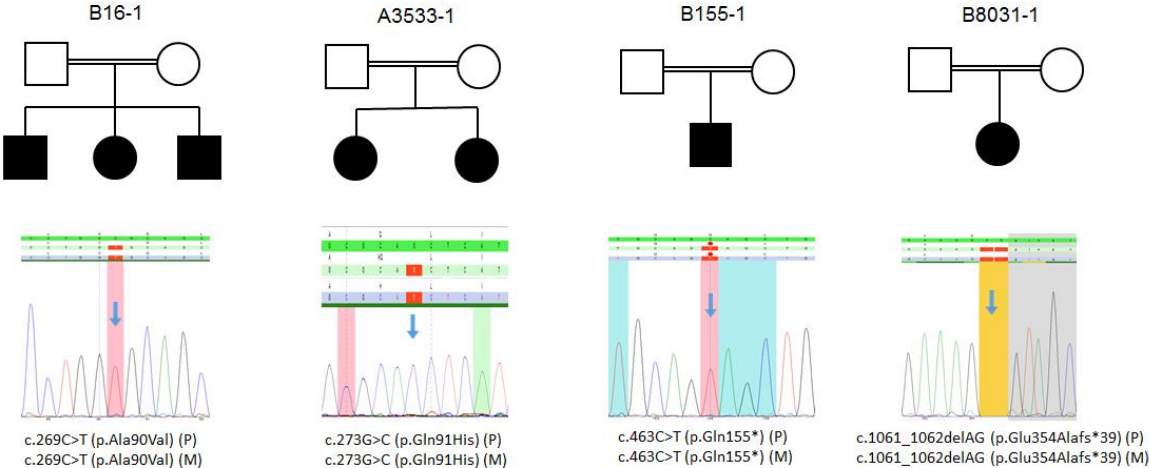
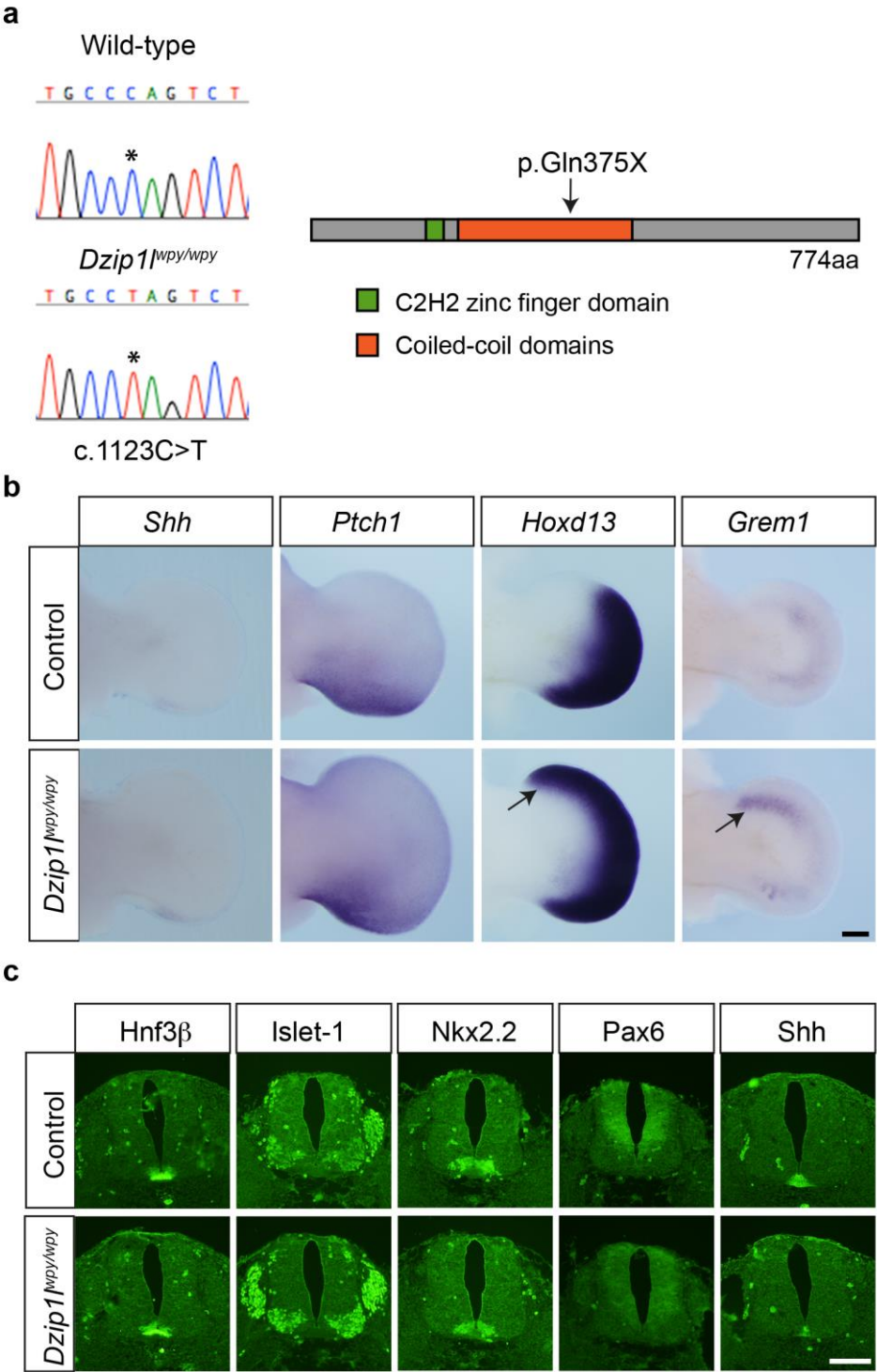


