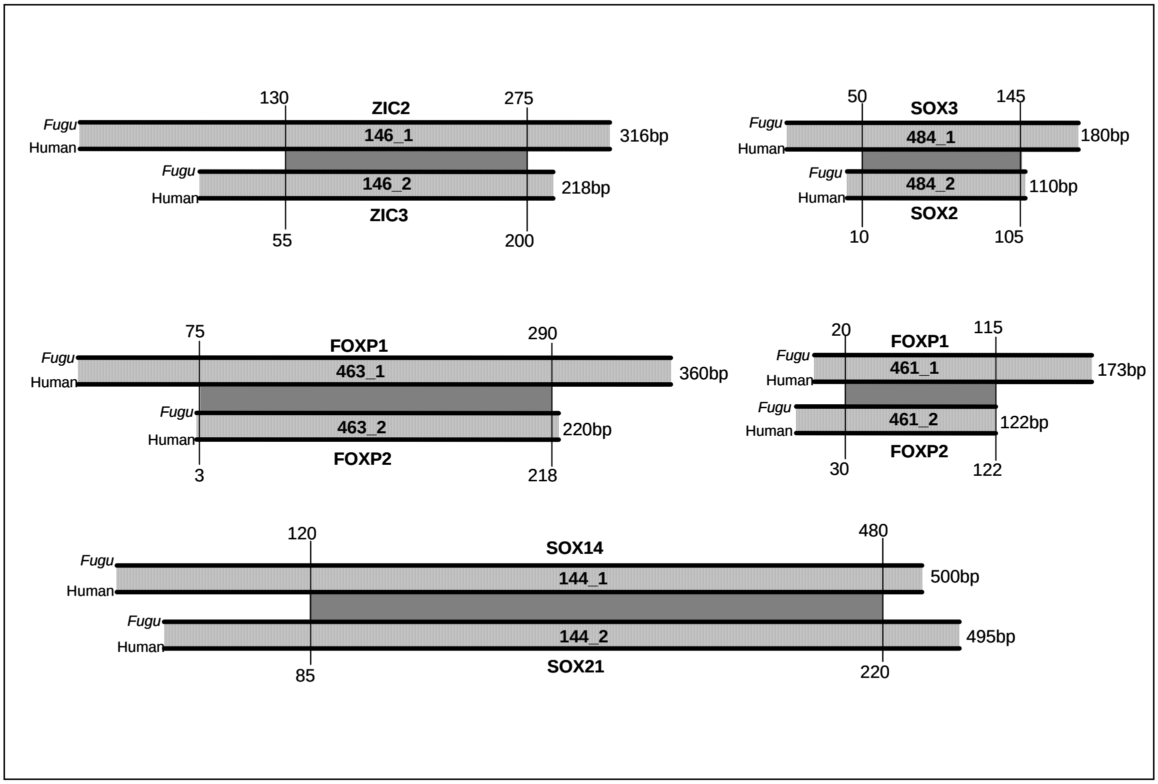
Supplemental Figure S3.

(A). Length comparison of dCNE families used in the functional analysis. Regions of sequence conservation between orthologous *Fugu* and human dCNEs are indicated by light grey shading, with lengths of the elements indicated on the right hand side. Regions of sequence similarity between paralogous dCNEs are denoted by dark grey shading and start and finish of this overlap are indicated. The dCNE family IDs (which can be related back to data on Supplemental table S1) and their associated paralog are given in each case.



(B). Alignments of dCNE sequences used in functional analysis. Alignments show the conservation between human and *Fugu* of each dCNE family member followed by the alignment between both family members in both species.

FoxP1/FoxP2 dCNE 461 from human and *Fugu* genomes

dCNE 461_1 FOXP1

```
461_1human      TAGAGGAGCTGCAGTCAAGTGGAAAA--TTTCTGCCTGACCTCTGCCCTT--GCTATTAA
461_1fugu       ----GGAGCGGCAGTCAAGTGGAAAACGTTGTTGCCTGGTCCCCCCCATCCAGATATTAA
                    ***** ****************  **  ******  * *  ** *   * ******

461_1human      TTTGCAGGAAAACTAATGACACATATACATATTCCCACAAAATTGTTCTAATTGCTAATT
461_1fugu       TTGGCAGGAAAACTAATGACACAGATACATATTCCAACCAAATTGTTCTAATTGCTGATT
                ** ******************** *********** ** ***************** ***

461_1human      TGCCAAAGGAGCCCAGATTCCAAATTAAACATGA--CTAGCCCGTGAGGGAAGGA
461_1fugu       AGCCGAAGGAGGCTTGTTTCCAAATTAAATATGAGCTCGGACTGTGAGAAAGG--
                 *** ****** *  * ************ ****     * * *****  * *
```

