAGCCTGAAC-TGACCTGCAGGCCTCAATCCTTGGCC----GCATCCCCCTCCGTTTCTTCCTGCCACCC-ATTGTTTCC
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TGTTGACAGCAGCCCAGCA
>Condylura cristata
GAGCCTGAAC-TGTCTGTCATTTTTCACTCCTCTGTT----CTATGCAACCCTCTATCTTTCCTCCAT---CTATTCTCT
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GTAGTAGCCTAGCAGACAA
>Homo sapiens
GAGCCTGAAC-TAA--GTCACTTCTCACTCCTCTGCC----CCAT-------CCTTTCTTTCTGCCACCT-ATTGTC---
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TTAGAATCTGCCAGAAAACACTCTGTTTCTTCTCTAGTTTAGTTGCAAAAAATCT---TTACTGACTAGATTTGAACAAA
TGA-----------TAGAGGATTCTATGAAAACGTCTGTTCTA--TTTTCTTCTTCAATTGGGTCCTTTTCTGACTTATT
CTTAAATGTCATAACTTATTTGTATTTTAAT-GTATATGGCATCTTGAGTAGTTTA-CAGTAGGCAGGGAACTCAGTA--
TATTTATAGTAGCTAAGCA
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>Dasypus novemcinctus
AAGCCTAAAC-TAACAGTCACTTCTCACTCCTCTGCC----CCATCTAGCTCCC--TCTATCCATCGCC--ATCTTCTCT
CTTTTGCCTTTCCCTGGGTAT-----AGAGCTTTT-CCAGCTATGAAT------------------------GAACTTAC
CAAGAATCTTCCAGAAAACAAG---TTTCCTTTCTAGTTTAGTTGCCAAAAAATTTACTTATTGACTAGATTTGAACAAA
TTA-----------TATTGGGTTATATGAAAACTTCTGTTCCG-TTTTCTTTTTTCAGTTGGGCTCTTTTCTGATTTATT
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--TTTATAGTAGCCCTGCA
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3.22 Marker H_Db087

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>Canis lupus familiaris
AAATATTTCTGACACAAATATGGTGCCAAAATATAGC--TGTGTATATAAGG-ATATTTACTGCAACAAATCGGATAAAC
GTATATATTCACCTATAAGAAAATGG-CTGAATAAGTTGTGGTACTG--------------------------------
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---------------------CTTGTGG--AGTTCAGTTGTTAATACGAGAACAATGTCATTAAGTATATGCCTATGCAG
AACTGATTCTAATTATTCAGT-GATTATTAAACAACTTGTAAAGCACAG
>Felis catus
GAATATTTCTGACATAAATATAGTGCCAAAATATAGCCATACATATCCAAGG-ATATTTACTGCAACAAATTGGATACAT
CTGAATATCCACCAGTAAGAAAATAG-CTGAAGAAATTATGGCACTT---------------------------------
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---------------------CATGTGG--ATTGTAGTTGTTAATGC---AACAATGTCA-AAAGTACGTGGCTAAGCAG
AACTGATTCTAATTATTAAGC-AATTATTAAACAACTTATAAAACACAG
>Manis pentadactyla
GAATATTTCTGATAGAAATATAATGCTAACTTAGAGTGATGTGTGC---AGG-ACATTGACTGCAACAAATTGGGTGAAC
CTGAATATCCACCAATAGGAAAATGG-CTGAACAATTTATAGTACTG---------------------------------
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---------------------CATGTAG--ATTCCAGTTGTTGAT------ACATCATCA-TATATATGTGCGTAAGCAG
AACTGACTCCAGTTGTTACGC-AGTCATTAAACAACTTGTAAGGCGCAG
>Bos taurus
GAATAGGTCTGAGAGAAATACAGCGCCAATACATAGAGATGTATCTGCAAGG-ATGTTTATTTCAACAAATTGGATAAA-
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>Balaenoptera acutorostrata scammoni
AAATATTTCTGACAGAAATACAATGCTAATATATAGGCATGTATCTACAAGA-ACATTTACTGCAGCAAACTGGATAAAC
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---------------------CTTGTAG--AGTCCTGTAGTTAATACGGCAACAATGTCA-CTTGTACGTGCCTAGGCTG
AACCGATTCTAATTATTGCAC-AATCATT---------GTAAAGCACAG
>Myotis lucifugus
GAATATTTCTAACAGAAATATGGTGGCAATATGTAGTGATTTTTGTACAAGG-ATATTTACTGCAATAAATTGGA-----
----ATCTTCACCAGGAGGAAAATGA-TTGAGTGAATTCTGTTACTGTCCTACTGTGGAATCCTTCT------------A
ATTGTTCGCAGCTATTAAA-------------ATAATCACCCGTCCAATGGGTGA-------------------------
--ACCTTGATAAATAA-----ACTTAGCACTGTGACTGGCCCACTACAAACTCATAATGAAGATGAGCTATTATTACTAT
TATTATTATTACATTAT------------TATATATG--ATTAGAAAGCATATCAAAAATACA-TTTTAAGTGAAGAAAG
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>Pteropus vampyrus
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>Equus caballus
GAAAATTTCTGATGCCAATGCGGTGCCTATATATAGTGATATATGTACATGG-ATATTTACTGCAACAACTTGGATAAAC
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>Ceratotherium simum simum
GAAAATTTCTCATAGAAACATGGTGCCAATATATAGCCATATATGTACAAGG-ATATTTACTGCAACAAATTGGATAAAC
CTGAATATCCACCAATAGGAAAATGG-CTGAATAAATTATGGTACTGCCCTGCTATGGAATCCTTTT------------A
ACCATCTGCAGCTGTTGAAAAGAATTAAAT--GTCATCACCTATCCAATGGATGA----------------ACTAGAGTG
TTGTTGGGATAAATAA-----ACTTAGCACTGGGACT-GCCCAAGACAAACTTATAATAAAGATCAGCCATTGGTACTGC
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>Condylura cristata
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CTAACT--------AAAGG-AAATGGACTGAATAAATTATGGCATTACCCTGCTGTGGGATCCTTTT-----------AA
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>Homo sapiens
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>Choloepus hoffmanni
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3.23 Marker H_Db106

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>Canis lupus familiaris
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-ACATTTTGTCTTCCTCTTAAC-------------------------------------------------------------
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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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-AAATTTTGTCTTGTC----AC-------------------------------------------------------------
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>Myotis lucifugus
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>Pteropus vampyrus
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>Equus caballus
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-AAACTGTGTCCCCAT---CACT-GTGTGAAGGATTCACACTTTTGAAGTCACACAAATAAAAGT--GTCAT---TTTGA
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--TG-GGAAAA-TAAGTTTCTCAGGTTTTCATTCATAAAATGTTGGCAATGCGTTTCATAAAACGTTTCATGAGGATTAA
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>Ceratotherium simum simum
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>Condylura cristata
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TTATTCATCAGTCACT---GGATAGATCGCCAATATCTTAGGGTCCCCTTAATAAACACTGGACAGCTATTATATAGCCA
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>Homo sapiens
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>Choloepus hoffmanni
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CTATTCAGTAGCTACTCACTGACAAACTGCCCTTATTTTAGGACCACTTTAATAAATAGCTGACATCTATAATATAGCCA
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TGAGA-AAGCTCAGGAATTATTTTT-GTAGTAAGAGTACAGT-GATCTG-CAAACTAGATTATTAGGTCAGAGACA
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3.24 Marker H_Db109

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>Canis lupus familiaris
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--------------------------------TGATTCTCTTGTCTCCAGGACATTTTGTTTCTT-----------CTCA
TTCCAGCTCCAGTTCCTTATTGGGACTGTAGCCAATTCCTGATGT----------------------------ACCTGC
ACATAAT
>Felis catus
GAAAGTCTTTGG---AAAACATCAGATTTCAGTAGCCACCTGATCCCAT---GATGTTAGTCCCTGGCCTGTCCCAACC-
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ATGCAAT
>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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TTGGGCATTATCATCATTTGGGCCATTTCGCTTGACTACCTGGTCCGTACACTTTTTTTTTTCTTTTCTTAAATTTTTGA
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ACGTAAT
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>Equus caballus
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ATGTAAT
>Ceratotherium simum simum
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ACGTAAT
>Condylura cristata
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>Homo sapiens
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>Choloepus hoffmanni
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3.25 Marker H_Db112

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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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TCTCAAAA-TGTGCCCTTGATTAACTCAAATATTAGTCTTTAAATGAGAATATAGA-TTTTTGCCTTC-AAA----TTTT
TAAAAATTCTATTATGAACTTTT-CAA-TTTATTTTCTAATC---------ATCAAGTTGATTA
>Equus caballus
TTTTTGTGAATTCATTTCGCCAGCCATAAGTTTTACTTAGAAGTTTGGATTTGTTCCCA-AATCATTTT-CAGAAATTAT
TTCTAGAACCTTGGGAACTTGAAGCATTTATCAATAGTACA---AGAAAAACTGAACACTCAGAGAGAAGAGATTTGACC
CACAT--GAAAACATA-GATATGGATCCTGTTTAT-TACTATTGGTTTATGGCAAACAAGTCACATATGAATATAAATAG
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CCTCAAAATCACATC-CTGATTAACTCA-ATACTAGTGTTCAGAAGATGATACAGA---TTTGCCTTTTAAAAA-TTTTT
TATAAATTTTAGTATGAGCTTTTTCTATTTTATTTTCCAACT---------ACCAACTTGATTA
>Ceratotherium simum simum
TTTTTGTGAATTCATTTTGCCAGCCACGAGTTTTACTTAGGAGTTTGGGTTTGTTCCCATAATGATTTT-CAGAAATTAT
TTCTAGAACCTTAGCAACTTGAAGCATTCATCAATAGTACA---AGAAAAACTGAACAGTCAGAGAGAAGAGATTTGACC
CACAT--GAAAACATGCAATATGGATCCTGTTTAT-TACTATTAGTTTATGCCAAATGAGTCACATATGAATATAAATAG
AAATGGCTGTTTTCAAAAGTAGATGGGAATTCCAGTATTTCCAGAGAACCAAATTGAACAATTTACTTTGGTCATTTGA-
CTTCAAAATCACATCCCTGATTAACTCAAACATTAGTCTTTGGAAGAGAATATAGA-TTTTTGCCTTTTAAAAAATTTTT
TATAAATTTTATTATGAACTTTTTCCATTTTATTTTCTAAT----------ATCAACTTGATTA
>Condylura cristata
TGTGTGTT-------------------------------------GGGTTTGCTCC--AAAT-------------TTAT
TTTCACA-TATTATA----TCTAGAACCT--TAGTTGTATA---AGAAAGACTG-ACATTCAGAGAGATGAGTTTTAACC
TATAT--GAATGCAAC--ATACAGATTTCATTTATATACTAGTGGTT----ACAAATAGGTCACATGTGAATATAGACAG
AAATAGTTGCTTTCAGTATTTCCAGTGA--------------------GCAAAACCAGTAATTTACTTTGGTCATTTAA-
CTCAAAAATCACACCTTTGATTAACACAAGTATTAGTCTTTAAAGGAAGATATAAC--TGCTGCATTT-AAAACTTTTTA
AATAAATTTTAT-------------------------------------------------------
>Homo sapiens
TTTTTTTGGATTCATTTTGCTATCCATGAGTTTTACTTAGAAGTTTGGATTTGCTTCCAAAATGATTTT-CAGAAATTAT
TTCTAAAACCATAGAAACTTTAAGCATTTAGCAATAATGCA---AGAATAACTGAACAATAAGGGAGAAAAGATTTGAAT
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AAATGGCTGTTTTCAAAA-TAGATGTAAATTTCAGTGTTCCCAGGGGACCCAAGACAACAATTCACTTCGGTCATTTTA-
TTTCAAAATCATATCTCTGATTAACTAAAATATTAGTCTTTAGGAAAGAATATAGA-ATTTTGTCTTTTAAAAAAG-GTT
TATAAATTGCATGATGTACTTTTC--------TATTTTAATT---------ATTGATATGATTA
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```
>Dasypus novemcinctus
TTTGTGTGGATTCCTTTTGCCGTCCATGAGTTTTTCTTAGAA-CTTGGTTTTGCTCCCAAACTGATTTTGCAGAAATTAT
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CATTTAAGAATTTATAATATAT--ATTATAGTTAT-TACTATTGGTTTATGACAAATACATCACATATAAATATGTATAG
GAATGGGTATATTCAAAATTAGATATAAATT----------CAGGGAACCCAGACCAACAATTTACATTGCTCATTTTAG
TCTTAATATCACAACCCTGAATAACTAAAATAATATCTTTTAGGAGAGAATATAGA-TAGTTGTCTTTATATATATTT--
-----ATATTATGGTGAACTTTTTCAATTTCATTTTCTAAGTGTAATTCTAACCAATTTGATTG
```

3.26 Marker H_Db114

```
>Canis lupus familiaris
TGAGATCAGGCTATCTGCTACCAGACACTAAAGCATATGGAGATCGAATAGAAAGAATGCTTCGCCTCAGTTTAAACATT
GACCCTGATGCAAAGGTTTG------------------------------------------------------------
-------------------------------------------------------------AAATAATTTATGAAAT
GTCTGAA-------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------TCCC--CAGTG-TTAAACAC--TGCTAGA-ATTAAT---AAA-TTCCCCTTTTAGA-
-------TCC--TTTGTTTTTAAATC-TGTCTCCCTTTGTTAGCA
>Felis catus
TACGGTCAGGATATCTGTTACCAGACACTAAAGCATATGGAGATCGAATAGAAAGAATGCTTCGCCTCAGTTTAAACATT
GACCCTGATGCAAAGGTTGG------------------------------------------------------------
-------------------------------------------------------------AAATAATTTATAAAAT
GTTTGAC-------------------------------------------------------------------------
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-------------------------------------------------------------------------------
-----------------------TCCC--CAGTG-CCACACGCGGTGCTAGA-ATTAATAAGAAA--TTGCCTTTTATA-
-------TCTCTTTTTTTTCTTTATC-TGTTTCCCTTTGCTAGCT
>Manis pentadactyla
TGCGGTCAGGGTACCTGTTACCAGACACTAAAGCATATGGTGATAGAATAGAAAGAATGCTTCGCCTCAGCTTAAACATT
GACCTCGATGCAAAGGTTTG------------------------------------------------------------
-------------------------------------------------------------AAATAATTTATTAAAT
GTTTGAA-------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------TTCC--CAGTG-TTGTGCACTGTGCTAG--ATTAATGGGAAA-TTCCCCTTTTGTA-
-------TCT--------TTGTTGTC-TGTCTCCCTTTGGTAGCT
>Bos taurus
TGCGGTCAGGATATCTTTTGCCAGACACTAAAGCATATGGAGACAGAATAGAAAGAATGCTTCGCCTCAGCTTAAACATC
GACCCTGATGCAAAGGTTTG------------------------------------------------------------
-----------------------------------------------------------------ATGTAACTTACTGAAT
GTTTGAG-------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------TCCC---GGTA-TCAGGCTCTGTGCTAAAAATGAATGAGAAATTTCCCCTTTCGCA-
-------TCCATTTTCTTTTTTTGCC-TGTCTCCCTTTGTTAGCT
>Balaenoptera acutorostrata scammoni
TGCGGTCAGGATATCTTTTACCAGACACTAAAGCATATGGAGATAGAATAGAAAGAATGCTTCGCCTCAGCTTAAACATT
GACCCTGATGCAAAGGTTTG------------------------------------------------------------
-------------------------------------------------------------AAGTAATTTATTGAAT
GTTTGAA-------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------TCCC--CAGTG-TCACGCACAATGCTAGAAATTAATGAGAAACTCCCCCTTTTACA-
-------TCC------TTTTTTTGTC-TGTCTCCCTTTGTTAGCT
>Myotis lucifugus
TGAGGTCAGGATATCTTTTACCAGACACTAAAGCATATGGAGATAGGATAGAAAGGATGCTGCGCCTCAGTTTAAACATT
