

Supplementary Materials

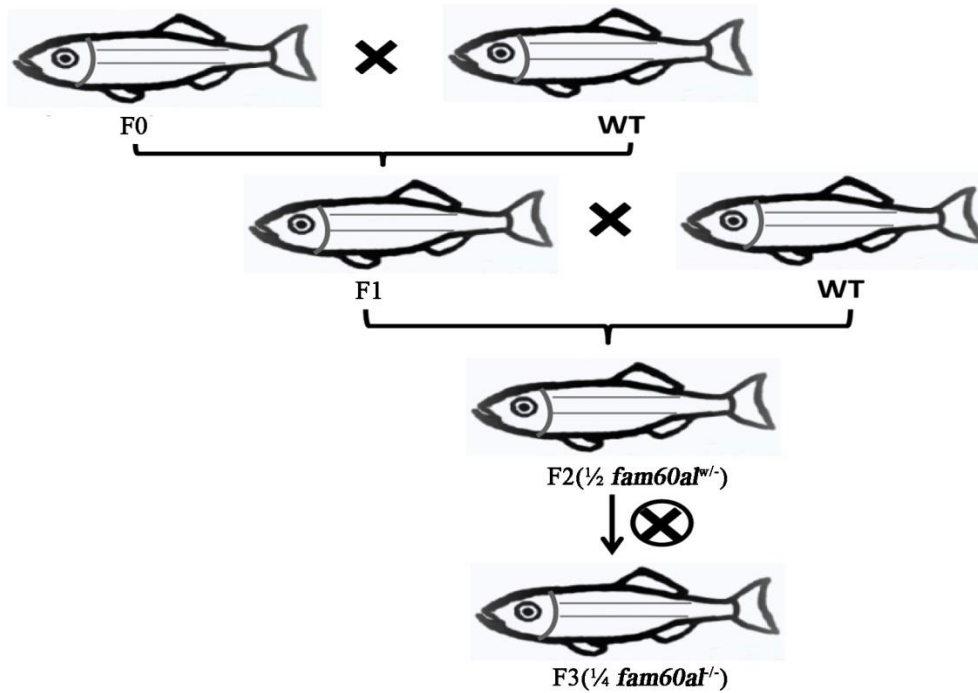


Figure S1 Flowchart for establishing *fam60a1* knockout zebrafish line (*fam60a1*^{-/-}). TALEN-injected zebrafish embryos (F0) were raised to adulthood and outcrossed with wild type zebrafish (WT). F1 founders with large fragment deletion were outcrossed with WT to obtain F2 heterozygous mutations (*fam60a1*^{w/-}). Homozygous mutant F3 embryos (*fam60a1*^{-/-}) were obtained by self-crossing F2 heterozygous mutations.

fam60a1 transcript: 2243bp

CACGAATGCTGCATTTTGCCTAATTGTGCTCACTGTCAGCTTCGGG
AGCCCCTAAAGATGTTTCGGATTTACAAATCCAAGATTTACCGCAGTAACGACGGTTGCTGTAT
CTGCAAACCAAGTCGTCAAGTTCTCGGTTCACTGACAGCAGCAGATATGAGGAGAACTTCA
GACTCTGCTTCGG
TCTGTCAGAGGATCGAGTCGGAGACATCTGCAATGCTTGTGTGCTCCTGGTAAAACGCTGGA
AGAAGTTACCGCATGGATCAAAGAAGAACTGGAACCAT
GTGGTAGATGCAAGAGCAGGACCTGGCTTCAAGCTGACCAAACCCAAGAAAGTGAAAAACA
TTGATGGAAAGAAGAAAAGTAAGCTGAAAAAGCTTCATAAATCAAAGACAAA
ATTCCGATGCCACAGCACCACATCCAGTATGTCTCCCTCTCAGTCTCCAGTCACAGTAATCAA
TCTGATGACGGCTCAGACATTGAGACCAAACAGAGACGTCCAACGCCATCTGGCTTCTCATT
CTCGACCTGTCCTACTGGAAGAG
GCAAAGGTGTGCTGTGGGATCGTCTACAAGGGCCGTTTCGGTGAGGTGATCATCGATCCTC
GTCTCTTCAAGCCCTGCTGTAACAAAAGCGCCCCGCTCTGCCAACCTCCTCAGTCTCTCAGA
CGCTCCAGAGGATCTGAAGGAGGCCTGGTGAATCCGTCTCGTTGAGGCCCTCATAGCTTTTTT
GTCTCCAGTGGTAGACTCCGATATCTCCCCTATGTTAGATGACTTGTGTATGAGTTCAGTCCCC
C
CCACCACCCTTGCTTTTTGTATTTTTTATGAACTTTGTACAATTTTTGTATCTTTTTTTATATA
ATGGAAAAAGGAGAATAATTTGGGCATTAGGACATATTTATAGGTCTCAGTTAGGACAATTT
AATGTAATCCTTTTTTATCATTACTGTAAAATATATATTTTTTCCATTTTGTTTTTGGAGTTACCA
GTGTTTCTGTAAATATAATCTTATTTTCCATACCAGTGCACCAAAGACTTCTATTTGGCATTAG
TTTCACGGGTTACAGATGAATGATGTGTAATAAAAAAAAAA
GTGCTGTATCTAACATTATAGCCAAGGCATTAATGAGATGGGTGACTTTTAAAGCAAATACAAT
ATTTTACTCCG
TTTTGCAGTCTGATTGAACTGTTGTCTATCATCATCACACGCATACATTTACCAATATGAATTG
TTTGAATGGGCACAATATTCACAATGTGAATCACCTCAGCTTTGGGTCTGTAATATGGACATA
TGCTTACGAAATCTCCTCTTTCTGGTTTGGCATAAAAGATGTTTCTCGATGTTTAAAGAAACG
GTTACGGGTCTGTAAATCTTTAAAATAACCAAGATGCAAAGCTACATTATCTCAGAGTATTTA
AACGGTTATCATTATACACAATAGCTTATGAAAGCATGCATAATGTATTTGTTGGCATGATCAGT
TTTCTGACTGTTGGTGGTGTGTTTCTTTTGTGTTGGATGAGTGTATAATATTGCGTAA

