Supplementary Material for

Disruption of *Ttll5/Stamp* gene in male mice causes sperm malformation and infertility

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Tables

Table S1: Oligonucleotide primers for RT-PCR quantitation of known genes involved in spermatogenesis.

		Oligonucleotide sequences		
Gene	Gene bank ID	Forward (5' to 3')	Reverse (5' to 3')	PCR product size (bp)
Gopc	NM_053187	TGTGCATGGTATTGGAGCAT	AAAGCTTGGGAACAGCTCAA	107
Agfg1 (Hrb)	NM_010472	CCTCGGTTCATGCGTCTATT	TCTCCCAACAGGGATTTCAG	88
Csnk2a2	NM_009974	TGCTCATCCATACGCTCTTG	AGCAGAGACCCTGCACATCT	83
Gba2	NM_172692	CAGGCGGTATACACGGTTCT	GTTCTGCCAGGCTGAGATTC	112
Tekt2	NM_011902	CCCAAAGACTCCACCACACT	TCTGAGCGTCCAGTTCATTG	148
Tekt4	NM_027951	ACAAGCCGTGGACCAGATAC	TGGGTGCTCTCATTGGTGTA	126
Vdac3	NM_011696	ATAAACCTGGCATGGACAGC	TCGGAGGGTCTGCGTATAAC	141
Sepp1	NM_001042613	TGACAAAATCAGCCCATGAA	TGAGTTGGGGAGAGGTATGC	125
Akap4	NM_001042542	GTGAGAGCCCTTTCAGTTGC	GGCATTGCTCTTCAGGTCTC	111
Spag6	NM_015773	TCGCAGCTGATTGTTAATGC	CAGAATGAGCAGCCACGTAA	118
Gapdhs	NM_008085	CCAAGCCTGCTTCTTACTCG	GACCACCTGGTCCTCTGTGT	98
Adcy10 (sAC)	NM_173029	AACGTTCGTGGAGTTGGTTC	GACCTCGACAGAGGCTTGAC	119
Catsper1	NM_139301	CGGGTCCATGAGAAGTTGTT	CGCTGCTTCACTGTCATGTT	134
Catsper2	NM_153075	TATCTTCATGCATCCCACCA	AGGCTCGAGTCCTTCAACAA	134
Catsper3	NM_029772	GTTGATGGCTGGACTGACCT	TGAAGGATGCAAGCAAGATG	97
Catsper4	NM_001130030	CCTTATCTGCGAGGTTCTGC	CCCATGTTCTGGAAATGCTT	120
Tnp1	NM_009407	GCATGAGGAGAGGCAAGAAC	AGGACGCTCTTCCGGTATTT	82
Tnp2	NM_013694	TCGACACTCACCTGCAAGAC	CTTGTATCTTCGCCCTGAGC	148
H1fnt (H1t2)	NM_027304	CAAGGAAAAGCATGCACAAA	TTGGAGCCCATATGGAAAAG	115
Crem	NM_001110850	ACTAGCACGGGGCAATACAC	TCTGCTAGTTGCTGGGGACT	134
Tbpl1	NM_011603	GCACTGGAGCAACAAGTGAA	GCCAAAACATTCACCACCTT	118
Papolb (Tpap)	NM_019943	TGCACTGAGTGAAAGCATCC	GGATTGGGTATGTTCGTTGC	150
Piwil1 (Miwi)	NM_021311	AACCCTCTTCCAGGGACAGT	CAGGCCACTGCTGTCATAGA	138
Spem1	NM_028855	TGTTACCCCTTGGTCTCTGG	TTTTGTCCCCAGTCACCTTC	93

Table S2: Microarray results from testes of wt and *Stamp*$^{tm/tm}$ mice of heterogeneous genetic background showing genes altered at the whole gene level.

Gene Symbol	GeneBank ID	p-value (TM *vs*. Wt)	Fold-Change (TM *vs*. Wt)
Tshr	NM_011648	1.18E-05	3.8353
Prps1l1	NM_029294	1.20E-06	3.0273
2810002N01Rik	AK160910	0.00010739	2.6625
Egr2	NM_010118	0.0407268	1.9572
Tdgf1	NM_011562	0.000602837	1.8829
Scn10a	NM_009134	4.01E-05	1.8547
Acp1	NM_001110239	0.00521885	1.7907
Snapc1	NM_178392	0.00525204	1.7417
Gtf2a1	NM_175335	0.00246929	1.7366
Ier3	NM_133662	0.0134473	1.7131
Egr1	NM_007913	0.027533	1.7067
Ier2	NM_010499	0.0185166	1.6569
Rhbg	NM_021375	0.00140725	1.6182
Serpina3c	NM_008458	0.0385444	1.5849
Hdac9	NM_024124	0.00529439	1.5803
Fbxw15	NM_199036	0.030944	1.5629
Heg1	NM_175256	0.0484089	1.5455
Nr4a1	NM_010444	0.00696652	1.5352
1520401A03Rik	ENSMUST00000062827	0.0490243	1.5049
Usp48	NM_130879	0.0342822	-1.5207
Dio2	NM_010050	0.00230444	-1.5346
Eif4e	NM_007917	0.00820991	-1.5439
Fam50b	BC049659	0.0114799	-1.5572
Pik3r4	NM_001081309	0.000323307	-1.5657
Rrs1	NM_021511	0.0419897	-1.5765
Atp1a2	NM_178405	0.0330287	-1.5765
Cd84	NM_013489	0.0345877	-1.5876
Skiv2l2	NM_028151	0.0405212	-1.6062
Skint9	NM_177864	0.033784	-1.6333
100040328	BC125243	0.0349371	-1.6359
Arg2	NM_009705	0.00417887	-1.9331
Abhd14a	NM_001110271	0.000283352	-1.9900
Nme6	NM_018757	5.03E-05	-2.1060

References for the androgen-regulated genes (underlined with bold lettering) are as follow: Egr1 (5), Nr4a1 (2), Dio2 (7), Pik3r4 (4), Atp1a2 (1), and Arg2 (3, 6).