GACCTTGATGCAAAGGTTTGTATTCCCAACCTTCCCACATAGGCTTCATTT----------------------TTCTTTA
AGAATAGGCTTCCCAGGATTAAGTGATATACCTC--AGAAGTTGGACTAATTTCTACTTTTTAGAAATAATTTATTAAGT
GTTTGAA-------------------------------------------------------------------------
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-------------------------------------------------------------------------------
-----------------------TCCC--AAGTG-TCTTGCAGTATGCTAAAAATTAAA-------TTCTCTTTTTATAA
AAGAAATTCT-----TTTTTTTGGTCTTATCTCAGTTTGTTAGCT
>Pteropus vampyrus
TGCGGTCAGGATATCTTTTACCAGACACTAAAGCATATGGAGATAGGATAGAAAGAATGCTTCGCCTCAGTTTAAACATA
GACCCTGATGCAAAGGTTTGTATCCCCAATCTTCCTACATAGGTTTAATTTT---------------------CTTTTTA
GAAATAGGTTTCCCATAATTAAG--------CTCTGAGAAG---GACTAATTTCTGCTTCTTTGAAATAATGTATTACTT
GTTTAAA-------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------TCTC--CAGTG-TCATACACTATGCTAGAAATTAAA-------TTCTCCTTTTACG-
-------TGC-------TTTTTTGTCTTATCTCCCTTTGTTAGCT
>Equus caballus
TGCGATCAGGATATCTTTTACCAGACACGAAAGCATATGGAGATAGAATAGAAAGGATGCTGCGCCTCAGTTTAAACATT
GACCCCGATGCAAAGGTTTGTATGCTCAGCCTACCCACAGAGGTTTATTTTT-TTCTTCCT------------TTCTTTA
GGAATAGGCTTCCCATGATTAAGTGATGTCGCTCAGAGAAGTTTGACTGATTTCTACTTTTTTTAAATAATTTATTGAAT
-TTTGAA-------------------------------------------------------------------------
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-------TCC-----TTTTTTTTGTC-TGTCTCCCTTTGTTAGTT
>Ceratotherium simum simum
TGCGGTCAGGATATCTTTTACCAGACACTAAAGCATATGGAGATAGAATAGAGAGGATGCTGCGCCTCAGTTTAAACATT
GACCCTGATGCAAAGGTTTGTGTGCTCAACCTTCCCACGTAGGCTTATTGCTGTTCTTCCT------------TCCTTTA
GGAATAGGCTTCCCAGGATTAAGTGACATAGCTCTGAGAGGTTTGACTGATTTCTACTTTTTTTAAATAATATATTGAAT
-TTTGAG-------------------------------------------------------------------------
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-----------------------TCCC--CATTG-ACA--CACTGTGCTTGAAATTAATGAGAAA-TTCCCCTTTTACA-
-------TCC------TTTTTTTGTC-TGTCTGTCTTTGTTAGCT
>Condylura cristata
TGCGATCCGGATATCTTCTACCAGACACTAAAGCTTACGGAGACCGAATAGAAAGAATGCTCCGCCTCAGCTTAAACATT
GATCCTGATGCAAAGGTTTGTACCCCTCGCCTTC-TGCGTAGGCTACTTTTTAATTTCTTTTCT---------TTCCTTA
ATAATAGGTTTCCCATGTCTGAG----ATAGCTCTGAGAAATTTGACCAATTTCTACTCTGTTATAACA--GTATTGAAG
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GCAGGGGTCACACTTGTGCTGAAATGGCTTACAGAGAGCTTCATACTGCAGTGCTTTAACCCCTTGCCCCACCAGGGAGA
GCCCAGTATTGGAAGATTTTAACTCCT---TTTGCTAATGTACTGTGCTGGAAATAAAAAAATT----------------
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>Homo sapiens
TTCGGTCAGGGTATCTTTTACCAGACACTAAAGCATATGGAGATAGAATAGAAAGAATGCTTCGCCTCAGTTTGAACATT
GACCCTGATGCAAAGGTTTGTATCCCCAACCTTCCCGCAAAGGCTGGCTGGCTTTCTTTGTTTCTG-------TTCTTTC
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GTTTGAA-----------------------------------------------------------------------
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-----------------------TCCCTGTAGTG-TCAGGCACTGCACTAGAAACTAAG-------TCCTCCTTTTACG-
-------TCC-TCTTTCCTTTTTGCC-TGCCTCCTTTTGTTAGCT
>Choloepus hoffmanni
TGCGGTCAGGATATGTTTTACCAGACACTAAAGCATATGGAGATAGAATAGAAAGAATGCTTCGCCTTAGTTTAAACATT
GATCCTGATGAAAAGGTTTGTATCCCCAACCTCACCCCAAAGATGTATCTTTTCTTTCTTTAAGAAGTATCTTTTCTTTA
AGAATAGGCTTCCCATGATTAAGGGATATAGCTTCAAGAAGTTGGGCTTC--TCTAT-TTTTCAAAATAATTTTTTGAAT
ATTTGCA-----------------------------------------------------------------------
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---------------------TCTCCCTACAGTG-CCAAGCACTGTGCTAGAAATTGAG---AAA-TTTCCTTTCTGTA-
-------TCC--------TTTTTTCC-TGTTTCCCTTTGTTTGCT
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3.27 Marker H_Db121

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>Canis lupus familiaris
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---------------------AATGACCTGGC--ATATACATTGT-----------------------------------
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-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
---------------------------------------------TGAAACTGATGCTTTGTTTACTAATGTGGCAAATA
TTCTTCTGGGATTTTCATATTTCTTTTTGTT-GGGATTAAGCTC-----AAAATTATAATC-------------------
-----AAGGTTT
>Felis catus
ATATTTCAAAAG--CCCTATCTTTCACAATCATCACC-TCTTGTTATTGTGTTAGGTTTTAGGATGT-GTATATG-----
---------------------AATGGC-TGAT--GTACACACTGT-----------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
---------------------------------------------TGAAACTGATGCTT-GTTTACTAATGTGGCAAATA
TTCT---GGGATTTTCATCTTTCTTTTTGTT-GGGATTAAGGT--AAAATGATAATCAAGCTG-ATCTAAACATGTTTTA
ACAGTAAAGTTT
>Manis pentadactyla
TTAGGGAAAAAAAAGCCTGTCTTTCACAATCATCATCCTCTTGTTATCGTGTGAGTTTCTAGTATAT-GTGCAT------
--------------------AAGTGGCCTGGTGCACTGAACCTGT----------------------------------
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-----------------------------------------------------------------------------
-----------------------------------------------------------------------------
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CTCTTCTGGGATTTTCCTATT-CTTTTTCTT-GGGATTT--CT--GGGGAAAAAAGAAAGCTG-ATTTAAACATGTTTTA
ACAATGAAGTCT
>Bos taurus
TTGTTTTCTAAA---CCCATCTTTCACAATAATCACCCTCTTTTTATTGTGTAAGCTCTTAGCATGG-GTGTATG-----
---------------------AATGACCTGGT----GTACA-TGG-----------------------------------
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-----------------------------------------------------------------------------
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TTCT--GAGAAGTTTTA------TTTTTGTT-AGGATTTGGCT--AGATAAATAATTAAGCCT-ATTTAAACATATTTTA
ACAATGAAGTTT
>Balaenoptera acutorostrata scammoni
GTGCTTTTTTTTAAAATTATCTTTCACAATGATCACCCTCTTTTTATTGTGTGAGCTTTCAGTGTGG-GTGTATG-----
---------------------AATGACCTGGGGTACATAAC-TGT-----------------------------------
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>Myotis lucifugus
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TCTAGGAAGACT-----------------------------------TAATGTGATAA-CACA-ATAGCCTCTATGTGAT
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TTGTTCTGGGATTTCCATATTA-TTTTTGTT-GTGATTTAGCT-----TACAAAACTAAGCTG-ATTTAAACATGGTTTA
ACAATGAAGGAT
>Pteropus vampyrus
CCTTTTTAAAAAAAATCTATCTTTCACAATCACCATC-TTTTATTTTTGTGTGAAATTTTAGTGTGT-ATGTATG-----
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TTGTT--GAGATTTTCATCT----TTTTGTT-GAGATTTAGCT-----TAAAAAATCAAACTG-ATTTAAACATGCTTTA
ACA-----TGTT
>Equus caballus
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ACAATGAAGTTT
>Ceratotherium simum simum
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T----TAAATTAGAATTCTATTTACTCTCCTGTGGATGGCAGACACGAAACTGATGCTTTATTTAGTAAGGTGGGAAATA
TTCTTCTGGGATTTTCATATTTCTCTTTCTTTGAAATTTTACT-----AAAAAAAATGAGCTG-ATTTAAACATATTTTA
ACAATGAAGTTT
>Condylura cristata
AGTTTAAGAAAAAAATCTGTCTTCCACAATCATTAAC----AGTTATTTTGTGACATTTTAGTGTAT-ATATG-------
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ACATGTAATAGG
>Homo sapiens
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TCTTGGAAGAGTTTTATGCTCACAGTAGTATTTATGCAAAAAG-AAATATGAT-----AGAAAAATAGACTTTAACTCAT
-----TAAATTAGACTTC-ATTTACTCTCATTAGGATAACAGTCATGAA-CTGATGCTTTAAACACTAATGTGGCAAAAA
TTC---AGGAATTTTCTTATTTCATTTTTTTTGAGAC-TATCTC--AAAAAGTAATTAAGCTG-ATTTAAACATGTTTTG
ACAATTAAGTTT
>Choloepus hoffmanni
ATTTA---AAAAATCCTTATCTTTTCTACTCATTACCTTCTTGTGTCACTGTGAGCTTTTAGT---------GAGTGTGT
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TATTTTTCTTCAAGTTATATATAATTT-TTAGTATT--GTCATAGATGAAGTTGGGTGGCAGAAGTTGGGTCCAGATTTC
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-----TAAATTAGGATTCTA-ATACTTTCCTTAGGATGGTAAGCATGAAACTGATGCTTTATTTATGAAGGTGGCAGAAA
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ACAATGAAGTTT
```

3.28 Marker H_Db123

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>Canis lupus familiaris
ATCAGCTCATTCCAAAGGCCGAAG---CTCTCCAGACTTTGAGGAAGCGTA--CCATGT--GAATAATCAGAGACG-CTC
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-------------------------------------------------GGACTG---------TTCTCGACAGAAT
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TGCTCTGGGCC
>Felis catus
ATG-GCCCATTCCAAAAGTCCACA---TTCTCCGGACTTTTAGGAAGGGTA--CCTTGT--GAATAATCAGAAAGG-CTC
ATACTGTTTTCTCTCATCCTCTGCTGGCAAGTGGTGACGTTTGTAATG--------------------------------
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-------------------------------------------------AGACTGATGAGACTGTTATTGTCAGAAC
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ATCTCTGGGCC
>Manis javanica
ATCAGCTCTTTCCAAATGCCTAAG---TTCTCCATGCTTTTAGGAAAGCTA--CCTTGT--CAACAGAAAGACTTA-CGC
TGTTTTTTGTCATCCTCTACTAGCTAGCTAGTGGTGTGGTTTTTGACA--------------------------------
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-------------------------------------------------AGACTA---------ACACTGTCAGAAT
ACTCCAGGTGACGTCTTTATCCTCTGCTAGCTGAAA-CTCCAAATAATATCCCCAGGAGTTCCTAGAGGGGA-------C
ATCTCTGAACT
>Bos taurus
CTCAGCTCATTCCACGTGTTCAGGTTCTTCTCTGTACTCT----------------TGT--GAATAGTCAGAAAGA-CTC
ATGCTGTTTTCTCTCATCATCTGCTAGCAAGTGGTGTCGTTTGTGATG--------------------------------
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-------------------------------------------------AGAGTC---------TCATTGTCAGAAC
ATTCCAGATGACGTCTATATTCTCGGTTAGCTGAAAACTCCAAATAATATCCCCATGAGTTCTTAGAATAGA-------T
GTCCCTGGGCC
>Balaenoptera acutorostrata scammoni
ATCATTTCATTCCAAGTGTCCATGTTCTTCTCTGTACTCTTAGGAATGGTA--CCTTGT--GAACAGTCAGAAAGA-CTC
ATGCTGTTTTCTCTCATCATCTACTAGCAAGTGATGTGGTTTGTGATG--------------------------------
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-------------------------------------------------AGTGTC-----------CTTGCCAGAAC
ATTCCAGATGATGTCTGTATTCTTGGTTAGCTGAAAACTCCAGATTATATTCCCATGAGTTCCTAGAATGGA-------T
GTCCCTGTGCC
>Myotis lucifugus
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CTGCT-TTTTCTCCCTTTCTCCCCACAC-AGTGGGGC----TGTGATGAGAGAAG-CAGCCCTTAGAAC----GGGTGGC
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GTTCCCGGGCC
>Pteropus vampyrus
ATCATCTCATTCCAAATATCCAAGTTCT---GCGTACTCTAAGGCAGGGTA--CCTTGTCTGTGAAGTCAGAAAGA-TGC
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GTCCTTGGGCC
>Equus caballus
ATCAGCTCATTCCAAATGTTCAAGTTCTTCTCTTTACTCGTAGGGAGGGTA--CCTTGT--GAACAGATAGAAAGA-CTC
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CCTGTGGGAGGCTGAGACCTCTGTCTTCATTTTCCTTGCTCTCTGGTGGAATGGACCCACTGTGCCATTTGGCCGGAGCT
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ATTCCAGATAATGTCTATATCCTCTTCTAGCGGAAAACTCCAAATAAGATCCCCATGAGTTCCTAGAATAGA-------T
GTCCCTGGACC
>Ceratotherium simum simum
ATCAGCTCATTCCAAATGTCCAAGTTCTTCTTGGTACTCTTAGGGAGGGTA--CCTTGT--GAACAGTCGGAAAGA-CTC
GCGCTGTTTTCTCTCATCCTCTAC-CGCAAGAGGTGTGGTTT----------------------GGAGCTG--GGTAGGC
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GTCCTTGGGCC
>Condylura cristata
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GAACAGTGGAGGGCAGACTTCTAGCACCTTCTCATAGCTCCAGAGGTTCCAGGAACTG---------TTATTGCCAGAAA
ATCCCACATGATGTTCATGTCCTCCGTTAGCTGAAAACTCCAAATCATATGTGCATGAATTCCTAGAATACT--------
GTGCTTGGGCC
>Homo sapiens
ATCATCTCATTCCAAATGTCGAAGTTCTTCCTTGTAGTCTTAAGAAGAATGGGCCTTGG--GAATCGTCAGGAAAAACTC
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TGCATGGAGTGTTGAGTCCTCTTTCTTGATGTCTTTTGCTCTCTGGTAGAATGAGCAGACTGTACCATTTGGCGGGAGCT
GGGTCACAGAGGACAGGCTTCAGGCTCTTTCTCAAATCTCAAGAGACTC------------------TTATTGTCAGAAC
TTTTCAGATGCTGTCTGGATCCTCTACTAGCTGAAAACTCTAAATAATGTCCCTGTGAGTTCTTGGAATGGA-------T
GTCCCTGGGCC
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>Choloepus hoffmanni
ATCTGCTCATTTCA-----------------------------------------------------------------TG
CTGC---TTTCTTTCATCCTTTCCTAGCAAGTGGTGTGGTTTGGGTAGAGAGAAGCATACCTGGAACTGAG---------
----TGGTCACCTTGG-GTTCTTTCTTCATTTCCTTTGCCATCTGATGGAATGAGCACATTGTGCCATTTGGCAGGAGCT
GGTCCAAGGAAGGCAGACTTCAGGC-CCCACTCAAATCTCCAGGGACTTGAGGGACAC---CCCCCCCCATTGTCAGAAC
ATTCCAGATGTTGACTGTATTCCCTACTAGTCAAAAACTCCAAATAGTATTACCATGAGTTCCTGAAACAGACATCCAGG
TTTTCCAGGTC
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3.29 Marker H_Db125

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>Canis lupus familiaris
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CTACTAGTTTCCCAGGGTATTATAAACA--CTAAAATT-----------------------------------------
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-------------------------------------------------------------TCAAATATCGATATTATGT
GCACAGAAAAGTGCAATAAC-TTTGCTTACTTTTATTTA--------------GTGAGGGAAGACTA---TAATTCA
>Felis catus
TGGGAAAA-TAAGGTTGACTAGGTGCAAAAAA------------AAATAAAAGTACA-CAGGTACAC-TGA-TTTATTTA
CTCCTGGTTCCCCAGGATACTATAAACA--CTAACATT-----------------------------------------
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-------------------------------------------------------------TCAATTAGCAACGTTACAT