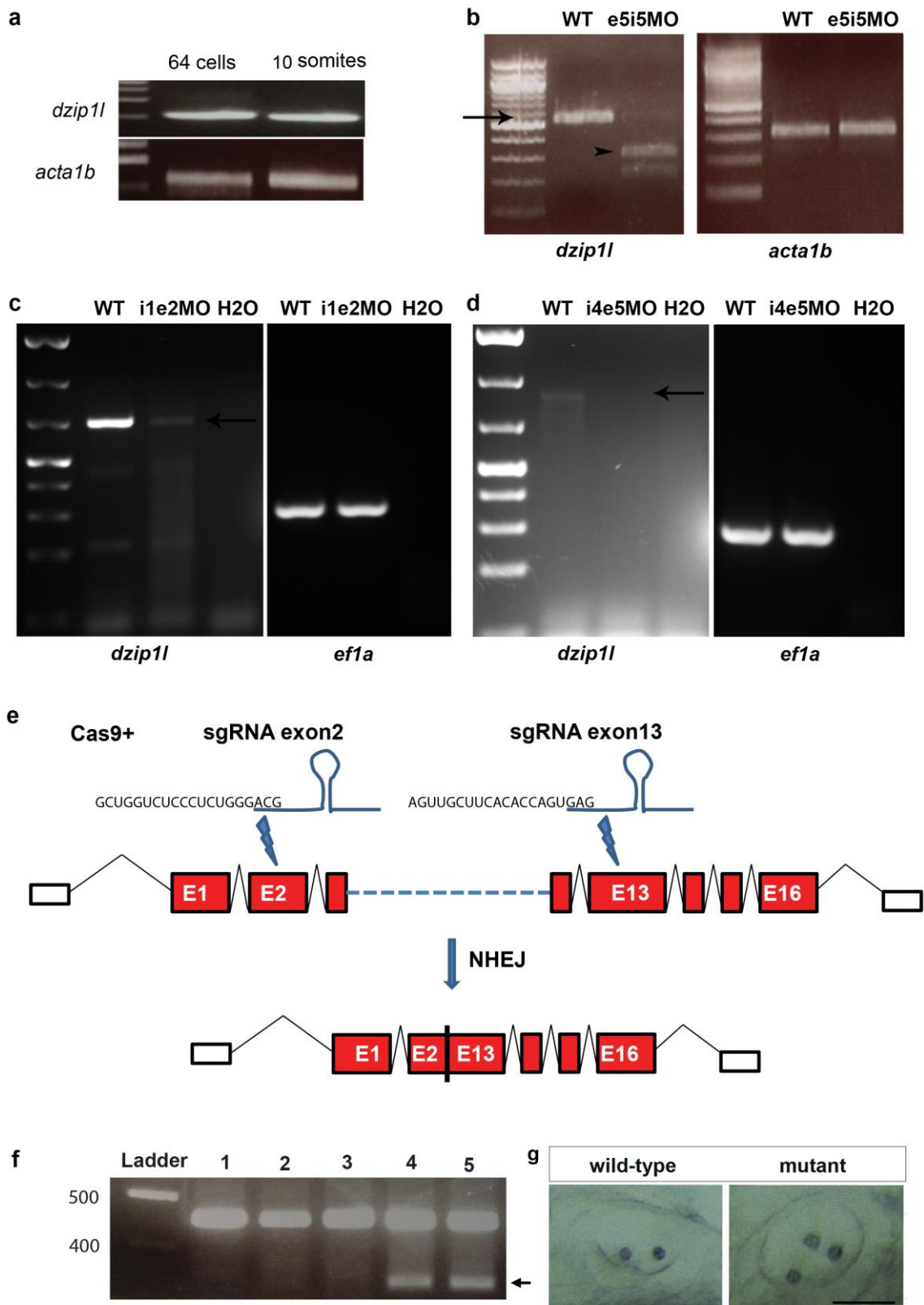
Supp.Fig. 2



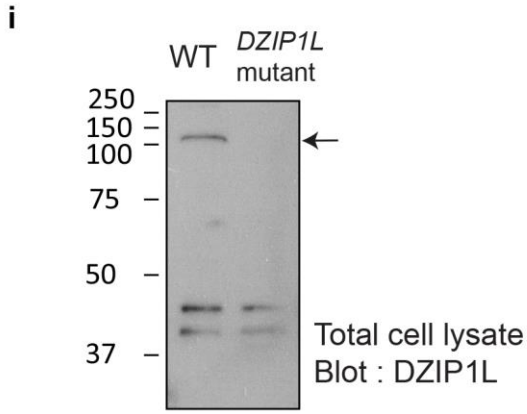
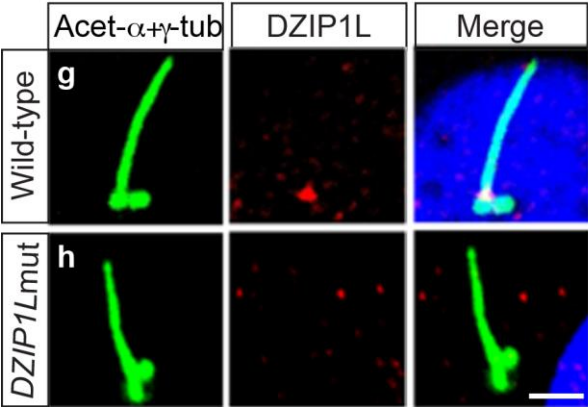