References

1. **Bolduc C, Yoshioka M, St-Amand J.** 2007. Transcriptomic characterization of the long-term dihydrotestosterone effects in adipose tissue. Obesity (Silver Spring) **15:**1107-1132.
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Table S3

Exon expression in *Stamp*$^{tm/tm}$ vs. *Stamp*$^{+/+}$ mice (heterogeneous background)

Probeset ID	Gene Symbol	RefSeq	p-value (tm vs. wt)	Fold-Change (tm vs. wt)
4751467	Aass	NM_013930	0.0044	1.6499
4440903	Aass	NM_013930	0.0075	2.4676
4823284	Abcc9	NM_011511	0.0312	1.5015
4541445	Abcc9	NM_011511	0.0257	1.5186
5404027	Abcc9	NM_011511	0.0375	1.7343
5268216	Abhd14a	NM_001110271	0.0000	-3.9236
4911530	Abhd14a	NM_001110271	0.0017	-3.1288
4360060	Abhd14a	NM_001110271	0.0213	-2.0310
5072425	Abhd14a	NM_001110271	0.0021	-1.8991
4911506	Abhd14a	NM_001110271	0.0215	-1.5229
5117172	Abhd14b	NM_029631	0.0029	-1.7747
4741366	Abhd14b	NM_029631	0.0043	-1.5114
4508424	Actr10	NM_019785	0.0009	2.7970
4788397	Actr10	NM_019785	0.0002	5.2431
5109996	Aebp1	NM_009636	0.0119	-2.0086
5289701	Aebp1	NM_009636	0.0130	-1.9654
5051629	Aim1	NM_172393	0.0169	-1.7808
5141257	Aim1	NM_172393	0.0224	-1.7248
4874747	Aim1	NM_172393	0.0089	-1.6315
5413918	Aim1	NM_172393	0.0041	-1.5324
5195523	Aim1	NM_172393	0.0202	-1.5134
5473432	Aldoc	NM_009657	0.0489	1.5451
5507902	Aldoc	NM_009657	0.0381	1.5478
4312708	Ambp	NM_007443	0.0047	-1.8619
4768910	Ambp	NM_007443	0.0117	-1.5113
4835853	Aox3	NM_023617	0.0134	-1.7547
5203277	Aox3	NM_023617	0.0410	-1.5339
5231363	Arg2	NM_009705	0.0210	-2.3489
4669438	Arg2	NM_009705	0.0003	-2.3469
4326852	Arg2	NM_009705	0.0144	-2.0613
4700472	Arg2	NM_009705	0.0108	-1.9994
5426092	Arg2	NM_009705	0.0052	-1.8019
4399312	Arg2	NM_009705	0.0111	-1.7241
4614993	Arg2	NM_009705	0.0273	-1.5960
4955272	Arhgap10	NM_030113	0.0455	1.5173
5261476	Arhgap10	NM_030113	0.0242	1.8473
5544243	Arhgap10	NM_030113	0.0457	1.9066
5343547	Arid4a	NM_001081195	0.0233	1.6158
5533658	Arid4a	NM_001081195	0.0002	1.9504
4371745	Atp1a2	NM_178405	0.0236	-1.9250
5548740	Atp1a2	NM_178405	0.0342	-1.7724
4444569	Atp1a2	NM_178405	0.0088	-1.6802
4697386	Atp1a2	NM_178405	0.0103	-1.6303
4333902	Atp1a2	NM_178405	0.0139	-1.5937
4583033	Atp1a2	NM_178405	0.0306	-1.5897
4388347	Atp1a2	NM_178405	0.0318	-1.5587
5152076	Atp2c1	NM_175025	0.0000	-7.2548
4646835	Atp2c1	NM_175025	0.0002	-5.5705
5232217	Atp2c1	NM_175025	0.0006	-2.0694
4910351	Atp2c1	NM_175025	0.0013	-1.6045

4964319	Brip1	NM_178309	0.0008	-1.7361
4858095	Brip1	NM_178309	0.0037	-1.6225
4947484	Bst2	NM_198095	0.0095	1.5255
5388370	Btg2	NM_007570	0.0111	1.8304
4393644	Btg2	NM_007570	0.0065	1.9193
4910411	Btg2	NM_007570	0.0430	2.0378
5043870	Btg2	NM_007570	0.0373	2.3563
4311249	C3	NM_009778	0.0258	1.5013
5061514	C3	NM_009778	0.0026	1.5137
4688264	C3	NM_009778	0.0177	1.5454
4831742	Camkv	NM_145621	0.0134	1.5345
4541781	Camkv	NM_145621	0.0321	1.6173
5299356	Car5a	NM_007608	0.0102	-2.0401
5457062	Car5a	NM_007608	0.0301	-1.5998
5202024	Ccl22	NM_009137	0.0161	-1.6800
5398229	Ccl22	NM_009137	0.0269	-1.5944
5273191	Cd84	NM_013489	0.0192	-3.2824
5227163	Cd84	NM_013489	0.0315	-3.0910
4847599	Cd84	NM_013489	0.0077	-2.9040
4467596	Cd84	NM_013489	0.0467	-1.7392
4885969	Cds2	NM_138651	0.0087	1.6140
4764913	Cds2	NM_138651	0.0316	1.6152
4967094	Cln3	NM_009907	0.0417	1.5064
5377189	Cln3	NM_009907	0.0013	1.5864
4456199	Cln3	NM_009907	0.0177	1.6932
4329022	Cntn6	NM_017383	0.0023	-1.8250
5064768	Cntn6	NM_017383	0.0000	-1.5156
5305164	Col1a1	NM_007742	0.0059	1.5206
4675817	Col1a1	NM_007742	0.0211	1.5503
5487434	Col4a1	NM_009931	0.0373	1.5012
4842375	Col4a1	NM_009931	0.0108	1.5361
5244098	Cyb561d2	NM_019720	0.0108	-2.3645
4367176	Cyb561d2	NM_019720	0.0095	-1.7649
5587878	Cyb561d2	NM_019720	0.0236	-1.6757
4587980	Cybb	NM_007807	0.0241	1.8806
4539908	Cybb	NM_007807	0.0234	1.9761
4307066	Dctd	NM_178788	0.0045	-1.6449
5220051	Dctd	NM_178788	0.0316	-1.6248
4489098	Dhx30	NM_133347	0.0098	-1.8938
5470760	Dhx30	NM_133347	0.0133	-1.8055
5600686	Dio2	NM_010050	0.0243	-2.0950
4618997	Dio2	NM_010050	0.0089	-1.8462
4831505	Dio2	NM_010050	0.0334	-1.6882
4621504	Dio2	NM_010050	0.0270	-1.6822
4449671	Dio2	NM_010050	0.0322	-1.6178
5307485	Dio2	NM_010050	0.0040	-1.5196
5002622	Dmkn	NM_028618	0.0235	-2.3406
4406765	Dmkn	NM_028618	0.0094	-1.8169
4853726	Dock11	NM_001009947	0.0227	1.5456
4567308	Dock11	NM_001009947	0.0396	1.8095
4831067	Dpp10	NM_199021	0.0412	-1.5868
5526715	Dpp10	NM_199021	0.0160	-1.5801
4918416	Efnb1	NM_010110	0.0433	1.5121
4774302	Efnb1	NM_010110	0.0036	1.7120
5481286	Efnb1	NM_010110	0.0076	1.8010
4633715	Egr1	NM_007913	0.0219	2.3901