GTACAGAATAGGGCAATAAC-TATGCTTATATTTATTTT-----GGGTTGTTTTGGAGGGAAGAATGTGGTAACTCA
>Manis pentadactyla
TGTGAAAA-TAC---TGACGAGGTACAAAAAAAAAAAAAAAAAAGTAAATAGGTGCA-AGTACACA------CTTACTGA
TTCCTGGTTTACTAAGATGCTATAAATA--TTAATATT-----------------------------------------
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-------------------------------------------------------------TTGATAAGCAACATTATGT
GAATAAAGTAGTGGAATAGCTTTAACTTATTTTTATTTATTTTTTTGTTGTTTTGTAGGGAAGAATATGGTAATTCA
>Bos taurus
CAGGAAAA-TACTGCTGACTAGGTGGAAAAAACAGAA-------GTAAACAGGTGCA-TGTATACAC-TTA-TTTACTGA
CTCCTGGTTTCCCAGGATGCTATGAACA--CTAATG-------------------------------------------
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-----------------------------------------------------------ACGATTAGCAATATTATGT
GCACAGAGCAATGGAATAGC-TTTGCTTATTTTCGTTT-----------GTTTTGAAGGGAAGAAAATGGTAATTCA
>Balaenoptera acutorostrata scammoni
CAGGAAAA-TACTGTTGACTAGGTGCAAAAAACAAAA-------GTAAACAGATGCA-TGCATACAC-TTA-TTTACTGA
CTCCTAATTTCCCAGGATGCTATAAACA--CTAACTTT-----------------------------------------
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-------------------ATTTATCTATCTGTTTACTTAATTATTTATGGCTGCATTGGGTCTTCATTGCTGTGCACGG
GCTTTCTCTAGTAGCGGCGAACGGGGGCTACTCTTTTGCGGTGCGCGGGCTTCTCATTGCGGTGGTTTCTCTTGTTGCAC
AGCACGGGCTCTAGGCGCGTGGGCTTCAGTAATTGTGGCACGTGGGCTCAGTAGTTGTGGCTTGCAAGCTCTAGAGCACA
GGCTCAGTAGTTGTGGCATGCGGGCTTAGTTGCTCCATGGCATGTGGGATCTTCCCAGGCCAGGGCTCAAACCCATGTCC
CCTCATTGGCAGGCAGATTCTTAACCACTGAGCCACCAGGGAAGCCCTAAACACTAACATTTTGATTAGCAACATTATGT
GCACAGAGTAGTGAAATAGC-TTTATTTTTATTTGTTT---------------TGGAGGGAAGAAAATGATAATTCA
>Myotis lucifugus
TGATAAAA-TACTGTTGACTAGGTACCAAAAAAAA---------GTAAACAGGTTCA-TGAATACAA-TTA-TTTACTGG
ATCCTGGTTTCCCAGGATGCTATAAAAA-CTTAATAAAAAATATTTTAAATAAAAAAGAAGAATTTGGGCATACACACAC
------------ACACACACACATAGAATCACAGAAGCAATTCCCAATTTCTCGGCAAAGACC---------TTACTGAC
AT--GCGCAACTGGGAGCAACCTGACCAAATTAACAAGGAATCAGGATTCTAAGAATCCAGGCCTCTTCTG--AGACAGT
ACCTCATGCCACTAACATT------------------------------------------------------------
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-------------------------------------------------------------TTGATTAGCAACATTATGT
GCACAGAGTAATGGAATAGC-TTTGCTTATTTTTA---------------ATTTGGAGGGAATAATATGATAATTCA
>Rhinolophus ferrumequinum
TAGGAAAA-TATTGTTGACTAGGTGCAAAAAAA-----------GTAAGCAGGTGCA-TGAATACAG-TTA-TTTACGGA
CCCTTGGTTTCCCAGCATGCTATAAAAA-CTTAATGAAAAATATTTTAAACAA-----AGGAATTTGGGTGC--------
------------GCACACACACAGAGAATTACAGAATCAACT----------CTACAAAGATC---------TTTTTGAT
AT--ATACAA----AAGCTACGTGACCAAAATAATTGGGAATCACGATTCCAAAAAGCCCAGCCTCTTTCA--AGACAGC
ATCTCATGCCACTAACATT------------------------------------------------------------
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-------------------------------------------------------------TTCATTATCAACATTATGT
GCACAGAATAGTGGAACAGA-TTTGCTTATTTTTATTTATTTT-GTGTTGTTTTGAAGGGAGGAATA---TAATTTA
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>Equus caballus
TGGGAAAA-TACTGTTGACTAGGTGCAAAAAAAGAAAAAA----GA-AAAAGGTCTA-TGGATACA------CTTATTGA
CTCCTGATATCCCAGGATGCTATAAAAA--TCAACGAAAAATATTTTAAACAAAAGAGAAGGATTTGGGTGC--------
------------ATACAAATACACAGAATCACAGAAGCAA-TCCCAACTTATCTCCAAAGATC---------TTATTGAC
AT--ATACAACCAAAAGCAACATAACCAAAAT---TGGGAATCAGGATTTC---AAGGTCAGCCTCTTTCG--AGACAGT
ATCTCATGCCACTAACATT------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------TTGATTAACAACATTATGT
GCACAAAGCAGTACAATAGC-TTTGCTTATTTTTATTTATTCT-ATGTTGTTTTGGAGGGAAGAATA---TAATTCA
>Ceratotherium simum simum
TGGGAAAA-TACTATTGACTAGGTGCAAAAAAAAAAAAAAAA--GGAAGCAGGTGCA-TGCATACACTTTAATTTACTGA
CTCTTGGTTTCCCAGGATGCTATAAAAAATTTAATGAAAAATATTTTAAACAAAAGAGAAGGATTTGGGTGC--------
------------ACACAGAGAA------TCACAGAAGCAATTCCCAACTCCTCTCCAAAGATC---------TTATTGAC
AT--ACACAACCAAAAGCAACATGACCAAAAT---TGGGAATCAGGATTTCAAGAAGCCCAGTCTCTTTCA--AGACAGT
ATCTCATGCAACTAACATT------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------TTGATTAACAACACTATGT
GCACAAAGCAGTGCAAAAGC-TTTGCTTATTTTTATTTATTTT-GTGTTGTTTTGGAGAGAAGAATA---TAATTCA
>Condylura cristata
TAGGAAAAATACTGCTGAATAGGTACAAAAACAAAAAA------GCAAATAGGTACAATGCATATCC-TTG-TTTACTTA
CTCCTGGTTTCAAAGGCT--------------------------------------AAGAATTTGGGGACACAC----
------------ACACACACATACAGAATTATACAAGCAAT-CCCAACTACTCTTCGAAGATC---------TTGTTGAC
ATG-ACACAACTGAAAGCAGCAT------------GATCAATGAGGATTCCAAGTAGACCAGGCTCTTTCA--AATAGTA
ATCTGATGCCACCAACATT------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------TTAATTAGCAATGTCATAG
TG--------CCCAAATAGC-TTTGCTTATTTTTATTTCTTTT-GTGTTGTTT-GGAGGGAAGAATAAAATAATTCA
>Homo sapiens
TTAGAAA---ATAGTTGACTAGGTGCAGAAAAAGAAA-------GTTAACAGGTGCA-TGCAAA--------TTTCTTGA
CTCCTGGTTTCCAGGGATGCTATTGAAAATTTAATGAAAAATGTCTTAAGCAAAAGA------TTTGGGT----------
------------ACACACATATATAAAATCACAGAAGCAGTTTTCAACTTCTCTCCAAAGATGATAAAAATCTCACTGAC
TT--ATACAAGTGAAACCAAAGTGACCAAAATAATTAAGAACCAGGATTCCAAGCAGCACTGGCCCTTTTG--AGACCCT
AGCTCATGCTACTAACATT------------------------------------------------------------
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------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------TTCATTAACCACGTTATGA
GCACAGAGCAGCGGAAGAGC-TTTGCTTATTTCTATTTATTTT-GTGTTGTTTTGGAAGGCAGAATATGGTAATTCC
>Trichechus manatus latirostris
TGGGAAAA-TGCAGTTGACTAGGGACAAAAAGAAA-------------ACATGTGCA-TGCATATAC-TTATTGTATTGA
TTTCTGGTTTCCCAAGATGCTTTAAACATCTTAATAAAAAACGTTTTAAACAAGAGAGAAG--TTTGGAAATGTAAACAC
AGAAGCATATGCACACACACATACAGTGTCACAGAAGCAATTCCCAAGTTGTCCCCAAAGATC--AGAAGTCTTACTGAC
ACATATACAACTGAAAGCAATGTGATCAAAATAAATGAGAATCAGGATTCCAAGAAGTACAGCCTCTTTACAGAGGCTGT
ATCTCATGCGACTAACATT------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------------------------
------------------------------------------------------------CTGATTAACAACATTAGAT
GCACAGAATGAAGGAAGAAC-TCTGCTTTTTTTTATTTACTTT-GTGTTGTTTTGGAGGAGAGAATA---ATGATCA
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3.30 Marker H_Db126

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>Canis lupus familiaris
T-AAAAATCACAAAGTAAAA-----------TGAAT-TTTGCTTCATTC-AAATATCTA----AAAAAGAAAAAAAATAT
ATTATTGAACTTTCAAG-AGTAATACATTGGTTCAAAAT----------------------------------------
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--------------TTTGAATTTTTAAGCAACAGACTAATTAGT-AAAGTAAGACATGGTAATTACACTTTCGAGTAAAG
AGCTAATAACACTCAAATTATTCCTGAAACACACG
>Felis catus
TAAAAAATCACAGTGTAAAA-----------TGCATTTTTGCTTCATTT-AAATATCTA----AAAAGG---------AT
ATTATTGCACTTTTCAGTAGTGATGCATTAGTTCAAAAT----------------------------------------
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--------------TTTGCCTTTTTAAATAATAGATGATTCAGT-AAA----GACATGATAATTATACTTGTGAGTAAAG
AACTAATAACATTAAAATCATTCCTCAAACACAAA
>Manis pentadactyla
TAAAAAATCACATTTTAAAA-----------TGAATCTTTGCTTCATTCAAAAAATCTA----AAAAAGGAAAGG---AT
ATTATTAAGCCT-TAAATAGTAATGCATTAGTCCAAAAT----------------------------------------
--------------------------------------------------------------------------------
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--------------TTTGCCTTTTTAGGTAATAGGCTAATCAGT-AAA-TAAGGAATGATAATTATCTTTTTGAGCAAAG
AACTAATTACATTCAAATCTTTCCCAAGACATACA
>Bos taurus
T-GAAAATCACAATGTAAAA-----------TAAATCTTTGCTTCATTC-AAATATCTA----AAAAAGAAAACG---AT
ATTATTGAACCTTTAAATAGTAATGCTTTACTCCAAAAT----------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------TTTCCCTTTTCAGATAACAAACTAGTCAGTAAAAGTAAAGACT---AATTATTCTTTTGAGTAAAG
AACTAATAACATTCAAATCTTTCCTTAAATATACA
>Balaenoptera acutorostrata scammoni
T-GAAAATCACAATGTAAAA-----------TAAATCTTTGCTTCATTC-AAATATCTA----AAGAAGAAAAGA---AT
ATTATTGAACTTTTAAATAGTAATGCTTTAGTCC-AAAT----------------------------------------
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--------------TTTCCCTTTTTAGGTAACAAACTAATCAGTAAAAGTAAGGAAT---AATTATTC---CGAGGAAAG
AA-TAATAAAATTTAAATCTCTCCTGAAACATACG
>Myotis lucifugus
-------------------------------------------------------------AAAAAGAAAAAG---AC
ATTATTGAACCT------AGTAATGCACTGATTCAATATTAAGGAGCAGAACAACCATGATTTTTTTTGCTACA-GTATT
GCTATGTAACATTTACATTTTTTATTTTCATGAGAAAAAAACATGAATAGAAAAGATAGAAGCTGTTAGGAAAT------
---------------------------------------ATCAATATATA--ATGGGA---AAAAA-CTTAAATATACAA
TATTTCTCCAAA-GGTAGAG----CCTTTAGTAGTATTTTTCTTTCTCCTAATTTCTTTTACCTAAGAAAAATTTTTACT
T---TGATGCCAATG----------------------------------------------------------------
-----------------------------------------------------TTTTAAAAAACTAA-----TTTAAAA
ATAGTTCTTGATTTTTTGTCTCTTTAAGTAATAGGCTAATCAGT-AAAGTAAGAAATG--AATTATTCTTT-GAGGAAAG
AAATATTAACATTCAACTCTTTCCTGAAACACACA
>Pteropus vampyrus
T-AAAAATCACAATGTAAAA-----------CAAATCTTTGCTTCATTC-AAATATCTAAATCAAACAAAAAAGA---AC
ATTACTGAACCTTTAAATAGTAATATACTAGTTCAAAACTAAGAAGCAGAACAACTATAATGTT-TTT--TACAAGTACT
GCTGTTTAACATTTA------TTATTTTTGTGTGAAATAAACATGAATAGAAAAGATAACAACTTATTGGGAAA------
---------------------------------------ATATATATATA--AT-------GAGAAAA--AAAACCACAA
CATTTCTCCAAA-AGCAGAACCTTCCTTTAGTAGTATTTTTCTTTCTCCTAATTTCTTCTACCTAAGAAAAATTTTTACT
T---TGATACCTTCTGACCAATACATGTGATGCCAATGT----------------------------------------
-----------------------------------------------------TTAAAAAAAAG-------TTTTAAAA
TCAGTTCTTAAT--TGTGTCTTTTTAGGTACTAGGCTAATTACT-AAAGTAAGGAATGATAATTATCCTTT------AAG
AACTATTAACATTCAAATCTTTCCTGAAACACACA
>Equus caballus
T-AAAAATCACAATGTAAAA-----------TGAGTCTTTGCTTCATTT-AACTATCTA----AAAAAGAAACAG---AT
GTTATTGAATCTTTAACTGGTAATGCATTAGTCCAAAATTAAGGTGGAGAACAACTATGATTCT-TTTACTACAAGTATT
TCTGTGTAATATTTA------TTATTTTCATGTGAAATAAACATGAATAGAAAAAATAAAATCTTTTAAGAAAA------
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TATTTCCCCAAA-TGTAGCA----CCTTTAGGATTATTTTTCTTTCCCCTAATTTTTCCTACTTAAGAAAAGTTTTTACT
T------TGTCTTCTAACCAATGAGTGATG-CCAT-CGT----------------------------------------
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-----------------------------------------------------TT-AAAAAAAAACCTTGCTTTTAAAA
ATAGTTCTTGAA--TTTCCCTTTTTAAGTAATAGACTAATTAGT-AAAGTAAGGAATGATAATTATCCTTTTGCATAAAG
AACTATTAATATTCAAATCTTTCCTGAAGCACACA
>Ceratotherium simum simum
T-AAAAATCACAATATAAAACTTTGCTTCATTGAATCTTTGCTTCACTT-AAATACCTA----AAAAAGAAAAAG---AC
ATTATTGAACCTTTAAATGGTAATGCATTAGTCCAAAATTAAGGGGCAGAACAACCATGATTCT-TTTACTACAAGTATA
TCTATGTAATATTTA------TTATTTTCATGTGAAATAAATATGAGTAGAAAAAATTAAAGCTTTTAAGAAAA------
----------------------------------------TTAATAATAGA--ACGGGAA--AAGAAAC--AAACACACAA
TATTTCTCCAAA-TGTAGAA----CTTTTAGTAGTATTTTTCTTTCCCTTAATTTTTCCTACCTAAGAAAAGTTTTTACT
T---TGATGCCTTCTAACCAATAAGTGATG-CCCACTGTT---------------------------------------
-----------------------------------------------------TTAAAAAAAAAAACTTGGTTTTTAAA
ATAGTCCTTGAT--TTTGCCTTTTTAAGTAATAGACTAATTAGC-AAAGTAAGGAGTGATAATTATCCTTTTGAGTAAAG
AAGTATTAATATTCAAATCTTTCGTAAAACACACA
>Condylura cristata
CCTAAATAAAAATTGTTAG------------TGAATCTTTACTTCATAC-AAAAATCTA----AAAAAGAAACGG---AC
ATTATTTACATTTTAAATACTAATGCATCAGTCCAAATTTAAAATCATGAAT--C--------TTTTTACCATCCAC---
---ACATAACCATTA------CTAATTTCCTGTGAAATAAACATGAAAAGATACAAC--ATTCTA--GGGAAAATGTGTA
GAATATATGTAATGGGAAAACAAACCAAAACATATGAAAATAAATATATATAGTAGGAA--AAGAAACTTAAACACACAA
TATTTCTCTAAAATGTACAG----CCATTGGTGCCA---TTTTTTCTCTGTATTTTTCCTACCTAAAAATAGTTTAAAAT
ATTTTGATGCTTTCTAAGCAATATAAAGGACACCTTCTTCCCCCCCCCCACTCTGTTAGGAAAAAAACAAGTAGACAACA
TAAAGACATCCTTGAATTATATATTTTATTTACATAAAAATTATAAAACATTATAAGAAGGAAAAATGAAGCTTCTTTAA
ACAGTCCTTGAT--TTAGTCTATTTAGGCAAAGAACTAATCAGT-AAAATAAGGAATGATGATTATCCTTTTGAGT----
-ACTAAGAGCATTTAAATCTTTCCTGAAACACGCA
>Homo sapiens
T-AAAAATCACAGTGTGAAA-----------TGAGGCTTTGCTTTATTC-AAATACCTA----AAAAAGAAAAGG---AC
A-TATTAAACATCTAAATAATAAGGCATTAGTCCAAAATTAAGGAATAGAATAAC-----------------CAGTGATT
ACTATATAATATTTA------TTATTTTCATATAAAATAATCATGAATAGAAAAGATATAAGCATTTAGGAAAT------
----------------------------------------ATAAATATATA--ATGGGA---AAGA--CACAAACATATAA
TGTTTATCCAAA-TGGAGAG----CCATTAGCAATATTTTTCTTTCTCCTAATTTTTCCTACCTAATAAAAGTTTT-ACT
T---CT-TGCCTTTTGACCAATGAGTGCTGCCATTGTTT----------------------------------------
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ACAGTTCTTGAT--TTTGCCTTTTTAGGTAACAGACTACTCAGT-AAGGTAAGGAATGATAATTATCCTTTC-AGTAAAA
AACTAAC----TTTAAACCTTTCCTGAAACACACA
>Dasypus novemcinctus
T-GAAAATCATAATGTAAAA-----------TGAG--TATACTTCACTC-AAATAGCTT----TAAAAGAGG------AC
ACTACTAAATATCTAAATTATAATACATTAGCCCAAAATTAGGGAGAATAATGACCATGTTTCTCTTTACTACAGATATT
ACTATGTGACA--CA------TTATATTCATGTGAAATATGCATGAATAGAAAATAT-TTGTCTTT-AGGAAAAACTTCA
TATATAT--------------------------------ATATGTAAA----ACAGGAAAGAAGAAACTTAAGCACACAT
TATTTGTCCAAA-TATACAG----ACTTCAGTGATATTTTTCTTTCCCCTGATTTTTTCTGTTTAAG-AAATTTTTTATT
T---TGATGTCTTCTGACCAATATGAGTACTGTTATTAC----------------------------------------
