

Supplementary materials

Exposure to titanium dioxide nanoparticles leads to specific disorders of spermatid elongation via multiple metabolic pathways in *Drosophila* testes

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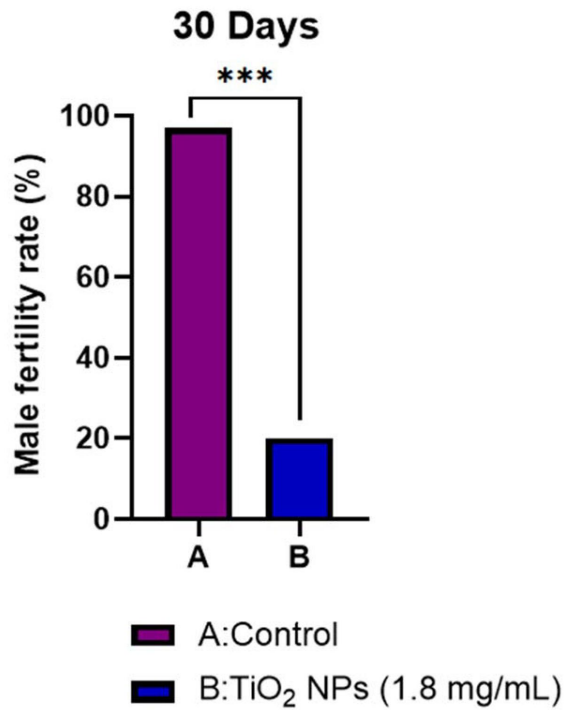


Figure S1. Male fertility testing between the control and TiO₂ NPs (1.8 mg/mL) groups. Two-to-three day males were exposed with or without TiO₂ NPs for a duration of 30 days. A single male and three virgin females were cohabited in a tube at ambient temperature. Chi-square test was used to evaluate for ratio results. *** P < 0.001.

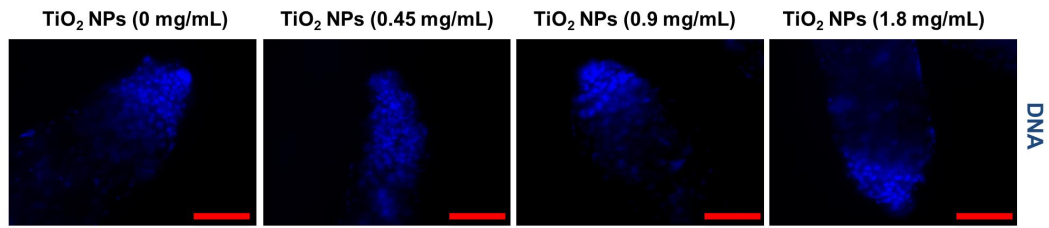


Figure S2. Testicular phenotype analysis for TiO₂ NPs exposure at the apex of testes. DNA was stained with Hoechst (blue). Scale bar: 50 uM.