4412277	Egr1	NM_007913	0.0395	2.6521
4709728	Egr1	NM_007913	0.0290	2.7592
4472382	Egr1	NM_007913	0.0395	3.5151
4553204	Egr1	NM_007913	0.0428	3.6181
4635827	Egr2	NM_010118	0.0064	1.5281
4878614	Egr2	NM_010118	0.0391	2.0324
4547678	Egr2	NM_010118	0.0167	3.5843
4725158	Eif2ak4	NM_013719	0.0043	-2.1714
5104557	Eif2ak4	NM_013719	0.0491	-1.5673
5169104	Ell3	NM_145973	0.0470	1.5321
4912978	Ell3	NM_145973	0.0053	1.6504
4871386	Errfi1	NM_133753	0.0015	1.5635
4605188	Errfi1	NM_133753	0.0369	1.6257
5092523	Errfi1	NM_133753	0.0041	1.7100
4974656	Ets2	NM_011809	0.0156	1.6988
5249764	Ets2	NM_011809	0.0190	2.2692
4919666	Evc	NM_021292	0.0391	1.5372
4535163	Evc	ENSMUST00000031005	0.0281	1.5579
5597854	Fads1	NM_146094	0.0097	1.5388
5388214	Fads1	NM_146094	0.0110	1.5530
4603321	Fads1	NM_146094	0.0093	1.7191
5609745	Fam179b	BC062107	0.0009	2.0211
4752600	Fam179b	BC062107	0.0001	2.8900
4575462	Fam55b	NM_030069	0.0245	-2.6160
4615407	Fam55b	NM_030069	0.0091	-1.9596
5008371	Fbxw15	NM_199036	0.0018	1.7686
5376845	Fbxw15	NM_199036	0.0269	1.8558
5419197	Fmn2	NM_019445	0.0078	-2.9024
4667571	Fmn2	NM_019445	0.0123	-2.0468
5023048	Fos	NM_010234	0.0337	1.9965
4482940	Fos	NM_010234	0.0424	2.3030
4817672	Fos	NM_010234	0.0001	2.8461
5039558	Fosl2	NM_008037	0.0301	1.5358
4473106	Fosl2	NM_008037	0.0395	1.6513
5035400	Gad2	NM_008078	0.0068	-1.7199
5292148	Gad2	NM_008078	0.0413	-1.7178
4825369	Gldc	NM_138595	0.0021	-1.5176
4551799	Gldc	NM_138595	0.0044	-1.5110
5225793	Gpr98	NM_054053	0.0234	-2.3392
4364879	Gpr98	NM_054053	0.0221	-1.5093
5166989	Hdac9	NM_024124	0.0040	1.5199
4360319	Hdac9	NM_024124	0.0443	1.5830
4394303	Hdac9	NM_024124	0.0014	1.8494
5386721	Hdac9	NM_024124	0.0204	1.9169
4732540	Hdac9	NM_024124	0.0012	2.9759
5200689	Hemk1	ENSMUST00000035196	0.0002	-13.1269
4636919	Hemk1	NM_133984	0.0000	-2.7666
5353821	Hlcs	NM_139145	0.0016	-2.0363
4496352	Hlcs	NM_139145	0.0448	1.5488
4981703	Hsdl1	NM_175185	0.0306	-1.6374
5322165	Hsdl1	NM_175185	0.0051	-1.5206
4797123	Hspa12a	NM_175199	0.0449	1.5008
5281567	Hspa12a	NM_175199	0.0408	1.5055
5016366	Hspa12a	NM_175199	0.0487	1.6247
4743480	Ier2	NM_010499	0.0470	1.6481
5506490	Ier2	NM_010499	0.0271	2.1043

5183781	Ier3	NM_133662	0.0059	1.6312
5320610	Ier3	NM_133662	0.0144	2.0055
4442739	Igf2bp1	NM_009951	0.0058	-1.6735
4431559	Igf2bp1	NM_009951	0.0325	-1.6626
4944486	Igh	AY769940	0.0304	1.5646
4448286	Igh	AY769940	0.0060	1.9512
4688427	Il1b	NM_008361	0.0064	1.5418
4611184	Il1b	NM_008361	0.0167	1.8925
4425868	Il31ra	NM_139299	0.0192	-4.4742
4577352	Il31ra	NM_139299	0.0191	-2.5034
5044783	Il31ra	NM_139299	0.0206	-2.4730
5330618	Il31ra	NM_139299	0.0038	-2.0964
5055062	Il31ra	NM_139299	0.0091	-1.9376
5107516	Itih2	NM_010582	0.0311	1.5943
4569424	Itih2	NM_010582	0.0326	2.1981
4820938	Itpr3	NM_080553	0.0001	1.5429
4979886	Itpr3	NM_080553	0.0398	1.7882
5208488	Kcnh5	NM_172805	0.0245	1.9316
4433106	Kcnh5	NM_172805	0.0069	2.0338
4878981	Kcnh5	NM_172805	0.0143	2.9720
5079906	Kcnh5	NM_172805	0.0053	3.0585
5079913	Kcnj9	NM_008429	0.0474	-2.1300
4485754	Kcnj9	NM_008429	0.0056	-1.6900
4396536	Klc1	NM_008450	0.0078	1.5053
4581312	Klc1	NM_008450	0.0003	2.0191
4925169	Kremen1	NM_032396	0.0265	1.5328
4963369	Kremen1	NM_032396	0.0292	1.5537
4934064	Kremen1	NM_032396	0.0360	1.6811
5204538	Kremen1	NM_032396	0.0170	1.8944
5584409	Kremen1	NM_032396	0.0162	2.0055
4656189	Lcat	NM_008490	0.0021	1.6493
4367597	Lcat	NM_008490	0.0031	1.7912
4351512	Ldlr	NM_010700	0.0284	1.6060
5349710	Ldlr	NM_010700	0.0204	1.8019
4551856	Ldlr	NM_010700	0.0103	1.9303
4855807	Ldlr	NM_010700	0.0051	2.2116
5167144	Lipi	NM_177142	0.0085	-1.7822
5241955	Lipi	NM_177142	0.0472	-1.6396
4822961	Lipi	NM_177142	0.0497	-1.6093
5214540	Lrrc9	NM_030070	0.0177	2.1225
5525389	Lrrc9	NM_030070	0.0005	2.4776
5530449	Ltbp3	NM_008520	0.0446	1.6727
4829966	Ltbp3	NM_008520	0.0032	1.7260
5076963	Mdga2	NM_207010	0.0147	2.0539
4837059	Mdga2	NM_207010	0.0015	2.0729
5214695	Mdga2	NM_207010	0.0085	2.1283
4787321	Mdga2	NM_207010	0.0088	2.3045
5055785	Mdga2	NM_207010	0.0082	2.4034
5572526	Mdga2	NM_207010	0.0131	3.6136
5530966	Mdga2	NM_207010	0.0005	4.0573
4607820	Mfap4	NM_029568	0.0078	1.5591
5136672	Mfap4	NM_029568	0.0286	1.5815
4355563	Mpped1	NM_172610	0.0017	-1.8555
5179960	Mpped1	NM_172610	0.0241	-1.6763
5302988	Mrpl3	NM_053159	0.0006	-2.2936
4806804	Mrpl3	NM_053159	0.0009	-2.0486