-----------------------------------------------------TTTAAAAAAACAA------TTTTTAA
ATAGTTTTCGAT--TTTGCCTTTTCAGGAAGTGGGCTAATTAGT-AAGGTAGGGAATGATAATGATCCTTTCGAGTAAAG
AACAGCTAACATCCAAACTTTTCCTGAAAAACATA
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3.31 Marker H_Db128

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>Canis lupus familiaris
AGCAGAG--ATGTACCCTAAAAGCCCCATCAAAGTTTTTCATTCTAAAAAAATTTTTTTTCATTCTACATTTTGAAATAA
TATAATTTTCTATTTCACTGTAATCATAGCTATACTCAAGAGTAGAAATCAAA---------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
---------------ATTTGCCAAAATCAAGGTAGTAGCACTGCTTTTGAAATAAGTAT-----TGCCAGTAGAGAGGCA
T-AGCATATTT
>Felis catus
AGCAGAG--ATGCATCCTAAAAGCCCCATAAAAA---------------------CCTGTGGTTCTACATTTCAAAATAA
TGTAATTTTCTGTTCAACTGTAATCATAGCCATAGTCAATAGCAGAAATCAAA---------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
---------------ACATGCCGAAGTCAAGGTGGTAGCAATGCTTTTGAAATAAGTAT-----TCCCAGGAGAGAGGCA
T-GGCATATCT
>Manis pentadactyla
GATAGAG-----------------------CAAAA---------------------CTTTTGATTCTATAGTTTGAAGTAA
TATAATAATCTGTTCAATAGTAATCATTGTTATAGCCAATAGCAGAAATCAAA---------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
---------------ACATTACAACATCAAAGTGGTGGCATTGTTTCTGAAATAACAATACAGTACTCAGTGGGAAGGCA
T-GGCGTATTT
>Bos taurus
AGCAGAGATATATATCCTAAAACCCCCACCAAAA---------------------CTCT-GGTTCTACAATTTAAAGTAA
TATAATTTCCTGTTCACTTGTAATCACATACACAGTCAGAAG-GGAAAGCAAA---------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
---------------AGATGCCAAAGTGAACCCAGTAGCATTGTTTCTGAAATAACTATGAAGTCCTCAGAGGAGAGGCA
GTAGCATATTT
>Balaenoptera acutorostrata scammoni
AGCAGAG--ACATATCCTAAAAGCCCCACCAAAA---------------------CTTT-GGTTCTACAATTTGAAGTAA
TATAGTTTTCTGTTCAATTGTAATCACAGCTGTAGTCAAGAGCAGAAATCAAA---------------------------
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---------------AGATGCCAAAGTGAACTCAGTAGAACTGTTTT-------ACTATGAAGTCCTCAGTGGAGAGGCA
GTAGCATATTT
>Myotis lucifugus
AACAGAG--ATGTATTCTAAAAGTCCTATCTAAA----------------------CTTTTGGCTCTATAATTTGAAGTAA
TATAATTTTTGGCTGAACTATAATCACAGCCACAGTCAACAGCAGAAATGAAAACTATTAATTTAACATTGAGGGAAAAT
TAAATGACATTATTTTGTCATGTAGAAGAGAAATATTTTCCCT-TATATGTGAAAA-TCTGGGTTTACAAC-AGAACTTT
AA-----TCTTCGTATTCTGAGGAGAAATGAATAATAT--------------GAC-----CTAAGTCATTATATTATCAA
TATCAGTGACTGTCCACATGCCAAAGTCA-----------CTGATTTCAAAATAACTATGAAGCACTCAATAGAGCAGCG
T-TGTAGATTT
>Pteropus vampyrus
AGCAGAA--ATGTATCCAATAAGCCCCATCAAA-----------------------TTTTGGCCCTACGATTTGAAGTGA
TATAATTTTCTGTTGAACCATAATCACAGTCATAGTCAATAATCGAAATCAAA---ATTAACTGAGCATTGAGATAAAAT
TAAATGACACTCTTTTATCAGGTGGAGGAGAATATTATTCTTT-TACATGTGAAAGCTCTGGATTTACAAC-AGAACTTC
TT-----TCTTCACATTCTGAGGATAAATG---AATAT--------------GAC------TAAGGCATTATACTATCAA
TATCAGT--TTGTCCACATGCCAAAGACAAAGCAGTAGCGTTGTTTTTGAAATAACTTTACGTTACTCAGTGGAGAGATA
G-GACATATTC
>Equus caballus
AGCACGG--AAGTTTCCTACAGGCACCACCGAAA----------------------CTCTCGGCTCTACACTTTGAAGTGA
CATAATTTTCAGTTCCACTGTAATCACAGCTAGAGTCAACAGCACAAATCAAAGCCATCACTTTAACACTGAAGTAAAAT
TAAATGACATCGTTTTGTCAGGTAGAGGGGAAAATTTTTCCTT-CATATGTGAAAGCTCTGGGTTTGCAAC-AAAACTTT
CATT--GTCTTCATATTCTGAGGAGAAACGAACAATAT--------------GACATAAGATAAAGCATTATATTATCAA
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A-GGCATATTT
>Ceratotherium simum simum
AGCACAG--ATGTATCCTAAAGGCACCACCAAA-----------------------CTTTTGGCTCTACAATTTGA----A
TATAATTTTCAGTTCAACTGTAATCACAGCTATAGTCAATAGAAGAAATCAAAGCTATCACTTCAACTTTGAAGTAAAAT
TAAAGGACATTATTTTGTCAGGTAGAGGAAAAAATTTTTCCCT-TATATGTGAAAGCTCTGGGTTTGCAACAAAAACTTG
CA-----CCTTCATATTCTGAGGAGAAACAAATATGAC----------------------ATAAAGCATTATATTATCCA
TATCAGTTAC-----ACAGGCCAAAATCACAGCAGCAGCACTGTTTTTGAAAT---------------------------
--GGCATATTT
>Condylura cristata
AGTAGAG--ATAAATCCTAGAAGGTCCACCAAAG--------------------CTTTTTGGTTCCATAATTTGAATTAG
TAATA----CT-TTTTGTTATGATCATAGGTAGAGTCAGTAGCAAAAATCAAAATTAGTAAT------------CAAAAT
TAAATAGTCT------GTCATGTAAATGAAGAATTTTTTCTCTCTTATTATGAAAGCACTGGTTTTACAAT-AAAACTTT
CATATCTTCTTCCTATTCTGAAAATAAAT-ATTATGATATAAAATTGAGCGAGGGTCATGTCATAGAATTATATTACCAA
TATTAGTTACTACATACATGGCAAAGTCCAAACAGTAGCATTATTTTTGAAAAGACTATGGAGTGTTCAGTGGAGAGACA
GTGGCACAGTT
>Homo sapiens
AGCAAAGAAATGTATCCCCAAAGCCCTGTTAAAA--------------------ACTTTTGGTTCTACAATTTAAAGTAA
TATAATTTTCTGTTCCACTACAATCACAGCTATAGTCAAAAGCAGAAATCAAAACTATTAATTTAACACTGAGGTAAAAG
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TTTC--TTCTTCATATTCAGAGGAGAAATGAATAAG------------------------ATAAGACGTTATATTATTGA
GATCAGTTACTGTCTTCACGCCAAAGACAAAGTGGTAGTATTGTTTTTAAACTAGTTATGGAATGTCTAGTGGAGAGGCA
GTGACA--TTT
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>Choloepus hoffmanni
AGCAAAGAGATATATGCTAATGAACCAATCAGTA---------------------TTTTGGGTTCTACAACCTCAAGTAA
TATGAGTTTGTTTTCATCTGTGATCACAGCTGTAGTCAATAGCAGAAATCAAAACCATTAATTCAACACTGAGGGAAAAG
TGAATGACATTATTTTGTCCAGTGGAGGAAAAATTGTTTCCCT-TAGATGTGAAGGCTCTGAGTTTGCAAC-AAAACTTT
CATC--TTCTTCATATTCTGAGAAAAAACCAGTAATAT--------------GGC-----ATAAGATAAGACTTCGTTAA
GGTCAGTTACTGACCACAAG-CAAAATCAAAGCAGTAGTGTTGTTTCTGAAAAGGCTGTGGAGCTCTCAGTGGAGAACCA
GCAGCATTTTT
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3.32 Marker H_Db130

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>Canis lupus familiaris
GGAA-GATTATCATCATTGCTAAAATTATTCTCCCTCTTCCTATAAAAGTTATCAGGAAAAGCCACTTCAGACTGTAGTC
AAGTG-------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------------------------AC
CTAT-TACCTGTCCAGAG----TTTCCGGGTTCTGAATATCTAGCTAATC-TGCAAAGGAAT---------------TCT
TAATACTGTCCTTCTGCGGGATTGTGTTGCAGGCGTGGATGCAA
>Felis catus
GGAA-GATTACGGTCATTGTGAAAACTATTCTACCTCTCCCCGTGAAAGGTATCAGGAAAAGATACTTCAGACTGCAATC
AAGTG-------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------------------------AC
CCGT-TATCTTGCCATAGTG--TTTCTGGGTTCTGAATAGTTAGCAATTC-TGCAAAGGCAT---------------ACT
TAATATTGT-CTTCTGTAGGACTGTGTTGCAGACCTGGATGCAA
>Manis pentadactyla
TGGA-GATTATCCTTACTGTTCTACTTATTCTACCTCTTCCTATAAAAGTTACCAGGGAAGGTGACTTCAGGCTGTAATC
AAATG------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------------------------AC
GTAT-GATCTTTCCACATTA--TTTCTAGG-TCTGAA----CAGCTATTT-TGCAAAGGAAT---------------ATT
TAACACTGT-CATCTGGGGTATTGTGTTGCAAGCTTAGATGCAA
>Bos taurus
TGAA-GATGA---TCGGTGTTAAAATTATTCTACCCCTTCCTATAAAAGTTATCAGGAAAGGCTACTTTAGTCTGTAATC
AAGTG------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------------------------AC
CCGT-TATC------CAGTG--TCTCCAGATTCTGAA----AAGCTATTTATGCAAAGGAAT---------------ATT
TACCACCAT-CTTTGGGGGGACTGTATTACAGACTTACATGCCA
>Balaenoptera acutorostrata scammoni
TGAA-GATGATCGTCATTGTTAAAATTATTCTACCTCTTCCTATACAAGTTATCAGGAAAGGAGACTTCAGTCTGTAACC
AAAGG-------------------------------------------------------------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------------------------AC
CTGT-TATC------CAGGG--TCTCCAGGTTCTGAA----CAGCTATTTGTGCAAAGGAAT---------------GTT
TACCACCAT-CTTCTGGGGGATTGTGTTGCGGACTTAGATGCCA
>Myotis lucifugus
TGAA-GATGAGCTTCACTGTTGAAACGAGTCTACCTCTCCCTGGAAAGGTTACTGGGAAAGGCTACTTCGAAGTGTGTTC
AAATGAACTTCGTTGTAAACTTTAATCTATTCGAGTT----ATGAAACATGGTTTAGAAAC--TTCTCTGAAGTTCTGAT
TCTGCTT---------CAGTCGTTGTTGTTGCCAAGTTTGGATCTTAGTAACGTTCAGGATCTTGCCGTGTCAATCACAC
CTCTCATGCTCAGGCTACATTATT---TTTTCACC------------ACTCCTCCTCCAAGCCCTTCCCTTC--CACTAC
CTGT-TATCTTTTCATAGTG--CTTGTAGGTTCTGCA----GAGCCATTT-TGCAAAGG-AT---------------ATT
TAACACTAT-TTTCTGGGGGACTGGGTTGTAGGCTTAGATGCAA
>Pteropus vampyrus
TGAA-GATTTTCTTCACTGTTA-AATTATTCTATCTCTTCCTATAAATGTTATTGGGAAAGGATATTTCAGAGTGTAATC
AAATGAACTTCATTGTAAACTTCAATCCA---CAGTT----ATGAAATATGGTTTAGAAAC--TTTTCCAAATTTCTTAT
TCTGTT----------CAGTTGTTGTTATTACCAAGTTTGGATCTTGGACACGTATAGGATCTTGCAGTGCAAATGACAC
CTTTGGCAATCAGACTCAATTATTTTCTTGTCACCGTATTTCTCCCCATCCCTTCACTAAGCCCTTCCCTTC--CACAGC
CTGT-TATCTTTCCATAGTG--CTTACAGACTCTGAA----TAGCAGTTT-TGCAAAGG-AT---------------ATT
TAACACTGT-CTTCTGGGGGACTATGTTGCTGCCATAGATGCAA
>Equus caballus
TGAA-GACCATCTTCGCTGTTAAAATTATTCTTCCTCTTCCCATAAAGGTTATCAGG-AAGGATACTTCAGACTGTAATC
AAACGAACT----TGTTAACTTCAAACCA---GAATT----GTGAAATGTGATTCAGAAAC--TTCTCTGAATTTCTAAC
TCTG---------------------------CCCAGTTTGGAACTTGGACACGGTTAGGATCTCGCAGGGCAAGTGACAG
CTCTCGTGCTCAGGCTGAATTACTTCCTTGTCACCGTATTTCTCCC------------AAGCCCTTCCCTCCGGCGCAAC
CTGT-TCTCTTGCCACAGTG--CCTCCACGTTCTGAA----TAGCTATTT-TGCAAAGGAAC---------------ACT
TCACACTGT-CTTCTCAGGGACTGCGTTGCAGGCTAAGAGGCAA
>Ceratotherium simum simum
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>Sorex araneus
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>Homo sapiens
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>Dasypus novemcinctus
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3.33 Marker H_Db141

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>Canis lupus familiaris
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>Felis catus
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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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3.34 Marker H_Db156

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>Felis catus
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>Manis pentadactyla
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>Bos taurus
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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
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>Homo sapiens
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>Choloepus hoffmanni
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3.35 Marker H_Db162

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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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>Ceratotherium simum simum
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ATGATGGTTCCATCATCTATTAGTTGTGTGAGCTTGAGTGGATTTCTTAGCCACTCTGAACCTTAACTTCCCTTT-CTGT
-ACCATGGAGATAATTCTTAGGTTACAGAGCCGTTCTGA-TCATTTAGTGTTATGACAA---GTGCAAAGCACCTAACAT
AGTGCCTGGTGTAAAGTAGACTCTCGTA------------------ATAGTAGGTATCATTATTATTATTATTATTTT--
----------------TAAATT----TAATGCTCTGCTATAGTGGGG-------AACATCACAGTTCATTAAAATTGCTT
TTCAAATCCATTATCTTGTTTGATTCTCAAAAAAA--CC-CCCAATCCTTTAAT---------TTTGATCTGTGAAAAGG
GCTTGG-TTCATCACCTTAGAATTTCTGATAGGCTATTTCTGTTGGACCAGGTGAC
>Sorex araneus
TATGTCTTCAAATCATATAAATAATTGTCATATTGCTAATAATTGTTGAA--ATCAAAGA-TTTAGGAAGCCGT------
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ATCATTGCTCGTGGAGCTCAGCATCCTTATGTGGTTCCAGGGATCAAATCCAGCTCAGCTGTGTGCGATGCAAGCGCTTT
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ATGTGAGATCAGTTCTGTGTGACTTCACCAGTTTGGGCTTTCTATATTATCT-GAATTTCA-------------------
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TCTCAGCAGTTTGTGTCTTTGTTGATGTGTGTGCAGATGAGCT-CTT-CTTTAGCTACTATGTTTAGAGTAGTATATATC
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AGTGTCTGACATAGAGTCAAGTCTTAAAATAACTACTCTTATTCTTATTGTTGTTATTATTATTTTTATTATTATTGGTG
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TGCTAATTCTTTACTTTGTCTGATTCTCACTTAAAAAATGCCCAACGCTGTTAT---------TTTGGTTTATAATAGAT
A-TTGG-TTCATTGAGTT------TCTGATAGGTGACATATTT--GGCCAGGTAAC
>Homo sapiens
AACACCTTTGAATCATATCAGTGAC-GCCACATTGTTAAGGATTGCTGAAGGAATAAAGACTTTGGGAAGCCTGAGCTAT
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-ACAATGGGGATAATTCCCAGGTTATAGAGCTGTTCTGA-GCATTCAGTATTATGACAC---GT--AAAGCACCTCATGT
AGTGCCTGGCATTAAGTA--CTCTCATA------------------ATAGTAGCTATTACCATCATTATTATCATTAT--
----------------TAGTAGCATTTAATGCCCTGCTGCAATGAAG-------AGCATCACAGTTCATTACAATTGTTT
TTCTAATCCATTTTCTTATTTAATTCTCATAAA-----C-CCCAACCCTATAAT---------TATAATCTATGAAAAGG
GCTTGA-TTTATTGTCTCAGAATTTCTGATAGGCAACTTACTT--GGCTAGGTGAC
>Trichechus manatus latirostris
AACGTCTTCAGATCATATAAGTGATTGACACATTGTTAATAATTGTTAAAGGAATAAAAAGTTTGGGGAGCC-GAGCCAT
TTCCTGGGTTCAGTAGAGGAGATATAAAGACTTCTTT-------CTGCAGCTGTCATCTTGGCTACCA-CAAAAGGTTAG
AT--------------------------------------------------------------------------------
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--------------------------AGAATTTTGATTTCGAAGTTATCATTTCTTCTGGCCCAACAATATTCCTCTCTG
AGGT-------------------GGAGCCAGTCATGGACCCTTGTCCCACCCAGACTTGTA-------------------
-----------------------------------------------------------------------------GCA
TCTCAGGGGTTTGTACCTATGTTGCTGTGTAGGGCAGTACATTCCTTTCTCTAGCTGCTATATTCATAGCAGTGCATAGC
TAACCAGGTTGATGAAAACAGATTTAGAATCTCAGAGCATAGACA--TGA---------GTCTGAAAGATTTGCTTCCCG
GTGATGATTCCATCATGTATTAGCTGTGTGAACTTAGGTGAATTTCTTAGCCACTCTGAACTTTAGTTTCCTTTT-CTGT
-ACAGTAGGGATAATTCCTATCTTATAGAGCTGTTGTGA-GCATTCAGTATTACGACAT---GTGTTAAACACCTAGTAT
AGTGCCTGGCATAAAGTAGACTC-AATA-----------------AATAGTAGATGTTGT---------TATTACTCT--
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TTCCAACCCATTATCCTGTCTGATTCTC-------------------------------------------------