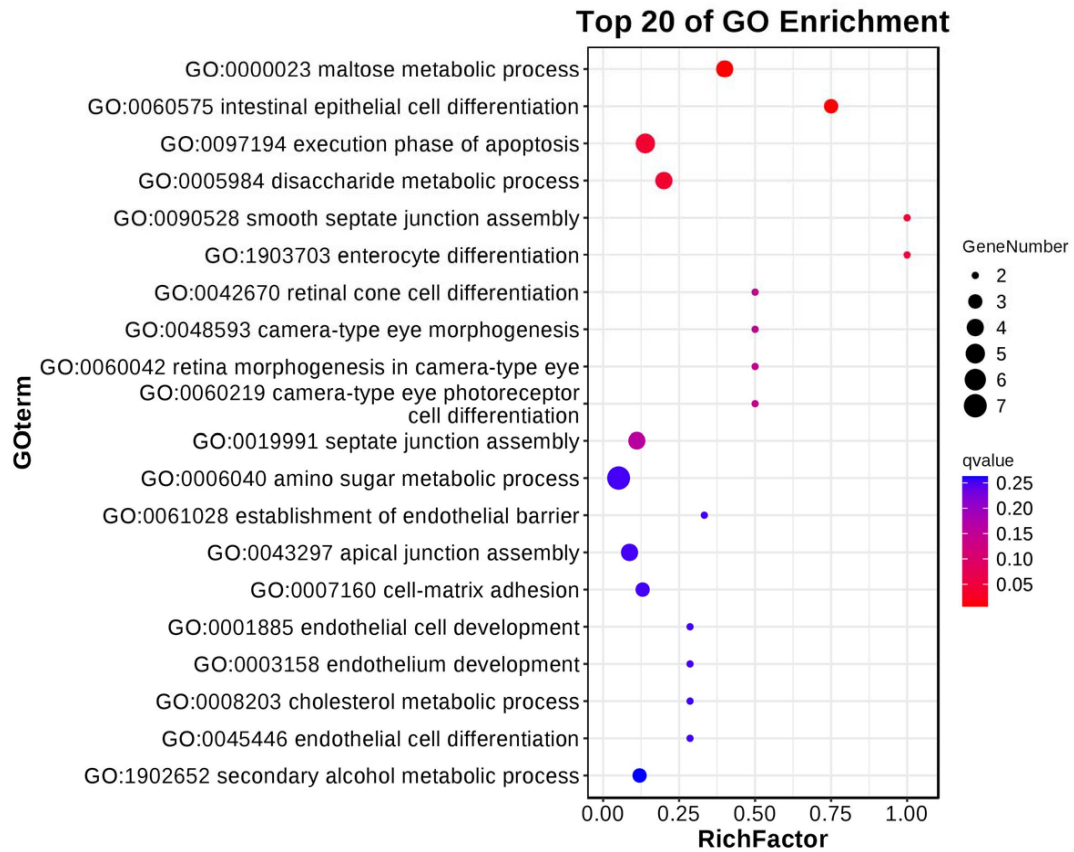


Figure S3. Top20 of GO enrichment for biological processes. Analysis was performed for DEGs between the control and TiO₂ NPs (1.8 mg/mL) groups.

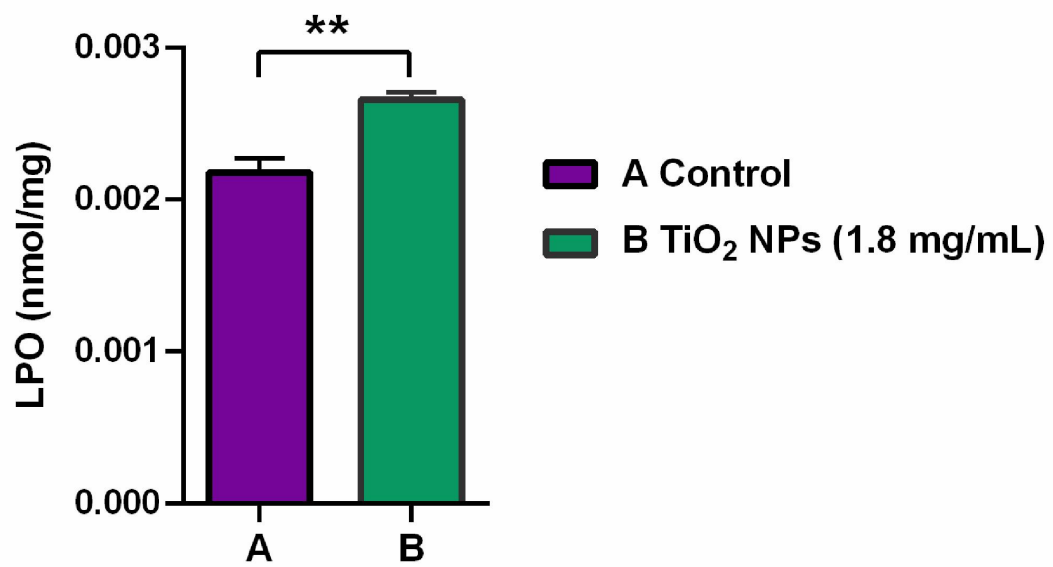


Figure S4. LPO level between the control and TiO₂ NPs (1.8 mg/mL) groups. Statistical differences were compared to control group. ** P<0.01.

Table S1. Antibodies used for immunofluorescence staining.

Antigen	Source	Company	Dilution
Orb	Mouse	DSHB	1:50
De-cad	Rat	DSHB	1:15
Tj	Mouse	a gift from Prof. Chao Tong	1:1000
LamC	Mouse	DSHB	1:100
LamDm0	Mouse	DSHB	1:100

Table S2. Detailed primer information used for qRT-PCR analysis.

Gene	Forward (5'-3')	Reverse (5'-3')
<i>Acp98AB</i>	AATCCTGTTCTTAGCCGCATTGG	CCTCGTCATCCTTTGATAGTGTGTC
<i>Mst57Da</i>	CTTTGCTGGTTGTTCTGGCTTTG	CTTGGCACCGATGACGATGAC
<i>GstD8</i>	ATAATGACAGCCAAGGCCCTTG	ACAAACTCCGGCTTCAGTTGC
<i>Mal-A1</i>	CTACACGCAGCACATCTATACACAG	TCCGTCATCAGCAGCCTCTTATC
<i>Mal-A2</i>	AACCGAACTTTGAATGCCAATTACC	CCATAGCGATAACCAAGCGACAG
<i>tobi</i>	CCCACAGGCTATCCCGATGAG	GCTTGGCGAAGTCACGAACC
<i>GstD2</i>	AAGAAGCGTGCCGTGATCAAC	TCCAAACGCGGTTTTGATTCTC
<i>Gapdh</i>	GTGGTGAACGGCCAGAAGAT	GCCTTGTCAATGGTGGTGAA

Table S3. TiO2 NPs exposure mediated DEGs.