dCNE 461_2 FOXP2

```
461_2human      -AAATCTCAGCTGAGAGGCTCCAGCCAGCTGGAAAATTTTACACTGACCTTT-AGTCTCC
461_2fugu       CAAATCTCAAGTGAGAGGCTCTAACCGACTGGAAAATTCCTCGCTGACCTTTTAGTCCCT
                 ********  ********** * **  **********   * ********* **** *

461_2human      TTGCTAATTTGG-TGGAATGGTAATGACATTACTACATATTCAAACAAAATTGTCTTAAT
461_2fugu       CTGCTAATTTAGCTGGAATGGTAATGACATTGTTACATATTCACACCAAATTGCCTTAAT
                 ********* * ******************  ********** ** ****** ******

461_2human      TGC
461_2fugu       TGT
                **
```

dCNEs 461_1 FOXP1 and 461_2 FOXP2

```
461_2human      -AAATCTCAGCTGAGAGGCTCCAGCCAGCTGGAAAA---TTTTACACTGACCTTT-AGTC
461_2fugu       CAAATCTCAAGTGAGAGGCTCTAACCGACTGGAAAA---TTCCTCGCTGACCTTTTAGTC
461_1human      ----------TAGAGGAGCTGCAGTCAAGTGGAAAA---TTTCTGCCTGACCTCT-GCCC
461_1fugu       --------------GGAGCGGCAGTCAAGTGGAAAACGTTGTTGCCTGGTCCCCCCCATC
                              *  **   *  *   *******   *        * **       *

461_2human      TCCTTGCTAATTTGG-TGGAATGGTAATGACATTACTACATATTCAAACAAAATTGTCTT
461_2fugu       CCTCTGCTAATTTAGCTGGAATGGTAATGACATTGTTACATATTCACACCAAATTGCCTT
461_1human      TTGCTATTAATTTGC-AGGAAAACTAATGACACATATACATATTCCCACAAAATTGTTCT
461_1fugu       CAGATATTAATT-GGCAGGAAAACTAATGACACAGATACATATTCCAACCAAATTGTTCT
                    *  *****     ****   ********    *********  ** ******   *

461_2human      AATTGC------------------------------------------------------
461_2fugu       AATTGT------------------------------------------------------
461_1human      AATTGCTAATTTGCCAAAGGAGCCCAGATTCCAAATTAAACATGACTAGCCCGTGAGGGA
461_1fugu       AATTGCTGATTAGCCGAAGGAGGCTTGTTTCCAAATTAAATATGAGCTCGGACTGTGAGA
                *****

461_2human      ----
461_2fugu       ----
461_1human      AGGA
461_1fugu       AAGG
```

FoxP1/FoxP2 dCNE 463 from human and *Fugu* genomes

dCNE 463_1 FOXP1

```
463_1human      -AATACAGTCAGTGTCAGGAAGATGCGTCCCACTCATAAAGCAGCGCAATGACAATGTAC
463_1fugu       TGTTCCAGC--GCGTCAGGAGGATGCGTCCTCCTCATAAAGCAGCACAAAGACAGTGTAC
                   * ***   * ******* *********  ************* *** **** *****

463_1human      AGTGGCACTAACACAAGGACATAGTTCATCATGACATTTCCAGCAATTCCCAACTGATTA
463_1fugu       AGTGGCACTAATACAAGGACATAGTTCATCATGACATTTTCTGCAATTCCCAACTGATTA
                *********** *************************** * ******************

463_1human      GGGTCATTATGTTGGAGGTCTGATTTATGTTGTCATTTCCTCTCACCGATCCTGCATCAA
463_1fugu       GGGTCATTATGTTGGGGGCCTGATTTATGCTGTCATTTCCTCTCACCGATCCTGCATCAA
                *************** ** ********** ******************************

463_1human      TGAATCTTAATGAATTGGTAAATAAGGGTGAAGATTACACTCTATGACACTGAAACATTC
463_1fugu       TGAATCTTAATGAATTGGTAAATAAGGGTGAAGATTACACTGTGTGACACTGCAACATTT
                ***************************************** * ******** ****** 

463_1human      CTCATTCTCAACACCCGAGATTTATGTAGCCAATTAGTGACTAACAGAGAAAATTGGCTG
463_1fugu       CTCACCCTCAACAGCTGAGATTTATGTAGCCAATTAGAGGCTAACAGAGAAAATTGGCTG
                ****  ******* * ********************* * ********************

463_1human      GCAGAAAAATAATATTCTTTATGGTACAAAATGGAAAAAGCTTTCTCGTTGAAGGGCAAT
463_1fugu       GCAGAAAAATAATATTCTTTATGGTCCAAAAACGGGGGCGCGTTCTCAGTGAAGGGCAAC
                ************************* *****  *     ** *****  ********** 
```