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3.36 Marker H_Db165

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>Canis lupus familiaris
ACTGGACTACCTA------CAGCTTGGCCTTCAACAGGTAATGCCAGCTAGTTCGGC--CCTAGAGGAGTAGCTGAGAGA
GTGAGAGAGG--AAGTCCCATCCCTGCAGG-----------------------------------------------
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----------------TGAAGATCTTTCATGTAAAGAGAATGTGCCAGCA--CGATTGCCAATGCTTCCGCTCC---TGG
AGGCACTCGGGCAT-TCTCCTCAACG----TGAATGCTTCCCCTCTGCCTG
>Felis catus
ACTGGACTAACTA------CAGTGGGGCCTTCAACAAGTAATGTCAGCTAGTTGAGCAACTCCGAGAAACGGCTGAGACA
GTGACAGAG-A-AAGTCCCATCCACGTAGG------------------------------------------------
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----------------TGAAGATGT-TTCACGGAAGAGAATTTGTCAGCA--CAATTGCCTATGCTTCAGTTTC----CG
AGGCACTTGGGCAT-TCTGCTTAACG----TAAATGCTTCCCCTCTGCCTG
>Manis pentadactyla
CCTGGACT-ACCAG-----CAACTTGGCCTTCGACAAGCAATGCCAGCTAGCTGAGCAGCCTAGAGAAGCAGCTGAAACA
GTGAGAGATGAGACATCCCACACTTGTAGG--------ATTTTCA---------------------------------
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----------------TAAAGATTTCTTCATGAAAGAGAATTTGCCAGGA--A--------ATGCTCTAGTTTC---TAG
AGGCACTTGTACAT-TCTCTTTAACA-----TAATGCTTTCCCTCTGAATG
>Bos taurus
AATGGACTAACCAAGCTATCAGCTTGTCTTTCAGCAAGTAATGTCAGCTAGCTGAGCAACTTAGAGCAGCAGCTGAGACA
GTGAGAGAGAA-AAGTCTCACAGTTGCAGGGGAATAGGATTTACA---------------------------------
-------------------------------------------------------------------------------
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-------------------------------------------------------------------------------
----------------TAAAGGTTTCCTCATGAAAGGGAATTTGCCAACA--TGACTGCCAGTGTTCCAGTTTC---TGA
AAGCACTTGTGCAT-TCTCCTGAA-GTCTCCAAATGCTTCCCCTCTG-ATG
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>Balaenoptera acutorostrata scammoni
AATGGACTAACTA------TAGCTTGGCCTTCAACAAGTAAAGTCAGCTAGCTGAGCAGCCTAGAGCAGCAGCTGAGATA
GCAAGAGAT-A-ATGTCCCACACTTGTAGTGGAATAGGTTTTATA-----------------------------------
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----------------TGAAGATTTCCTCATGAAAGAGAATTTGCCAACA--AGATTGCTTAGGCTCCAGTTTC---TGA
AGTCACTTGTGCAT-TCTCCCTCAGG----TAAAGGCTTCCTCTCGGGATG
>Myotis lucifugus
AGTGGACCAACAA------GAACTTGGCCTTCCACA-GCAATGCCAGCCAGCTGGGCAGCCTAGAGCAGCAGCTGAGACA
----GAGAT-A-AAGTCCCAGGCTCGAAGGAGAATAGAACTTACATACTGAAACCAT--TTACACAGCAA-CCC------
----CTTCAAA-CTGTATTAAA-----AAGGCAGATGGATGTGACCTATGAAATAATAAATGGTCGCACGGTGAATTGGT
CTGTAACTGAGAAAAAGCTGTTGGCTCCTGGGACCAGGGCAGTGTGCACGTTAAGCTAAGAGAAAG-ATATGTCCTTTCT
TTGTAATCTCCCCGGGACTTTCTGTACAATTAATTTTCCCAGTAT-----------------------------------
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------------------------------------------------------------GCGTGAGGGGGGACTGTCA
CCTCCAAGGGATATGTGTTATTCAGGGAGCTACTGTGTGTATCTATCTTTAGAGAAATTAATGATGTACTGCATGTACAG
CCACACTGCTTCTCAACGTCGTGATTTCTGTTGACTTCGGGCAGTC-TCTTTCTAGGACACAGCAGCCTCTCA--AGCTT
GATCTCTCAAGAGGCACCAAAATGCCTTCAAAAAAGGGAATTTGCCTGCA--CAATCACGTATACTCCAGTATC---TGG
AGGCGCTTGTTCAT-TCTCATTAATG----GAAATGCTTTCCCTCTGGATG
>Pteropus vampyrus
ACTGGACTAACTA------CAGCTTGGCCTTCAATAAACAATGGTAGC-------------TAGAACAGCACCTGAGATA
GTGAGAGAT-A-AAGTTCCATGTTTGTAGAATAATAGAATTTATGTACTGAAACTGTGGTTAGA---CAATCCC------
----CTTCAAA-GTGTGTAACA-------GGCAGATGGATATGACCTATGAAAGAATAAGTGGTCCCAT-GTGGATTGCT
TTGTAACTGAGAAAAAGCTGTTGGCTCATGGGACTAGGATGGTATGAATGTTAAGTTAATGGAAAG-ACATAGTCTTCCT
TTATAATTTCCCCAAGATTTTCTGTACAATTAAGTTTTCCAGTGT-----------------------------------
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------------------------------------------------------------CCATAAGAGAAGACTATTA
CCTCCAAAGTA----TGTTATTCAGGGAGCCACTGTGTACATCTACCTTTGGAGAAATTAATGATGTACTGTATATTCAG
TCACGCTGCTTCTAAACTTAGTGATTTCTGGAGACTTCAAGCAGTC-TCTTTCTAGGATGCAATATCCTCTCAACAGCTT
GAGCTCTCAAGAGGCATGAAGATTTCTTAATGAAAGAGAATTTGCCAGCA---AATTGATTGTGCTCCAATTTCT--TGG
AGGCACTTGTTCAT-TCTCCTTAACA----TAAATGCTTCTCTTCTGAATG
>Equus caballus
ACTGGACTAACTA------CAGCTTAGCCTTCAACAACCAATGCCATCTAGTTGAGCAGCCTAGAGCAACAGCTGAGTTA
GTGTGAGAG-A-AGGTCTCATGCTTGTAGGAGAATAGGATTTACATACAGAAACTACAGTTACACAGCAATCCC------
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GATCTCTTAAGAGGCATGAAGATTTCTTCTTGAAAGTTAATTTGCCAGCA--TGATTGCCTATGCTCCAATATC---TGG
AGGTATTTGTGTAT-TCTCCTTAACG----TAAGTGCTTCCCCTCTAGGTG
>Ceratotherium simum simum
ACTAGACTGACTA------TAGCTTGGCCTGCAACAAGCAATGCCAGCTAGTTAAGCAGCCTAGAGCAGCAGCTGAGAGA
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----CTTCAAA-GTGTGTAAAA-------TGCAGATGGATGTGACCTATGAAAGAATAAATGATCACATGGTGGATTGGT
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TTGTAATCTCCTCAGGATTTTCTGTACAATTAATTTTTCCAGTAT-----------------------------------
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TCACACTGCTTCTTAACTTGGAAAATTCTGGTGACTTTAGGCAGTC-TTTTTCTAGGACACAACATCCTCCCAATAGCTT
GATCTCTCAAGAGGCATGAAGATTTCTTCATGAAAGTGAATTTGCCAGCA--CAATTGCCTGAGCTCCAATTTC---TGG
AG--ACTTGTGCAT-TCTCCTCAACG----TAAATGCTTCCCCTCTAGAAG
>Sorex araneus
ACTGGAGTAACTG------CATCTTGGCCTTCATCAAATAGTGCCAACTTGCAGAGCAGCCTATAGAAGTACCTAGGACA
GTAACAGA--TAAAGACCCACACT-----GAGAGTAAGATTTACCTA-TGAGACCACAGTGACACAAAAATCCCTATGGT
TTCACTTGATTTATGT--AAAC-------ATCAAATTAATGTGACTTATGAGAGGATAAATGGTCACGTACCAGACTGGT
CTGTAATTGATAAAAAGCCCATAAGACT--------CCCATGTATGAATTTTAGACTAGCAGAAAG-CTGTGCCCTGTCT
TTACGGTCTCTCCAGAATTCTCTCTACAAATATTTTTTCCCTTATATGCACCTGACTCCAGGCTGTTTTCACTCCAGAGG
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GAAGGTCTATGCTGCTTTGTTCAAGCTAATACTAACACTAAGCCACTTTCGCTATGATTCCCCATCCTGCCTTTCTGTTC
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TCTCCAAGGTATTTCGTGATTCAAGGA-CTTGCTGTGTG--TCCACCTTTGGAGAAGTAAATGATATGCTGCATACACAG
TTATATTGTGTCTTAGAAAA-----TTCTGGTGACTCTAGGCAGCC-TTTTACTACAACACAACACTCTCCCAAGAACTC
GACCTCTCAAGAGAAGTGAAGGTCCCTTCATGAGA-AGAGTTTGGCAGTA--CAACTGACTGTGCTCCAGTTTCATTAGG
AGGAATTTATGTATCCTTCCT-AACG----GTATTGGTTCCCCTCTGTGTT
>Homo sapiens
ACCAGACTAACTA------CATCCTGGCCTTCAACAAGCAATGTCAGCCCAGTGGGAAGCTAAGA---------------
------------CAGTTTCTTGCTTGTGGGGGGAAATGATTTATACACAAAAACTACAGTTACACAGAAGTCCC------
----CTTCAAA-GTATGTAAAA-------GGCAGAAGGATGTCACCTACGGAAGAATAGCTAGTCACATAGTGGATTGAT
CTGGAACTGAGACAAAGCTGGTAGCTCATGAGTCTATGACGGTTTGAATGTTAAGCTCATGAAAAGAATTTATCCTTCCT
TTGTAACTTCTCCAGGATTTTCTGTACGATTAATTTTTCCAGTAT-----------------------------------
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-------------------------------------------------------------ACATGATGGAAGACTGTCA
CCTCCAAGGTATGTGTGTGACTT-GGGAGCCACTGTGTGCAACCTTCTTTGGAGAAGCAAATGATGTGCTGCATATTTAG
TCACACTTCTT--------AGTGTGTTCTAGTGACTTCGGGCAGTC-TCTTTCTAGGACACAGCGCCCTCCCAATAAGTT
GATGTCTCAAGAGGCATGATGATTTTTTCTCGAAGGAGAGTTTGTCAGCA--TGATTGCCTATGCTCCACTTCC---TGG
AGGCATTTGTGCAT-TCTCCTTAACATAAATAAATACTTCCCCTCTGGAGG
>Dasypus novemcinctus
ACCAGACTGGCTA------AAGCTTGGCCTTCAGCGAGCAATCCTAGCTAGGTAAGCTGCCTGGAGCAGCAGCTGAGACA
GAGAGAGAC---AACGTCCGTACTTGTAGGGGAATAATATTTACACGTAGAAACTATGGCTGTACAGCAATGCT------
----CTTCAAA-GTGTGCTAAA-------GGGGAAGGGATGTGACCCATGAAAGAATAAATGGTCACATGGGGGATTGGG
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TTGTAATCTCCCCAGGATTTTCTGTACAATTAATTTTTTCGGTAT-----------------------------------
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-------------------------------------------------------------GCATGAGGGAAGAGTGTCA
CCTCAAAGGTACGTGTGTGATTT-GGAAGTCACTGTGTGTATCTGTCTATGGAGGGTTCAATGATTT-CTGCATATTTAG
TCACACTGCTT---AACTTAGCAGCTTTTGGTGACTTAGGGCAGTCTTCTTTCTAGGACACAACATCCTGCCAAGAACTT
GATACCTCAAGAGGCATGAAGATTTCTTCTGGAAAGAGAACTTGCCAGCATGCGATGGCCTATGTTCCAGTTCC---TAG
AGGCACTTGTGCAC-TCTCCTGAATG----TAAGTGCTTTCCCTCTGGATA
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Perissodactyla+Carnivora

4.1 Marker C_Dh163

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>Canis lupus familiaris
TCTGTTATTATGCACAGCTGACATTTTAAAATGTCCTTTTAAGTAGGTTCAACACAGAAGAGGTTGCTATTATGATTTTT
ATCATTACTACAACTGAAATT-------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------CCAG
ATCTAC----CTTTTGCTGGCTGTTTGCCATTGGGAAAGGTACCTT--CCTCTTTAATTCCCAATTTTTT
>Felis catus
TCTGTTATTATGCACAGCTGACATTTTAAAACGTCCTTTCAAGTAGGTTCAACACAGAGGAGGCTGTTATTATGATTTTT
ATCATTACCACAACTGAAATG--------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------CCAG
ATCTAC----TTCTTGCTGGCCGCTTGCCATCGGGAAAGTTATTTT-ACCTCTTTAATTCTCAATGTTTT
>Manis javanica
TCTGCTATTATGCACAGCTGACATTTT-AAATGTCCTT-----------CTGCACGGAAGAAGCTGTTATTATGATTTTT
ATCATTATTACAACTAAAGCT--------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------CCAG
ATCTACTCTTTATA--CTGCTACTTAACCTTGGGGAAATTGCTTT--TTCTCTTTGCTTCTCAATTTTTT
>Equus caballus
TCTGTCATTACACGCAGCTGATATTTT-AAATCTCCTTTTAAGCAGGATCAACATAGAGGAGGCCATTATTATGATTTTT
ATCATTATTACAACTGAAATT--------------------------------------------------------------
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-------------------------------------------------------------------------------
-------------------------------------------------------------------------------CCAG
ATCCAC----TACTTGCTGGCTGCCTGACCTTGGGAAAGTTATTTT-ACCTTTTTGAGTCTCAACGTTTT
>Ceratotherium simum simum
TCTGTTATTATGCACAGCTGACATTTT-AAATGTCCTTTTAAGTAGGTTCAACACTGAGGAGGCTATTATTATGATTTTT
ATCATTATTACAACCGCAACT--------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------CCAG
ATCCAC----TTCTTCCTGGCTGCTTGACTACGGGAAAGTTATTTT-ACCTTTTTGATTCTCAATTTTTT
>Myotis lucifugus
TCTGTCATTAGGCACAGCTGACATTTT-AAATGTCCTTTTAAGTAGGTTCACCACAGAGGAGGCCGTTATTATGATTTTT
ATCATTATGACAACTGAAGTTGATTTCCATGTGTTCTATGACTCTGGCTTGATCACATTTTAA-TCAGCGCTGATTGGGG
GAGGCAGTGCATAGCTGTGATCATTAAAAGCATA-------------------------------------------------
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-------------------------------------------TGCTTCGGGAGTGGCTGTCCTTGAGTTCAAATTCCAG
CTCCAC----TACTTGCGGGCTGTTTGACTTTGGTAAAGTTATTTT-ACCTCGTTGATTCTCACTTTTTT
>Pteropus vampyrus
TCTGTGATTATGCACAGCTGACATTTT-AAATGTCCTTTTAAATAGGTTTAACACAGAGGAGGCTGTTATTATGATTTTT
ATCATTATTACAACTGAAGTTGATTTTCATTTGTTAAATGACTCCGGTTTGAACACATTTTAA-TCAACTCTTGTTGGGG
ATGGTAGTACATATTTATGATTATTAAGATTTCA-------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------AGCTTTG-AAATGGTCATCCTTAAGTTCAAATTCCAG
ATCCAC----TATCTGCCGGCTGTTTGACCTTGGTAAAGTTATTTTTACCTCTTTAATTCTCAATTTTTT
>Bos taurus
TCTGTCATTATGCACAGGTAACATTTT-AAATGTCCTTTTAAGTAGGTTCAAAACAGAGAAGGCCATTATTATCATTTTT
ATCATTATTACAACTGAAGTTGATTTTCACTTGTTATAGGACTCTGGGTCAAGCATGT-TTAA-TCAACCCTGGTTGTTG
GAGGCAGCACGTACCTATGATTATTAAAAACATATTATTTTTAAGATTATTAAAA----------------------------
-------------------------------------------------------------------------------
---------------------------------------------AGTTTCGGAAATGGTCACCCTTGAGTTCAAATTCCAG
ATCCAA----TACTTGCTGGCTGCTTC---TTGGGAAAGTTGTTTT-ACCTCTCTGATTCTCAATTTTTT
>Balaenoptera acutorostrata scammoni
TCTGTTATTATGCGCAGCTAATATTTT-AAATGTCCTTTTAGGTAGGTTCAAAACAGAGAAGGCCATTATTAAGATTTTT
AGCATTGTTATAACTGAAGTTGACTTTCATTTGTTATGTGACTCTGGATCGAGGACAT-TTAACT-GACCCTGGTTGTAG
AGGGCAGTATGTA-CTATGATTATTAAAAATATA-------------------------------------------------
-------------------------------------------------------------------------------
---------------------------------------------AGCTTTGGAAATGGTCATTGTTGAGTTCAAATTCCAG
ATCCAG----TACTTGCTGGCTGCTTGACCTTAGGAAAGTTATTTT-ACCTCTTTGATTCTCAATTTTTT
>Condylura cristata
CCTGTTATTATACACCACCCGCATTTTTCTGTGTCCTTTTAAGTAGGTTCAATGCAGAGGAGACCGTCACTTTGATTTTT
GTCATGGCTACAAGTGAAGTTGACTTTCGCTTGTTATAGGA-TCCCGTGGGGGCATATTTTAA-TCAA---GGTACTTGG
GAAGGGGTACATATCTATGATTATTAAAAGCCTA-------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------AGCTTTGCAAA--CACATCCATGACTTCTAATTTCAG
ATCCAC----TGCTCGCTGGCTGCTTGGCCTTGGGAAAGTTTTTTT-ACTGCTTTGATTTTCAGGTTTTT
>Homo sapiens
TCTGTTATTATACACAGCCGACATTT-AAAATATTCTTTTAAGTAGGTTCAACACAGAGGAGGTCATTATTATGATTTTT
ATAATTATTACAACTGAAGTTGATTTTAATTTGTCACATGACTCTGAGTCAACCATATGTTAAATCCACACTGGCTTGGG
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GCGGTGGTACATCTTTATGACTATTAAGAGAATA--------------------------------------------
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-------------------------------------------TGCTTTGCAAATGGCCATCTTTGAGTTCCAATTACAG
TTCCACATGGTACTTGTTGACTGCTTGACCTTGGGAAAGTTATTTT-ACCTCTCCAATTATCAATTTTCT
>Trichechus manatus latirostris
TCTGCTATTATGCAGAACTGACATTTTTAAA-GCCCTTTTAAGTAAGTTCAACACAGAGGAAGCCGTTATTATGATTTTT
ATCATTATTACAACTGAAGTTGATCTTAATTTACTATATCACTCTGGGTAGAGCATATTATAA-TCAACTCTTGTTGGGG
GAGGCAGTACACGTCTATGATTATTCAGCACCGAAGCTTTGGAAGGAGCCCTGTTGGCATAGTGGTTAAGAGCTCGGCTG
CTAACAAGAAGGTCAGCAGTTCGAATCCACCAGCCACTCCTTGGAAACACTATGGGGCAGTTCGACTCTGTCCTATAGTG
TTACTATGAGTCGGAATCGACTTGATGGCAACGGGTACAGGTAAGCTTCGGAAATGGTCATCCTTGAGTTCAAATTCCAG
ATCCAA----CACTTGCTGGCTGTTTGTCCTTGGGAAAGCTATTAT-ACCTCTCTGAGCCTCAATTTTTC