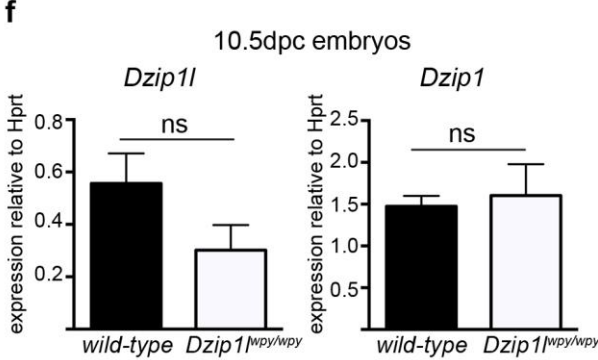
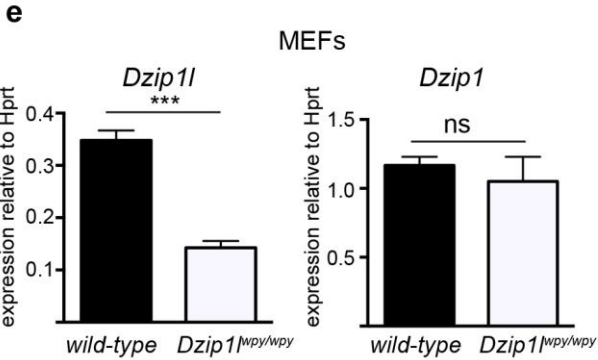
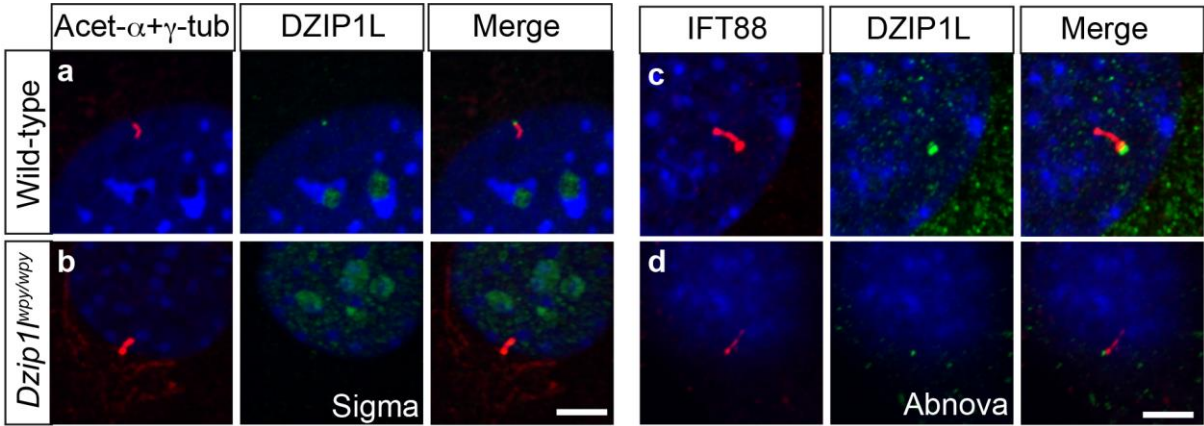
Supp.Fig. 3