5224534	Mtmr7	NM_001040699	0.0424	-1.8238
4925189	Mtmr7	NM_001040699	0.0411	-1.7611
4692954	Mtmr7	NM_001040699	0.0023	-1.7585
4841113	Mtus1	NM_001005863	0.0070	-2.3867
4821504	Mtus1	NM_001005863	0.0025	-1.7176
5589750	Nek11	NM_172461	0.0011	-2.5582
5267972	Nek11	NM_172461	0.0029	-2.1129
4640151	Nme6	NM_018757	0.0001	-6.8734
5266395	Nme6	NM_018757	0.0007	-4.7395
5591035	Nme6	NM_018757	0.0029	-1.9171
5456404	Nme6	NM_018757	0.0098	-1.8448
4916172	Nphp3	NM_028721	0.0002	-1.7335
5585350	Nphp3	NM_028721	0.0477	-1.6846
5080993	Nphp3	NM_028721	0.0256	-1.6653
5162776	Nr4a1	NM_010444	0.0320	1.5226
5107194	Nr4a1	NM_010444	0.0010	1.5620
5508765	Nr4a1	NM_010444	0.0015	1.6713
4352254	Nr4a1	NM_010444	0.0015	1.7857
5171752	Nr4a1	NM_010444	0.0346	2.2302
5448768	Nrxn3	NM_172544	0.0002	7.0601
4996321	Nrxn3	AK129205	0.0009	7.1023
4900563	Nrxn3	NM_172544	0.0090	11.2823
4744864	Oasl1	NM_145209	0.0449	1.5208
4422883	Oasl1	NM_145209	0.0349	1.6041
4647838	Oma1	NM_025909	0.0146	-1.6603
5335709	Oma1	NM_025909	0.0010	-1.5571
4384290	Osbpl10	NM_148958	0.0224	-1.5750
4916092	Osbpl10	NM_148958	0.0010	-1.5513
5484683	Osmr	NM_011019	0.0399	-1.5692
4433842	Osmr	NM_011019	0.0394	-1.5451
5491177	Oxsr1	NM_133985	0.0036	-3.2265
5588618	Oxsr1	NM_133985	0.0089	-1.6914
4817880	Oxsr1	NM_133985	0.0080	-1.5758
4626739	Pcnt	NM_008787	0.0259	-1.7125
5006489	Pcnt	NM_008787	0.0475	-1.6011
4542406	Pcnt	NM_008787	0.0011	-1.5487
5298818	Pde2a	NM_001008548	0.0322	1.6770
4384093	Pde2a	NM_001008548	0.0435	1.6800
5009688	Pik3r4	NM_001081309	0.0010	-4.1297
4380081	Pik3r4	NM_001081309	0.0035	-2.3351
5449499	Pik3r4	NM_001081309	0.0033	-2.2369
5409661	Pik3r4	NM_001081309	0.0006	-1.7440
4784867	Pkhd1l1	NM_138674	0.0145	-1.6839
5071477	Pkhd1l1	NM_138674	0.0322	-1.5840
5600538	Plk3	NM_013807	0.0242	1.7348
4574474	Plk3	NM_013807	0.0288	1.7787
4628195	Plk3	NM_013807	0.0088	1.9708
5003873	Plk3	NM_013807	0.0226	2.1400
4816434	Prkch	NM_008856	0.0241	1.5011
5215818	Prkch	NM_008856	0.0259	1.6145
5494239	Prkch	NM_008856	0.0082	1.6903
4787816	Prkch	NM_008856	0.0323	1.8114
5544549	Prkch	NM_008856	0.0093	1.8216
4981142	Prkch	NM_008856	0.0067	1.9491
5385984	Prkch	NM_008856	0.0092	2.0750
4442130	Prmt3	NM_133740	0.0449	-1.7539

4667366	Prmt3	NM_133740	0.0422	-1.6845
4639590	Prps1l1	NM_029294	0.0230	1.5149
4803272	Prps1l1	NM_029294	0.0001	3.3324
4594315	Prps1l1	NM_029294	0.0000	3.5535
5282734	Prps1l1	NM_029294	0.0000	12.5184
4997955	Ptprv	NM_007955	0.0237	1.5013
5614202	Ptprv	NM_007955	0.0265	1.5115
5126444	Ptprv	NM_007955	0.0365	1.5542
4912408	Ptprv	NM_007955	0.0122	1.6057
4899898	Ptprv	NM_007955	0.0361	1.6898
5018388	Ptprv	NM_007955	0.0398	1.8946
5007225	Ptprv	NM_007955	0.0105	1.9382
5297896	Rbm34	BC141278	0.0174	-1.5843
5278082	Rbm34	BC141278	0.0252	-1.5057
4543600	Ren1	NM_031192	0.0175	1.5600
4819988	Ren1	NM_031192	0.0076	1.6937
5502779	Ren1	NM_031192	0.0469	1.7025
4436804	Ren1	NM_031192	0.0066	1.8504
4985101	Rhbg	NM_021375	0.0090	1.5212
4325268	Rhbg	NM_021375	0.0132	1.6294
4520569	Rhbg	NM_021375	0.0077	1.7223
4673247	Rhbg	NM_021375	0.0088	2.1608
5375125	Rhbg	NM_021375	0.0052	2.7416
4998598	Rhoj	NM_023275	0.0050	1.5852
5007797	Rhoj	NM_023275	0.0117	1.6489
4536105	Ros1	NM_011282	0.0088	-2.2717
4361020	Ros1	NM_011282	0.0345	-1.9340
4601648	Ros1	NM_011282	0.0421	-1.5623
4501914	Rrp9	NM_145620	0.0193	1.5391
4542085	Rrp9	NM_145620	0.0049	1.5610
4559932	Runx1t1	NM_001111027	0.0361	1.6960
4554099	Runx1t1	NM_001111027	0.0240	1.7428
4541863	Sc4mol	NM_025436	0.0391	1.8174
4654742	Sc4mol	NM_025436	0.0177	1.8939
5542026	Scn10a	NM_009134	0.0093	1.5942
4828569	Scn10a	NM_009134	0.0094	1.7227
5048216	Scn10a	NM_009134	0.0035	1.7494
5431911	Scn10a	NM_009134	0.0213	1.9999
5228712	Scn10a	NM_009134	0.0119	2.0188
5167380	Scn10a	NM_009134	0.0019	2.0688
5058843	Scn10a	NM_009134	0.0038	2.1030
5419137	Scn10a	NM_009134	0.0156	2.1208
5604888	Scn10a	NM_009134	0.0104	2.2061
4792561	Scn10a	NM_009134	0.0167	2.2811
5177475	Scn10a	NM_009134	0.0381	2.3350
4546867	Scn10a	NM_009134	0.0005	2.4861
5306380	Scn10a	NM_009134	0.0030	2.4950
5299585	Scn10a	NM_009134	0.0067	2.6099
4750224	Scn10a	NM_009134	0.0080	2.6825
4627217	Scn10a	NM_009134	0.0004	3.0579
5105079	Scn10a	NM_009134	0.0008	4.7551
4332069	Serpina3b	NM_173024	0.0365	2.0109
5235953	Serpina3b	NM_173024	0.0245	2.1309
5026816	Serpina3b	NM_173024	0.0137	2.6284
5558661	Serpina3c	NM_008458	0.0059	1.6278
5485765	Serpina3c	NM_008458	0.0311	1.6754