CACTAATTCATGTCATTTTAAACATTTGTATTTTGATGCAGTCCTTCATAGCTCAACCCAGAATA
TGGGGTCATACATTAATTAGGATGTATCCTAATATGTTCTGTTGTGGACCTAAATCATCCATGTTA
TCAACAATTTAAACTTTTTTCTGATTAATAATCATATCTTATCAATATATAATATTTAAAATCAAGA
ATTTCTGAATATGAATTCAGTAAAAGGCAACAAGCTTGTAGGAACCAATAAAACAATGTACA
GTAATTGTCCTATTCAATGTTTTTTTTTTTTTTTTTTTCAGGAATTGTGATGATTTAAGAACTTACAC
TTAATAAAATGAATAAAATCAAAGACTTTGACAAAATTTAAAAAACATCATGATGCATTTCGG
AGCGCAAATAATATACTTTATGATTTAAGATTAAGATTTAACTTTCAGTTTTGCAGACACTCA
ATATAAAATTGCATGTTTGACCAGACTTAATTGAAAAAAAAAAAAA

Figure S3 the full-length transcription sequences of *fam60al-AS*

Gray: the reverse overlap sequence with *fam60al*

Table S1 List of primers used in this study.

Primer name	Sequence (5'→3')	Primer purpose
fam60a1-WISH-F	CGGGATCCTATCTGCAAAACCAAGTCGTCAAGT	Probes synthesize
fam60a1-WISH-R	GGAATTCACACAAGTCATCTAACATAGGGGAG	
fam60a1-AS-WISH-F	CGGGATCCCTGGGAGACTGAGAGGGAGACATAC	
fam60a1-AS-WISH-R	GGAATTCTTCAATTAAGTCTGGTCAAACATGC	
fam60a1-KO-F1	GCCGCTCTTCATTCACTTGC	fam60a1 mutations detection
fam60a1-KO-R1	TCATCCCCAAATAAAGGGTAGGT	
fam60a1-KO-R2	GCATTCCTTGAGGAATGTTTG	
fam60a1-3'RACE-GSP1	TGACGGCTCAGACATTGAGACCAAAC	RACE
fam60a1-3'RACE-NGSP1	CTTCTCATTCTCGACCTGTCC	
fam60a1-5'RACE-GSP2	CTGAGGAGGTTGGCAGAGCGGGG	
fam60a1-5'RACE-NGSP2	ACAGCAGGGCTTGAAGAGACGAG	
fam60a1- genome-GSP1	ACTGTGACTGGGAGACTGAGAGG	Genome Walking
fam60a1-genome-NGSP1	GAGAGGGAGACATACTGGATG	
fam60a1-semiq-F	ACACAAGTCATCTAACATAGGGGAG	Semi-quantitative PCR
fam60a1-semiq-R	TATCTGCAAAACCAAGTCGTCAAGT	
fam60a1-AS-semiq-F	CTGGGAGACTGAGAGGGAGACATAC	
fam60a1-AS-semiq-R	TTCAATTAAGTCTGGTCAAACATGC	
β -actin-semiq-F	ACCCACACCGTGCCCATCTA	
β -actin-semiq-R	GGTCTCGTGGATACCGCAAG	
fam60a1-RT-F	TGTTTTTCACTTTCTTGGGTTTG	Quantitative PCR
fam60a1-RT-R	AATGCTTGTGTGCTCCTGGTAA	
fam60a1-AS-RT-F	AGGTCGAGGAATGAGAAGCCAG	
fam60a1-AS-RT-R	ATGTGGTATGCTTCCAGATTCC	
klf4b-RT-F	ACTCCACCATCCTCACCTCTCC	
klf4b-RT-R	CCAGCCACAACCTTCCAAC	
myca-RT-F	TGACAAACGCAGGACTCACAAT	
myca-RT-R	TTAACTGTTGCTCTTTCGCC	
nanog-RT-F	ACAGCCAGTACCCGGGACAC	
nanog-RT-R	TTGGTCGGGCTCAGTCTTGT	
β -actin-RT-F	ATGGCTTCTGCTCTGTATGGC	
β -actin-RT-R	GAGGAGGGCAAAGTGGTAAAC	
dsRNA-F	GGGGGACTGAACTCATACAC	dsRNA PCR
dsRNA-R	ATCCGATGCCACAGCACC	
fam60a1-AS-F	CGGGATCCGGGGGACTGAACTCATACACAA	fam60a1-AS PCR
fam60a1-AS-R	GGAATTCTTCAATTAAGTCTGGTCAAACATGC	