Supp.Fig. 4

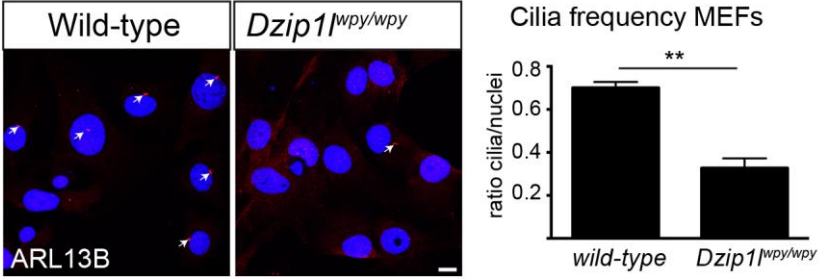


Supp.Fig. 5



Supp.Fig. 6

a



b

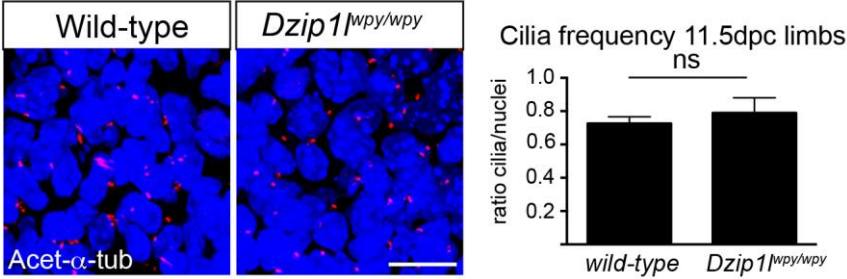


Table S1. Filtering process for variants from normal reference sequence (VRS) following WES in one sibling from family A3533 and in one sibling from family B16 affected with ARPKD, respectively.

FAMILY	A3533	B16
AFFECTED SIBLING SENT FOR WES	A3533-21	B16_1859-15
Consanguinity	Yes	Yes
# of homozygosity peaks	11	13
Cumulative Homozygosity by descent [Mb]	88.2	184
Hypothesis from mapping: homozygous (H), heterozygous (h)	H	H
Total sequence reads (Mill.)	61	59
Matched Reads	97.4%	99.1%
Total DIPs	18,977	11,587
DIPS not SNP137	173	86
DIPS in linked region	32	12
DIPS after inspection and not SNP138 (>1% MAF)	2	1
Total SNPs	191,809	97,850
SNPs not SNP137	492	726
SNPs in linked region	134	56
SNPs after inspection and not SNP138 (>1% MAF)	29	22
Surviving genes	DZIP1L (3q22.3), SLCO4C1 (5q21.1), CARTPT (5q13.2), C10ORF27 (10q22.1)	DZIP1L (3q22.3), PKHD1L1 (8q23.1), FKBP6 (7q11.23), POM121C (7q11.23), DAB2 (5p13.1), MAGI2 (7q21.11)

DIP, deletion/insertion polymorphism; Hom, homozygous;

