

## Mouse fidgetin knockdown and knockout impact female reproduction distinctly

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**Supplementary Table 1** sgRNA for *Fign*-knockout mice

Name	Sequence
Fign-Sg1-oligo1	TAGGAGGTTTTGTGGCCAGTGCTG
Fign-Sg1-oligo2	AAACCAGCACTGGCCACAAAACCT
Fign-Sg2-oligo1	TAGGACCTTGTATTGGATGAGCG
Fign-Sg2-oligo2	AAACCGCTCATCCAATACAAGGT

**Supplementary Table 2** Random mating table

Male mouse No.	Mating cage No.							
	2019/10/10	2019/11/10	2019/12/10	2020/1/10	2020/2/10	2020/3/10	2020/4/10	2020/5/10
1#	C	L	G	T	E	T	A	T
2#	D	O	A	N	I	S	H	R
3#	B	S	C	R	G	K	E	K
4#	A	R	E	S	J	P	F	L
5#	H	T	B	L	C	R	I	M
6#	E	Q	I	K	F	N	C	S
7#	I	N	H	P	H	M	G	Q
8#	G	M	F	O	B	Q	D	P
9#	F	P	J	M	D	L	J	O
10#	J	K	D	Q	A	O	B	N
11#	L	B	K	J	N	F	Q	A
12#	K	A	M	E	P	B	O	H
13#	P	J	P	I	S	I	L	E
14#	R	D	R	H	T	D	M	F

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Target site	DNA templates
<i>Fign</i> 5' UTR 102–122	Oligo1: GGATCCTAATACGACTCACTATAGATCGATGCTACGCTAACCTA
	Oligo2:AATAGGTTAGCGTAGCATCGATCTATAGTGAGTCGTATTAGGATCC
	Oligo3: GGATCCTAATACGACTCACTATATAGGTTAGCGTAGCATCGATC
	Oligo4:AAGATCGATGCTACGCTAACCTATATAGTGAGTCGTATTAGGATCC
<i>Fign</i> 3' UTR 116–136	Oligo1: GGATCCTAATACGACTCACTATAGAAGACGACGATTATGTTGCA
	Oligo2:AATGCAACATAATCGTCGTCTTCTATAGTGAGTCGTATTAGGATCC
	Oligo3: GGATCCTAATACGACTCACTATATGCAACATAATCGTCGTCTTC
	Oligo4:AAGAAGACGACGATTATGTTGCATATAGTGAGTCGTATTAGGATCC
<i>Fign</i> 3' UTR 294–314	Oligo1: GGATCCTAATACGACTCACTATAGAAGGACATGAACCTCGTGTG
	Oligo2:AACACACGAGGTTTCATGTCCTTCTATAGTGAGTCGTATTAGGATCC
	Oligo3: GGATCCTAATACGACTCACTATATACACACGAGGTTTCATGTCCTTC
	Oligo4:AAGAAGGACATGAACCTCGTGTGTATATAGTGAGTCGTATTAGGATCC
<i>Fign</i> 3' UTR 465–485	Oligo1: GGATCCTAATACGACTCACTATAGAGATGAACGGTTGTGTTACA
	Oligo2:AATGTAACACAACCGTTCATCTCTATAGTGAGTCGTATTAGGATCC
	Oligo3: GGATCCTAATACGACTCACTATATGTAACACAACCGTTCATCTC
	Oligo4:AAGAGATGAACGGTTGTGTTACATATAGTGAGTCGTATTAGGATCC
Control	Oligo1: GGATCCTAATACGACTCACTATACCTACGCCACCAATTTTCGTTT
	Oligo2:AAAAACGAAATTGGTGGCGTAGGTATAGTGAGTCGTATTAGGATCC
	Oligo3: GGATCCTAATACGACTCACTATAAAACGAAATTGGTGGCGTAGG
	Oligo4:AACCTACGCCACCAATTTTCGTTTTATAGTGAGTCGTATTAGGATCC

Database No.	Protein description	Peptides	Unique peptides	Molecular weight (kDa)	<i>P</i> -values	Number of matching peptides 1	Number of matching peptides 2	Intensity 1	Intensity 1
P20239	Zona pellucida sperm-binding protein 2	15	15	80.209	9.1674E-129	12	15	'543080	253870000
P10761	Zona pellucida sperm-binding protein 3	9	9	46.303	2.102E-117	6	9	'482710	143710000
Q8BPY9	Fidgetin-like protein 1	6	6	74.85	1.1354E-10	1	5	'57900	3598100
Q62005	Zona pellucida sperm-binding protein 1	5	5	68.722	2.9669E-118	3	5	5947600	57881000
E9Q1Y9	Protein 5430421N21Rik	5	5	52.809	8.4639E-130	0	5	0	19000000
B2RUF0	Y box protein 2	5	5	38.08	4.4427E-32	0	5	0	1730500
Q9ERZ6	Fidgetin	4	4	82.097	5.6524E-07	1	4	'39068	232240000
Q06890	Clusterin	4	4	51.655	9.1122E-19	1	3	0	1458900
P60710	Actin, cytoplasmic 1	3	2	41.736	1.3762E-09	0	3	0	2375300
P13864	DNA (cytosine-5)-methyltransferase 1	3	3	183.19	1.1055E-06	3	1	15070	53985
Q8BFZ3	Beta-actin-like protein 2	2	1	42.004	1.1257E-06	0	2	0	981490
P10126	Elongation factor 1-alpha 1	2	2	50.113	0.00011816	1	2	281110	580720



**Supplementary Fig. 1** DNA sequence alignment of the 5' UTR regions of all MTSPs besides FL1. DNA sequence alignment showed that 5' UTR of *Fign* mRNA very low similarity with the 5' UTR regions of other MTSP mRNA.