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4.2 Marker D_Dh047

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>Canis lupus familiaris
TAATTTTAAAAA--TAAGGAATGTGAAAAGCAATTTTAAAAAGTGAAAAATGGGACCTCTTCCTAAAGGACCCATGCAAT
AAACACCTATGAAATGAGCCCTTC-TTCTATCACT-------------------------------------------
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-------------------------------------------------------------------------------
-----------------------------------------------------AGTGAATTTACTTTCAATGTA--CAGCC
TTAAAATGT---------------TTTTCTTCTGGCACCGTT--GGTTCCATTGAGAAAATTCCTTTTCTCTTTAC---T
GTAG-GAAATTAAT
>Ailuropoda melanoleuca
TAAT-TTAAAAAA-TAAAGAATGTGAAATGCAACTGAAAAAAATGAAAAATGGGATCTCCTCTTGAAGAATCCATGCAAT
AAACACCTATGAAATGAACCCTTC-TTCTATCACTACTG---------------------------------------
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-------------------------------------------------------------------------------
-----------------------------------------------------CTCAAAATTTATTTTCGATATAT-ATGCC
TTAAAATGT---------------TTTTCTTCCAGCACTATT--GGTTCAGTTGAGAAAATTACTTTTCTCTTTAC---T
ACGG-AAAATTAAT
>Manis javanica
TAATGTTAAAAAA-TAAGGAATGTGAAAATAAATTG-AAAAAGG-----------TTTCATCTTTATTAATCCATGCAAT
AAACATCTGTGAAATGAACCCTTC-TTCTATCACAACTG---------------------------------------
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-------------------------------------------------------------------------------
-----------------------------------------------------CTCAAAATTTCTTTTCTTTTTAT------
-------------------------------------------------------------------------------
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>Equus caballus
TAGTGTTAAAAAA-TAAGGAATGTGAAGATCAATTG-AAAAAGCGAAAAATAGGATCTCATCTTGATGAGTCCTTGCAGT
AAAGATCTATGAAATGAATCCTTC-TTCTATCACTACTG---------------------------------------
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-------------------------------------------------------------------------------
-----------------------------------------------------TTCAAAATTTATTTTCAATGTAT-ATACC
TTGGAATGC---------------TTTTCTCCCAGCACTCTT--GATTTGGGGGAGGAAATTATTTCTCTCTTTAC---T
ATAGAAAAATGAAT
>Ceratotherium simum simum
TAGTGTTAAAAAG-TAAGGAATGTGAAAA--AAT-----------AGAAATAGGATTTCATTTTGATGAATCCTTGCAAT
GAACATCTATGAAATGAACCCTTC-TTCTATCGTTACTG---------------------------------------
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>Myotis lucifugus
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ATAA-AAAATGAAT
>Pteropus alecto
TAATGTTAAAAAAATAAG----------ATCGATTG-GAAAAATGAAAAACAGGAAC---TCTTGATAAATCCATGCAAT
AAACATCTATTAAATGAACTCTTC----TATCACTGCTGGTTTATTTTTTTTTCCTCTTTCTTTGCTCCATGCTGAA-TG
GGAATGAGATTATAAATTGTAACCACATTCTCCAATCTTTAAAATTACTCTGGGGGTCTTCAAAATTCAATAA-TTAAAG
TTTT-AAAGTTTTCTAGAAATT-AGAACTGAGAAGCCTAC--------------------------------------
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TTAGAATGT---------------TTTTCTCTCAACATTATTTTGATTCAGTTCAGAAA---ATTG--CTTTTTAC---T
GTAG-AAAATAAAA
>Bos taurus
TGATGTTAAAAAA-TA---AATGTAAAGATCAATTT-TAAAAATCAAAAACAGCATC---TTTCAATGAATTCATGCAAT
AAACATCTATGAAATAAACTGTTC----TATTAATATAGTTTT-TTT-------CTCTTTTATTGCTCCATGCTGAAATG
GGAATGAGGTTACATATTTTAACTGCATTCTCCACTC--TAAAACTACTGTGAGT-TATTCAAAACTCAATAA-TTAAAA
TTTT-AGAGTCTTTTAGACATTTAGAACAGAGAAGCCTAAAAT----------------TTTTACGAGAATTTTCCCCTC
TATAT-ATT-CCA--TTAACAAAATGTAGGTGGA-------GAGA-TC---CTCAAAGTTTACTTTTGATGTAT-ACGTT
TTAGAATGT---------------TTTTCTCCCAACACTATT--GATTCAGTTTAAAA---TCTTTTTCTCTTTAC---T
ATAC-AAAAT-AAT
>Balaenoptera acutorostrata scammoni
TAATGTTA-----------------AAGATCAATTG--AAAAATGAAAAACAGCATCT-GTTTTGATGAATTCATGCAAT
AAACATCTATGAAATGAACCCTTC----TATTACTACTGTTTTCTTT-------CTCTTTTATTGCTCCATGCTGAGATG
GGAATGAGATTATACATTTTAACTGCATTCTCCACTCTTTAAAACTACTCTGGGG-TATTCAAATTTTAATAA-TGAAAA
TTTT-AAAGGTTTT-AGAAATTTAGAACTAAGAAGCCTAAAAT----------------TTTGACCAGAATTTTCTCCTC
T-----------------------------GGGGA-------GA---TCTTGCTCAAAATTTACTTTCAATGTAT-ATGTT
TTAGAATGT---------------TTTTCTCCCAGCACTATT--GATTCAGTTTAGAAAATTATTTTTCTCTTTAC---T
ATAC-AAAATAAAT
>Condylura cristata
TTACTATTAAAA--CAAAGACTGTGAAGA-CAAAGG--AAGAATGAAGAACAGAATCTCATTTTGATTAATCCCCATAAT
AAGCACCTCTGCAATGATCCTTTT-----ATCAAGTTTTCT-------------GTACTTTATTGCTCAATGCTGAGATG
AAAATGAGATTGCAGATTTTAACTGCTTCCTCTACGCTTTAATTTTTTTCTAGGG-TCTTCTAAAAC-AATAAGTGAAAA
GTT--AGCATTTTCTATAAACTGAGAGCTGAGGAGTTTACATAGTAAGTTAAAATAAAATTTGACCCAAGTTTTCCCCTT
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GTTCTTTTAGCCATATTAACAGAAAATA-GGGGAAGAAAGTTGAAACCCTATTCAAAATGTATT--CATTATC-CATACC
TTA-AATCT---------------TTCTCTTCCTATACTATT--GATTTAGTTCAAGACATTACTT----CTTTCT---T
ACAG-AAAGTGAGT
>Homo sapiens
ATATTTTTATAA--CAAGGAATATGTTGATTAATTG-TTAAAATGAAATATAAGATTTCATTTTGGTGAATTTATGCAAT
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AGGATAAGATTATAAATTATAACAAAATTCTCCAGTCTTTAAAACTACTTTAGA--TCTTTAAAATTCAATGA-TTAAAA
TTTT-GGAGTTTT--AGTC-TTTAGA-----AAAGACTAAAT----------------------------------CTT
GTGT--ATA-CTGT--TATCAAAAAATCGGGGGA-------GGAAATTCTGGTCAAAATTTATTTTCAGTGTATTATGTC
TTAGAATAT---------------TTTTCTCCCAGCACAATT--AATTCTATTGAGAAAATTACTTTTCTTTTTAC---T
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>Galeopterus variegatus
ATATTTTTAA----AAAGGAATGTGAAGGTCAATTG-AGAAAATGTAAAACAGGATTTTGTCTTGATGAATCCATGCAAT
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TTTT-TGAGTTTTCTAGAAATTCAGAACTGAGAAGCCTAAA-----------------------------------TCT
GGAT-TATA-CTCCATAACCAAAACATAGGGGGA-------GAACACCCTGGTCAAAATTTATTTTCAATCTATTATGTC
TTAGAATGT---------------TTTTTCCCCAGCCCCACT--GATTCAGTTTAGAAAATTACTTTTCTCTTCACTTTT
ATAG-AATTTCAAT
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Chiroptera+Perissodactyla

5.1 Marker D_Hb025

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>Equus caballus
GTGTGTG---CAAATACAAGAGCCAGGAAGGCAGTCCCTGCCTTCCAGGTGACCTTAAGAGATCAGTTCATTGATGACTT
-GCAAAT-ATTCAAAAGCATA-CAAATTA-----------------------------------------------------
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-TC---CAATAAATGCTCCTGAGC----------------------------------------------------------
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----------------------------------ACTT-------GTAAAGAGCAGAAAACTTGAGACTTGAATTTGGCTT
TAGTTTTCTGGCACCTAAGATG-AAAAATGAAAACA
>Ceratotherium simum simum
GTGTGTA---CAAATACAACAGCCAGGAAGGCAGTCCCTGCCCGCTAGGTGACCTTAAGAGACCAGTTCATCGATGACTT
-GCAAAT-ATTCAAAAATATA-CAAATTA-----------------------------------------------------
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-TA---CACTAAATACTCCTGGGC----------------------------------------------------------
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----------------------------------ACTT-------GTAAAGAGCAGAAAACTTGAGACTTGAATTTGGCTC
TAGTTTTCTGGCACCTAACGGG-AAAAATGAAACCA
>Myotis lucifugus
GCGTGCA---CAGACCTGACAGC-AGGAAGGCAAGCCCTGCCCTGCAGGTGACCTTAAGC-ATCAGCACAGGGATG-TTT
-GCACAT-ATTCAAAAGTATC-TGAATTA-----------------------------------------------------
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-TA---CAATAAATGCTCACAGGC----------------------------------------------------------
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----------------------------------CCCT-------GCAAAGAGCAGAGACCTTGGAACTTGAATTTCACTC
TAGTTTTCTGGCAGCTAAAGCGAAAAAATGGAATCA
>Pteropus vampyrus
GTGTACA---CACATATATCAGGCAGGAAGGCAGTCCCTACCCTCCAG-TGCCCATGGGAGATCAGTTCATTGATGTCTT
-GCACAC-ATTTCAAAGTATA-TAAATTA-----------------------------------------------------
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-TC---CAGTAAATTCTCCCAGGC----------------------------------------------------------
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>Canis lupus familiaris
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GAAGTTTATCT----CATTTAAGAATTGAAAAATAGAT-ATTTAACATGGAGTACAACATAAGAAAATAGAAGTGACCCA
C-A---GAACAAATGCTCCTGGAT----------------------------------------------------------
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TAGTTTTCTGGCAGCTAAGATG--AAAAGGGAAGCA
>Felis catus
CTGTGTA---CAAATACAGCAGCCAGGAAGGCAGCCCCTGCCCTCTAGGTGACCTTAAAGGATCAGTCCAGTGATAACTT
-GCAAAT-ATTCAAAAGTATG-GAAATTAGTTATTTAATA---TTTTTGCTAAGTCAGTAATGGATTAT-GTCTTTTATA
GAAATTTATCTTATCTATCTAGGAATTGAAAAACAGAT-TTTTAACATGGGGTATAACATAAGAAAATAAAAGTGACCCA
CCA---GAATAAATGCTCCTTGGC----------------------------------------------------------
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---TTTTTTGGCAGCCAAGGTT-AAGAATGGAAACA
>Manis javanica
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CAA---GAATAAATGCTCCCAGGA-----------------------------------------------------
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TAGTTTTCTGGCAGCTAGGATG-ATAAATAAAAATA
>Bos taurus
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GAAGTTTATCATGTCTATC-AAAAATTAGTGAAAGGATTTTTTTACATGGTATATAACATAATAAAATAAAAATGACCCA
CAA---GACTAAAAGTTCCTAAGT-----------------------------------------------------
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>Balaenoptera acutorostrata scammoni
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GGTGAATTTATTTTTGCCATGTTAAGTATTTTGACAAGAGATTATGGTTAACCACCATCACACATAGCAGAGGTGGTGAT
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TTTCTTGTTCCTTCATCTGGTACATAGCCCTCTGCCTTTTCATCTTCTCTGTCTTTCTGTAACTGTGGAGAAAGGATTTT
TAACATGGGGTATAACATAAGAAAATAAAAGTGACCT-------GAAAAGAACAAAAAACTTGAGTCTTGAATTAGGCTC
TAGTTTTCTGGCAGTGAAGATG-AAAAACGGAAACA
>Sorex araneus
TCTTGTATATCAGATAGAAGAACCAGG-AGG-AATCTCTGTCCTCCAGCTGTCCTC-GGGCATTAGCTCACAAATAACTT
AGCAAGT-ATTCAAAAGTTGG-CAAATTAGCTTTTTCATA---TTTGTGTTAGGTCAATATTGGATTAATATATTCCATA
GGAGCTAGTTGTGTCTACCTAAGAATTGGAAAATAGATTTTTTAAGATAAGGTAT---------------TAGTCACCC-
TGA---GAATAGACACTTCTAGGC-----------------------------------------------------
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TAGTTTTCTGGTGGGTAAAATG-GAAAGTGAAAGCA
>Homo sapiens
GTGTGTA---CAAATGTAAGAGCAAGGAAGGCAGTCCC-ACCCTCCAGATGATCTTAAGAGATCAGTTCACTGATGACTT
-GCAAAT-ATTCAAAAGTATACTAACTTTGCTGTTTATTATTTTTTTTGCTAAGTCAATAGAGAATTAA-ATCTTTTACA
GAAATTCATTG--TCT--CTAAGAATTG-AAAATAGAT-TTTTAACATTGGGTAT-A----AGAAAATAAAAGTGACCCA
TAA---GAACAAATGCACCTTGGT-----------------------------------------------------
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CAGTTTTCTGGCAGCTAAGATG-AAAAATGAAAACA
>Choloepus hoffmanni
GGGTGTA---TACGTACAAAAGC----AAGGCAGTCCCTTTCCTC-AGGTGATTTTAGGAGATCAGTTCA--AACAACTT
-GTGAAT-ATTCAAAGGTATAAATAATTATCTGCTTAATT--TTTTTTGCAAAGATAATGATGGACTAA-ATCTTTCATG
GATATTTATTGTATGTAGTTAAGAATCAAAATAAAGAT--TTTAACAAGGAGTAT-AC---ATAAAATAAAAGTGACCCA
TGA---GAATAGATGCTCTATTAT-----------------------------------------------------
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--------------------------------GCCC-------AAAAAGAACAGAGGACTTGGGAATTCAATTTATCTC
TAATCTTCTGGCAACTAAGACC-AAACATGGAAACA
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5.2 Marker D_Hb026

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>Equus caballus
AAAAGTCTATCTTAGAATCCCT-------------------------------------------------------
---GAGAGC-TC-CTCAGAGCCACAGCTCAGTTC---------AGAAAGAAAACTCCG----------------------
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-----------------------------------------------------------GTCACAGAAGTGGCTTTAA--
TTACCCAGAGCTCTTGTTTGTTGAATGTAAGTTATACAAGTTCA---------CCCTTCACAACG--TACTCT-AACCT-
-ATTCTCAGAA-TGCA
>Ceratotherium simum simum
AAAAGTCTAACTTAGAGTCCCT-------------------------------------------------------
---AAAAGC-TCTCTCATAGCCACAGCTCGGTTC---------AAAAGGAAAACTCCA----------------------
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-----------------------------------------------------------GTCATAGAGGTAGCTTTAA--
TTCCTCAGAGATCTGGTTTGTTGAATGTGATTCATACAAATTCA---------CCCTTCGCAATG--TATTTT-AACCT-
-ATTCTCAGAA-TGCA
>Myotis lucifugus
TACACACACCCATGGAGTCCAT-------------------------------------------------------
---GAAAGT-TCTCTCATAGCCACAGCTCAGCTC---------AAAAAGAAAATCCCA----------------------
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-----------------------------------------------------------ATCACAGAGGTGGCTTTAA-T
TTTCTCAGAGCTCTGTTTTGCTGAATCTGATTCAAACAAATTCA---------CCCTTCATAATG--TATTTT-TAACT-
-ATTCTCAGAA-TGCA
>Pteropus vampyrus
GAAAGTTACCCTTAGAGTCCCT-------------------------------------------------------
---GAGAGT-TCTCTCATAGTCACAGCTAAGTTC---------AAAAAGAAAACCCCA----------------------
-------------------------------------------------------------------------------
-----------------------------------------------------------ATCGCACAGATAACTTTAGTT
TTTTTCAGAGCTCCGATTTGTTGAATGTGATTCAAATAAATTCA---------CCCTTCATAATG--TACT---------
-ATTTTCAGAA-TGCA
>Canis lupus familiaris
AAAAGTCTCTCTAAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAAATAAA
ATGCAAAGCCTCTCTCATAGCCTCAGCTCAGTAC---------AAAAAGAAAACCCCA--ATATTAAGTTTTCC-TTTTC
TTACCTGGAACTCCTAAA---GGGCTAATGTGA--------CACTAAAGAGATACTCAGATTTTTTTCAAC-TATCGAAA
GGGCTCACCTCCCCTGCATG---------------------TTTGTGGCCCCATAGCTTATCACAGATGAAGCTTTAA-T
TTTCTCAGAGCTCTGGTTTCTTGAATGTGATTCAAACAAATTCA---------TCCTTTATGATG--TACTTT-AATCTG
CATTCTCAGGA-TTCA
>Felis catus
AAAAGTCTAACCTAGGGTCCCG-------------------------------------------------------
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TTTCCTGGAGCTCCTAAA--GGGCCCACTGGGA--------CACTAAGGAGATATAAAGA-TTTTTCCAAC-TATCAGAA
GGGCTCATCTCCCCTGTTTGTGGAGACGCATCTCCCCTGCATTTGTGGTCCTGTAATTTATCACAGTGGGAGCTGTAA-T
CTTCTCAGAGCTCTGGTTTGTTGAATGTGATTCAAACAAATTCA---------CCCTTCATGATGTATACTTT-AACCT-
-ATTTTCAGAA-TGCA
>Manis pentadactyla
AAAAGTTAAATATAGAGTCCCC-------------------------------------------------------
---CAAAA---CTCTCTTAGTCGCAGCTCAGTTCAAATGGACAAAAAAAAAAAAAGCA--ATATTAAGTTTCCC-TTTTC
TCTCCTGGGGCTCCTAAA--GGGCA--------CCCATACCCACTGAGGAGATGTAAAGA-TTTTTCTAAC-TATTACAG
TGGCTCATCTCC-CTGTATG---------------------TGTGTGG-CCCC----TTATCACAGACATAGG-TTAA-T
TTTCTCAGAACT--GTTTTGCTGAATGTGATTCAAACCAGTTCA---------CCCTTCACAATG--TACTTT-GACCT-
-ATTCTCTGAA-TGCT
>Bos taurus
AAAAGTCTAACTCAGAGTCCAT-------------------------------------------------------
---AAAAGC-TTTGTCATGTCCACAGCCCAGTTC---------AAAAAGGAAACTCCAATATATTAAACTTGGC-TTTTC
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-ATTCTCAGAATTTCA
>Balaenoptera acutorostrata scammoni
AAAAGTCTAACTTGGAGTCCCT-------------------------------------------------------
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TGGCTCTCCCCT-CTGGATG---------------------TTGGTGGTCCCATAACTTATCACTGAGGAACCTTTAA-T
TTTCTCAGACCTCTGGTTTGTTGAAAGTGATTTAAACAAATTCA---------TCCTTCACAACG--TCCTTT-AACCT-
-GTTCTCAGAATTGCA
>Condylura cristata
AAAGCTCTAACTTGGAACTGCT-------------------------------------------------------
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TTTCTCAGCACTTTGCTTTGTTAATTTTGATTCAAATACATTCA---------CCCTTCACCACA--TACTTTTAACCA-
-GTTCTCAGAG-AGCA
>Homo sapiens
TCCTATCTAATTCACACTCCCC-------------------------------------------------------
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-CTTCTAACAG-TGCA
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>Choloepus hoffmanni
GAAGCTCTAACCTAGAGTCCCT------------------------------------------------------------
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TGGCACATCTCTCCTGTATG---------------------TCTGTGGTCCCAT---------CACAGGTAGCTTTAG-T
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-ATTCACAGAA-TGTA
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5.3 Marker D_Hb028

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>Equus caballus
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>Ceratotherium simum simum
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----TATAACA-------------------------------------------------------------------
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>Myotis lucifugus
CTGCTAATTATATAGTGGTT-ACTA----ACTTCATATATTACCTTATCATACTGGGCTTTC-TATAACTT---------
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>Pteropus vampyrus
TTACTGATTACAGGGTGGTT-ACTA----ACTCCCTATACTACATCATTATACTGGGCTTTC-TATAAATT---------
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>Rhinolophus ferrumequinum
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>Canis lupus familiaris
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>Felis catus
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>Manis pentadactyla
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GCTGGAAGGTCT--TGTCTGGGCTGCAGGA-GGAGGA---------------------------TGGAAAGGCTTCTGGG
TGCAAGAAAACATGCTCATACATAGCTCTACTTTAATGA-CCCCAAAATGTC
>Bos taurus
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>Balaenoptera acutorostrata scammoni
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TCTGATAAAAAATTT--ACCTTTTT-CTGAGCAATTTAGCTAGAGCAATGGGAAATAAGTAC-TGCAGA-GCTCCATCAC
TGCTCACCTAGACTTTGCCAAAAG--------------CCTTACCCCAACCTCTCCCCTCACCTAATGCCACGAGAATTA
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5.4 Marker D_Hb045

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>Balaenoptera acutorostrata scammoni
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>Erinaceus europaeus
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5.5 Marker D_Hb057

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5.6 Marker D_Hb060

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>Homo sapiens
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5.7 Marker D_Hb063

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>Equus caballus
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TACAGCCAGAG
>Ceratotherium simum simum
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>Erinaceus europaeus
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>Choloepus hoffmanni
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5.8 Marker D_Hb065

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5.9 Marker D_Hb067

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5.10 Marker D_Hb068

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5.11 Marker D_Hb076

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>Daubentonia madagascariensis
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5.12 Marker D_Hb077

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>Ceratotherium simum simum
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>Condylura cristata
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>Homo sapiens
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>Dasypus novemcinctus
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Perissodactyla+Cetartiodactyla

6.1 Marker D_Ch002

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>Condylura cristata
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6.2 Marker D_Ch007

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ATTGTGGC--CTAAAAAGCCAAAACATTTCTATCTGT--G----TTACAGG-AAACAGCTGTGTCCCTGAGTCCC---TT
GCCCAGTGCCTCCCTT--------------ATCTCACCTCCACTG------------TTTGCTGTATAACAAACTA-CCC
CAAATTTAATAGCTTTATATTACAACCATTTT-----------ATTTGTTCACAGTTCTTTCAGCC
>Pteropus vampyrus
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>Condylura cristata
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>Homo sapiens
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>Marmota marmota marmota
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>Choloepus hoffmanni
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GTACTGTGGCTT------------------ATCATACCTCTTCTGCTTCAGTTATCCACTGCTGGATAATAAACTACCCC
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6.3 Marker D_Ch008

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CA------------------------------------------------------------------------------
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--------GGGCTTTGTGTATGTGTCTACT-TGAGAGGCTAAGAGGGAAAATGTGTTTTTCTTT
>Ceratotherium simum simum
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GCAAGTC-ATCGAAATCTAACAAAATGAA-------------------------------------------------
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GCAGGTC-ATTGAAATCAAACAAAATGAA-------------------------------------------------
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>Homo sapiens
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>Heterocephalus glaber
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6.4 Marker D_Ch027

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>Ceratotherium simum simum
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>Balaenoptera acutorostrata scammoni
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>Pteropus vampyrus
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>Condylura cristata
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>Choloepus hoffmanni
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6.5 Marker D_Ch035

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>Balaenoptera acutorostrata scammoni
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6.6 Marker D_Ch044

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6.7 Marker D_Ch067

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>Ceratotherium simum simum
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6.8 Marker D_Hc003

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>Trichechus manatus latirostris
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6.9 Marker D_Hc004

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6.10 Marker D_Hc008

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----A--TGGTAGAATAA-TAATTTGAGAACACTGATC-ATTTCGGGTCTTCTCCCTGAGTCTCTTCTATTA-ACCTTGT
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CTCAGTTTAAAAAATAATAAT-------------------------------------------------------------
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------------------AACAAT---AACATTTTACGTATAATGGAAATGAGTTGTTAC-CAACAGAATG-ATTTTTCT
TTACCTCCTG-CCATGT--CCTCTCATC-------AGAAAGGAAGTCAAGAGAGAAGGAAAAAAAAAAAAA-AACTA---
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
--------------AACTGGAAAATTCTCTTGGTCTAGTGTGACCTGATGGAAGA-TGTAATATTACTGGTAATCTGGAA
G-CAAGCAGCTATGTATAATTAGGTTGTTAGG-GGAGATAAG-ATATGGCCACAGA----TTGCCCTGATTCTCATGTAA
GACTC
```

6.11 Marker D_Hc025

```
>Equus caballus
CCAGACT-----------AGTTAGTAGTTAGCCTCTCG-CATT--AAGGACATGTTGCGCTCATACACC-TTTCAGAGCA
CACCTTTTCCCATTCCTGGTGGGTTCC-ATGCATTTCTCTT--------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------GACTCTCTACTTCTTAATGAACTGACTGAGT----TAAACTTGACCACAGAAAT
CAACTTCATGCACTTGAAAAAATGCT-GACACC---------TTATTTTACCACAGACTTGA
>Ceratotherium simum simum
TCAAACC-----------AGTCTGTAGTTAGTCTCTCC-CATTA-AAGGACATGTCGCTGATAAATCCAGGTTCAGAGCA
CACATTTTCCCATTTCCGGTGGGCTCC-ATGGATTTCTCTT--------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------GACTCTCCACTTCTTAATGAACCTACTGAGT----TAAACTCGACCACAGAAAT
CAACTTCATATACTTGAAGAAACGCT-CACAAT---------TTATTTCACCATGGAGGTGA
>Bos taurus
CCAAACTCTCCCATTTGTAGTTTGTGCTTAGTCTTTCCTGATA--GAGGACATGTTCCTAATAAATGCAGGCTCAGAACT
-ACCTTTTCTGATTCCCGGTGGGCTCT-GTGCATTTCTCTT--------------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------GACTGTCCACTTTTTAATGCACCTGCTGAGT----TAAACTTGACCATCAAAAT
CAACTTTATATGCTTGAAGAAATGAT-AACATC---------TTATTT-ACCATGGAGGTGA
>Balaenoptera acutorostrata scammoni
CTAAATTCTCCCACAGGTAGTTTGTAGTTAGTCTCTCCTGTTA--AAGGACATGTCCCTGATAAATGCAGGCTCAGAGC-
TACTTTTTACTATTCCTGGTAGGCTCT-GTGCATTTCTCTT--------------------------------------
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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
--------------------------GACTCTCCACTTCTCAGTGTACCTACTGAGT----TAAACTTGACTACAGAAAT
CAACTTCATATACTTGAAGAAATGAA-AACATT---------TTATTTTACAATAGATGTCA
>Canis lupus familiaris
CCAAACT----------AAATTTGTATTTAATCTCTCC-CATGA-AAGGACATGTCACTGATAAATCCAGATTCAGAGCT
CACCT-TCCCCATTTCTGGTGTACTCT---GCATTTCTCTTTGACTCTTAGCAAGGAAAATCCTTTT--CTATATTAAGT
TTTTACTTCTGCTT-AACTGGTAGAGA----TGCAAGACTT-TTCCCAATGATGGCCATTC-AAGTCTGCTTCACCTTTT
GGCT-----------------------AGGATTGA-AAACTTAAAAAA-AAAAT-GACCCTGTTCTATTTTCTAAGACTA
GATTCTATAGCATAGTGCCAATTAGACTCAATGTAACAGAGTAGTAACTATGATGTTATGCACATGATCTGA-TAGAACT
TTGTGATTCAAATTATGTGACCAAATTACCTTTCACTTCTTAATGAAACTGCTGAATTAAATAAACTTGACCAGAGAAAT
CAACTTCCTATACTTGAAGAAATGCT-TACCTT---------TTGTTTCACTGTAGGGATGA
>Felis catus
CCAAACT----------AAATTAGTAGTTAATCTCTCT-CGTTA-AAGGACTTGTCACGGATAAATCCAGATTCAGAGCT
CATCT-TTCCTATTTCTGGTGGGCTCT-GTGCATTTCTCTTTTACTCTCAGCAAGGTCAAATTATTTTCTATATTATGAT
TTTGACTTCTGCTTAATGGGCAGAGA-----TGTAAGACT--ATTCCAATGATGGCTGTCC-AAGTCTGCTTCACCTTTT
GGCT-----------------------AGGATTGAGAATCTTAAAAAT--AAAT-GGCCCTGTTCTGTTTTCTAAGACTA
GGTTATACAGCATAGTATCAACTGGACTCAATGAAACAGAATAGCAACTGTGATATTATGCACATGATCTGA-TAGAACT
TTGTGATTCAAATTATGTAACTGAATTACCTTTCACTTCTTA-TGCGTCTCCTGCAT----TAAACTTGACCACAGAAAT
CAACT---TATACTTGAAGAAATGCT-AACCTC---------TTATTTTACCATAG-GGTGA
>Manis pentadactyla
TCAAGTG----------------------------TCT-CATTG-AAGGATATGTCACTGATACATCTAGATTCAGAGCT
CACTTTCTTCCATTCCTGATGGGCTAT---GTATTTCTCTT-GACTGTCAGCAGGG-AAAATTCTCTTCTGTATTAGGGT
TTTGATTCCTGCTTAACTGGCAGAGG-----T-CAAGACTTCATTCCATTGATGGCTA-TC-AAGTACGCATCACCTTTT
GGCT-----------------------AAGACCGAGAAACTTTCTTTTTAAAATTTGCCCTGTCTTATTTTCTAAGTGTA
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CAACTTCATATACTTGAAGAAATGTT-AACATC---------TTATTTCACCATGGAGGTGA
>Myotis lucifugus
TTAACCT-----------AGTTTGTAGTCAGTCTCTCC-CATT--TAAGACAT--TACCGATAAATCCAGGTTGGGAGCA
