

Supplementary Figure S1 The complete ORFs and deduced amino acid sequences of *Csfoxo1a*, *Csfoxo3a*, *Csfoxo3b* *Csfoxo4* *Csfoxo6* and *Csfoxo1a-like*. *Csfoxo1a*

1 ATGGCGGAGCGGCCGACGAGCATCGCCACACTGGTGGAATGTAGCCGGATTITGAACCCCTTTCGCCGCCGCTCTGCACT
1 M A E A A Q Q Q H Q P H L V D I D P D F E P L S R P R S C T
91 TGCCCCCTGCCCGGCCGGAGTTCTTAAACCCGGGAGATTCTAACACATCATACCGTGCCCTCCGTGAAGCAGGAGCCGCCGCGTAAC
31 W P L P R P D S N T S S P V P S V K Q E P A G N
181 CCGCACTTCATCAACAACTTCTAGTCGTTGGAGAGAGCAGGACTTTGGAGGAGCACACAGGCCCTCCCTTGCGCTGACGGTTTTCAG
61 P D F I N S L L E E S E D L E E H K P V L L C A D G F Q
271 TGCTAGAGAACATGCCCTCACAGCACAAACCTCACAGCACACATCACAGCACACAACTCCCGCATACCACAGCACACCATCAC
91 C Q E N C V Q Q Q P L Q Q Q H Q Q Q L P H H Q Q H Q H H H
361 CACCAAGAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAG
121 H Q Q Q Q Q V A L L S S P V G S S S S A A A A A A A A A A Q
451 AGGAAGAGCACGCTCTCACGGCGAACGCGTGGGGAACATGTCAATAGCAGACCTCATACCAAAAGCTATGAAGGTTCTCCGAAAAAA
151 R K S S S R H A W G N M S Y A D L I T K A I E S S P E K
541 CGCTGAGACTCTGCCCTCACAGCACAAACCTCACAGCACACATCACAGCACACAACTCCCGCATACCACAGCACACCATCAC
181 C Q E N C V Q Q Q P L Q Q Q H Q Q Q L P H H Q Q H Q H H H
631 AAGAACCTCATTAGAACAAACCTGTCAGTCAGCAGCGCTTATCGCGTCAAGAATGAAGGGAGGGAAAAGCTCTGGTGGATGTTA
211 K N S I R H N L S L H S R F I R V Q N E G T G K S S W W M L
721 AACCCAGAACGGTGGAAAGTGGCAACTCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAG
241 N P E G K S G K S P R R R A A S M D N N S K F S K S R G R
811 GCACAAAGAACAAAGACTCTCCCTACAGGTTCTCTGACGGAGGTGCTGACAGCCCCTCCCTACTCTAAAGTAGCCGGAAAGCCCCAAT
271 A A K K E L L S L Q Q G P D G G G A D S P G S Y S K W P G S P N
901 TCACACAGCACAGCACAGCAGCACAGCAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCAC
301 S H S N D D F E A W N S F R S R A S S N A S T L S G R L S P
991 TTCTGCTGAGGCTACAGGAGCTTGGTGGAGGAGTCATGGTATGGTTATCCAGGAGCACCTGGAAACCAAATGACATCACACTGC
331 F P E D D L G E G E V H M G Y P G A P G T K M T S T L P S
1081 CTGACAGAGATGACTGAACTCTGGACACAGTCTGAGAATGTGAGGAGAACATTTGCTCACCAAACTTATGCTCTCACCAAACTA
361 L T E M T G T L G H S E N V M E N L L D N L N L L S P N N
1171 TCTCACTGCGTCAAGGACAGCCCTGGCTCATCCAGTCAGTCAGCTCTCTCATATGATGAGCAGCCCGCTACCTGCTCAC
391 S Q V G A G A T T S P G S S Q S S P S P M M Q P S P G Y P A Y
1261 AGCTCTGCCAGCATGGCTCACAGCCTCACAGGAGTATCGGAAATGTTGGTACCGAACCTGGAAATGAAACAGCTGCTCATCTGC
421 S S A S M A S Q P Q Q E Y R K C G Y Q P G M N S L P S M
1351 CTGCAACCAACTGCAAGAGCAAGCAAGCCAGTTTGATCTAGGTTATGGCTGAGCTGAGCAGCTGGCTGCTGAGGGAGCTG
451 A K P L P E S K P S F V S G M G Q Y S C P A G L L K E L L T
1441 TCAAGACAGTACCCAGCACAGGAGACTGATGCCATAGTCGAACTGTTGTCAGTCACAGAACAGCTGAGCTGCGCCCTACAGC
481 S D S D Q H G E L M L P S V D T V V S Q S T G S C M L P P Y S
1531 AGCAGTCAAGCATGCAACCAAACTCATGACTGGAGGAAACGGTCATGATGCTGCTCACCGTCAACACTCACAGTGACAACAG
511 S S Q H A P K L M S G G N G H M H A L S H G H T H S V H N Q
1621 GCTAAGAACGGCCTTAATGTCGCTGGTGGAGGAGCCGGGATTGGCTGCAACCAAAGGCCAAATGCAAGTGTATGGT
541 A K N G R L L M S L H G G G S A H L P A T K S P M Q M S Y G
1711 ATATCCAGTACCCAGGAGGGAGGAGCATGGGGGGCTCTGCTCTCAACAAATAATGGATATGTGACTGGCCAATGTC
571 T S S H R G L P N T N G Y G R L G P M L P
1801 TCACACCCAGAACAGCTCCAGGACTTGAGCACATGTCATAGAACAGTTCAGTTGAGACTGATGAGACTGTTCTCATGACACTG
601 S P E K K L P S D L D D D M S I E K F E F D M E T V L H D T L
1891 ATGGATGGGAGCTCTGTATTCACACTGAACTGGTACACCCAGGTTTACACCTCAAGGTTTACACCCAGGGTTAACACC
631 M D G D S L D F N F E P M V T P Q G F T H G V K T T T H S W
1981 GTGTCAAGGATAG
661 V S G *

