

## S1 Text

Number of genes for which a mutant has been analyzed, and a meiotic or fertility defect found: 32/33

Number of genes for which expression pattern has been characterized (in detail, not by microarray or next-generation sequencing screens), and expression corresponding to meiotic prophase found: 53

	<b>Gene</b>	<b>Mutant analyzed</b>	<b>Defect in meiotic prophase</b>	<b>Expression pattern characterized</b>	<b>Expression corresponds to meiotic prophase</b>	<b>References</b>
1	1700013H16Rik (Xlr6)	No		Yes	Yes, from leptotene to pachytene. Contains Cor1 domain.	(1)
2	4930528F23Rik (Meiob)	Yes	Yes	Yes	Yes	(2–4)
3	Asf1b	Not examined in germ cells			Yes	(5)
4	Ccdc155	No		Yes	Yes	(6)
5	Ccnb3	No		Yes	Yes	(7)
6	Cyld	Yes	Spermatogenesis defects, meiotic prophase not characterized	No		(8)
7	D1Pas1	No		Yes	Yes	(9,10)
8	M1ap (D6Mm5e)	Yes	Yes	Yes	Yes	(11,12)
9	Ddb2	Yes	Fertile, but with defects in apoptosis in spermatogenic cells	No	No	(13)
10	Dmc1	Yes	Yes	Yes	Yes	(14,15)
11	Dmrte2	Yes	Yes, male only	Yes	Yes	(16)
12	Ecsit	Not examined		Yes	Yes	(3)

		in germ cells				
13	Figla	Yes	Defect in ovarian follicle formation	Yes	Yes, but persists beyond meiotic prophase	(17)
14	Fmr1nb	No		Yes	Yes	(3)
15	Gpat2	No		Yes	Most likely	(18)
16	Gpr19	No		Yes	Most likely	(19)
17	Hfm1	Yes	Yes	No		(20)
18	Hormad1	Yes	Yes	Yes	Yes	(21–23)
19	Hormad2	Yes	Yes	Yes	Yes	(24,25)
20	Hsf2bp	No		Yes	Yes	(3)
21	Il18	Not examined in germ cells		Yes	Claimed but data unclear	(26)
22	Inca1	Yes	No. KO mice were viable and fertile.	Yes	Yes	(3)
23	Mei1	Yes	Yes	Yes	Not examined with cellular resolution	(27,28)
24	Msh4	Yes	Yes	Yes	Yes	(30)
25	Msh5	Yes	Yes	No		(31,32)
26	Mtl5	No		Yes	Yes	(33–35)
27	Poln	No		Yes	Yes	(36)
28	Prdm9	Yes	Yes	Yes	Yes	(37–41)
29	Rad21l	Yes	Yes	Yes	Yes	(42–45)
30	Rec8	Yes	Yes	Yes	Yes	(46–48)
31	Rhox13	No		Yes	Yes	(3,49)
32	Setdb2	No		Yes	Yes	(50)
33	Slc25a31	Yes	Yes	Yes	Yes	(51,52)
34	Smc1b	Yes	Yes	Yes	Yes	(53–56)
35	Spata22	Yes	Yes	Yes	Yes	(57)
36	Spata5	No		Yes	Yes	(58)

37	SpdyA	No		Yes	Yes	(3)
38	Spol1	Yes	Yes	Yes	Yes	(59–62)
39	Stag3	No		Yes	Yes	(63,64)
40	Stra8	Yes	Yes, both	Yes	Yes	(65–67)
41	Syce1	Yes	Yes, both	Yes	Yes	(68,69)
42	Syce3	Yes	Yes, both	Yes	Yes	(70)
43	Sycp1	Yes	Yes, both	Yes	Yes	(71,72)
44	Sycp2	Yes	Yes, in males, females are subfertile	Yes	Yes	(73,74)
45	Sycp3	Yes	Yes, in males, females are subfertile	Yes	Yes	(75–78)
46	Syn2	Not examined in germ cells		Yes	Yes in fetal ovary and testis	(3)
47	Taf7l	Yes	Males are subfertile with post-meiotic defects, females are fertile	Yes	Yes, in adult testis	(79,80)
47	Tex101	Yes	Males have post-meiotic defects, females are fertile	Yes	Yes	(81,82)
48	Tex11	Yes	Yes, in males, females are subfertile	Yes	Yes, both	(83,84)
49	Tex12	Yes	Yes	Yes	Yes	(85,86)
50	Tex15	Yes	Yes, male only, female are fertile	Yes	Yes	(87,88)
51	Tsc22d3	Yes	Yes, male	Yes	Yes, male	(89–

			only (may be spermatogonial differentiation defect?), female fertile.			91)
52	Tsga10	No		Yes	Yes, male	(92,93)
53	Wbp2nl	No		Yes	Yes, male.	(94)
54	Zfp541	No		Yes	Yes, male	(95)
56	1700011F14 Rik (Ccdc172)	No		No		
57	1700123I01 Rik	No		No		
58	3110057O1 2Rik	No		No		
59	4930432K2 1Rik	No		No		
60	4930447C0 4Rik	No		No		
61	4930455F23 Rik (Ccdc181)	No		No		
62	4930524B1 5Rik	No		No		
63	4933416C0 3Rik	No		No		
64	4933427D0 6Rik	No		No		
65	Adarb1	Not examined in germ cells		No		
66	Aspa	Not examined in germ cells		No		
67	BC049762	No		No		
68	BC051142	No		No		
69	Caprin2	No		Not examined in germ cells		
70	Ccdc36	No		No		

71	Ccdc73	No		No		
72	Ccdc79	No		No		
73	Cdk12	No		Not examined in germ cells		
74	Cntd1	No		No		
75	Crebl2	No		No		
76	Dennd4a	No		No		
77	Dopey1	No		No		
78	Eaf2	Not examined in germ cells		No		
79	Fbxo47	No		No		
80	Fhl4	No		No		
81	Gm13718	No		No		
82	Gm1564	No		No		
83	H2-D1	Not examined in germ cells		No		
84	H2-K1	Not examined in germ cells		No		
85	Haus8	No		No		
86	Larp1b	No		No		
87	Lypd4	No		No		
88	Madd	Not examined in germ cells		No		
89	Pet2	No		No		
90	Phka2	No		No		
91	Pparg	No		No		
92	Pram11	No		No		
93	Rad51ap2	No		No		
94	Rbpms2	No		No		
95	Reg2	No		No		
96	Ribc1	No		No		
97	Spryd3	No		No		
98	Syngr4	No		No		
99	Taf9b	No		No		
100	Tex16	No		No		

101	Tktl1	Not examined in germ cells		No		
102	Ugt8a	Not examined in germ cells		No		
103	Usp32	No		No		
104	Zcwpw1	No		No		

As previously noted, many knock-out phenotypes are sexually dimorphic – males are often infertile and display arrests in meiosis, whereas females are fertile or subfertile (96).

## References

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