ID	Ctrl_mean	TiO2_mean	log2(fc)	PValue	FDR	Symbol
FBgn0033788	243.6193333	723.3193333	1.570004085	3.52E-53	4.96E-49	CG13323
FBgn0032835	13.01966667	47.534	1.868267297	3.52E-43	2.48E-39	CG16772
FBgn0051974	7.249	24.619	1.763918268	3.10E-39	1.46E-35	CG31974
FBgn0033787	14.97233333	53.94133333	1.84909211	6.43E-34	2.27E-30	CG13321
FBgn0027341	21.65533333	50.85733333	1.231733438	2.75E-33	7.77E-30	Gfat1
FBgn0032124	1.404333333	8.308	2.564615801	4.47E-33	1.05E-29	CG17855
FBgn0263322	42.62633333	11.78733333	-1.85450759	2.97E-30	5.99E-27	CG43403
MSTRG.5004	7.186333333	1.668666667	-2.106560065	2.85E-29	5.02E-26	--
FBgn0038353	30.33233333	84.15833333	1.472249651	5.86E-29	9.18E-26	CG5399
FBgn0051004	9.118	26.32033333	1.529388446	1.33E-26	1.87E-23	mesh
FBgn0265185	6.087333333	25.43666667	2.063027353	1.64E-26	2.11E-23	CG44250
MSTRG.13349	16.352	34.67733333	1.084525859	5.40E-26	6.35E-23	pol
FBgn0264329	136.505	66.62266667	-1.03486879	1.13E-25	1.13E-22	CG43788
FBgn0003900	7.401666667	16.99466667	1.199159995	6.35E-25	5.97E-22	twi
FBgn0052580	1.395	0.658666667	-1.082644676	1.00E-24	8.31E-22	Muc14A
FBgn0265186	3.361666667	10.52466667	1.646525958	1.21E-23	9.01E-21	CG44251
FBgn0040299	0.593	2.854666667	2.267218285	8.35E-23	5.61E-20	Myo28B1
FBgn0036945	26.46766667	64.493	1.284911565	8.43E-21	4.57E-18	Ssk
FBgn0031913	17.244	37.58933333	1.124228861	1.66E-20	8.68E-18	CG5958
FBgn0264897	27.761	9.020666667	-1.621753573	2.22E-20	1.12E-17	CG44088
FBgn0035094	8.956666667	19.223	1.101799684	5.60E-19	2.55E-16	CG9380
FBgn0085476	16.64033333	6.301	-1.401031619	1.49E-18	6.57E-16	CG34447
FBgn0011668	164.397	72.347	-1.184178873	8.53E-18	3.54E-15	Mst57Da
FBgn0031579	2.444	12.76433333	2.384801999	1.00E-17	4.04E-15	CG15422
MSTRG.14475	6.405333333	15.123	1.239398805	8.26E-17	2.99E-14	pol
MSTRG.14544	207.8186667	604.9016667	1.54137539	2.42E-16	8.54E-14	GIP
FBgn0036391	2.481333333	0.732333333	-1.760543186	2.87E-16	9.64E-14	CG17364
FBgn0039024	5.898	13.66333333	1.212011762	2.05E-15	5.77E-13	Nep115
FBgn0030367	7.097666667	15.22	1.100551632	6.67E-14	1.52E-11	Cyp311a1
MSTRG.102	4.158333333	1.994333333	-1.060098847	9.53E-14	2.13E-11	--
FBgn0039299	0.331333333	3.711666667	3.485711896	1.56E-13	3.29E-11	CG11854
FBgn0037431	28.29666667	13.428	-1.075387672	1.87E-13	3.88E-11	CG17917
FBgn0038451	7.132666667	2.909	-1.293918257	2.94E-13	5.76E-11	CG14893
FBgn0039475	1.013	7.360333333	2.86113693	3.96E-13	7.54E-11	CG6277
FBgn0032139	1.611	6.466	2.004917013	5.04E-13	9.47E-11	CG13116
FBgn0000527	2.418666667	6.242	1.367796402	6.21E-13	1.12E-10	e
FBgn0004431	0.302666667	7.317	4.595450557	2.54E-12	4.06E-10	LysX
FBgn0033051	3.701333333	8.383	1.179421562	1.25E-11	1.83E-09	Strica
FBgn0039316	4.867	11.58166667	1.2507382	2.01E-11	2.80E-09	CG11893
FBgn0033139	1.44	6.061666667	2.073645708	2.17E-11	2.99E-09	Tsp42Er
FBgn0004595	1.076333333	2.565666667	1.253208806	2.33E-11	3.19E-09	pros
MSTRG.733	8.872	2.677333333	-1.728462597	3.11E-11	4.05E-09	--

