

Supplementary Table 1. Effect of RU486 on female life span in *dPrp19* overexpression and control genotypes.

Genotype	RU [$\mu\text{g/ml}$]	N(0)	Mean lifespan (d)	SE	Median	log-rank χ^2		
						0 vs 100	0 vs 300	100 vs 300
<i>daGS-Gal4; w¹¹¹⁸</i> (control genotype)	0	131	65.20	1.23	72	0.98	0.65	2.61
	100	138	64.04	1.42	69			
	300	140	66.12	0.98	69			
<i>TubGS-Gal4 > UAS-dPrp19-1</i>	0	85	96.73	1.29	98	5.84*	66.88**	23.2**
	100	41	100.18	1.21	101			
	300	82	105.98	1.51	109			
<i>daGS-Gal4 > UAS-dPrp19-2</i>	0	132	50.73	1.25	55	43.02**	116.85**	11.35**
	100	137	58.20	1.30	61			
	300	115	63.65	1.27	65			
<i>daGS-Gal4 > UAS-dPrp19-4</i>	0	142	52.19	0.64	53	100.26**	106.39**	10.03*
	100	139	60.19	0.83	62			
	300	65	62.70	1.55	66			

Supplementary Table 2. Effect of RU486 on male life span in *dPrp19* overexpression and control genotypes.

Genotype	RU [$\mu\text{g/ml}$]	N(0)	Mean lifespan (d)	SE	Median	log-rank χ^2		
						0 vs 100	0 vs 300	100 vs 300
<i>daGS-Gal4; w¹¹¹⁸</i> (control genotype)	0	136	70.02	1.01	73	2.90	5.25	0.64
	100	127	68.64	0.99	72			
	300	125	65.33	1.44	70			
<i>daGS-Gal4 > UAS-</i> <i>dPrp19-2</i>	0	138	63.73	1.82	70	7.89*	0.74	3.42
	100	141	57.79	2.09	69			
	300	137	63.29	1.81	70			
<i>daGS-Gal4 > UAS-</i> <i>dPrp19-4</i>	0	122	69.63	1.26	72	3.11	0.16	3.30
	100	136	72.38	0.99	74			
	300	61	68.58	1.78	72			

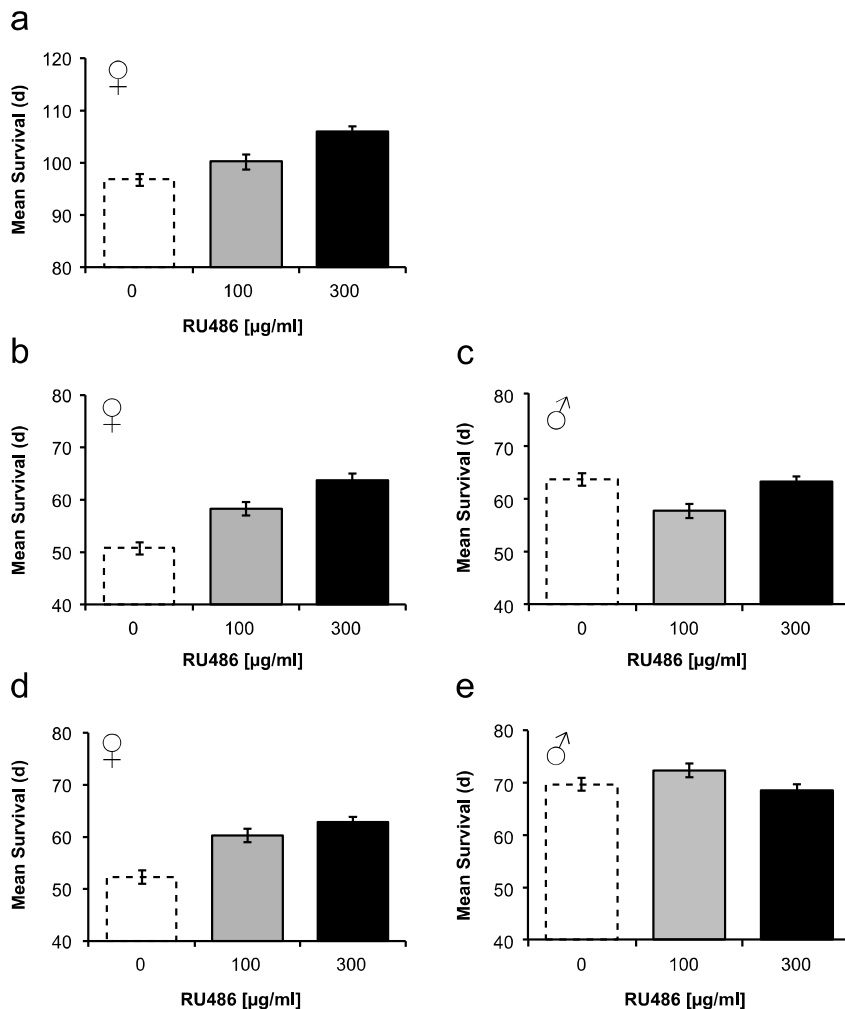
Supplementary Table 3. Effects of *dPrp19* overexpression and control genotypes on female survival upon exposure to paraquat (20 mM).