Csfoxo3a

1 ATGGCGGAGGGAGCACAGCGTGAAACAGGCCCTCTGAAAGGTGGAGATGAGCCCTAGAAGCGAACAGCGCTCTGC
1 M A E A T S V E N E P P L K V E I D P D F E P Q K R P R S C
91 ACTTGCGCTGCGGCCGTCGGAGTCGGTGCGGCCAACCCGGGACCAATGACATGCTGAAATCCCTGAAAGAGATGATGAGGAG
31 T W P L P R P E S G A G A K P G T N D T D V I P E E D D D E E
181 GAGGATGGAGGGAGGGCTGCTAACAGGCCCTGGTGTAAAGTAACCCGGGAGTTGAGCTCAGCACAGCGGCCCTCTGCA
61 E D G G G G A A H K A S A G V S K P R E L S C S S S G G F S
271 TCCGCTCTGGAGCCACTGGAGGAGCGAGCCGGGCCGGGAGAAAGAGGAACTCATGCAGGCCCTCCCTCTCGGCTCACAGCAC
91 S V S P Q V E V Q R G P R K E E L L D G S P S S A Q Q T P A
361 GCGGCTCTGAGCGGCTCTGCCCTCCAGCAGCTGAGAAAGCTCCCTGGCCGAGAACCGCTGGGCAACTATCTATGAGC
121 A A L S G S A Q S R R K S S A R R N A W G N Y S Y A D L I
451 ACCCAGCCATGAGCAGACTCCGGAGAACAGACTGACCTTCTCCAGATCTACAGACTGGAGGTGAGATCTGACCGTACT
151 T Q A I E S S P E K R L T L S Q I Y D W M V R S V P Y F K D
541 AAAGGGCAGCACAGCACAGCTGAGCTGAGGAGAAATTCACAGCACACAACTGTACTGACAGCAGCGTTTGCTCAA
181 G K G D S N S S A G W K N S I R H N L S L H S R F V K V Q N E
631 GCGCACGGGAAAGCTCTGGTGTGGTCACTGGCACCGAGAAGGGGGAAAGCTCACGTCGGGGCCGCTATGGATGGATAAC
211 T G T K S S W W V N P E G G K G G K A P R R R A V S M D N
721 AGTAATAATCATCAAAGAGCTCGAGGAGCACGCCAACAGGAAAGCTACTGCAAGGGCTGCTCAAGTGGCAGCT
241 S K Y T G K G A R G R A T K K E A S L Q A A Q D G S S E S S S
811 ACCTCTCAAATGGACAGGAATCTCAACCTGGAGACTGACAGCTGAGCTGAGGACTCTCGCTCCAGGACAAATCTAA
271 S L S K W T G S P T S R S S D E L D A W T D F R S R T I N S N
901 GCGAGCACCTCAGGGCTGCTGCTCCAGAACCTGGAGCTGAGGAGCTGGGAGATGATGACTCTCCCTTCCCCT
301 A S T L S G R L S P I L A N E L D E V P D D D S P L S P M
991 CTGACTGAGCTCCAGAGTATGTCGCTCACTGGCTCCACAGCTGCTGACCTGGAGGATCATGA
331 L Y S S P M S S P S T G P T G L S D L A G T M N L N D G L
1081 TCTGACAACCTGAGGACCTTAACTGAACTGAGCTGAGCTGAGCTGAGGACTCTCGCTCCAGGACAACTGAC
361 S D N L M D D L L D N I S L T A S Q Q P P G E E D N G V N
1171 GGTCAAGGGAGTTCCCTGTTACCTCTAGCTGAGCAACCTGGAGCTCCCTCTGGCAGCTATGGCTCAA
391 G Q G S S L F T F S C S G S N L G S P S G S Y G S N T L F S
1261 CCACCTTCATCAAAGCTGGAGACTCACCATGAGCACCATTCAGGAGAACAAACAGACAGCAGTTTCCCTGATCT
421 P P S I T S L R Q S P M Q T I Q E N K Q T T F S C I S H F S
1351 GACCCACAGAGCTGCAAGACAGTCAGCTGAGCTCCGGGAGCACAGCACTTCTCTAACCTGAGCTGAC
451 D H Q S L Q D M L S L D S P G H S N V L L T Q S D P L M S Q
1441 GCGAGTACCCCATATGCTGCAAATCTGGCCGAAAGTCCGCAAAAGACACATGCTGAGCTGAGGCT
481 A S T A I A L Q N S R N A M L L R K D H M L I S A G Q A Q
1531 AGCTCTCTGAGTCCTGGTGAGCTGGCAAGCTGGCTAACCTCTGACAGCGATGGCGGTACCGTGAGGCCAAG
511 S S S V P G W Q A G L S T S D S D D G G H R E A K R P L L K S
1621 COGAGCAAGAATGAGCGCTCTAGCAGCTAGCCAGCGAGCGCTTCCAGCGATCTGAC
541 P S K N A A S M Q L S S S Q D R F P A D L D L D V F N G S L
1711 GACTGTGACATGGACTCTATCATGCAATGAGGAGCTGATGGCTGGACCTCTGAGCTGATCTGGCTGACCTCTG
571 D C D M D S I I R N E M A D C L D L S F D S C L T S A Q
1801 AATGCCAACAGAGCTGGAGGAGCTCTGAGCTCAAACAGACAGCTGGAGGAGCTGGCT
601 N A N K S S G F S S S S K Q T S P E S W V P S *