4618503	Serpina3c	NM_008458	0.0041	1.7340
5137940	Serpina3c	NM_008458	0.0214	1.8798
5056290	Serpina3g	NM_009251	0.0005	19.3028
5164692	Serpina3g	NM_009251	0.0011	29.7838
4548401	Serpina3g	NM_009251	0.0002	36.0794
5412356	Serpina3g	NM_009251	0.0002	68.8566
5068241	Shisa5	NM_025858	0.0159	1.5457
4772547	Shisa5	NM_025858	0.0070	1.5565
5358275	Skiv2l2	NM_028151	0.0115	-2.1033
4465141	Skiv2l2	NM_028151	0.0337	-1.8354
4532266	Skiv2l2	NM_028151	0.0304	-1.8141
4937215	Skiv2l2	NM_028151	0.0274	-1.7771
5480719	Skiv2l2	NM_028151	0.0391	-1.7386
5171862	Skiv2l2	NM_028151	0.0420	-1.5359
5248840	Slamf7	AF467910	0.0015	-1.5980
5013425	Slamf7	NM_144539	0.0142	-1.5537
4834977	Slc25a41	NM_175333	0.0056	-1.6202
5349653	Slc25a41	NM_175333	0.0205	-1.5268
4505552	Slc38a1	NM_134086	0.0249	1.6473
4396157	Slc38a1	NM_134086	0.0079	1.6700
4788862	Slc38a1	NM_134086	0.0231	1.8017
5584308	Slc38a1	NM_134086	0.0404	1.8150
4524409	Slc38a1	NM_134086	0.0071	2.2207
4475568	Slc38a1	BC030378	0.0127	2.3257
4801170	Slc39a14	NM_001135151	0.0445	1.5356
4872559	Slc39a14	NM_144808	0.0387	1.5497
5032815	Slc47a1	NM_026183	0.0487	1.7224
4435810	Slc47a1	NM_026183	0.0293	2.3344
4558089	Slc7a2	NM_007514	0.0494	1.5352
4733328	Slc7a2	NM_007514	0.0074	1.6535
4659514	Slc7a2	NM_007514	0.0286	1.8354
5444364	Slc7a2	NM_001044740	0.0120	2.2734
5342105	Slit2	NM_178804	0.0248	1.5028
4443690	Slit2	NM_178804	0.0476	2.2153
5449671	Snapc1	NM_178392	0.0100	1.5081
4321446	Snapc1	NM_178392	0.0195	1.5260
4757183	Snapc1	NM_178392	0.0246	1.9210
4652625	Snapc1	NM_178392	0.0428	2.0663
4540472	Snapc1	NM_178392	0.0093	2.1420
4632246	Snapc1	NM_178392	0.0023	3.0615
4626991	Speg	NM_007463	0.0385	-1.6173
4382286	Speg	NM_007463	0.0201	-1.5326
4881642	Spna1	NM_011465	0.0231	-2.4531
5144376	Spna1	NM_011465	0.0202	-1.5336
5354575	Spna1	NM_011465	0.0012	-1.5204
5615852	Ston2	NM_175367	0.0044	1.7475
5305623	Ston2	NM_175367	0.0044	2.4873
5392356	Ston2	NM_175367	0.0003	2.4973
5536819	Ston2	NM_175367	0.0002	2.8443
4384629	Ston2	NM_175367	0.0001	3.3409
4742865	Ston2	NM_175367	0.0000	3.5043
4337648	Susd4	NM_144796	0.0386	1.6608
5477803	Susd4	NM_144796	0.0137	1.7426
5213391	Tbc1d9	NM_001111304	0.0483	-3.8200
4988514	Tbc1d9	NM_001111304	0.0194	-2.3048
4361236	Tbc1d9	NM_001111304	0.0472	-1.5261

5001750	Tdgf1	NM_011562	0.0151	1.5671
5395477	Tdgf1	NM_011562	0.0003	3.3826
5581960	Tep1	NM_009351	0.0025	1.5192
5081236	Tep1	NM_009351	0.0116	1.6514
5314083	Tep1	NM_009351	0.0156	1.6570
5510886	Tg	NM_009375	0.0135	1.5548
5574802	Tg	NM_009375	0.0050	1.6233
4924122	Tgfbi	NM_009369	0.0289	-2.1934
4991317	Tgfbi	NM_009369	0.0374	-1.7245
5132665	Thbs1	NM_011580	0.0229	1.5431
5043600	Thbs1	NM_011580	0.0143	1.5523
4930654	Thbs1	NM_011580	0.0001	1.6976
4876471	Thbs1	NM_011580	0.0088	1.7749
4415786	Thbs1	NM_011580	0.0204	1.9168
5489953	Tm7sf2	NM_028454	0.0269	1.5526
5018268	Tm7sf2	NM_028454	0.0049	1.5994
5208861	Tmem115	NM_019704	0.0005	-3.6430
4552879	Tmem115	NM_019704	0.0004	-2.3682
5335926	Tmem115	NM_019704	0.0051	-2.3015
5117626	Tmem195	NM_178767	0.0366	-1.8642
5465191	Tmem195	NM_178767	0.0384	-1.5435
5566585	Trf	NM_133977	0.0293	1.5104
4967444	Trf	NM_133977	0.0234	1.8344
5483671	Tshr	NM_011648	0.0053	2.5717
5158199	Tshr	NM_011648	0.0020	4.0380
4448089	Tshr	NM_011648	0.0001	4.0838
5107271	Tshr	NM_011648	0.0001	4.6690
4633870	Tshr	NM_011648	0.0003	5.0876
4554444	Tshr	NM_011648	0.0005	5.4078
4873088	Tshr	NM_011648	0.0001	6.5580
4387335	Tshr	NM_011648	0.0005	6.7299
5418436	Tshr	NM_011648	0.0001	7.6667
5201129	Tshr	NM_011648	0.0001	8.7363
5454201	Tshr	NM_011648	0.0003	14.0402
4537529	Ttll5	NM_001081423	0.0000	-294.7200
4927582	Ttll5	NM_001081423	0.0000	-77.2434
5537053	Ttll5	NM_001081423	0.0005	-3.4252
5578115	Ttll5	NM_001081423	0.0032	-3.1844
4848712	Ttll5	NM_001081423	0.0000	-2.9590
5094849	Ttll5	NM_001081423	0.0001	-2.6842
4968626	Ttll5	NM_001081423	0.0000	-2.6304
5029446	Ttll5	NM_001081423	0.0004	-2.5933
5243391	Ttll5	NM_001081423	0.0002	-2.5882
5521171	Ttll5	NM_001081423	0.0000	-2.5769
5143384	Ttll5	NM_001081423	0.0005	-2.5703
5583780	Ttll5	NM_001081423	0.0001	-2.5477
4705831	Ttll5	NM_001081423	0.0012	-2.5202
5246111	Ttll5	NM_001081423	0.0006	-2.4674
5470722	Ttll5	NM_001081423	0.0000	-2.4597
4463019	Ttll5	NM_001081423	0.0000	-2.3739
4650362	Ttll5	NM_001081423	0.0000	-2.3682
4615781	Ttll5	NM_001081423	0.0003	-2.3646
5345141	Ttll5	NM_001081423	0.0006	-2.3509
5043453	Ttll5	NM_001081423	0.0000	-2.3348
5568898	Ttll5	NM_001081423	0.0000	-2.2475
4668068	Ttll5	NM_001081423	0.0000	-2.2417