dCNE 463_2 FOX2

```
463_2human      AGAGACATAGCTCATCATGACGTTTCCAGTTATTTCTAGCTGATTAGGGTCATTATGT-T
463_2fugu       -GAGACATAGTTCATTGTGACGTTTCCAGTTATTTCTGGCTGATTAGGGTCATTATGTCT
                 ********* ****  ******************** ******************** *

463_2human      GGAGGGCTGATTTATGTTGTCATTCCCTCTCACCAGTCCTGCATCAATAGATCTTAATGA
463_2fugu       CCAGCTCTGATTTATGTTGTCATTCTCCCCTCGCTGTCCTGCATCGATAGATCTTAATGA
                  **  ******************* * *    * ********** **************

463_2human      ATTGGTAAATAAGGGTGAAGATTACACTTGACAACACAGAAACATTTCTCATTCATACCA
463_2fugu       ATTGGTAAATAAGGGCGAAGATTGCGGTTGACAACACCGCAACATTTCTCATTCATTGCA
                *************** ******* *  ********** * ****************  **

463_2human      GACAAGATTTATGTAACCAATTAGGA-CATAACAGGA
463_2fugu       GACAAGATTTATGTAACCAATTAGGAGCATAACAGGA
                ************************** **********
```

dCNEs 463_1 FOX1 and 463_2 FOX2

```
463_2human      ------------------------------------------------------------
463_2fugu       ------------------------------------------------------------
463_1human      -AATACAGTCAGTGTCAGGAAGATGCGTCCCACTCATAAAGCAGCGCAATGACAATGTAC
463_1fugu       TGTTCCAGC--GCGTCAGGAGGATGCGTCCTCCTCATAAAGCAGCACAAAGACAGTGTAC


463_2human      --------------AGAGACATAGCTCATCATGACGTTTCCAGTTATTTCTAGCTGATTA
463_2fugu       ---------------GAGACATAGTTCATTGTGACGTTTCCAGTTATTTCTGGCTGATTA
463_1human      AGTGGCACTAACACAAGGACATAGTTCATCATGACATTTCCAGCAATTCCCAACTGATTA
463_1fugu       AGTGGCACTAATACAAGGACATAGTTCATCATGACATTTTCTGCAATTCCCAACTGATTA
                                 ******* ****  **** *** * *  *** *   *******

463_2human      GGGTCATTATGT-TGGAGGGCTGATTTATGTTGTCATTCCCTCTCACCAGTCCTGCATCA
463_2fugu       GGGTCATTATGTCTCCAGCTCTGATTTATGTTGTCATTCTCCCCTCGCTGTCCTGCATCG
463_1human      GGGTCATTATGT-TGGAGGTCTGATTTATGTTGTCATTTCCTCTCACCGATCCTGCATCA
463_1fugu       GGGTCATTATGT-TGGGGGCCTGATTTATGCTGTCATTTCCTCTCACCGATCCTGCATCA
                ************ *   *  ********** *******  * *    *  *********

463_2human      ATAGATCTTAATGAATTGGTAAATAAGGGTGAAGATTACACTTGACAACACAGAAACATT
463_2fugu       ATAGATCTTAATGAATTGGTAAATAAGGGCGAAGATTGCGGTTGACAACACCGCAACATT
463_1human      ATGAATCTTAATGAATTGGTAAATAAGGGTGAAGATTACACTCTATGACACTGAAACATT
463_1fugu       ATGAATCTTAATGAATTGGTAAATAAGGGTGAAGATTACACTGTGTGACACTGCAACATT
                **  ************************* ******* *  *     **** * ******

463_2human      TCTCATTCATACCAGACAAGATTTATGTAACCAATTAGGA-CATAACAGGA---------
463_2fugu       TCTCATTCATTGCAGACAAGATTTATGTAACCAATTAGGAGCATAACAGGA---------
463_1human      CCTCATTCTCAACACCCGAGATTTATGTAGCCAATTAGTGAC-TAACAGAGAAAATTGGC
463_1fugu       TCTCACCCTCAACAGCTGAGATTTATGTAGCCAATTAGAGGC-TAACAGAGAAAATTGGC
                 ****  *    **    *********** ********   * ******

463_2human      --------------------------------------------------------------
463_2fugu       --------------------------------------------------------------
463_1human      TGGCAGAAAAATAATATTCTTTATGGTACAAAATGGAAAAAGCTTTCTCGTTGAAGGGCAAT
463_1fugu       TGGCAGAAAAATAATATTCTTTATGGTCCAAAAACGGGGGCGCGTTCTCAGTGAAGGGCAAC
```