Csfoxo3b

1 ATGGCTGGCTGGCGACCCAGTGGCGGACTTGAGCTGGCATGACCGGACTTCAGGCCAGAACGGCCGAGGTCTGC
1 M A R A A L A D P V A D L D V A I D P D F E P Q K R P R S C
91 ACCITGGCGCTGGCGAGCTGAGTCGAGCTCGCGAAACCGAGACAGCACCGATATAATCCCGAGGGAGGAGCAGAACAG
31 T W P L P R P E S S A K P E S N D T D I I P E E E D D E E
181 GACGGTGCAACCACCCCTACGGTCGGCATGCAGCGCTCGGTGTTGGCATGAGGACAGCACAGAACAGCCCCGCTGCC
61 D G A T T P T V G I D G S G V A I E D Q S S S S P G A A D G
271 TCGCIGCTCTCCGGCCAGAGAGCGGAGCTCCCGCGCTCTGGCACTCTCCGGCGACCATAGGCCACTGACTCCGAGC
91 S L S S P G Q E S G G S P R S S H S P P A T I G A L T P S S
361 CTGGCGCTCAGCAGACCCCGAGGAAGGGCTGGCGACGGCATGGGGAAACAGTCGAGCAGACCTGATTACCAAAGCCATC
121 L A A Q T P R K A S S R R N A W G N Q S Y A D L I T K A I
451 GAGAGCTCAGAGAGCAGAGACTGACACTGTCAAAATTAACGACTGGATGTCGAAACATCCGACTTCAAAGACAAAGCG
151 E S S P E Q R L T L S Q I Y D W W V R N I P Y F K D K G D S
541 AACAGCTCGCAGGGCTGAAGAACCTACATCGAACACAACCTTCCACAGCGCTTCATCGACTCAAATGAAGAACAGGAAG
181 N S S A G W K N S I R H N L S L H S R F I R V Q N E G T G K
631 AGTCCCTGGTGGATGATCAATCAGAAGGGAAAAAGCGGGCAAGGGCTCTGTCGCCCTGCCGTTCCATGGACACAGAACAGTAC
211 S S W W M I N P E G K G G K A P R R A V S M D N S N K Y
721 ACCAAGCCGCCGCGTGCGCGTCGGCAAAAAAGAAGCGGCGCTGCAAGCGCAGCGCTGCACTGGGAAGGTGGAGGAGACTCC
241 T K P A G G R A A K K K A A L Q A A A A A A G E G G G D S P
811 TCAGGTCTTCTAACTGGCAGGCCAGCCCAGCCAGCACCGAGGACCTGGATTTGGACAGACTTCGCTCTCGTGC
271 S G L S K W P G S P T T R S T E D L D V W T D F R S R A N S
901 ATAGCCAGCACTATAAGTGTCTGCAACCCAGACTTAGACAGGTGCGCCAGCGATGAGCCCCCCTCTGCCCATGTTTACTCCAGT
301 N A S T I S G L A N P E L D E V P D D E P P L S P M F Y S S
991 CCTGGTAAAGCTTCTGCTGGCAAAACCAACCACTGGCAAGGGCTGCAAGCGCAGCGCTGCACTGGGAAGGTGGAGGAGACTCC
331 P G K A L L S P G K T T T S G K A A P A P L A D L T G T
1081 ATGAATCTGAATGAGACTCACAGATGACTAACTGGATGTTGTCACATCAACCTGGATCCACAGCTTCAGCAGTCCTCT
361 M N L N D G L T D D L M D E L L V N I N L V P T S S S Q S S
1171 CAAACGATTCTACAGGGTCACTTTGGATCTCAACACCCAAACGGCTGTCACACTTCGCGCATCTCTCTAATTCCTG
391 P N D S S G F T F G S K P N G L V S T S A I S S S S S N S C
1261 CTCCTCTCTAACTGGCAATGGCTTCAAGTCAACTCTTGGGGCCACAGCAGCTTCTCATCATCCAACTCGACGACCATCG
421 L S S N G N G F S N S I F G P H T I T V S L H P S P M Q T I Q
1351 GAGAACAGCAGACCTCTTCAGCATCTGCTAGCTTCAGCATCTGCTAGCTGCAAGATTTGCTGAACACTCTGACAGCTACAGCC
451 E N K Q T S F S S I L S S F G S Q T L Q D L L N S D S H S H
1441 AGTGACGTCTAGTGATGACTGAGCTGTCAGCTGACGGCAGTGCCTGCGCTGAGTCCCGAGAATTCGACGTTGGCTGATG
481 S D V M N T Q S D P L M S Q A S A A V W M S Q N S R R G L M
1531 CTGGGGATGATCCGCTGATGACTTTGGAAACAAAGAGGACTCTAGACGACGCCAACGGAGATGCTCAGAGTAACAAACCAACAG
511 L R D D P V M T F G T T R G L Q S S Q R E M L Q S N N H N Q
1621 AACTCCCTGACCCCTTAATGGAGGCCAACCTGCTAATGAGGCCAACATCTGGCTAATGTTAACGAGCCTTGGCTGACCC
541 N S L R P L N G G L N L A N E A N N L A N V K Q Q L L S P
1711 TTGGGAGAACGGCTGCTCTCTATGAGATTGACACCTCCATCTCTAATGGAACTGTTAGCAACAATGGAGGACATGTCAGGAC
571 L G G N G S S S Q I D T S I F L N G T V S N N G G I C Q D
1801 CGATCCCCAACAGATCTGAGCTTGGACATGTCAGTGAGCTGGACTGTGACATGACTCATCATAGGACTGAGCTGATGGAGC
601 R F P Q D L D L D M F S G S L E C D M D S I I R T E L M D A
1891 GATGGCTGGACTTAACCTGACTCTATGTCACATGAATGGAGTCAGCAACTCAGACCAATCAGACCTCTCAGAGCTGGGTA
1891 GATGGCTGGACTTAACCTGACTCTATGTCACATGAATGGAGTCAGCAACTCAGACCAATCAGACCTCTCAGAGCTGGGTA