FBgn0051288	9.956666667	20.32533333	1.029544276	3.63E-11	4.66E-09	CG31288
FBgn0031273	6.385666667	3.065666667	-1.058636406	4.21E-11	5.35E-09	CG2839
FBgn0035875	5.012333333	1.3	-1.946970738	4.49E-10	4.87E-08	Cpr66Cb
MSTRG.5000	22.61	11.138	-1.021470794	5.23E-10	5.42E-08	--
FBgn0039342	0.405666667	4.681333333	3.528552828	6.83E-10	6.70E-08	CG5107
FBgn0039864	11.691	5.48	-1.093150539	7.26E-10	7.06E-08	CG11550
FBgn0032435	0.59	2.851333333	2.272849847	1.02E-09	9.63E-08	Oatp33Eb
FBgn0030774	1.631	5.530666667	1.761696611	1.21E-09	1.12E-07	sphe
FBgn0040318	2.529333333	5.092333333	1.00956968	1.81E-09	1.57E-07	HGTX
FBgn0037612	1.97	4.637333333	1.235099802	2.18E-09	1.88E-07	CG8112
FBgn0030051	2.104666667	5.271333333	1.324576164	2.74E-09	2.31E-07	spirit
FBgn0031970	2.214	0.612333333	-1.854266096	4.72E-09	3.78E-07	CG7227
FBgn0038466	1.906	5.069333333	1.411247912	5.69E-09	4.51E-07	CG8907
FBgn0002569	4.317666667	11.338	1.392842401	6.28E-09	4.92E-07	Mal-A2
FBgn0011653	3.246666667	1.476666667	-1.136615074	6.56E-09	5.08E-07	mas
FBgn0024361	3.190333333	10.156	1.670553227	7.29E-09	5.56E-07	Tsp2A
FBgn0052195	3.851	9.796666667	1.34705783	8.03E-09	5.96E-07	CG32195
FBgn0036479	1.204666667	3.154666667	1.388853567	1.44E-08	9.69E-07	CG13458
FBgn0038082	0.092333333	1.900333333	4.36325712	1.74E-08	1.15E-06	Ugt37A2
FBgn0033388	2.073333333	4.878	1.234337678	2.48E-08	1.58E-06	CG8046
FBgn0005664	0.389	2.091333333	2.426580968	2.69E-08	1.68E-06	Crys
FBgn0036419	14.22166667	36.721	1.3685148	3.40E-08	2.04E-06	CG13482
FBgn0032373	1.242	3.775	1.603811471	3.93E-08	2.33E-06	Vha100-5
FBgn0040069	0.037666667	1.485	5.301030754	4.36E-08	2.56E-06	vanin-like
FBgn0034286	0.214	1.076666667	2.330888962	6.80E-08	3.82E-06	dpr13
MSTRG.3079	0.983333333	3.109666667	1.661007489	7.06E-08	3.95E-06	--
FBgn0031470	7.245	18.014	1.314060972	7.82E-08	4.26E-06	CG18557
FBgn0035557	4.102333333	8.816	1.103679502	1.11E-07	5.86E-06	CG11353
FBgn0034664	3.023	12.03866667	1.993622732	1.12E-07	5.87E-06	CG4377
FBgn0031412	3.068666667	8.017	1.385450532	1.34E-07	6.86E-06	CG16995
FBgn0032074	3.612333333	8.992333333	1.31576449	1.51E-07	7.64E-06	Tsp29Fa
FBgn0266347	0.889333333	2.612333333	1.55454283	1.65E-07	8.26E-06	nAChRalp ha4
FBgn0037754	0.502333333	1.506333333	1.58432414	1.94E-07	9.41E-06	CG8500
FBgn0039081	1.908333333	5.08	1.412515305	2.63E-07	1.24E-05	Irk2
MSTRG.9887	1.454666667	0.475	-1.614689182	2.63E-07	1.24E-05	--
FBgn0033733	9.079666667	18.19	1.002434304	2.92E-07	1.35E-05	CG8834
FBgn0013773	2.563333333	5.390333333	1.072353393	3.31E-07	1.51E-05	Cyp6a22
FBgn0034290	14.644	31.90066667	1.123276895	3.51E-07	1.58E-05	CG5773
FBgn0040732	10.44733333	4.832	-1.112442384	4.09E-07	1.77E-05	CG16926
FBgn0030775	3.389333333	10.53166667	1.63566033	4.97E-07	2.13E-05	CG9673
MSTRG.8989	3.356	0.711666667	-2.237469147	5.31E-07	2.21E-05	--
FBgn0034187	0.828666667	2.722	1.715803271	5.43E-07	2.25E-05	CG6967
FBgn0037174	1.079	3.543666667	1.715548039	5.53E-07	2.29E-05	CG14457