Supplementary Table 2																
Bait_pnid	Bait_shortname	Bait EntrezGene#	Bait Genbank #	Bait GenP	Bait_5'aa	Bait_3'aa	Prey_pnid	Prey_shortname	Prey_name	Prey Entrez	Prey GenB	Prey GenP	Prey_5'aa	Prey3'aa	Prey_libra	
92006	DZIP1L	199221	NM_173543		1	232	12225	SH3D19	SH3 domain protein D19	152503	NM_00100	NP_00100	585	788	Lung	
92006	DZIP1L	199221	NM_173543		1	232	3273	G2	G2 protein; C11orf41	25758	XM_03951	XP_03951	1850	2237	Brain	
92006	DZIP1L	199221	NM_173543		1	232	124153	ZC3H6	zinc finger CCH-type domain containing 6	376940	NM_19858	NP_94098	373	672	Testis	
92006	DZIP1L	199221	NM_173543		1	232	4513	SEPT2(361)	septin 2; DIFF6; hNedd5; KIAA0158; NEDD5; Pnutl3;	4735	NM_00440	NP_00439	-27	316	Brain	
92006	DZIP1L	199221	NM_173543		1	232	4513	SEPT2(361)	septin 2; DIFF6; hNedd5; KIAA0158; NEDD5; Pnutl3;	4735	NM_00440	NP_00439	-20	362	Brain	
92006	DZIP1L	199221	NM_173543		1	232	4513	SEPT2(361)	septin 2; DIFF6; hNedd5; KIAA0158; NEDD5; Pnutl3;	4735	NM_00440	NP_00439	-6	362	Brain	
92006	DZIP1L	199221	NM_173543		1	232	4513	SEPT2(361)	septin 2; DIFF6; hNedd5; KIAA0158; NEDD5; Pnutl3;	4735	NM_00440	NP_00439	21	362	Brain	
92006	DZIP1L	199221	NM_173543		1	232	4513	SEPT2(361)	septin 2; DIFF6; hNedd5; KIAA0158; NEDD5; Pnutl3;	4735	NM_00440	NP_00439	-6	315	Lung	
92006	DZIP1L	199221	NM_173543		1	232	4513	SEPT2(361)	septin 2; DIFF6; hNedd5; KIAA0158; NEDD5; Pnutl3;	4735	NM_00440	NP_00439	-6	362	Lung	
92006	DZIP1L	199221	NM_173543		1	232	4513	SEPT2(361)	septin 2; DIFF6; hNedd5; KIAA0158; NEDD5; Pnutl3;	4735	NM_00440	NP_00439	8	362	Testis	
92006	DZIP1L	199221	NM_173543		1	232	35454	N4BP2	Nedd4 binding protein 2; FLJ10680; KIAA1413	55728	NM_01817	NP_06064	326	822	Testis	
92006	DZIP1L	199221	NM_173543		1	232	5916	SFPQ	splicing factor proline/glutamine-rich; polypyrimidine tract	6421	NM_00506	NP_00505	314	609	Brain	
92006	DZIP1L	199221	NM_173543		1	232	7265	TGFB11(44)	transforming growth factor beta-1-induced transcript 1 prote	7041	NM_01592	NP_05701	88	279	Lung	