SOX14/SOX21 from human and *Fugu* genomes

dCNE 144_1 SOX14

```
144_1human      GCCCGATGCTGGCAGCTATTGACTGAAAGGG-GTAGCTGCCAGGCGCTCTTGATGGATGG
144_1fugu       -ACCGTTGGCAGTAGCCATCGACTGGAAGGGAGAAGCTGCCAGGAGTCCTTGATGGATAG
                  *** **   * *** ** ***** ***** * ********** *  ********** *

144_1human      GCTCATTTTCCAGCCTGCAGCTAGTCTCACTGAAGCATCCGTGTCATTTGTAATGTCAGC
144_1fugu       GCTCATTTTCCAGCCGGCAGCAAGTCTCGGCGAAGCATCCGTGTCATTTGTAATGTCAGC
                *************** ***** ******   *****************************

144_1human      CAACAAAATGTAATCAAACATTCCAGCAGTTTAATCACTGAGGGCTGCTCAAGAGATGAT
144_1fugu       CAACAAAATGTAATCAAACATTCCAGCGCTTTAATCACAGAGGGCTGCTCGAGAGATGAT
                ***************************  ********* *********** *********

144_1human      TGTAGTGTCAATATAATGCTATTTCATTATCTGTTTGTATTTTATATTGACAGTGTCAGA
144_1fugu       TGTAGTGTCAATATAATGCTATTTCATTATCTGTTTGTATTTTATATTGACAGTGTCAGA
                ************************************************************

144_1human      TAAACAGTGTGGAAAATTAAGATTAAAAATATGGTAATTTCATTTCAATCACCC-AGCTA
144_1fugu       TAAACAGTGTGGAAAATTAAGATTAAAAATATGGTAATTTCATTTCAATCACCCCAGCTA
                ****************************************************** *****

144_1human      CAGTTGCTGGCCCATTATGCGATTGATTACTTGTGAATTAAATTTTGGGCTGAATGTAAA
144_1fugu       CAGTTGCTGGCCCATTATGCGATTGATTACTTCTGAATTAAATTTGGGGCTGAATGTAAA
                ******************************** ************ **************

144_1human      GTTTAATCTTCTTTCTTCTCTGCAATTCAGTTCCCCAAAGGCCTCTTAGTAAGTAAGTAC
144_1fugu       GTTTAATCTTCTTTCTTCTCTGCAATTCAGCTCCCCAAAGGCCTCTTAGTAAGTAAGTAC
                ****************************** *****************************

144_1human      CCATTCCATTTGATCTTTAATGAAAACTAATGGCCCGAATGGATTGTGTAAATCAGCCAG
144_1fugu       CCATTTCATTTTATCTTTAATGAAAAGTAATGGCCCAAATTAATTGTATAAATCAGCTGT
                ***** ***** ************** ********* ***  ***** *********

144_1human      CCTGTGTGTGGAGCT
144_1fugu       TGTATGCACCTAGTT
           * **   ** *
```