Genotype	RU [$\mu\text{g/ml}$]	N(0)	Mean lifespan (h)	SE	Median	log-rank χ^2		
						0 vs 100	0 vs 300	100 vs 300
<i>TubGS-Gal4 > UAS-dPrp19-1</i>	0	109	91.38	3.61	96	6.18*	10.46*	2.18
	100	162	106.96	2.40	120			
	300	86	112.74	3.15	120			

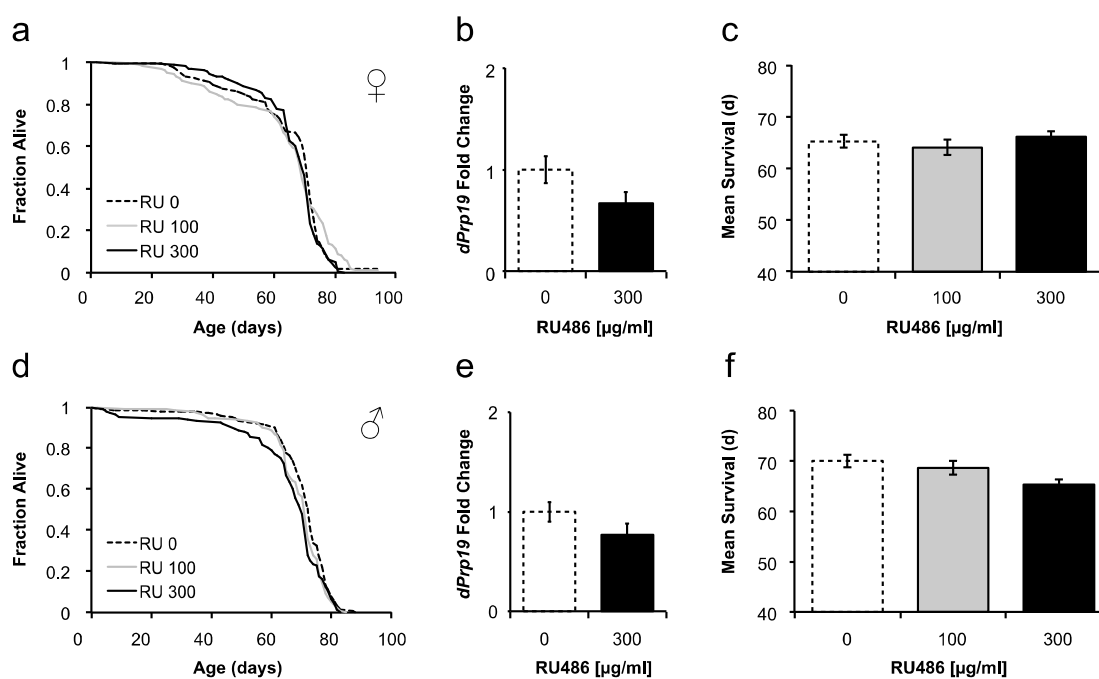
Supplementary Table 4. Effects of *dPrp19* overexpression on female survival upon exposure to cisplatin (400 µg/ml).