Csfoxo4

1 ATGGATGAGTCGTGGCGCGATGACCCAGATTGCAACACAGAGCACGCCGCTCTGCACATGCCCTGCCAGGCCGAC
1 M D E S S V P I D P D F E P Q S R P R S C T I W P L P R P D
91 ATCTCTACTGCTAAACGGACTCCCGGAGCGAGCTGGCGCGCGACTCTCCCGCGAGCAGAGAACAGCGAGCGCAGCCA
31 I S T V K T E S A D G A E S A A G T G P P A D E D K A E P Q P
181 ATCACTTCGAGCCGGAGAAGGGTGAAGCCGAGCCGAGGGGGAAATCTGCTGGACTGGGCTACCCGTTCCACTCCAGC
61 A T S E P E K V I A A E G G I V A G V G V P G S T P R K
271 GGGCTGCTCCCGCCGCAACGGCTGGGAAACACGAGCTATGAGCTGAGCTGAGCATGAGGAATCACCTGATAAAAGACTGAC
91 G S S R R N A W G N Q S Y A D L I C Q A I E E S P D K R L T
361 CTGGCTCAGATCTACAGTGATGGTGAAGACGGCTACTTCAGAGACAAAGAGACAGCAACAGCTCAGCAGCTGGAAAGACTCC
121 L A Q I Y E W M V K T V P Y F R D K G D S N S S A G W K N S
451 ATTGCCAACATTTACTCCACACAACTGAGTTTGAGGTTCCACAATGAGTCCACAGGAAAGAGCTCTGGTGGATGCTCAACCCAGAA
151 I R H N L S L H N K F L R V H N E S T G K S S W W M L N P E
541 GGAGGAAAATGGGAAAGCACCTGAGCAAGGGCAGCTTCATGGACACAGCTAAACTGTTAAAGAGTCGGATGAGGAAAGCAA
181 G G K T G K A P R R A A S M D N S S K L L K S R M R A K Q
631 ACAAAAGAACAGCCGGAGTGGCGAGTCGAGGGTGATGGGGCACGGGTCACTGGTGCGACAGCCAACTCA
211 T K K Q A G V G S A G G L A L Q G D G T G S A G A D S P N S
721 TCTCACAGTTCTAAATGGGAGTCAACAGCTAGCCCTCATCTGGGGCACGGCTGAGTCACTGAGCTGATGGCTCAGGAC
241 S Q Q F P K W G V N S S S P S S R G S L D D S D M W T T F R
811 CCACGCACAGCTCCAACTGCCAGCACTCTTACGAGCTGCTGCTCCCTATTGCTCTGGCAGGGAGGAAATGACAGCTGCTGAAGAC
271 P R T S S N A S T L S G R L S P I A P G Q E E D D S L P E D
901 GGGTGTGGAAAGATACGCTGCTAGGAGCTGAGCCAAGCTGCTGAAACTCTCATGGAGGAACATGGATGATGATGGTCTACA
301 G L L G R Y A R S L S P S L A E T L M E E L D L I D G L T
991 TGATGACTGGGACAGGGAGGGCCAGTCCACACAGCTCAGCTTCCACACAGCCACCCCCACTCCCTCACGTTACCTTACTACCC
331 L M T G Q Q G G A S P S T A P P A P P T P L P S A S T L L P
1081 CGGGGAAACAGCTTCCACCTTCATGAGCTAAACCTCCAAACAGCAGCTGCACTGAGCTGAGCTGAGCTCTATC
361 R G T S F S T H Q M Q T S N L K Q Q Q S S H T A A Q A S I
1171 CCCCAATGTCGGCCAGTGGCAAAAGACCCACCCCTCTCAGTAACCTCCCTCAACCTGAGCTGAGCTGAGCTGAGC
391 P Q C G P S G K D P P S F S N S L F N P M S N S G S H G S S
1261 ACCTAACACCCAGTGGCTCATCTGGAGCTGCTACCTCCACTCCCTCTCCACTGAGTTCTGAGTCGGCAGGTGAAAC
421 T Y N T H V P S S L E A L L T I S D S P P T I D V L M A Q V N
1351 CCCATTTGGCCAGTCTGGAGGAATGGGCTAATGGGCTGAATGCTGAGCTGAGCTGAGCTGAGCTGAGCTGAGCTGAGCTG
451 P I L P S P G G M G L M G L N S S V V G V R S K P N Q L L L
1441 GGAAAAGGAGCAGACCAAAATGAGTGGCCCGAGATGCACTGAGCAGAGCATCACACCCACCTTCACACAC
481 G K G P E P N A V A P M A L Q A M Q M Q Q H H H H L H N Q
1531 CACCAAGCAGCAGCAGCAGCACAGAACACAACAAACACAGCAGCAGCACAGCAGCACAGTACACTCAGATGGGTTAGGGATGATT
511 H Q Q Q Q Q Q Q Q T Q Q Q Q Q Q Q Q H Q Y H T Q M G L G M I
1621 CTCTCAGGTTATGCTCAGGACCCCTCACAAACTCTCAGTCTCAAAGGCCATGCGCACAGTGCAGCCAGCTGGCTCTCCACCGAGGG
541 L S G M S Q D P S Q L S V L K A H H A T V P A M G S L H G G
1711 CCAGGCTGAAATCTGAGTCCATGGGCTAGTTGGAGCACCCACTGCTTCTGAGGCTAGGACCCCTGCCACTGACTGGGATATA
571 P G L N L Q S M G F G A P T C F S A G Q D R L P T D L D I
1801 GATATGTTACCGAAAATCTGGATGTCAGTGAGCACATCATCACAGTGCACCTGAGCTGAGCTGAGCTGAGCTGACTGGGATATA
601 D M F T E N L D C D V D D I I N S D L M D G D G L D F N F D
1891 CCCGTCTGCTGGCACCCACCCAGGCTATGCTGGCCAGCCACCTCACAGGGCTAACACACAACTGGTCCCGAGCTAA
631 P V L P G T Q G Y A G P A T S Q G S T H N W V P S *