dCNE 144_2 SOX21

```
144_2human      ACATTAGGACCTGGGAGAGTCGGGA-GCTACAGCTGCTGAGCTAGTGCCCCTCCCATGGT
144_2fugu       ACATTAGCACCTCAGAGACCCGTGACACTCCCTCTGCCGCGC--GCATGTCTCCCCGGGC
                ******* ****  ****  ** **  ** *  **** * **  *     *****  **

144_2human      TCTGGCCAGCAGCCCTGACATCCCTGCACAAAGTAATCACAGATCACAGCATTTAATCAC
144_2fugu       CCTGGCCGCCAGCC-TGACA-CCCGGCACAAAGTAATCACAGATCACAGCATTTAATCAC
                 ******  ***** ***** *** ***********************************

144_2human      TGAAAACAAGCACTCCAGAGGACAGCGGTGTCAATATCCCACTCTCTCATTATCTGTTTG
144_2fugu       TGAAA-CAAGCACTCCAGAGGACCCCACTGTCAATATCCCACTCTCTCATTATCTGTTTG
                ***** *****************  *  ********************************

144_2human      GATTGCACATCCACACTGTCAGATAAACAGAGTGGAAAATTAAGATTAAAAATATGGTAA
144_2fugu       GATTGCACATCCACACTGTCAGATAAACAGAGTGGAAAATTAAGATTAAAAATATGGTAA
                ************************************************************

144_2human      TTTCATTTCAGGCAGCAGGCACCACTCACTGCCCCTATTATGCTATTGATTACCTCTGAA
144_2fugu       TTTCATTTCAGGCAGCAGGCTCCTCTCACTGGCCC-ATTATGCTATTGATTACCCCTGAA
                ******************** ** ******* *** ****************** *****

144_2human      TTCAATTTTTCTTT-CAATGCAAACTTTAATCTGTTTGCTACCCAGCAATTCAAGTCCCC
144_2fugu       TTCAATTTCTCTTTTCAATGTAAACTTTAATCTATTCGCAAGCCAACAATCCAACTCCCC
                ******** ***** ***** ************ ** ** * *** **** *** *****

144_2human      AAGGGCTATTTGAGAGTAAGTAACCATTTAATCTGATGCTAACTGAAAAATCACCGTCCT
144_2fugu       CGGGGCCATTTGAGAGTAAGTAACCATTTAATGTGACGCTGGCTGAGGATTCACTGGCTT
                  **** ************************* *** ***  ****  * **** * * *

144_2human      TAATGAATTGTGTAAATCATTCAGCTCTAAAGCACCTTTGACTTCTATTTCATTTTTTATTTTCC
144_2fugu       TAATGAATTGTGTAAATCACTCAGCTTTTAAAGGGTCTGATGGGGTCTTTCAGAATGTAATTCC-
                ******************* ****** * **      *       * *****   * ** ** *
```

dCNEs 144_1 SOX14 and 144_2 SOX21

Alignment of two dCNEs from both Fugu and Human genomes

```
144_2human      ------------------------------------ACATTAGGA-CCTGGGAGAGTCGG
144_2fugu       ------------------------------------ACATTAGCA-CCTCAGAGACCCGT
144_1human      GCCCGATGCTGGCAGCTATTGACTGAAAGGG-GTAGCTGCCAGGCGCTCTTGATGGATGG
144_1fugu       -ACCGTTGGCAGTAGCCATCGACTGGAAGGGAGAAGCTGCCAGGAGTCCTTGATGGATAG
                                                         **        **


144_2human      GA-GCTACAGCTGCTGAGCTAGTGCCCCTCCCATGGTTCTG-GCCAGCAGCCCTGACATC
144_2fugu       GACACTCCCTCTGCCGCGC--GCATGTCTCCCCGGGCCCTG-GCCGCCAGCC-TGACA-C
144_1human      GCTCATTTTCCAGCCTGCAGCTAGTCTCACTGAAGCATCCGTGTCATTTGTAATGTCA-G
144_1fugu       GCTCATTTTCCAGCCGGCAGCAAGTCTCGGCGAAGCATCCGTGTCATTTGTAATGTCA-G
                *    *    * **             *      *   * * * *    *   ** **

144_2human      CCTGCACAAAGTAATCACAGATCACAGCA-TTTAATCACTGAAAACAAGCACTCCAGAGG
144_2fugu       CCGGCACAAAGTAATCACAGATCACAGCA-TTTAATCACTGAAA-CAAGCACTCCAGAGG
144_1human      CCAACAAAATGTAATCAAACATTCCAGCAGTTTAATCACTGAGGGCT-GCTCAAGAGATG
144_1fugu       CCAACAAAATGTAATCAAACATTCCAGCGCTTTAATCACAGAGGGCT-GCTCGAGAGATG
                **  ** ** ******* * **  ****  ********* **   *  ** *   *** *

144_2human      ACAGCGGTGTCAATATCCCACTCTCTCATTATCTGTTTGGATTGCACATCCACACTGTCA
144_2fugu       ACCCCACTGTCAATATCCCACTCTCTCATTATCTGTTTGGATTGCACATCCACACTGTCA
144_1human      ATTGTAGTGTCAATATAATGCTATTTCATTATCTGTTTGTATTTTATATTGACAGTGTCA
144_1fugu       ATTGTAGTGTCAATATAATGCTATTTCATTATCTGTTTGTATTTTATATTGACAGTGTCA
                *      *********    ** * ************** ***  * **  *** *****

144_2human      GATAAACAGAGTGGAAAATTAAGATTAAAAATATGGTAATTTCATTTCAGGCAGCA-GGC
144_2fugu       GATAAACAGAGTGGAAAATTAAGATTAAAAATATGGTAATTTCATTTCAGGCAGCA-GGC
144_1human      GATAAACAGTGTGGAAAATTAAGATTAAAAATATGGTAATTTCATTTCAATCACCC-AGC
144_1fugu       GATAAACAGTGTGGAAAATTAAGATTAAAAATATGGTAATTTCATTTCAATCACCCCAGC
                ********* ***************************************  ** *   **

144_2human      ACCACTCACTGCCCCTATTATGCTATTGATTACCTCTGAATTCAATTTTTCTTT-CAATG
144_2fugu       TCCTCTCACTGGCCC-ATTATGCTATTGATTACCCCTGAATTCAATTTCTCTTTTCAATG
144_1human      TACAGTTGCTGGCCC-ATTATGCGATTGATTACTTGTGAATTAAATTTTGGGCT-GAATG
144_1fugu       TACAGTTGCTGGCCC-ATTATGCGATTGATTACTTCTGAATTAAATTTGGGGCT-GAATG
                  *  *  *** *** ******* *********   ****** *****     *  ****

144_2human      CAAACTTTAATCTGTTTGCTACCCAGCAATTCAAGTCCCCAAGGGCTATTTGA-GAGTAA
144_2fugu       TAAACTTTAATCTATTCGCAAGCCAACAATCCAACTCCCCCGGGGCCATTTGA-GAGTAA
144_1human      TAAAGTTTAATCTTCTTTCTTCTCTGCAATTCAGTTCCCCAAAGGCCTCTTAGTAAGTAA
144_1fugu       TAAAGTTTAATCTTCTTTCTTCTCTGCAATTCAGCTCCCCAAAGGCCTCTTAGTAAGTAA
                 *** ********  *  *    *  **** **  *****   ***   **    *****

144_2human      GTAACCATTTAATCTGATGCTAACTGAAAAATCACCGTCCTTAATGAATTGTGTAAATCA
144_2fugu       GTAACCATTTAATGTGACGCTGGCTGAGGATTCACTGGCTTTAATGAATTGTGTAAATCA
144_1human      GTACCCATTCCATTTGATCTTTAATGAAAACT-AATGGCCCGAATGGATTGTGTAAATCA
144_1fugu       GTACCCATTTCATTTTATCTTTAATGAAAAGT-AATGGCCCAAATTAATTGTATAAATCA
                *** *****  ** * *   *   ***  * * *  * *   ***  ***** *******

144_2human      TTCAGCTC-TAAAGCACCTTTGACT-TCTATTTCATTTTTTATTTTCC
144_2fugu       CTCAGCTTTTAAAGGGTC--TGATGGGGTCTTTCAGAATGTAA-TTCC
144_1human      GCCAGCCTGTGTGTGGAGCT----------------------------
144_1fugu       GCTGTTGTATGCACCTAGTT----------------------------
```