MSTRG.13006	1.943	0.333	-2.544691819	5.95E-07	2.41E-05	--
FBgn0028950	4.707333333	10.296	1.129102038	6.04E-07	2.44E-05	CG15255
FBgn0028518	0.560666667	2.260666667	2.011533079	6.09E-07	2.45E-05	CG18480
FBgn0004649	1.003666667	0.442	-1.183161933	6.28E-07	2.50E-05	yl
FBgn0261090	2.003333333	0.968	-1.049323538	7.16E-07	2.81E-05	Sybeta
FBgn0054040	1.964333333	13.07966667	2.735214104	7.24E-07	2.83E-05	CG34040
FBgn0033124	0.376	2.984333333	2.988604119	7.65E-07	2.96E-05	Tsp42Ec
FBgn0036321	0.470666667	1.47	1.643038567	8.80E-07	3.32E-05	CG14120
FBgn0039232	4.778333333	1.867333333	-1.355528016	2.80E-06	9.16E-05	sosie
FBgn0037386	2.166333333	5.723333333	1.401600386	2.82E-06	9.19E-05	CG1208
FBgn0031097	2.832	5.964666667	1.07462025	2.83E-06	9.20E-05	obst-A
FBgn0051106	1.592333333	4.804333333	1.593193875	3.46E-06	0.000109	CG31106
					382	
FBgn0032601	2.832	5.803	1.034977663	3.51E-06	0.000110	yellow-b
					168	
FBgn0035360	1.645333333	5.279	1.681884772	3.58E-06	0.000111	CG1246
					937	
MSTRG.4537	0.665333333	3.224333333	2.276851678	3.67E-06	0.000113	--
					606	
FBgn0035476	1.419333333	3.892333333	1.455421816	5.44E-06	0.000159	CG12766
					087	
FBgn0263081	5.403666667	14.03133333	1.37664152	5.49E-06	0.000159	CG43349
					862	
FBgn0034292	0.039666667	2.508	5.98246637	5.62E-06	0.000162	CG5767
					221	
FBgn0036367	1.028333333	3.725333333	1.857061531	6.24E-06	0.000176	CG10116
					651	
FBgn0010357	0.298	31.997	6.746480505	8.28E-06	0.000228	betaTry
					422	
FBgn0015946	1.953666667	4.169333333	1.093632382	8.60E-06	0.000235	grim
					899	
FBgn0033592	1.188666667	5.042333333	2.084747291	9.25E-06	0.000249	CG13215
					692	
FBgn0003382	0.490666667	0.146	-1.748774896	1.11E-05	0.000292	sha
					124	
FBgn0015035	0.348666667	1.479666667	2.085351857	1.12E-05	0.000293	Cyp4e3
					681	
FBgn0262613	3.488666667	9.473666667	1.441247153	1.27E-05	0.000326	CG43139
					654	
FBgn0033215	0.254	1.377	2.438628157	1.35E-05	0.000346	Dgat2
					051	
FBgn0259230	0.001	0.808	9.658211483	1.63E-05	0.000404	lectin-22C
					409	
FBgn0034717	1.363666667	2.899666667	1.088396027	1.95E-05	0.000472	CG5819

						891	
FBgn0262621	13.076	5.553666667	-1.235408788	2.35E-05	0.000550	923	CG43145
FBgn0034662	1.589	5.457333333	1.780077041	2.57E-05	0.000584	248	CG13492
FBgn0036495	8.563333333	3.546	-1.271979948	2.61E-05	0.000591	351	CG33259
FBgn0031146	4.269	1.522333333	-1.487613874	2.62E-05	0.000592	095	CG15449
MSTRG.8728	3.292333333	1.462666667	-1.170509384	2.63E-05	0.000593	233	--
FBgn0002570	23.99766667	105.6063333	2.137730315	2.84E-05	0.000628	682	Mal-A1
FBgn0053236	2.307333333	0.586333333	-1.976433459	2.91E-05	0.000640	964	Ste:CG33 236
FBgn0265538	40.11633333	16.785	-1.257017211	3.06E-05	0.000666	495	CG44388
FBgn0039087	0.786	2.041666667	1.377146126	4.26E-05	0.000875	77	Ugt303B2
FBgn0033789	2.162666667	8.102666667	1.905585472	4.32E-05	0.000885	912	CG13324
FBgn0028853	0.017333333	1.047333333	5.917027747	5.71E-05	0.001116	962	CG15263
FBgn0042102	0.843666667	2.150333333	1.349815309	5.82E-05	0.001136	729	CG18745
FBgn0033659	1.689666667	5.766	1.770832174	6.01E-05	0.001164	511	Damm
FBgn0053127	2.865	7.724333333	1.430875284	7.65E-05	0.001447	431	CG33127
FBgn0039086	0.269666667	1.087	2.011102833	7.85E-05	0.001476	929	Ugt303B1
FBgn0022700	0.682	2.516	1.883288278	8.35E-05	0.001554	921	Cht4
FBgn0038292	1.988333333	10.64233333	2.420182954	8.70E-05	0.001605	081	CG3987
FBgn0031580	2.235333333	7.620666667	1.76942723	9.14E-05	0.001672	856	CG15423
FBgn0261675	0.202333333	0.972333333	2.264716965	9.28E-05	0.001688	4	Npc1b
FBgn0052054	0.275333333	1.188	2.10928365	0.000102	0.001822	5 252	CG32054
MSTRG.8717	1.071	0.092	-3.541180809	0.000109	0.001932	655 399	--
FBgn0038958	1.486666667	0.456	-1.70497548	0.000109	0.001934		CG13857