4901858	Ttll5	NM_001081423	0.0001	-2.2157
5214808	Ttll5	NM_001081423	0.0019	-2.2069
4311000	Ttll5	NM_001081423	0.0001	-2.2013
4584716	Ttll5	NM_001081423	0.0008	-2.1792
5321377	Ttll5	NM_001081423	0.0004	-2.1587
4612994	Ttll5	NM_001081423	0.0000	-2.1409
5597974	Ttll5	NM_001081423	0.0000	-2.1264
4844608	Ttll5	NM_001081423	0.0000	-2.1223
5217313	Ttll5	NM_001081423	0.0000	-2.0859
5298531	Ttll5	NM_001081423	0.0001	-2.0536
4840494	Ttll5	NM_001081423	0.0004	-1.7447
5328781	Tusc4	NM_018879	0.0143	-1.7293
4879223	Tusc4	NM_018879	0.0041	-1.7086
4664072	Tusc4	NM_018879	0.0032	-1.6198
4998263	Vash1	NM_177354	0.0291	1.5300
4840147	Vash1	NM_177354	0.0065	2.1015
4728940	Vav1	NM_011691	0.0116	-1.8970
4404873	Vav1	NM_011691	0.0028	-1.5241
4393622	Vcam1	NM_011693	0.0433	1.6550
5130024	Vcam1	NM_011693	0.0102	1.6583
4902444	Vcam1	NM_011693	0.0344	1.7843
5226082	Vsig8	NM_177723	0.0094	-1.8971
5002756	Vsig8	NM_177723	0.0039	-1.6401
5252446	Vsig8	NM_177723	0.0006	-1.5249
5103173	Xdh	NM_011723	0.0014	1.5644
4375137	Xdh	NM_011723	0.0132	1.6636
4503296	Zan	NM_011741	0.0222	1.5361
5158219	Zan	NM_011741	0.0373	1.7452
5274543	Zfp276	NM_020497	0.0192	1.5006
5324011	Zfp276	NM_020497	0.0164	1.6763
5170814	Zfp36	NM_011756	0.0363	1.9534
5274055	Zfp36	NM_011756	0.0115	2.1201
4707402	Zfp69	NM_001005788	0.0304	-1.7990
5283062	Zfp69	NM_001005788	0.0112	-1.5286
5334924	Zfp760	NM_001008501	0.0213	-1.6500
4374330	Zfp760	NM_001008501	0.0482	-1.5107
5276329	Zmynd10	NM_053253	0.0008	-2.1616
4983933	Zmynd10	NM_053253	0.0007	-1.5546

Table S4

Abundance of transcribed STAMP exons (from chromosome 12) in TM vs WT mice

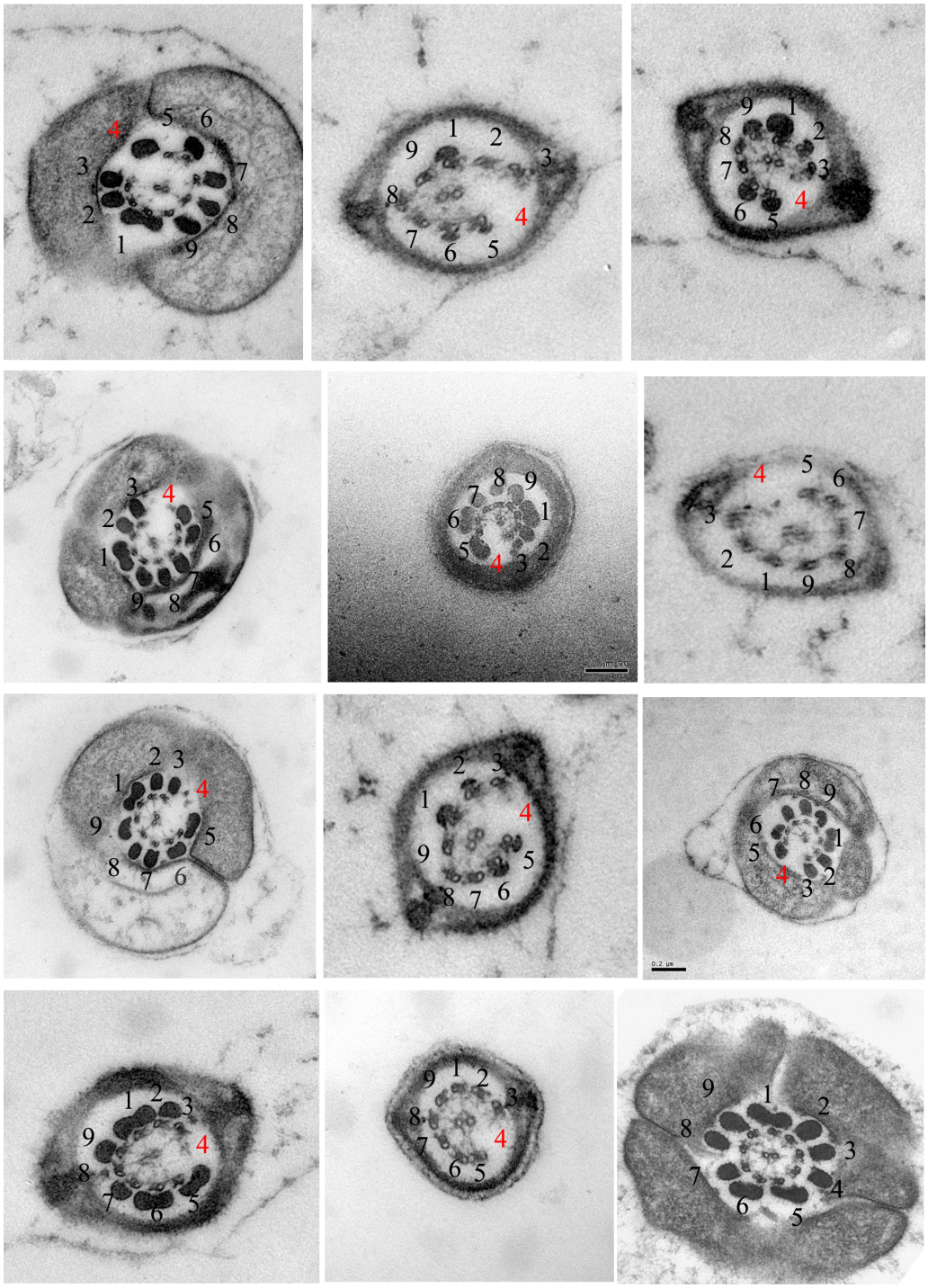
Exon	Probe Start (bp)	Probe Stop (bp)	Probeset ID	Exon id	Alternative splicing	TM vs. WT Fold change	TM vs. WT p value
1							
2	87167527	87167557	5143384	175785	0	-2.570	0.000457976
3	87172898	87172950	5217313	175786	0	-2.086	4.99E-06
4	87184747	87184799	4584716	175789	0	-2.179	0.00078782
5	87186211	87186279	4968626	175790	0	-2.630	4.25E-05
6	87190207	87190270	5597974	175791	0	-2.126	2.91E-06
7	87198330	87198412	5246111	175795	0	-2.467	0.000613607
8							
9	87205477	87205524	4612994	175798	0	-2.141	1.59E-05
10	87217444	87217518	4668068	175804	0	-2.242	4.01E-05
11	87219351	87219411	5243391	175805	0	-2.588	0.000205778
12	87220334	87220425	4844608	175806	0	-2.122	4.63E-05
13	87230123	87230174	4650362	175811	0	-2.368	3.50E-05
14	87231971	87232007	5094849	175812	0	-2.684	0.000128215
15	87233078	87233152	5043453	175813	0	-2.335	4.81E-05
16	87239973	87239999	5578115	175816	0	-3.184	0.0031963
16	87240018	87240053	4901858	175816	0	-2.216	0.000106575
17	87240360	87240428	4705831	175817	0	-2.520	0.00124771
18	87249755	87249805	5568898	175818	0	-2.247	3.78E-06
19							
20	87258643	87258718	5583780	175821	0	-2.548	6.66E-05
21	87260018	87260187	4840494	175823	0	-1.745	0.000402903
22	87263912	87263982	5298531	175825	0	-2.054	5.15E-05
23	87266598	87266709	4927582	175826	0	-77.243	1.27E-06
24	87267808	87267855	4537529	175827	0	294.720	4.76E-08
25	87270824	87270941	5345141	175829	0	-2.351	0.00058593
26	87273676	87273758	4311000	175831	0	-2.201	0.000115646
27	87274245	87274361	5214808	175832	0	-2.207	0.00192857
27	87274498	87274593	5321377	175832	0	-2.159	0.000352234
28	87280329	87280408	4615781	175834	0	-2.365	0.000323571
29	87297580	87297650	5470722	175838	0	-2.460	1.19E-05
30	87336982	87337145	4463019	175849	0	-2.374	4.66E-05
31	87353598	87353642	4848712	175855	0	-2.959	1.02E-05
31	87353718	87353809	5521171	175855	0	-2.577	4.82E-05
32	87361483	87361550	5029446	175859	0	-2.593	0.000354341
33							
34	87394170	87394679	5537053	175871	0	-3.425	0.000483463