SOX2/SOX3 from human and *Fugu* genome

dCNE 484_1 SOX3

```
484_1human      CTTAAGCCAGACTCCAAGTCA-TCTTCCTGTCCAAGTTTTCTGTCATGCCTTATTGTCTG
484_1fugu       --AACGGGAAGCTCCAGGTCAGTTTCCCTCGCCAAGTTTTGCAGCCTGCCATGTTGTCTA
                   * *  *  ***** **** * * ***  *********    * **** * ******

484_1human      GTCTGTTCAGCTATTTTAAAAAATGTTGAATATCAACAATGGCTTTCTGGCCGGCATTGT
484_1fugu       TTCTGCACAGCTATTT-AAAAAATGTTGAATATCAACAATGGCTTTCACTGGTGCATTGT
                 ****  ********* ******************************      *******

484_1human      CAACTTTTGTATGAAGCAATCTTGGTTGAATGAGA-AGATCCCAGAGCTTATAGT-CTCG
484_1fugu       CAACTTTTGTATGAAGCAATCTTGGCTGAATGAGATGGGTCCCAGAGCAGGGAGAGCTCA
                ************************* *********  * *********    **  ***
```

dCNE 484_2 SOX2

```
484_2human      CCTAGATACCGTATTGTCTATTCTGTTCCGCTATGTGAAAAATGTTGAATATCAACAATG
484_2fugu       ------TGCCACATTGTCTATTCTGCTCCGCTATGTGAAAAATGTTGAATATCAACAATG
                      * **  ************* **********************************

484_2human      GGTTTCAGTGCTGTATTGTTGAGTTTT-GTATGAACTAATCTAGCTTCT----
484_2fugu       GCTTTCAGTGGTGTATTGTTGAGTTTTTGTATGAACTAATCTTGCCTCAGTGA
                * ******** **************** ************** ** **
```