92006	DZIP1L	199221	NM_173543		1	232	8178	PLOD3	procollagen-lysine, 2-oxoglutarate 5-dioxygenase 3	8985	NM_00108	NP_00107	334	528	Lung	
92006	DZIP1L	199221	NM_173543		1	232	35569	DLG5	discs, large homolog 5; placenta and prostate DLG; PDLG; KIA	9231	NM_00474	NP_00473	26	360	Brain	
92006	DZIP1L	199221	NM_173543		1	232	3555	TRIP11	thyroid hormone receptor interactor 11; CEV14; TRIP230; GMAP	9321	NM_00423	NP_00423	1538	1715	Testis	
92006	DZIP1L	199221	NM_173543		1	232	3135	CIR1(450)	CBF1 interacting corepressor; CIR;	9541	NM_00488	NP_00487	124	248	Lung	
92006	DZIP1L	199221	NM_173543		1	232	3135	CIR1(450)	CBF1 interacting corepressor; CIR;	9541	NM_00488	NP_00487	-8	249	Testis	
92006	DZIP1L	199221	NM_173543		200	540	125087	APOL3(402)	apolipoprotein L3, isoform 1; apolipoprotein L, 3; TNF-induc	80833	NM_14564	NP_66361	138	403	Lung	

Supplementary Table 3. List of primers used in this study

Human *DZIP1L* Primers

Primer name	Primer	Notes
DZIP1L-90-5'	5'-GTGCTGCGCCTGGTGCAGCTCATCA-3'	Primer for mutagenesis (pA90V)
DZIP1L-90-3'	5'-TGATGAGCTGCACCAGGCGCAGCAC-3'	Primer for mutagenesis (pA90V)
DZIP1L-91-5'	5'-GCTGCGCCTGGCGCACCTCATCATTGAGTA-3'	Primer for mutagenesis (pQ91H)
DZIP1L-91-3'	5'-TACTCAATGATGAGGTGCGCCAGGCGCAGC-3'	Primer for mutagenesis (pQ91H)
DZIP1L-155-5'	5'-GATGATCAGCACCTGCAGTAGCTGCTAATGC-3'	Primer for mutagenesis (pQ155X)
DZIP1L-155-3'	5'-GCATTAGCAGCTACTGCAGGGTGCTGATCATC-3'	Primer for mutagenesis (pQ155X)
DZIP1L-354-5'	5'-GGCTGAGAAGAAAGCTACAGGAGGAGAAC-3'	Primer for mutagenesis (pE354Afs*39)
DZIP1L-354-3'	5'-GTTCTCCTCCTGTAGCTTTCTTCTCAGCC-3'	Primer for mutagenesis (pE354Afs*39)
DZIP1qP-5'	5'-GCCAAAGCCAACTATTACCAGTGC-3'	qPCR primer for DZIP1
DZIP1qP-3'	5'-TTTCTTCAGTGTGGCGGCGTTG-3'	qPCR primer for DZIP1
DZIP1LqP-5'	5'-AGGGATCCACAAGGTGCCAAAG-3'	qPCR primer for DZIP1L
DZIP1LqP-3'	5'-ATCCTGGGAGTCCTCCATCTCTTC-3'	qPCR primer for DZIP1L
EF1α-5'	5'-ATTCGGGCAAGTCCACCACTAC-3'	qPCR primer for EF1α
EF1α-3'	5'-AAGGAGCCCTTTCCCATCTCAG-3'	qPCR primer for EF1α