Genotype	RU [µg/ml]	N(0)	Mean lifespan (h)	SE	Median	log-rank χ^2		
						0 vs 100	0 vs 300	100 vs 300
<i>daGS-Gal4; w¹¹¹⁸</i> (control genotype)	0	195	102.77	1.09	108	3.4	2.2	0.28
	100	200	105.42	1.14	108			
	300	198	105.52	1.01	108			
<i>daGS-Gal4 ></i> <i>dPrp19-2</i>	0	206	107.77	1.48	108	5.73	11.58**	1.58
	100	199	114.21	1.28	108			
	300	197	116.35	1.46	120			
Genotype		N(0)	Mean lifespan (h)	SE	Median	log-rank χ^2		
<i>TubGal4 > dPrp19-2</i>		100	104.88	1.63	108			
<i>TM6/Sb; dPrp19-2</i> (control genotype)		83	89.20	1.49	84		52.21**	
<i>TubGal4 > dPrp19-4</i>		99	83.88	1.25	84			
<i>TM6/Sb; dPrp19-4</i> (control genotype)		99	72.61	0.98	72		47.85**	

Supplementary Figure 1. *dPrp19* expression increases life span in females but not males. This figure represents the survival data from Figure 2, re-plotted in terms of mean life span (\pm SD) as a function of RU486 concentration. **(a)** Response to induction of *dPrp19* expression in female *TubGS-Gal4 > UAS-dPrp19-1*. **(b,c)** Response to induction of *dPrp19* expression in female **(b)** and male **(c)** flies of *daGS-Gal4 > dPrp19-2*. In males, the small but significant difference in mean life span under treatment of 100 μ g/ml RU486 is likely due to "setup mortality". **(d,e)** Response to induction of *dPrp19* expression in female **(d)** and male **(e)** flies of *daGS-Gal4 > dPrp19-4*. See Supplementary Tables 1 (females) and 2 (males) for a summary of statistics, and Materials and Methods for experimental details.



Supplementary Figure 2. In absence of the *dPrp19* UAS expression cassette, the inducer drug RU486 does not affect life span. To control for confounding effects of the inducer drug RU486 on survival, we crossed the *daGS-Gal4* driver to the *w¹¹¹⁸* strain. Neither in female (**a-c**) nor male (**d-f**) flies of the resulting F1 cross (*daGS-Gal4; w¹¹¹⁸*), we observed an effect of RU486 on *dPrp19* expression (**b,e**) or life span (**a,c,d,f**) (Supplementary Tables 1 and 2).



Supplementary Figure 3. Overexpression of *dPrp19* promotes resistance to genotoxic agents in female flies. **(a)** Mean life span (\pm SD) of females (*TubGS-Gal4 > UAS-dPrp19-1*) at different RU486 concentrations and when exposed to 20mM paraquat (PQ). This plot corresponds to the survival curve in Figure 4a. **(b)** Mean life span (\pm SD) of females (*daGS-Gal4 > UAS-dPrp19-2*) at different RU486 concentrations when exposed to 400 μ g/ml cisplatin (CisPt). This plot corresponds to the survival curve in Figure 4b. **(c)** Mean life span (\pm SD) of females with constitutively active *dPrp19* expression (T2: *Tub-Gal4 > UAS-dPrp19-2* in grey; T4: *Tub-Gal4 > UAS-dPrp19-4* in black) and their controls (C2: TM6 *Sb*; *UAS-dPrp19-2*, in dashed grey; C4: TM6 *Sb*; *UAS-dPrp19-4*) when exposed to 400 μ g/ml cisplatin (CisPt). This plot corresponds to the survival curve in Figure 4c. **(d, e)**. In absence of the *dPrp19* UAS expression cassette, RU486 does not affect resistance to cisplatin. In F1 offspring carrying only the driver (*daGS-Gal4*; *w¹¹¹⁸*) we did not observe any effect of RU486 on resistance to genotoxic stress induced by 400 μ g/ml cisplatin. See Supplementary Tables 3 (paraquat) and 4 (cisplatin) for statistics.