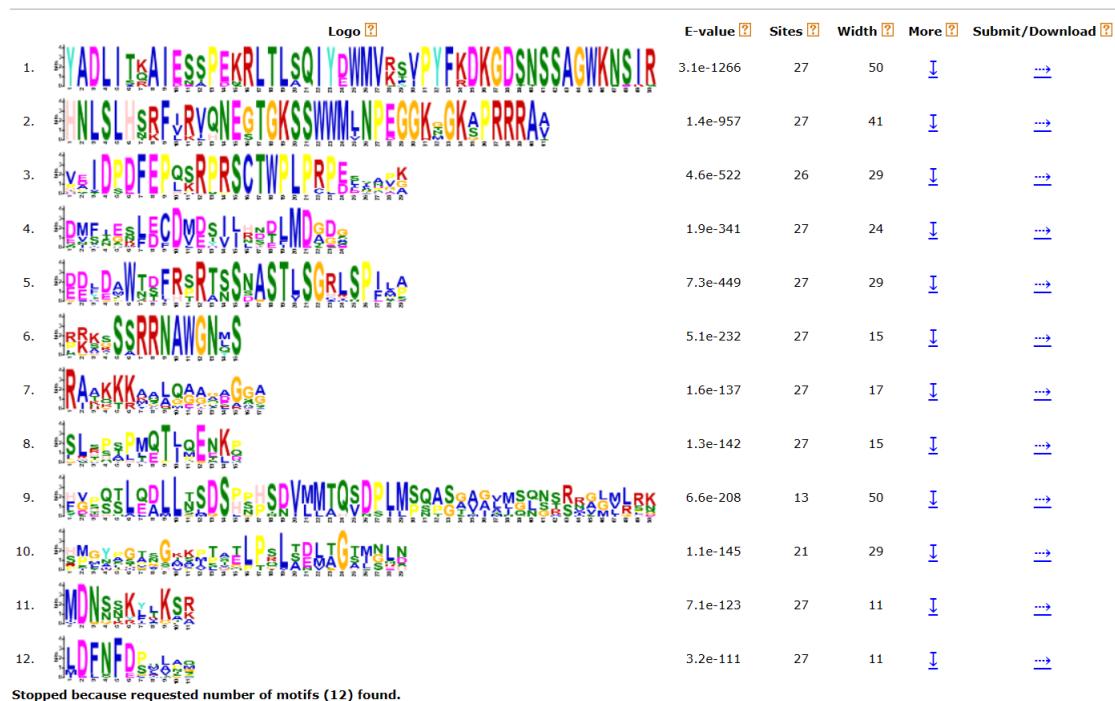
Csfoxo6-like

1 ATGTITGATGGAGGAACGAGCAACTGGACGCTCATCAAGTAGATTGGATTTCAGCGCAGAGCGGCCCTCGCTCCGCACATGGCG
1 M L M M E D D E L D A H Q V D S D F E P Q S R P R S C T W P
91 CTGCTTGCCCCGAGGATTTCCGGTGCACACGGGTCAGCGGAGGTTCTCAGTCACCGATAAAAGTGGAACCGGAGCACATCCCG
31 L P C P E D F P G A H E V S G G L P V T S I K V E P E D I P
181 GCTTCAGAGCGGAGCTGGGGTGGCGGAAACGCCGGCAGAGCTGAAGCACCCAGCGGCCCTCGCGAGGCCCTGAGGCCAACCGA
61 A C R A G L A V G G T P A E L K H P A G A P G A A L D A N G
271 CGCGTCGCGAAAGCCAAGTCTGCGGGGGAACTGTCCTACCGGATCTCATACCGGCCATGGAGACGACACCG
91 P L R K A K G N L S Y A W G N L S Y A D L I T R A I E S T P
361 GAGAAAAGACTGACGCTGACAGATCACGACTGATGGTCGGTAGCTGCCCCTACTAACAGGATAAGGGCACAGCACAGCTAGCG
121 E K R L T L S Q I Y D W M V R Y P F K D K G D S N S S A
451 GGCTGGAAGAACTCTACCGCACAACCTCTCCACACCGCTCATCGGGTGAGAACAGGGAACTGGCAAGAGTTCCTGGTGG
151 G W K N S I R H N L S L H T R F I R V Q N E G T G K S S W W
541 ATCTGAACTCAGACGGGAGGAGATGGCAAGGCTCGGCCGGAGGGCTCCATGGACAAACGACTAACGACTAACGAAAGCAAA
181 M L N P D G G K M G K A P R R R A V S M D N S T K Y K S K
631 GCGCGCATAGAGGAAGGGTTGGACGCTCTGGATAGGACGGGCTCGCGTGAAGGGACTCCAGGCCCTCGCGCAGT
211 G R I R G V R P G I G A G S A V T G L Q Q A S P D H G S
721 CCACACAGAAAAACCTCGCGGGTTCGGCGACCGGACCGGAGGAGACTTCAGCGCTGAGCGCTCATCGAGGCCAGT
241 P P Q K T L P G F A A A T G T D G E F D A W T E L H S R A S
811 TCTCGGCTTCCACCGTACGGCGGGCTCTGTCACCGGATCTGGCTGAGGAGACGGGAAGAGCTGAGGGGGCTCTGCGACTC
271 S S A S T L S G R L S P I L A E E E A E V G G L S S S
901 ACATCCCCCCTACCGTGCACACAGCACCTCTCCATCACGCTGGGCTCTGGGAGCACTGCCCOCCCCCTCACGAGCTGCC
301 T S P H L Y S P T T S S P S V G S G S H C P P L Q Q L P
991 CACTCTGCTAACATGGCAGTCAGTCTGGATGAGCAGCTGACAGGAGACTTATCATCGCACCCCTCACGAGCACAGCAG
331 Q L A N M A G A I S L D E Q L T E D S Y H P H R Q Q Q Q Q
1081 CAGCAGCAGCAGCACAGCACAGCACACAAAGCAGCGCTACCCACTACAGCTCTGGAAATCAAAGGCAAGGGITACGCC
361 Q Q Q Q Q Q H G R H K H Q T P V Y H Y S S G I K G Q S G Y G
1171 CCCGGTGTCTACGGGGCTCGGGCATGGGATCTGCGATCACACTACCCCATATGCCAGGATCAAGGACAAGGGGGCAGTTTC
391 P G V Y G A M G M L H H S P H M Q T I Q E N K A A S F
1261 TCTGGAACCATCGGGGCTACTCGGTGCGCAAGGCCCTCGAGACGCTGCTCACGGGGGTCAGCTGGCGCAGTACTGCTCAAGGAC
421 S G T M R A Y S G N P D Q T L L T G G P A G Q Q Y C S K D
1351 ATCTGCTTGAACGGAGGAGGAGGAGCATCCATGAGCACGCCAGAACGGGGTGGGCCAACCATCACAGCACCATACGGT
451 M L L G Q E R E S H P M I G Q P S N G V G P N H S H H H G
1441 CACCAACACGGCACAGOGAACCCACAGCGTACCGCACAGGCCATAACAGAACCTCCAGCCATCACAAACGGTGTGCC
481 H H N G S E P H G H R T A H S H N T P S H E N H N G V A
1531 AACCGAACCCAGCTCACCTCACGGCACAGTCACACACGGCACAAACCTCACACAGCCATAACACACACCCAGGGCAGGGTG
511 N R N H S S P H G H S H N T H N L N H S H N H T P P R A A V
1621 CTAGCCCCCAGGGCAACAAATCACCTCGCACAGGACTACCCACTCTGACATGGACCCCTCACAGGCCACCTCGCG
541 L A P S G N H N L Q T Y N H T P Y L S P P S H A H L P
1711 GCTCCACCCCTCCCTCCCAACCGGGGGTAGCTGGCATGCTCAGGACTCTGCGCACGTGCGCACCCACCCCTCACCT
571 A S T T L P P N P A G M L G M P Q D F C H V A T A P H P H P
1801 CGTACACGGGACTACTCGGACCCGACCATGAGCTACTAGTGATGTACCCGTAACGGGGGGGGGGGGGGGGGGGGGGGGGG
601 R H S H Y P D F Q H Q G V T I S G S Y P G F G V G N G I T G
1891 AGCAACTACCACAGCATCACCAACCGCACGCCAGAGACTACCGCCGATTGGACATGGACATGTCACCGCAGCTGGACTGC
631 S N Y H S Y P H R L P A D L D I D M F H G S S L D C
1981 GACCTGGAGCTCATCTCCATGAGTATGGACTCTGGGGAGGGAGGACTTAACTTGGACTCTCTGCTCACGGGTGTGGGC
661 D V E S I L L H D I M D S G E E N D F N F D C S L A Q G V G
2071 ATCGCATGGGGATGGCATGGGGCATGGGGATGGGATGGGATGGGATGGGATGGGATGGGATGGGATGGGATGGGATGGG
691 I G M G M G M G V T M G M G M G M S S L A S P Q Q A H S N Q
2161 AGCTGGTGCAGGCTGA
221 C W U B C *