				933	642	
MSTRG.3196	5.053	1.505333333	-1.747057195	0.000111	0.001948	--
				542	594	
FBgn0035583	5.63	11.51733333	1.032599894	0.000122	0.002110	CG13704
				626	844	
FBgn0038845	0.781333333	2.328666667	1.575494073	0.000126	0.002155	Alp5
				6	571	
FBgn0040001	0.851	0.394333333	-1.109743464	0.000143	0.002414	FASN3
				88	572	
FBgn0037676	0.081666667	0.561	2.780181522	0.000144	0.002414	CG8861
				039	572	
FBgn0043471	2.159	6.5	1.590076475	0.000162	0.002663	kappaTry
				075	094	
FBgn0085265	0.026333333	1.453333333	5.786331671	0.000204	0.003229	CG34236
				114	626	
FBgn0050360	6.658333333	38.16366667	2.518966786	0.000222	0.003447	Mal-A6
				297	681	
FBgn0030929	2.748333333	7.777333333	1.50071858	0.000229	0.003524	CG15043
				231	215	
FBgn0262007	3.191666667	14.49033333	2.182708891	0.000260	0.003944	CG42825
				747	223	
FBgn0028996	0.149	0.417333333	1.485887826	0.000265	0.003998	onecut
				206	794	
FBgn0040723	1.837666667	5.887	1.679657527	0.000267	0.004025	CG5011
				862	919	
FBgn0066365	1.069333333	0.454333333	-1.23488858	0.000298	0.004379	dyl
				525	395	
FBgn0262006	10.71833333	5.006333333	-1.098254331	0.000299	0.004385	CG42824
				231	195	
FBgn0010038	1.731333333	4.156	1.263312141	0.000328	0.004723	GstD2
				63	408	
FBgn0032669	3.911666667	0.938333333	-2.059611014	0.000346	0.004935	CG15155
				297	011	
FBgn0069969	0.451	1.341333333	1.572468466	0.000366	0.005132	CG40498
				22	173	
FBgn0264330	12.39766667	5.358666667	-1.210122638	0.000374	0.005230	CG43789
				345	441	
FBgn0028381	1.678333333	7.845	2.22474417	0.000379	0.005296	Decay
				82	441	
MSTRG.2986	1.503666667	0.608	-1.306341557	0.000401	0.005512	--
				174	431	
FBgn0033742	0.608666667	1.453333333	1.25564137	0.000448	0.006055	Nep110
				872	693	
FBgn0030837	0.001	0.759333333	9.568589531	0.000451	0.006075	CG8661

				218	712	
FBgn0029835	0.236333333	0.714666667	1.596447373	0.000462 947	0.006191 576	CG5921
FBgn0035886	0.001	0.637	9.315149562	0.000473 417	0.006296 445	Jon66Ci
FBgn0267339	0.918	2.35	1.356094698	0.000484 968	0.006389 789	p38c
FBgn0052633	0.237333333	1.505	2.664776841	0.000491 706	0.006460 456	CG32633
FBgn0259194	0.744333333	0.178333333	-2.061372455	0.000498 312	0.006522 938	Ir94e
FBgn0085205	4.304666667	10.61166667	1.301677832	0.000512 514	0.006671 68	CG34176
FBgn0031414	0.245	0.504333333	1.041595832	0.000515 085	0.006692 783	eyes
FBgn0265349	5.983	1.738333333	-1.783164311	0.000569 494	0.007292 208	Sfp33A4
FBgn0036612	0.510666667	0.198333333	-1.364454724	0.000653 002	0.008111 031	CG4998
FBgn0001077	0.553	1.447	1.387713536	0.000683 872	0.008423 849	ftz
FBgn0033297	3.674333333	11.14733333	1.601144212	0.000690 968	0.008492 822	Mal-A8
FBgn0085261	1.226333333	4.164666667	1.763849854	0.000746 659	0.009038 193	CG34232
FBgn0041156	0.102	0.579	2.504994196	0.000762 078	0.009174 876	exex
FBgn0035186	0.535	1.989	1.89443248	0.000776 293	0.009275 263	CG13912
FBgn0263597	235.218	93.954	-1.323971977	0.000805 579	0.009559 803	Acp98AB
FBgn0031461	0.608	1.303	1.099693855	0.000817 068	0.009663 614	daw
FBgn0014903	1.427	3.341333333	1.227438579	0.000835 584	0.009775 324	CG14630
FBgn0034901	4.611	1.854	-1.314438422	0.000870 669	0.010077 743	CG11300
FBgn0038391	0.160333333	0.791666667	2.303818714	0.000876 191	0.010125 031	GATAe
FBgn0259957	5.966333333	1.937	-1.623020628	0.000894 091	0.010298 111	CG42467
FBgn0033685	1.483	0.529	-1.48717897	0.000916 726	0.010430 994	OSCP1
MSTRG.14489	1.628333333	3.539	1.1199457	0.001012	0.011277	--