Zebrafish *Dzip1l* Primers

RT- <i>dzip1l</i> -5'	5'-CAAAACGCGCAATCCTCA-3'	RT-PCR primer check <i>dzip1l</i> mRNA level
RT- <i>dzip1l</i> -3'	5'-CACCACAATCCTTGTCTG-3'	RT-PCR primer to check <i>dzip1l</i> mRNA level
RT- <i>actin1b</i> -5'	5'-GAGAAGCTGTGC-3'	RT-PCR primer to check <i>actin1b</i> mRNA level
RT- <i>actin1b</i> -3'	5'-GCACTTGCGGTG-3'	RT-PCR primer to check <i>actin1b</i> mRNA level
<i>dzip1l</i> -CRISPR-screening-5'	5'-TTCCTCATCCAGCCTCTGTT-3'	Primer for screening <i>dzip1l</i> CRISPR mutant fish
<i>dzip1l</i> -CRISPR-screening-3'	5'-CACGCACAGAAGAGGACAAA-3'	Primer for screening <i>dzip1l</i> CRISPR mutant fish
<i>dzip1l</i> -gRNA-exon-2	5'-GAAATTAATACGACTCACTATAGG <u>GGACCGTGTTGCTCGAGACA</u> GTTTTAGAGCTAGAAATAGC-3'	Underlined nucleotides are the genomic target sequences
<i>dzip1l</i> -gRNA-exon-13	5'-GAAATTAATACGACTCACTATAGG <u>CGGTCCAAAGCACCACTCC</u> GTTTTAGAGCTAGAAATAGC-3'	Underlined nucleotides are the genomic target sequences
<i>dzip1l</i> -ATG MO	5'-CGGGTGAAAAGTGGCCCAACATGAC-3'	Translation blocking MO
<i>dzip1l</i> -i1e2 MO	5'-AACAGAGGCTGGATGAGGAAAAGAA-3'	Splicing blocking MO
<i>dzip1l</i> -i4e5 MO	5'-CTTGTTCTGAATTGTTTTGATGAT-3'	Splicing blocking MO
<i>dzip1l</i> -e5i5 MO	5'-TTAAACCAATGTGGACTCACAGCCT-3'	Splicing blocking MO

Mouse *Dzip1l* Primers

qRT- <i>Dzip1l</i> -F	5'-TCATGAATGCCACCTTTCTC-3'	qRT-PCR primer for <i>Dzip1l</i>
qRT- <i>Dzip1l</i> -R	5'-CTTCTGCTTTCCGACATCTG-3'	qRT-PCR primer for <i>Dzip1l</i>
qRT- <i>Dzip1</i> -F	5'-ACCAGTGCCATTTCTGTGAC-3'	qRT-PCR primer for <i>Dzip1</i>
qRT- <i>Dzip1</i> -R	5'-CTGGATGTGGCTTTGTAGGA-3'	qRT-PCR primer for <i>Dzip1</i>

qRT- <i>Hprt-F</i>	5'-GCAGTACAGCCCCAAAATGG-3'	qRT-PCR control primer
qRT- <i>Hprt-R</i>	5'-AACAAAGTCTGGCCTGTATCCAA-3'	qRT-PCR control primer