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| **Supplementary Table 1 | Antisense morpholino oligonucleotides used in this study.** | | | | | |
| **Mutant** | **Affected Gene** | **ENSEMBL Gene IDa** | **Nameb** | **Sequence** | **Reference** |
| JM087 | *anapc1* | ENSDARG00000075687 | ZF\_ANAPC1\_ATG | TGTACCACTTGACCAGCACTTTCAT | This study |
| JM087 | *anapc1* | ENSDARG00000075687 | ZF\_ANAPC1\_ACC5 | CTTCATAGACGTGCGACATGAGTTC | This study |
| HU319 | *atad5a* | ENSDARG00000070568 | ZF\_ATAD5A\_ATG | GGCAATGCAACAACCCCAGCCATCT | This study |
| HU319 | *atad5a* | ENSDARG00000070568 | ZF\_ATAD5A\_DON3 | AGAAGTGTTGATCTTACCTGATAGG | This study |
| JM052 | *fcf1* | ENSDARG00000102333 | ZF\_FCF1\_DON2 | AAGACTCAAACTTACATTTCTTGTT | This study |
| JM052 | *fcf1* | ENSDARG00000102333 | ZF\_FCF1\_ATG | ATGACGGCTGAATTTGTTCGAGATT | This study |
| JZ061 | *fli1a* | ENSDARG00000054632 | ZF\_FLI1A\_ATG | CGCCTCCTTAATAGTTCCGTCCATT | This study |
| JZ061 | *fli1a* | ENSDARG00000054632 | ZF\_FLI1A\_DON7 | TTGGAGAGCCTGAGAAATGGAAAGA | This study |
| KL069 | *gemin5* | ENSDARG00000079257 | GEMIN5ATG | GATGTCTTTCGTGCATTATATACCG | 20 |
| KL069 | *gemin5* | ENSDARG00000079257 | ZF GEMIN5 DON4 | GCACAAAACCTCTAGTTTACCTGCA | 20 |
| KL069 | *gemin5* | ENSDARG00000079257 | ZF GEMIN5 ACC9 | ATGCCAACTGTAAGAAAAGTGTGGA | 20 |
| 18\_10 | *lsm8* | ENSDARG00000091656 | ZF\_LSM8 ACC4 | CGATCACAGCCCTTAAACACAAAAT | 20 |
| 18\_10 | *lsm8* | ENSDARG00000091656 | ZF\_LSM8 ACC3 | CGTCCCCTAAAAACAGCACAAGTCA | 20 |
| HY062 | *mat2aa* | ENSDARG00000040334 | ZF\_MAT2AA\_ATG | AGCCGTTCAGTTGTCCGTTCATATT | This study |
| HY062 | *mat2aa* | ENSDARG00000040334 | ZF\_MAT2AA\_ACC4 | ACCCTTAAAGTACAACACAGGGATT | This study |
| IG335 | *mcm10* | ENSDARG00000045815 | ZF\_MCM10 ACC4 | TCTGAAGAGGCTGATTTACATAAGA | This study |
| JI073 | *naa50* | ENSDARG00000027825 | ZF\_NAA50\_ACC2 | CCGGCTACTAGAACAAAAGCAGAAT | This study |
| JI073 | *naa50* | ENSDARG00000027825 | ZF\_NAA50\_DON2 | AGCGTTGTTACATACCTAGCTTGGC | This study |
| IT429 | *nek7* | ENSDARG00000056966 | ZF\_NEK7\_DON8 | GATGGGTTTCTATACCTTACCTCAT | This study |
| IT429 | *nek7* | ENSDARG00000056966 | ZF\_NEK7\_ATG | CGTCCATTGTGACAGCAGCAGTCGC | This study |
| HP327 | *nol9* | ENSDARG00000077751 | ZF\_NOL9 ACC4 | AGCACTATATTTACCGAGTTGAGGC | This study |
| HP327 | *nol9* | ENSDARG00000077751 | ZF\_NOL9 ATG (3RD\_1) | GCTGACCCCCAACGAGACTATAAAC | This study |