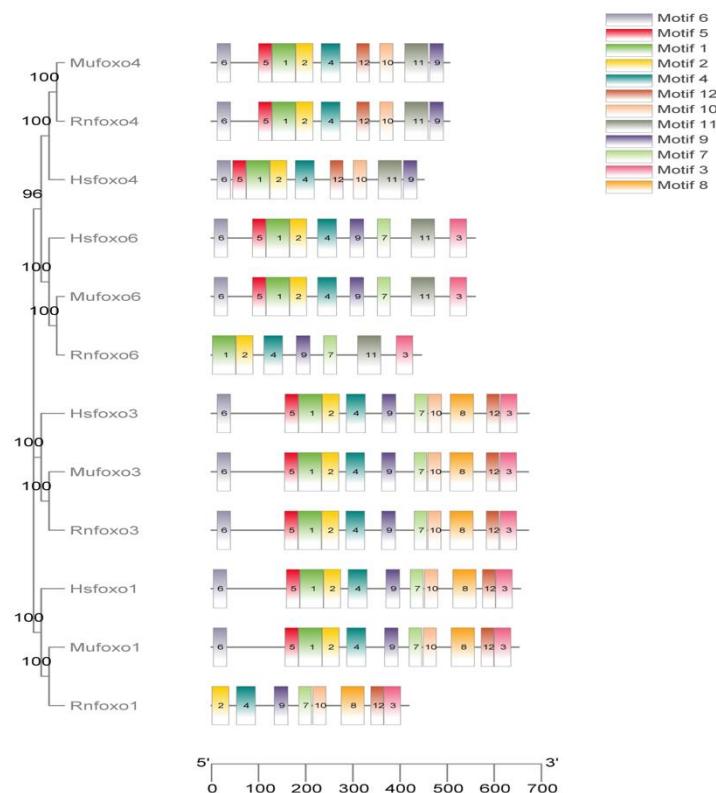
Csfoxo1a-like

1 ATGGCTGAGGTCCCGACACAGAGGGACTTGAGCTCTTCGGCCCGCGCTGTCACATTGGCCCTCGCGCG
1 M A E V P T Q I A D I D P D F E P L S R P R S C T W P L P R
91 CGGGAGCTCCCTGGACCCCGCCGCTAACAGCTAACGGCTCTCCGGCCGGCTGGCTGGAGGAGGAAACCGGGAGTCATCGAT
31 P E L L D P F A G S N T S S P A P S V Q Q E L G G N A E F I S
181 AACCTGGCTTGTGAGGAGGACTAACGGAGGTATGAGGAGCAGAAACACCCGTCATCTCATCACAAACCATGCCACCATCATAC
61 N L G L L E D Y E E Q K Q P V H L H H N H R H H H H
271 CATCACCTCGAGCACAGCACAGCTGGATCTGAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAGCACAG
91 H H L Q Q Q Q V P F G L Q Q Q Q Q Q A P P A G T T R P A S P
361 CGCTGTGGGGTGGCGCGAGGGAGGGCGGCCCTCATCGCGCTAACGGCTGGGGAAACATGTCGACGGAGACTGATCG
121 R C G V V A A R G K A A P G P S P S R R N A V G N M S Y A D L I
451 ACCAAAGCCATCGAGAGCTCCCGAGAGAGAGCTACTCTGTCACAGACTACGACTGAGTTGAAGAGCCTGCCGACTCTAACGGAT
151 T K A I E S S P E K R T L T L S Q I Y D W V N V K S V P Y F K D
541 AAAAGGGACACCAACAGCATCGAGGAGAACCTCACAGACACAAACCTGTCCTCGCACAGGCCCTCATCGCATCGAACATGA
181 K G D T N S S A G W N S I R H N L S R F I R I Q N E
631 GCAACGGAAAAGTCTCTGGTGGATGTAACCTGAAAGGGAGAACGGAAAAGTCCCGGAGCGAGAGCCCTCATGACAAAC
211 G T G K S S W M L N P E G G K N G K S P R R R A A S M D N
721 AACAGCAAACCTGGCAAGAGCACAGGAGAACAGCACAGAACAGAACAGAACAGAACAGGGGGAGGGGGGGGGGGGGGG
241 N S K L A K S R G T A K T K K M A L Q G E A E G G G S P G
611 T C C T C T A C T C A C A G T G G G G A T C C A A C T C T C T G A T A C G G A G G A C T T I G A T G T C T G G A C T C T T I T A C C A G C A C C A G C T C G
271 S L Y S K W N S L N E D F E S W N S F R T R T S S
901 GACGCCAGACTCTCGACCGCTACCGCTACCCCTCCCTCCGGAGCAGGAGTACCTGGGGAGGCCAGAACCTGACATGTA
301 D A S T L S G H R S P F P P E Q Q D D L G E P E G H M M Y P G
991 GCAAGGGGGGCAAGAGAACCTCCACCGCTGGGGCTCTGGGGCTCTGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
331 A A G A K I T S T L P F S L S E M N G G S L G Q D E S E I V M G
1081 ACTCTGTTGATAATCTGGACCTGCTGGCCCAAGAACCCCAAGGGCTGCTGACTCCCCAGCATCTCACAGGGCCCTACAGC
361 T L L D N L D L S P K N P K V A S D S P S M L Q S A P Y S
1171 ACAGCCACCTTACCCACTGCGAGCAGGATTCGATGAAATGCGATGAGCTGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
391 T A T L P F L S Q Q D Y R K C N Y G Q V G M E F R P P A P M
1261 CAGACACTCAAGAACCAAGGGCTCTGGGGCTCTGGGGCTCTGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
421 Q T L Q E T K V G F G V Y E N Q Y V C P Q P G L L K E L L S A
1351 GAGGCCGATGGCAGCAGGGACATGAGCTGGCTCAGGAACGGGACTGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
451 E A D G G S R M M P C R N A L V P Q V G R G C L M P T Y S
1441 AGGGAGAGTACGGCTGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG
481 R Q S H V G G G V K N M N L P H P L T V L N Q G P S T S R D
1531 TTGAACAGCTGTAACATGATCCCACTGACGGGCTCTCAGGGGCCCTCTGAGTGAACGGGCCAGGCCAGGCCAGGCCAG
511 L N S C N M I P L T G P S G A P P A V T G P R T R G Q P A H
1621 ACACACATGACTACGGCCGGAGCTACAGAGACTGAGTCGTCACCGGCCAGGCCAGGCCAGGCCAGGCCAGGCCAGGCCAG
541 T H M N Y G R S Y R E L T S V H A H G H H Q E R L P S D L
1711 GACAACATGTCATCGAGATTTGAGATGTCAGATGGAGTCGCTCTCCACGACACCTCATGACGGGGGGGGGGGGGGGGGG
571 D N M S I E M F E C D M M S V L H D T L M D G G A L D F N F
1801 GACCGCTGAGCTGCTCTCACGGGTTTCCCAAGGGTAAAGGCAACTCTCACAGCTGGGTGTCAGCTGA
601 D P A A A S H G F P Q R V K G N S H S W V S G *