dCNEs 484_1 SOX3 and 484_2 SOX2

```
484_2human      ----------------------------------------CCTAGATACCGTATTGTCTA
484_2fugu       ----------------------------------------------TGCCACATTGTCTA
484_1fugu       --AACGGGAAGCTCCAGGTCAGTTTCCCTCGCCAAGTTTTGCAGCCTGCCATGTTGTCTA
484_1human      CTTAAGCCAGACTCCAAGTCA-TCTTCCTGTCCAAGTTTTCTGTCATGCCTTATTGTCTG
                                                              * **   ******

484_2human      TTCTGTTCCGCTATGT-GAAAAATGTTGAATATCAACAATGGGTTTCAGTGCTGTATTGT
484_2fugu       TTCTGCTCCGCTATGT-GAAAAATGTTGAATATCAACAATGGCTTTCAGTGGTGTATTGT
484_1fugu       TTCTGCACAGCTATTT-AAAAAATGTTGAATATCAACAATGGCTTTCACTGGTGCATTGT
484_1human      GTCTGTTCAGCTATTTTAAAAAATGTTGAATATCAACAATGGCTTTCTGGCCGGCATTGT
                 ****  * ***** *  ************************ ****      * *****

484_2human      TGAGTTTT-GTATGAACTAATCTAGCTTCT-------------------------------
484_2fugu       TGAGTTTTTGTATGAACTAATCTTGCCTCAGTGA---------------------------
484_1fugu       CAACTTTT-GTATGAAGCAATCTTGGCTGAATGAGATGGGTCCCAGAGCAGGGAGAGCTCA
484_1human      CAACTTTT-GTATGAAGCAATCTTGGTTGAATGAGA-AGATCCCAGAGCTTATAGTCTCGT
                  * **** *******  ***** *  *
```

ZIC2/ZIC3 from human and *Fugu* genomes

dCNE 146_1 ZIC2

```
146_1human      GCGGAGAGAAAAGACA-CTTGTGTAGATTTTTCAATTCTCCTCCGTGTCACTTGGCTGTC
146_1fugu       -----AAGAAGACACTTCTTGTGTGGATTTTTCAATTCTTCAACATGTCATTTGGCCGGG
                      **** * **  ******* ************** *  * ***** ***** *

146_1human      CTCACCATTGTCTGAGCTCCTTTCTCT---TATCCTTTTTGCTGCAATGAGTTGTGTCAT
146_1fugu       AGTGCCATTGTCCCCTTCCCCTTTTCTCCCTGCTCCTTCTGCTGAGACGAGTTGTGTCAT
                    ********      ** ** ***   *   * ** *****  * ************

146_1human      TCCCTCATGGTCAGCACTTTTGTTGTCTTTGTTTTTTGCTGTACCTCAGAAGTCCATCTT
146_1fugu       CCCCTCATGATCAGCACTTTTGTTGCCTTTGTTTTTGGCCCTACCTCAGAAGTCCATCTT
                 ******** *************** ********** **  *******************

146_1human      TTCTTTCATCTCTTTCCCATTCATGCATGAGGGAACAGTTGTGCCCTGTTGTGGGGATGT
146_1fugu       GTCTTTTATGTCTCTGCCTTTCATGCATAAGGGAACAGTTGTGGCCTGTTGTGGGGCTGT
                 ***** ** *** * ** ********* ************** ************ ***

146_1human      TCCGCTGGGTTTCAAACAGTAGGGTTTCTTTTTATTCTCTTCTAAGTAGTACAATGGGGC
146_1fugu       TCCAGTGCATTTCCACCAGTGGGGTTTCCTTTCATTCTCTTCAAAGTACTACAATGGGGC
                ***  **  **** * **** ******* *** ********* ***** ***********

146_1human      T--GAATGTCTGT-TGCAG
146_1fugu       TCTGAAGGCCTGAATG---
                *  *** * ***  **
```

dCNE 146_2 ZIC3

```
146_2human      TTTTTTCTCCCTCTCTTTTGCCTCAATAGAAAGA-AAAAAAAGTTTTGTCAGCACTCCTG
146_2fugu       --TTCATTCCATCCTTTTCACCACAAAAGGAAAAGAAAAAAAAGTTTGTCAG-ACCTCTG
                  **   *** **  ***  ** *** ** ** * *******  ******** **  ***

146_2human      TTTCTTTTGTTGTTTTCTTTTTCTCAGAAGTCTTTTTCTGCTTTTATCCTAATCCCAGTC
146_2fugu       TTTCTTTTGTTGTGTGCTTTCTTCTCTGTG-CTCTTTCTACTTTTATCCTAATCCCAGCC
                ************* * **** *       * ** ***** ****************** *

146_2human      ATGCATGAGAGAACAGTTGTGCTCTGTTGTTTGGCTGTTCTGCTAGTTTTGAATCAGTGG
146_2fugu       ATGCATGAGCGATCAGTTGTGTCCTGTTGTTTCACTGTTCTGCTAGTTTTCAGTCAGTAG
                ********* ** ********  *********  **************** * ***** *

146_2human      GACTCCCTCTTTGTTCTCTTTATTTTCTGAACACAGAA---------
146_2fugu       GGTTCCTCCTTTGTTCCTTTTCCTTGCCGAACACAGAAAAAGGTAAG
                *  ***  ********  ***  ** * **********
```