Ave. fold reduction other than deleted exons 23 and 24:	-2.410
SD:	0.338
n:	31
SEM:	0.061

Supplementary Figures

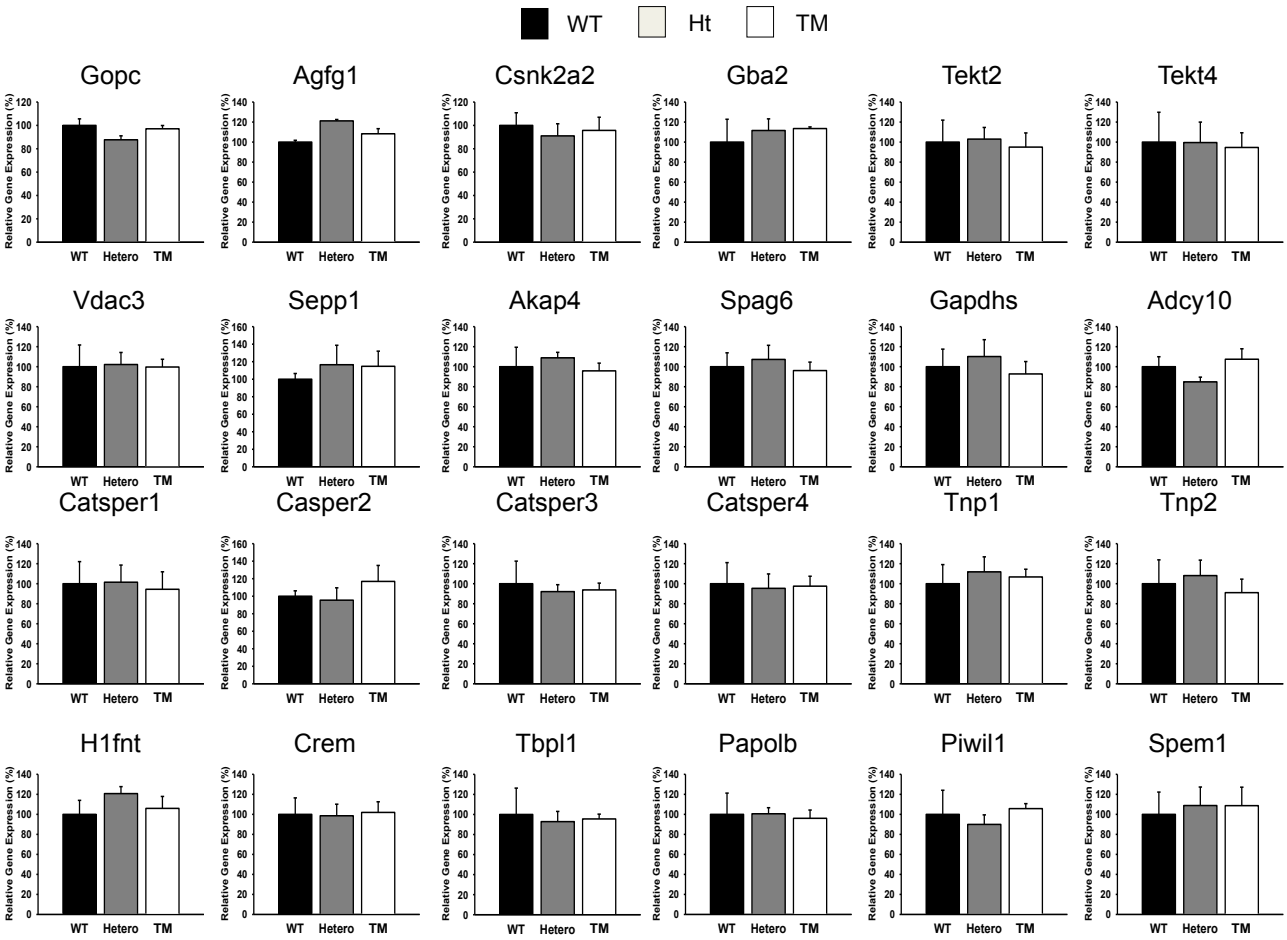
Fig. S1: Movie of sperm from wt/wt and tm/tm STAMP in IVF solution and in proximity of oocytes. (See separate file labeled “IVF movie.wmv”)

Fig. S2: Assignment of missing doublet in axonema of *Stamp*$^{tm/tm}$ mice.