Supplementary Figure S2 Putative motifs of foxo proteins



Supplementary Figure S3 The structure and motif analysis of Foxo proteins in three kind of mammals, mouse (Mmfoxo), humans (Hsfoxo) and Rattus norvegicus (Rnfoxo).



Supplementary Table S1

List of species used in this study

No.	Species name	Accession ID	Source
1	<i>Cynoglossus semilaevis</i>	XP_024912472.1	NCBI
		XP_008325121.1	
		XP_008309103.1	
		XP_008307478.1	
		XP_008320914.1	
2	<i>Oryzias latipes</i>	XP_008331716.2	NCBI
		XP_011489778.1	
		XP_023820018.1	
		XP_011480493.1	
		XP_023815809.1	
3	<i>Scophthalmus maximus</i>	XP_004076562.1	NCBI
		XP_023814834.1	
		XP_035474393.1	
		XP_035506031.1	
		XP_035479973.1	
4	<i>Danio rerio</i>	NP_001070725.2	NCBI
		NP_571160.1	
		NP_001009988.1	
		NP_001076326.1	
		XP_009289443.1	
5	<i>Lepisosteus oculatus</i>	NP_001128604.2	NCBI
		XP_690041.2	
		XP_006631437.1	
		XP_006626029.1	
		XP_015207025.1	
6	<i>Oreochromis niloticus</i>	XP_006628257.1	NCBI
		XP_005477409.1	
		XP_005467551.1	
		XP_025766550.1	
		XP_005454675.1	
7	<i>Takifugu rubripes</i>	XP_003455269.2	NCBI
		XP_003450195.1	
		XP_029699608.1	
		XP_029703679.1	
		XP_003978591.1	
	<i>Takifugu rubripes</i>	XP_003971932.1	NCBI
		XP_003969118.2	
		XP_011609846.1	

	<i>Perca fluviatilis</i>	XP_039641440.1 XP_039638602.1 XP_039633989.1 XP_039668563.1	NCBI
8		XP_034456251.1	
9	<i>Hippoglossus hippoglossus</i>	XP_034436699.1 XP_034432342.1	NCBI
		NP_062713.2	
10	<i>Mus musculus</i>	NP_001363896.1 NP_061259.1 NP_918949.1	NCBI
		NP_001446.1	
11	<i>Homo sapiens</i>	NP_002006.2 NP_001164402.1 NP_001278210.2	NCBI

Supplementary Table S2

Primers and their sequences in this study.

Primer	Sequence (5'-3')	Information
Csfoxo1a-RT-F	GTCGTCCCCGTCTCCTATGAT	qRT-PCR
Csfoxo1a-RT-R	AAAACCTGGGCTTGCTCTCTGG	qRT-PCR
Csfoxo3a-RT-F	GAGGACGAGCCACCAAGAAA	qRT-PCR
Csfoxo3a-RT-R	GCTGAGGGTGCTGGCATTAGA	qRT-PCR
Csfoxo3b-RT-F	TTGCTTGTCAACATCAACCTG	qRT-PCR
Csfoxo3b-RT-R	TGAAGAGAAACCGTCGTGTG	qRT-PCR
Csfoxo4-RT-F	AGACGGTGCCTACTTCAGAG	qRT-PCR
Csfoxo4-RT-R	GGTGCTTCCCAGTTTG	qRT-PCR
Csfoxo6-like-RT-F	CAGTTATCATCCGCACCGTC	qRT-PCR
Csfoxo6-like-RT-R	GCCTTGTTCTTGAATCGTCT	qRT-PCR
Csfoxo1a-like-RT-F	AGAGGAAGAGCCACGAAGAA	qRT-PCR
Csfoxo1a-like-RT-R	GCTGGTGCCTGTCTAA	qRT-PCR
β-actin-F	TTCCAGCCTCCTTCCTT	qRT-PCR
β-actin-F	TACCTCCAGACAGCACAG	qRT-PCR
Csfoxo1a-P-F	ATCTGCGATCTAACGTTGAGCGTCCAAATA	promoter
Csfoxo1a-P-R	CAGTACCGGAATGCCAAGCTTGACAGCAGACGAGCACT	promoter
Csfoxo3a-P-F	ATCTGCGATCTAACGTTGAGCTTGCTTAGGGAGATT	promoter
Csfoxo3a-P-R	CAGTACCGGAATGCCAAGCTTAATCTGCTGCTGTGG	promoter