				718	484	
FBgn0053514	1.078666667	2.814	1.383373222	0.001023	0.011378	CG33514
				428	776	
FBgn0024184	0.042	0.331	2.978369984	0.001048	0.011581	unc-4
				232	725	
FBgn0034296	3.362	39.09233333	3.539494069	0.001112	0.012118	CG10912
				336	788	
FBgn0034553	0.047666667	0.522666667	3.454838507	0.001193	0.012754	CG9993
				333	825	
FBgn0267252	1.684333333	3.851333333	1.193180315	0.001270	0.013381	Ggamma3
				025	771	0A
MSTRG.11564	0.206666667	0.773333333	1.903784685	0.001287	0.013550	--
				957	465	
FBgn0263656	0.001	0.806333333	9.655232553	0.001302	0.013636	CG43647
				925	698	
FBgn0035734	2.760333333	1.34	-1.042609494	0.001329	0.013850	CG14823
				202	034	
FBgn0035290	0.313666667	0.876333333	1.482247514	0.001357	0.014077	dsb
				001	258	
FBgn0004589	4.332666667	1.654666667	-1.388714633	0.001403	0.014497	Eig71Eb
				712	823	
FBgn0036422	1.989	5.074333333	1.351175017	0.001450	0.014860	CG3868
				931	989	
FBgn0039945	0.306333333	0.709666667	1.212039183	0.001451	0.014860	CG17159
				524	989	
MSTRG.7863	1.601333333	0.613333333	-1.384530385	0.001468	0.014998	--
				167	71	
FBgn0039085	0.562666667	1.401666667	1.316790896	0.001490	0.015180	Ugt303B3
				275	561	
FBgn0262003	3.645666667	1.115	-1.709138948	0.001491	0.015181	CG42821
				49	97	
MSTRG.7966	0.463666667	0.083	-2.481904772	0.001548	0.015580	--
				314	391	
FBgn0022740	0.653	1.955333333	1.582259673	0.001555	0.015618	HLH54F
				262	118	
MSTRG.3037	0.209	1.043666667	2.32008616	0.001736	0.017074	--
				807	968	
FBgn0010223	1.056333333	2.115333333	1.001819862	0.001835	0.017899	Galphaf
				524	568	
FBgn0040349	2.759333333	5.941333333	1.106466984	0.001934	0.018664	CG3699
				247	618	
FBgn0052499	1.154	0.472	-1.289784459	0.002000	0.019170	Cda4
				27	502	
MSTRG.5198	2.031	0.998	-1.025078519	0.002041	0.019482	--