dCNEs 146_1 ZIC2 and 146_2 ZIC3

```
146_2human      ------------------------------------------------------------
146_2fugu       ------------------------------------------------------------
146_1human      GCGGAGAGAAAAGACA-CTTGTGTAGATTTTTCAATTCTCCTCCGTGTCACTTGGCTGTC
146_1fugu       -----AAGAAGACACTTCTTGTGTGGATTTTTCAATTCTTCAACATGTCATTTGGCCGGG


146_2human      ---------------------TTTTTTCTCCCTCTCTTTTGCCTCAATAG-AAAGAAAAA
146_2fugu       -----------------------TTCATTCCATCCTTTTCACCACAAAAGGAAAAGAAAA
146_1human      CTCACCATTGTCTGAGCTCCTTTCTCT---TATCCTTTTTGCTGCAATGAGTTGTGTCAT
146_1fugu       AGTGCCATTGTCCCCTTCCCCTTTTCTCCCTGCTCCTTCTGCTGAGACGAGTTGTGTCAT
                                        *           **   *    *           *

146_2human      AAAGTTTTG-TCAGCACTCCTGTTTCTTTTGTTGTTTTCTTTTTCTCAGAAGTCTTTTTC
146_2fugu       AAAAGTTTG-TCAG-ACCTCTGTTTCTTTTGTTGTGTGCTTTCTTCTCTGTG-CTCTTTC
146_1human      TCCCTCATGGTCAGCACTTTTGTTGTCTTTGTTTTTTGCTGTACCTCAGAAGTCCATCTT
146_1fugu       CCCCTCATGATCAGCACTTTTGTTGCCTTTGTTTTTGGCCCTACCTCAGAAGTCCATCTT
                       ** **** **   ****   ****** *   *  *         * *  * *

146_2human      TGCTTTTATCCTAATCCCAGTCATGCATGAGAGAACAGTTGTGCTCTGTTGTTTGGCTGT
146_2fugu       TACTTTTATCCTAATCCCAGCCATGCATGAGCGATCAGTTGTGTCCTGTTGTTTCACTGT
146_1human      TTCTTTCATCTCTTTCCCATTCATGCATGAGGGAACAGTTGTGCCCTGTTGTGGGGATGT
146_1fugu       GTCTTTTATGTCTCTGCCTTTCATGCATAAGGGAACAGTTGTGGCCTGTTGTGGGGCTGT
                  **** **     * **   ******* ** ** ********  *******     ***

146_2human      TCTGCTAGTTTTGAATCAGTGGGACTCCCTCTTTGTTCTCTTTATTTTCTGAACACAGAA
146_2fugu       TCTGCTAGTTTTCAGTCAGTAGGGTTCCTCCTTTGTTCCTTTTCCTTGCCGAACACAGAA
146_1human      TCCGCTGGGTTTCAAACAGTAGGGTTTCTT-TTTATTCTCTTCTAAGTAGTACAATGGGG
146_1fugu       TCCAGTGCATTTCCACCAGTGGGGTTTCCT-TTCATTCTCTTCAAAGTACTACAATGGGG
                **   *   ***    **** **  * *   **  ***  **         *  *  *

146_2human      --------------------
146_2fugu       AAAGGTAAG-----------
146_1human      CT--GAATGTCTGT-TGCAG
146_1fugu       CTCTGAAGGCCTGAATG---
```

(C). Sequences used in functional assay. Uppercase letters denote primer sequences.

```
>dCNE461_1 FOXP1
GGAGCGGCAGTCAAGTGGaaaacgttgttgcctggtccccccatccagatattaattggcaggaaaactaatgacacagatacata
ttccaaccaaattgttctaattgctgattagccgaaggaggcttgtttccaaattaaatATGAGCTCGGACTGTGAGAAAGG

>dCNE461_2 FOXP2
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cattgttacatattcaCACCAAATTGCCTTAATTGT

>dCNE4631 FOXP1
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GAAGGGCAAC

>dCNE463_2 FOXP2
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>dCNE144_1 SOX14
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>dCNE484_1 SOX3
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TCA

>dCNE484_2 SOX2
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>dCNE146_1 ZIC2
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>dCNE146_2 ZIC3
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```