Csfoxo3b-P-F	ATCTGCGATCTAAGTAAGCTTTGATATTGTCCCAACTAG	promoter
Csfoxo3b-P-R	CAGTACCGGAATGCCAAGCTTGTGGTCAATGTGGA	promoter
Csfoxo4-P-F	ATCTGCGATCTAAGTAAGCTTGAGCCCTGACACGAAC	promoter
Csfoxo4-P-R	CAGTACCGGAATGCCAAGCTTAAAGTCATGGACCACC	promoter
mufoxo1a-C/EBP α -F	AACACGTTAAAGGACGTTAGCTTCAAGATAAC	binding site mutation
mufoxo1a-C/EBP α -R	GTTATCTTAAGAACGCTAAACGTCTTAAACGTGTT	binding site mutation
mufoxo1a-c-Jun-F	ATCTCATTATGAACTGACCTAATTGTTT	binding site mutation
mufoxo1a- c-Jun -R	AAACGAATTAGGTCAAGTCATAATGAGAT	binding site mutation
mufoxo3a-C/EBP α -F	ATCGAACATACGTGTTAGGAAAAAAATGT	binding site mutation
mufoxo3a-C/EBP α -R	ACATTTTTCTAAACACGTATGTTGCGAT	binding site mutation
mufoxo3a-c-Jun-F	TAACTTGACTCTGAGACACAAAAAAATGTCA	binding site mutation
mufoxo3a- c-Jun -R	TGACATTTTGTCTCAGAGTCAAAGTTA	binding site mutation
mufoxo3b-C/EBP α -F	ACTCGCCCTCTGACTGCTGTGAAGTTA	binding site mutation
mufoxo3b-C/EBP α -R	TTAACTTCACAGCAGTCAGAGAGGGCGAGT	binding site mutation
mufoxo3b-c-Jun-F	CCTCACTGAGCGCTGTGAAGT	binding site mutation
mufoxo3b- c-Jun -R	ACTTCACAGCGCTCAGTGAGG	binding site mutation
mufoxo4-C/EBP α -F	GCAGAGCCAGATCCCTGACAGTGG	binding site mutation
mufoxo4-C/EBP α -R	CCACTGTCAGGGATCTGGCTCTGC	binding site mutation
mufoxo4-c-Jun-F	AGTTATCTGTGTCATGGTTAAC	binding site mutation
mufoxo4- c-Jun -R	GATTAAACCATGCACACAGATAACT	binding site mutation
Csfoxo1a-siRNA-F1	CCCAGAUCAUAGACUGGAUTT	siRNA
Csfoxo1a-siRNA-R1	AUCCAGUCAUAGAUUCUGGGTT	siRNA
Csfoxo1a-siRNA-F2	GCCAUCUAUGCCACUGCAATT	siRNA
Csfoxo1a-siRNA-R2	UUGCAGUGGCAUAGAUGGCTT	siRNA
Csfoxo1a-siRNA-F3	GCACAACCAGGCUAAGAAUATT	siRNA
Csfoxo1a-siRNA-R3	AUUCUUAGCCUGGUUGUGCTT	siRNA
Csfoxo3a-siRNA-F1	GAGGAAGACAACGGAGUUATT	siRNA
Csfoxo3a-siRNA-R1	UAACUCCGUUGUCUUCCUCTT	siRNA
Csfoxo3a-siRNA-F2	GACCAUUCAGGAGAACAAATT	siRNA
Csfoxo3a-siRNA-R2	UUUGUUCUCCUGAAUGGUCTT	siRNA
Csfoxo3a-siRNA-F3	GACUGUGACAUGGACUCUATT	siRNA
Csfoxo3a-siRNA-R3	UAGAGUCCAUGUCACAGUCTT	siRNA
Csfoxo3b-siRNA-F1	GACAACAGCAACAAGUACATT	siRNA
Csfoxo3b-siRNA-R1	UGUACUUGUUGCUGUUGUCTT	siRNA

Csfoxo3b-siRNA-F2	GAUGACCUAAUGGAUGAGUTT	siRNA
Csfoxo3b-siRNA-R2	ACUCAUCCAUUAGGUCAUCTT	siRNA
Csfoxo3b-siRNA-F3	GGACCGAUUCCCACAAGAUTT	siRNA
Csfoxo3b-siRNA-R3	AUCUUGUGGGAAUCGGUCCTT	siRNA
IGF1-RT-F	GTATCTCCTGTAGCCACACCCTCT	qRT-PCR
IGF1-RT-R	GCCTCTCTCCACACACAAACT	qRT-PCR
Fox12-RT-F	GAGAGGAAGGGCAACTACTGGA	qRT-PCR
Fox12-RT-R	TGGTTGGAAGTGCCTGGG	qRT-PCR
nerul3-RT-F	CTGGTGTAGCAGCCGTCT	qRT-PCR
nerul3-RT-R	CCAGAACTCCAGCACTGACCC	qRT-PCR
tesk1-RT-F	GCAGAAACTCTCTCACCCAACA	qRT-PCR
tesk1-RT-R	CCAGACCAAAGTCCTCACCA	qRT-PCR
wt1a-RT-F	ACCGCCGTTCCCCCTTAC	qRT-PCR
wt1a-RT-R	GGGCTGGTGGTGATGTGC	qRT-PCR
sox9a-RT-F	AAGAACACACAGATCAAGACAGA	qRT-PCR
sox9a-RT-R	TAGTCATACTGTGCTCTGGTGATG	qRT-PCR