| HG002 | *pi4kaa* | ENSDARG00000076724 | ZF\_PI4KAA\_ACC22 | AGCTCAGCCTGGAAACAGCAAATGT | This study |
| HG002 | *pi4kaa* | ENSDARG00000076724 | ZF\_PI4KAA\_ATG | ACGTCCCTCTCGACGACATTATTCA | This study |
| IG447 | *pip5k1ba* | ENSDARG00000044295 | ZF\_PIP5K1BA\_DON5 | TTGTGGATTGTGTGGCTCACCATGT | This study |
| IG447 | *pip5k1ba* | ENSDARG00000044295 | ZF\_PIP5K1BA\_ATG | GCTCATCTGCCGTTGCACTCATCTT | This study |
| JI065 | *pnrc1* | ENSDARG00000043904 | ZF\_PNRC1\_ACC2 | GGCTGCTTTAGACAAACATGAAACA | This study |
| JI065 | *pnrc1* | ENSDARG00000043904 | ZF\_PNRC1\_ATG | GACGACCAAAAGCATCGCCCAACAT | This study |
| HG010 | *pole1* | ENSDARG00000058532 | ZF\_POLE\_ATG | GTCTGAAGACTTTCAAATCAGTTAC | 20 |
| HG010 | *pole1* | ENSDARG00000058533 | ZF\_POLE\_ACC17 | ATCACACACCTGAAACAGGAAAAAT | 20 |
| HG010 | *pole1* | ENSDARG00000058533 | ZF\_POLE\_DON13 | GATGAAAATTAGACCTGTGGTTCT | 20 |
| KW059 | *snapc3* | ENSDARG00000101474 | ZF\_SNAPC3\_ATG | TCTTTGCGTATCTCCGCCATAATTC | 20 |
| KW059 | *snapc3* | ENSDARG00000101474 | ZF\_SNAPC3\_ACC7 | ATTACCCTTCAGCAAGAACACATAT | 20 |
| KH025 | *eif5* | ENSDARG00000003681 | ZF\_EIF5\_DON4 | AATTTAATACTCACATGTCGGAGGC | This study |
| IG438 | *spata5* | ENSDARG00000104869 | ZF\_SPATA5\_ACC16 | GACCACCAATATCACTCCACTTCAC | This study |
| IG438 | *spata5* | ENSDARG00000104869 | ZF\_SPATA5\_ATG | CTTTTCTTACTGGATGACATGATGC | This study |
| HI020 | *tbcb* | ENSDARG00000068404 | ZF\_TBCB\_ATG | GATTGTCACACTCCCGTCCATCTTC | This study |
| HI020 | *tbcb* | ENSDARG00000068404 | ZF\_TBCB\_ACC6 | GCCGTACCTGAAAACAATAGAAGCA | This study |
| HA343 | *tnpo3* | ENSDARG00000045680 | TNPO3 ATG | GGTTTCCCGCCTTCCATGGTGCTCT | 20 |
| HA343 | *tnpo3* | ENSDARG00000045680 | TNPO3 SPLICE ACC6 | TCATCCCTCTGCTTCAATGACGAGT | 20 |
| IM087 | *ube3d* | ENSDARG00000026178 | ZF\_UBE3D\_ACC9 | CAACACTACACATCAGGGAAAAACA | This study |
| IM087 | *ube3d* | ENSDARG00000026178 | ZF\_UBE3D\_ATG | TCGCAGTCTCTTCCATTGGTATTTC | This study |
| IL015 | *unc45a* | ENSDARG00000103643 | ZF\_UNC45A\_ACC2/ATG | CTGGGACATCTACACAGTCAGAAAA | This study |
| HJ028 | *upf1* | ENSDARG00000016302 | ZF\_UPF1\_ACC2 | GTTCACCTGAAAACAAGATGAGCAA | 91 |
| JZ007 | *yeats2* | ENSDARG00000078767 | ZF\_YEATS2\_DON25 | AGAAACTGGCACACACTTACCTGGT | This study |
| JZ007 | *yeats2* | ENSDARG00000078767 | ZF\_YEATS2\_ACC23 | CCGTGCTGAGGGAGATTGATAATAA | This study |

a Zv10

b Morpholinos target translation initiation codon (ATG) or splice sites (DON – donor, ACC – acceptor, numbers refer to exons)