					121	55	
FBgn0031935	0.961666667	1.924	1.000499981	0.002105	0.019924	CG13793	
				773	284		
FBgn0015039	1.879666667	8.322666667	2.146569014	0.002290	0.021329	Cyp9b2	
				634	825		
FBgn0038613	0.013	0.269333333	4.372809264	0.002345	0.021625	Vha100-4	
				429	804		
FBgn0051104	0.326666667	1.327666667	2.023001825	0.002384	0.021882	CG31104	
				139	549		
FBgn0050043	0.092333333	0.518	2.488028622	0.002493	0.022691	CG30043	
				169	215		
FBgn0032211	1.343333333	0.605333333	-1.150015636	0.002500	0.022729	CG13138	
				637	843		
FBgn0033582	0.974	2.562666667	1.395652158	0.002518	0.022825	CG9084	
				203	788		
MSTRG.14469	1.368333333	2.891666667	1.079481536	0.002598	0.023455	--	
				776	534		
FBgn0085232	0.068	1.155333333	4.086630597	0.002699	0.024075	CG34203	
				131	874		
MSTRG.7973	2.395333333	0.968666667	-1.306154232	0.002704	0.024080	--	
				849	079		
FBgn0034045	0.285666667	0.764333333	1.419869245	0.002752	0.024388	CG8249	
				282	225		
FBgn0028940	0.921	2.261666667	1.296113253	0.002863	0.025124	Cyp28a5	
				896	584		
FBgn0032235	2.585333333	8.822	1.770755458	0.002892	0.025283	CG5096	
				813	868		
FBgn0033668	0.533333333	0.185	-1.527512229	0.003188	0.027311	exp	
				727	469		
FBgn0053346	0.114	0.939	3.042091333	0.003298	0.027950	-	
				982	147		
FBgn0264776	2.545333333	5.806666667	1.189855616	0.003504	0.029220	CG44014	
				876	428		
FBgn0003861	0.215333333	0.538666667	1.322821128	0.003571	0.029671	trp	
				575	218		
FBgn0053816	0.114	0.869	2.930322353	0.003578	0.029714	His1:CG3	
				864	267	3816	
FBgn0085227	1.255	3.505333333	1.481864277	0.003645	0.030198	CG34198	
				78	71		
FBgn0003863	7.372666667	60.005333333	3.024832298	0.003657	0.030260	alphaTry	
				591	988		
FBgn0036320	0.855	2.871666667	1.747891971	0.003691	0.030487	CG10943	
				416	157		
MSTRG.10295	1.483666667	0.478666667	-1.632073752	0.004025	0.032613	--	

				743	284	
FBgn0034318	0.281	1.755666667	2.643376923	0.004047	0.032719	CG14500
				546	215	
FBgn0032433	0.841333333	1.710666667	1.02380926	0.004126	0.033166	Oatp33Ea
				104	923	
FBgn0053301	1.009333333	2.403666667	1.251834137	0.004299	0.034268	-
				941	272	
FBgn0053533	1.567666667	4.188666667	1.417872248	0.004476	0.035259	lectin-37D
				79	101	b
FBgn0266099	0.956333333	2.601666667	1.443850664	0.004575	0.035803	CG44836
				541	256	
FBgn0039319	0.907333333	2.013333333	1.149881483	0.004659	0.036332	CG13659
				482	623	
FBgn0267428	0.680666667	0.262666667	-1.373715331	0.004680	0.036438	DIP-lamb
				835	662	da
FBgn0034622	0.337666667	0.078	-2.114053739	0.004890	0.037595	BBS9
				817	823	
FBgn0036996	3.413333333	1.432	-1.253149817	0.005045	0.038452	mag
				894	44	
MSTRG.3040	1.182	0.454666667	-1.378348892	0.005075	0.038544	--
				249	295	
FBgn0034005	0.514333333	1.042	1.018579716	0.005087	0.038582	ItgaPS4
				641	873	
FBgn0264775	0.382	4.019	3.395192034	0.005136	0.038848	CG44013
				461	619	
MSTRG.14528	2.074666667	0.718333333	-1.530154191	0.005340	0.039952	Clbn
				037	543	
FBgn0265579	5.900333333	2.73	-1.111895509	0.005526	0.040938	CG44406
				024	462	
FBgn0002578	0.097	0.967666667	3.318453514	0.005611	0.041357	Kaz-m1
				733	648	
FBgn0036411	0.029666667	0.277333333	3.224706287	0.005677	0.041620	Sox21a
				069	032	
FBgn0040252	0.189666667	0.696	1.875621154	0.005702	0.041765	Ugt303A1
				896	933	
FBgn0040609	2.745666667	5.654666667	1.042285494	0.005962	0.043128	CG3348
				92	554	
FBgn0260393	1.393	0.591666667	-1.235338734	0.006199	0.044389	CG17147
				693	677	
MSTRG.14398	5.182666667	2.390333333	-1.11648279	0.006488	0.045919	--
				242	297	
FBgn0262588	1.532	0.502	-1.609657028	0.006615	0.046631	CG43125
				302	262	
FBgn0053511	0.284333333	0.012666667	-4.488474418	0.006667	0.046906	-

				68	661	
FBgn0052115	0.596	1.365666667	1.196221156	0.006766	0.047340	CG32115
				273	408	
FBgn0264296	0.158	1.385	3.131889513	0.006865	0.047936	CG43774
				124	856	
FBgn0031432	0.378333333	1.025666667	1.438832146	0.006928	0.048280	Cyp309a1
				061	676	
FBgn0261575	3.608666667	20.730666667	2.52222872	0.006967	0.048504	tobi
				057	479	
FBgn0032315	4.333	1.573333333	-1.461541878	0.007049	0.048885	CG14069
				466	08	
FBgn0010044	0.195	1.106666667	2.504674712	0.007139	0.049434	GstD8
				218	525	