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TTTGATTTCTGCTTACCTGACAGAGGTGAGGTGCAAGACTTCATTCCATGAATGACTGTTG-GAGTCTGCTTCACCTTTT
CACT-----------------------AAGACTGAGAAACTTTCTTTTTAAAATTTGCCTTGTTCTATTTTCTAAGACTA
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>Pteropus vampyrus
CTGAACT-----------AATTTGTAGTTAGTCTCTCC-CATTAAAAAAACATGTCACTGATAAATGCAGGTTGAGAGCA
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GACT-----------------------AAGACTGAGAAACTTTCTTTTTAAAATTTGATTCATTCCATTTTCTAAGACTA
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TTGTGATTCAAATCACATTACCAAACTACTTTCCATTTCTTAATGAACCTACAGAGT----TAAACTTGACCACAGAAAT
CAACTTCATATATTTAAAGAAATGCG-AACATC---------TTATTTCACCAGAGAGGTCA
>Condylura cristata
GTCCAAG-----------AAGGTTGGAGCAGCCTTTCC-CTTTA-CAGGACTTGTCACTGTTAAATACAATCTCTGAGCA
CACCTCCCCCCACTCCTGG-ACTCCAT-GTAC-----------------------------------TTCT-TATGAGTGT
TTT-ATTTCTGCTTGACAGACAGGGG-----TGCAGGA-TTCATTCCTTTGATGGCTGTCTTAAGTATGCTTTACCTTTT
GGCTAGGATTTTTTGGGTTTTGTTTTTAGGATTAAGAACCTTTCTTTCTAAAATTTTCCCTATTCTATTTTCTAAGACTC
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TATTGCATGGCATAGT--ATGAGAGTCTCAGTGACACAGAACAGCTACAGTACTATCCTGCACATGGCCTGA-TAGAACT
TTGTGATTCAAACTACATTACCA-----GTTAATTACTTCCCACTGCTTAATGGAGT----AAAACTTGACCATAACAAT
CAGCTTCCTAGTTTTGGAGAA-TTCTGGACTCCCAAAAACTCTGATTTTACTGCAGAGGTGA
>Homo sapiens
CCCATGT-----AAATTGTACTTAGTCTTTTT-CATTA-GAGGATGTGTCATTGACAAATCCAGGTTCAGAGCA
CAGCTATTCCCAACCCTGGTGGTCTCC-GTGCATTTCTCTT-GATCCTCTGCAAGGAAGATTA--TTTCTATATGAGGGT
TTTGATTTCTGCTTAACTAGCAGAGG-----TGCAGGACTTCATTTCATTGACAGCTGTTC-AAGTGTGCTTCATCTTTT
GGCC-----AGGACTGAGAAACTTTTTAAAAAAGTTCTTCCCTGTTGTATTTTCTAAGACTA
GATTAT-----ATAGTATCAAGTAAACTCAACAAAACTAAAGAGCAACTGTGATGCCATGAACATGATCTGA-TCAAACT
TAATGACTAAAATTACATGACA-----ACTTCTTAATGAACCAACTGAGT----TAAAGTTGGCCACAGAGAT
GCAATTCAGATGCTTGATGAAATGCTAAACATC---------TTATGTCATTGAGGGGGTGA
>Choloepus hoffmanni
TCAAACT-----AATGTGCATTTAGTCTTTAG-CCTTA-ACGGACATGTTACTGATAAATCCAAGCTCTGAGCA
TATCCTTTCCCATGCCTGGTGGGTTCT-GTGCATTCCTTCT-GACTTTCAGAAGGGAAAATTCT-TTTCTATATAAGGGT
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GCTC-----AAGACTGGGAAACTTTCTTTTATAAA-----TCTGCTCTATTTTCTAAGCCTG
GATTAT-----ATAGCATCAAATAGACTCAATAAAGCAGAACTGCATCTATAATGTCATGTACATGATCTAA-TAGAACT
TTGTGATTAAAATTGCATGACA---TTACTTTCTAATTCTTAATGAATCTTCAGAGT----TAAATTTGATGATAGAAAT
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6.12 Marker D_Hc028

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>Equus caballus
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---------------AGTGTGTGTATGTGTGTATATGTGTGT-------------------------------------
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----------------------------------------AAATTAGATGCCAAATTTCAAATTA-TATTGT--TAGATA
ATGGTATTTTT---AATCCACATTTTATCTATTAGCCATAAATTGTGTATTTACATTATATAACTCCC
>Ceratotherium simum simum
AAGAGATAGTTTAAACTCAGTAAGTAAAACAGGAGGCCAAATGACAGTTTAGAATTTATCAGATTTGTTT---CGT----
--------------GTTAGTGTGTGTATGTGTGTATACGTGTGT-----------------------------------
--------------------------------------------------------------------------------
---------------------------------------AAATCAGATGCCAAATTTCAAATTA-CATTGT--TAGATA
ATGGTATTTTT---AATCCAAATTTTATCTCCCAGCCATAAATTGTGTATTTACATTCTACAACTCCC
>Bos taurus
AAGAGATAGTTTATTCTCAGTAAATAAAACAAGAAATTAAATGATAGTTTAGCATTTATCAGATTCAGTGTCGCCT----
----------------ATGTGAGTGTGTGTGCATGTATGTGTAA-----------------------------------
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---------------------------------------AAATTAGATGTCAAATTTCAAGTTG-CATTGT--TAGATA
ATGGTATTTTTTTAAACCTACATTTCATTTCCCAGCTATAAATTGTGTATTTATATTATACAACTCCC
>Balaenoptera acutorostrata scammoni
AAGAGATAGTTTATTCTCAGTAAATAAAACAAGAGATCAAATGACAGTTTAGCTTTTATCAGATTTGGTTACACAT----
--------------GTGAGTGTGTGTGTGTGCATGTGTATGTAT-----------------------------------
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---------------------------------------AAATTAGATGCCAAATTCCAAATTA-CATTGC--TAGATA
ATGGTATTTTT---AACCTACATTTTATTTCCCAGCCACAAATTGTGTATTTATATTATACAACTCCC
>Canis lupus familiaris
AAGACATAATTTATTCTCAGT--AAGCAAAATGAGACTAAATGACAATTTAGAGTTTGTAAGATCTGGTTAGGCAC----
------------GTGTGTGTATGTGTGTGTGTGTGCACATACA------------TGTTATTTCCAGCACTAGAAATGGC
ACTCTTGTCTTCAGAAAGGTTGCCCTTAGTAATGTCACAGTACCACAGGCCTTATACACTAGGTTTAAATGTTTGTGTGT
GAGTGTGT--------------------------------AAATTACATACCAAAATTCGAAT-G-CATTAT--TAGATA
ATGGTATTTTT---AATCCACATTTTATCTCCTAGCCATAAATTGTGTATTTATA-----CAATTCCC
>Felis catus
AAGAGATAGTTTATTCTCAGTAAGTGAAACAAGAGACTAAATGACAGTTTAGAGTATATCAGATTTGGTTAGGCAC----
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ACCCTTGTCTTCAGAAAGTTT-CCCTCAGTAATGTCAGAGTACCATGGGCTTTATTCACTTAATTTGTGTATGTGTGTGT
GTGTGCAAGTGTGT--------------------------AAATTACATGCTGAATTTCAAATTG-CATTAC--TAGATA
ATGGTATTTTT---AATCTACATTTTATCTCCCAGCCACAAATTGGGTATTTATA-----CAACTCCC
>Manis javanica
AATAGATATTTTATTCTCAGTAAGTGAAACAAGAGGCTAAGTAATAGTT-----------------GATTAGGCAGGTGA
GT--GTGA------------------TTGTTCATGTGCACATACATGTACAG---ATGTATAACTAGCACCAGTAAGGGC
ACCCTTCTCTTCAAAAAGGTTAACTTTAGTAATGTCAGAGCATTACATGCAATACACACTAGATTTAAATATATGGGTGC
GTGTGCATGTATGTGT------------------------AAATTAAATGTCAAATTTCAAATTA-CAGAGT--TAGATA
ACGGTGTTTTT---ACTC-ACA-TTTGTCTCCCAGTCA-AAACTGTACATTTATATTATATAACTCCC
>Myotis lucifugus
AAAAGATCATTTATTCTCAGTGAATGAAACAAGAAGTCAAATGACAGTTTAACGTTTATCAGACTTGGTTAGGCATGTGA
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ACACTTGTCTTCAGAAAGGTTATCCTCAGTAATGCCAGAGTACCATGGACAATACACACTAGATTTAAATATGTGTGTTT
GTGT-------------------------------------AAATTAGATGCCAAATTTCAAGTTA-TATTGT--TAGATA
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>Pteropus vampyrus
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>Erinaceus europaeus
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TCCCTTATATTCAGAGAGGTTAATTTTAGCTAAATTATTGTATCATGAACAATATACACACAGTTTAAATTTAAGTAGGT
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ATGGTATTTTT---AATCCACATTTTTGTCTCCTACAATAAATTCTGTATTTATGTTTTATAACTACC
>Homo sapiens
AAGAGATTGTCTGCCTTCAGTAAGTGAAATGAGAGGGCAAAAGACAACTTAAATTTT-CAAGGTTTGGTTAGCCATG---
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ATGGTATTTTT---TATCCATGTTTTATCTCCTAGGCATAAATTGTGTATTTATGTTATTCAACTCTC
>Trichechus manatus latirostris
AAGAAATCATTTTTCCTCATTAAGTGAAACAAGGAGCCAGATGACAGTTTATACTTTATCAGATTTGGTTTGGCATATGT
GTATGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGTGC-----------ATTTCCACCACCAGAAAGGGA
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GT-------------------------------------AAATTAGATGTCAGATTTGAAATCATCATATTTTTAGATA
ATAGTAATTTT---TATCTATGTTTTATTTTCTAACCATAAACTGTGTATTTATAGTATACAACTCCC
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6.13 Marker D_Hc030

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>Equus caballus
TCACCAATCAAGATGCTTTGCTACAGACTGTGTTGTATTATGTTCTTGCATCATTACTGAACTTTGTAATTCCCCTAGGC
CAAATCATTAAT-----------------------------------------------------------------
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---------------------------------TGCTCCTTAAAAAT---------------------------------
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-------------------------------------------------------TTCTAGTATCTC----TCTCATGCA
CACCTCCAAAA-TGTTCCAACATTTTAGTTAAGAAGATAAAAGGCTTTCCTTTATTCTTCCGTGCAAAA-CCAATGATTT
GTT
>Ceratotherium simum simum
ACACCAATCCAGATGCTTTGCTTCAAACTGTGTTGTATTGTGTTCTTGCATCATTACTGAACTTTGAAATTCCCCTTGGC
CAAATCATTAATGA---------------------------------------------------------------
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--------------------------------TTGCTCCTTAAAAAT---------------------------------
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--------------------------------------------------------------------------------
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-------------------------------------------------------TTCTAATATTTC----TCTCATCCA
CACCGCCAAAG-TGTTCCAACATTTTAGTTAAG---TTAAAATGTTTCCCCTTATTCTTTCTTACAAAA-CCAATGATTT
GTC
>Bos taurus
TCACCAATCAAGATGCTTTGCTTCAAACTGTGCTCTATTTTGTTCTTGTACTATTATCAGACTTTGAAATTCTCCATGGC
CAAATCATTAATGA---------------------------------------------------------------
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--------------------------------TTGCTCCTTAAAATT---------------------------------
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-------------------------------------------------------GTCTCACATCTT----TCTCATCTA
CATCATCAAAA-TATTTCAATGTTTTAGTTAAGAAGATAAATTTCTTCCTCTTATTTTTCCACACAGAA-CTAATGATTT
GTT
>Balaenoptera acutorostrata scammoni
TCACCAAT---------------------------------------------------------------------
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--------------------------------------------------------------------------------
--------------------------------------CTTAAAATT---------------------------------
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--------------------------------------------------------------------------------
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-------------------------------------------------------TATTCATATCTT----TCTCATCTA
CATCACCAAAA-TGTTCTAATGTTTTAGTCAGGAAAATAAAATGCTTCCTCTTATTTTTCCATACAAAA-CCATTGATTT
GTT
>Vicugna pacos
TCACCAATCAAGATGCTTTGCTTCAAACTGTGTTCCATTTTGTTCTTGCATCATTACTGAACTTTGAAAT-CCCCATGGC
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CATCACCAAAA-TGTTTCAGTGTTGTAGTTAGGAAGATAAAATGCTTCTTTTTATTCTTCCATACAAAA-CCAGTGATTT
ATT
>Canis lupus familiaris
TCATCATTCAAGATGCTTTGCTTCAAACTGTGTTGTATTGTGTTCTTGAATCATTATTGAACTTTGGAATTCCCTAAGGT
GAAGTCATTAATGG---------------------------------------------------------------
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TATCATGCCAAGACA--TTTTTCTCTTTCTGGGATATAC---ATCTCAGTCCTATTTCTAATATCTT----TCTCACCCA
CGCTACCAAAA-TGTT--CATGTTTTAGTAAGGAAAATAAAATACTTCCCCTTATTTTTCCATACAAAA-CCAATGATTT
GTT
>Felis catus
TCACCAATCACAGTGCTTTGCTTCAAACTGTGTTGTATGGTGTGCTTGAGTCATTATTGAACTTTGAA-TTCCCCATAGC
GAAATCATCAATGA---------------------------------------------------------------
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--------------------------------CTGTACCTCAGAATTTTATTTTTGTGGAGGCACCTGGGTGGCTTAGTC
GGTTAAGTGTCCGACTCTTGGTTTCGGTTCAGGTCATGATCTCACAGTTCATGGCGGATAGCACAGAGCCTGCTTGAGAT
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TATCATGCCAAGACA--GTTTTCTCTTTCTGGGATATAC---ATCTCAGTCCTATTTCGAATATCTT----TCTCATTGA
CACTGCCCAAA-TGTTCCAATGTTTTAGTTGGGAAGATAAAATGCTTCCCCTTATTTTTCCATACAAAAACCAGTGATTT
GTT
```

```
>Manis pentadactyla
TCA-----CAA--AGTTTTGCTTCAAATTGTGTTGTACTGTGTTCTTGAATCATTATTGAACTTCAAACTTCCCTGTGAC
CAAGACATTAATGT-------------------------------------------------------------------
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--------------------------------TTTCTTGCTAAAAGA---------------------------------
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-------------------------------------------------GACTTAACTGCACCTTAAACATTTTC
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TATCATGCCAAGACA--TTTTTCTCTTTCTGGGCTATAC---ATCTCAGTCTTATGTCCAATATCTACCTACCTTATGCA
CACTGCCAAAA-TACTTCAATATTTCAGTTAAGAAGATAAAATGCTTCCCCTTGTTCATCCATACAAAA-CCAATGATTT
GTT
>Myotis lucifugus
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CAATTAATTAATAA-------------------------------------------------------------------
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>Pteropus vampyrus
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CAAATTATTAATGA-------------------------------------------------------------------
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GTT
>Erinaceus europaeus
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CACTGCCAACA-TGTCCTAATATTCTAGTTAGGAAGATAAAATGCCCCC-CTTACTTTTTCATTAAAAA---ATTGATTT
TTT
>Homo sapiens
TCACCAATCAAGATGCTTTGCTTCAAATTTTGTTGTGTTGTATTCTTGAATCATTTTCAAACTTTGATATTCCTCTTGGC
CAAATTATTAATGA-------------------------------------------------------------------
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CACTGCCAAAA-TGTTCCAACACTTGAGTTAGGAAGATAAAATACTTCC-CTTGTTCTTCCATACAAAA-CCAATTATT-
GTT
>Trichechus manatus latirostris
TCA--AATCAAGATGCTTTGCTCCAAACTGTGTTATACTCTGTTCTTGAATCATTGTTGAACTTTGAGATTCCCCTTGGC
AAAATTATTAACGATTTAATAATAAAAAAAAAAACCATTGCTGTCAAGTCAATTCCAACTCACAGTGACCCATAGGACAG
AGTAGAACTGCCCCATACAGTCACCAATGAGCACCTGGTGGATTCAAACCGCCGACCTTTTGGTTAGCACCATAGCTCTT
AACCACTACACCACCAGGGTTTCCATTAATGATTGCACCTTAAAA-----------------------------------
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CATTGCCCAAA-TGTTCCAAAGTTTTAGTTAGGAAGATAAAATGTTTCCTCTTATTCTTCCATACAAAA-CGAATGGCCA
GTT
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