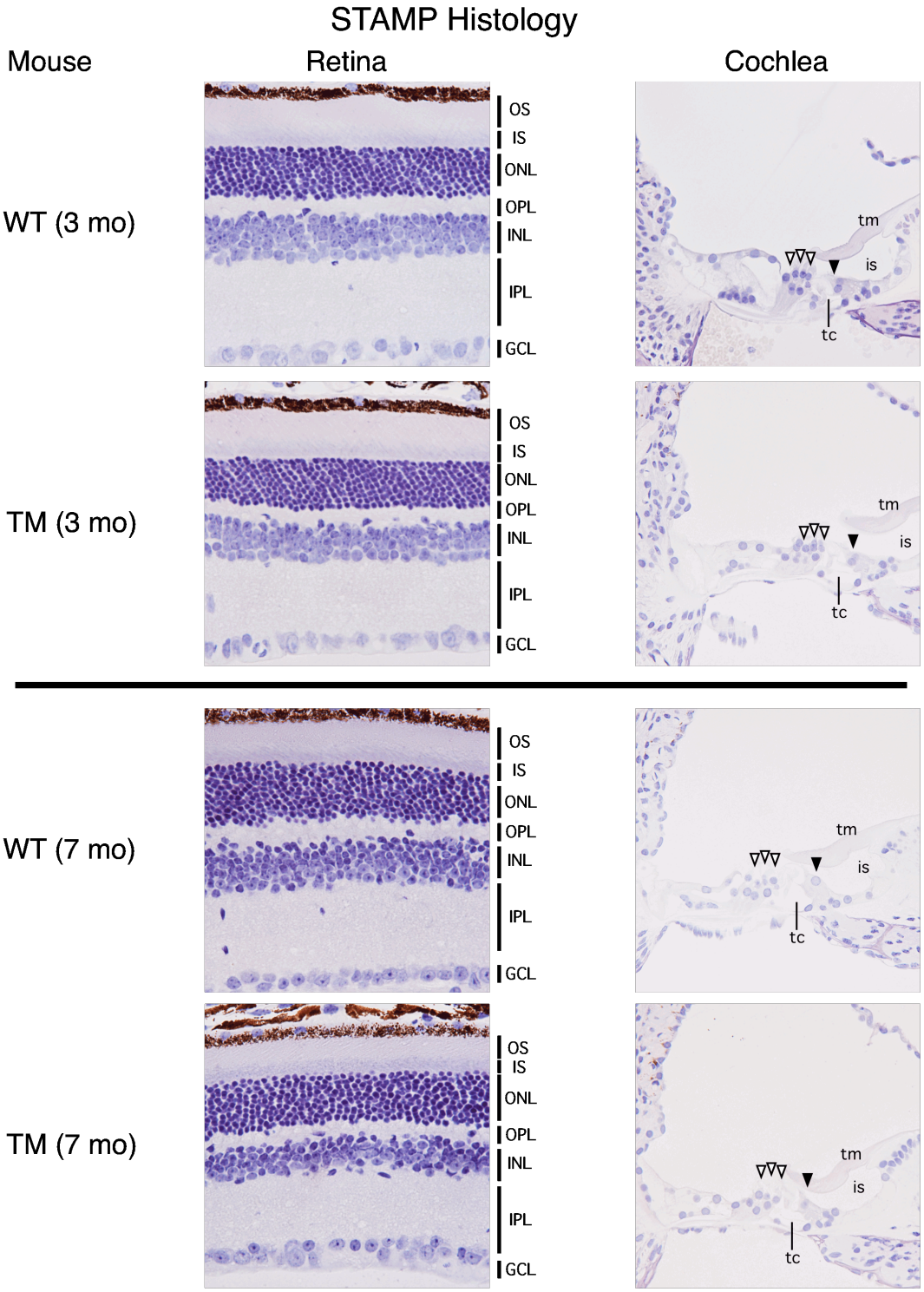
Normal 9+2 microtubule axonemal structure of wt/wt sperm is shown in bottom right panel. Missing doublet 4 (in red) in tm/tm sperm was identified as described in Experimental Procedures of main text.

Fig. S3: Comparison of spermatogenesis-relating gene expressions in *Stamp*$^{tm/tm}$ mice.



The expression levels of 24 spermatogenesis-related genes were measured in the testis of *Stamp*$^{+/+}$ (black filled bar), *Stamp*$^{+/tm}$ (gray filled bar) and *Stamp*$^{tm/tm}$ (white filled bar) mice (n=3 each genotype) by RT-PCR (see Table 1 for list of primers) after total RNA was reverse-transcribed to first-stand complementary DNA (cDNA) using SuperScript III, First-Strand Synthesis SuperMix for qRT-PCR (Invitrogen) according to the manufacturer's directions. Relative transcript abundance was normalized with glyceraldehyde-3-phosphate dehydrogenase and graphed (Average ± SEMs of duplicate values for all samples).

Fig. S4: Histology of photoreceptors and cochlea of wt and *Stamp*$^{tm/tm}$ mice of different ages.



Methods: Retina and cochlea at specified ages were dissected and fixed in freshly prepared 2% paraformaldehyde/3% glutaraldehyde in phosphate buffered saline (PBS) for 24 hr at 4 °C with mild rocking. Samples were then washed 3x in PBS at room temperature for 10 min each, followed by dehydration through a graded series of alcohol. Prior to dehydration, cochleas, but not retinas, were decalcified in 100 mM EDTA in PBS for 14 days refreshing the decalcification solution every 2-3 days. Retinal and cochlear tissues were then embedded in methacrylate plastic according to the manufacture's directions (Polysciences, Warrington, PA), sectioned at 4 μm using a rotary microtome, stained in aqueous Gill's #1 hematoxylin, and coverslipped in Permount. Groups of 2 cochlea from a single mouse, per age, and genotype, were analyzed. Images were captured using Nikon DS-Ri1 camera mounted on a Nikon Eclipse 80i microscope.

Description: Histological examination comparing retina and cochlea from Stamp WT and MT mice at 3 and 7 months of age. Retinal and cochlear structures in Stamp MT mice were normal at both ages. No degeneration of photoreceptors or cochlear inner (open arrowheads) or outer (closed arrowheads) hair cells was evident. OS, outer segment; IS, inner segment; ONL, outer nuclear layer; OPL, outer plexiform layer; INL, inner nuclear layer; IPL, inter plaxiform layer; GCL, ganglion cell layer; ohc, outer hair cell; ihc, inner hair cell; tm, tectorial membrane; is; inner sulcus; tc, tunnel of corti.