

Supplemental Data

Germ-Cell Loss Extends *C. elegans* Life

Span through Regulation of DAF-16 by

kri-1 and Lipophilic-Hormone Signaling

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Table S1. Additional Life-Span Data

Genotype						
Background	RNAi treatment (if applicable)*	Experiment	Mean LS \pm SEM (days)	Events/Obs (trials) [#]	% of control	P value
<i>glp-1(e2141ts)</i>			28.3 \pm 1.4	44/60 (1)		
<i>daf-16(mu86); glp-1(e2141ts); muIs109 [Pd_{daf-16}::gfp::daf-16]</i>			23.3 \pm 1.1	51/60 (1)	82	0.0037
<i>daf-16(mu86); glp-1(e2141ts)</i>			11.9 \pm 0.4	47/60 (1)	42	<0.0001
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<i>glp-1(e2141ts)</i>	control	1	22.3 \pm 1.1	65/65 (1)		
	<i>daf-18</i>		14.9 \pm 0.4	58/65 (1)	67	<0.0001
	control	2	20.5 \pm 0.8	76/90 (1)		
	<i>daf-18</i>		15.9 \pm 0.5	62/72 (1)	78	<0.0001

*If applicable, worms were fed bacteria expressing dsRNA for *daf-18* or bacteria containing an empty vector (no RNAi insert, designated “control”).

#Some animals were censored (see Experimental Procedures).

Table S2. Effect of *kri-1*, *daf-12*, or *daf-9* Mutation on DAF-16 Intestinal Nuclear Localization in Animals with No Germ Cells

Genotype	Day 1				Day 2			
	% of animals with DAF-16 nuclear localized	Standard Error†	Number of Animals (trials)	P value	% of animals with DAF-16 nuclear localized	Standard Error	Number of Animals (trials)	P value
<i>daf-16(mu86); glp-1(e2141ts); muEx248 [Pdaf-16::gfp::daf-16]</i>	46.2	4.1	145 (3)		83.1	3.5	118 (2)	
<i>daf-16(mu86); glp-1(e2141ts); daf-12(rh61rh411); muEx248</i>	15.0	2.8	160 (3)	<0.0001* 0.29¶	52.3	4.7	111 (2)	<0.0001* 0.33¶
<i>daf-16(mu86); glp-1(e2141ts); daf-9(rh50); muEx248</i>	8.70	3.4	69 (3)	<0.0001*	43.1	6.5	58 (2)	<0.0001*
<i>daf-16(mu86); glp-1(e2141ts); muIs109 [Pdaf-16::gfp::daf-16]</i>	75.4	5.5	61 (1)		90.0	4.7	40 (1)	
<i>daf-16(mu86) kri-1(ok1251); glp-1(e2141ts); muIs109 [Pdaf-16::gfp::daf-16]</i>	2.56	2.5	39 (1)	<0.0001§	3.57	3.5	28 (1)	<0.0001§

The same populations were counted on day 1 and then day 2 of adulthood. P value calculations are versus the following:

**daf-16(mu86); glp-1(e2141ts); muEx248*.

¶*daf-16(mu86); glp-1(e2141ts); daf-9(rh50); muEx248*.

§*daf-16(mu86); glp-1(e2141ts); muIs109*.

†The standard error for proportions was determined.

While more animals of all genotypes displayed DAF-16 nuclear localization on day 2 than on day 1 of adulthood, the magnitude was still considerably less in *daf-12*, *daf-9*, or *kri-1* mutant backgrounds. A double-blind experiment performed by an independent naïve observer confirmed the effect of *daf-12* or *daf-9* mutation on DAF-16 nuclear localization (see Experimental Procedures).

Table S3. Effect of *kri-1*, *daf-12*, and *daf-9* Mutation on *daf-16^{AM}::gfp* Rescue of *daf-16*; *glp-1* Life Span

Genotype					
Background	Transgene/Line	Experiment	Mean LS ± SEM (days)	Events/Obs [#]	P value
<i>glp-1(e2141ts)</i>		1	24.6 ± 1.2	57/84	
		2	27.4 ± 1.2	75/96	
		3	29.4 ± 1.3	67/96	
		4*	30.9 ± 1.5	59/72	
<i>daf-16(mu86); glp-1(e2141ts)</i>	<i>daf-16^{AM}::gfp/ muEx158</i>	1	16.9 ± 0.5	60/96	
		2	18.3 ± 0.7	66/96	
		3	18.9 ± 0.6	73/96	
		4*	23.6 ± 1.0	54/66	
<i>daf-16(mu86) kri-1(ok1251); glp-1(e2141ts)</i>	<i>daf-16^{AM}::gfp/ muEx158</i>	1	19.7 ± 0.8	66/84	0.0077 [§]
		2*	22.6 ± 1.2	70/84	0.0013 [§]
		3	20.6 ± 0.6	78/96	0.093 [§]
<i>daf-16(mu86); glp-1(e2141ts); daf-12(rh61rh411)</i>	<i>daf-16^{AM}::gfp/ muEx158</i>	1	12.5 ± 0.3	86/96	<0.0001 [§]
		2*	12.2 ± 0.2	85/96	<0.0001 [§]
		3	13.8 ± 0.4	87/96	<0.0001 [§]
<i>daf-16(mu86); glp-1(e2141ts); daf-9(rh50)</i>	<i>daf-16^{AM}::gfp/ muEx158</i>	1*	16.2 ± 1.7	21/48	0.30 [§]
		2	16.3 ± 1.2	36/82	0.042 [§]
		3	19.0 ± 1.4	47/84	0.38 [§]
<i>daf-16(mu86); glp-1(e2141ts)</i>	none	1	14.0 ± 0.4	65/84	<0.0001 [¶]
		2	13.7 ± 0.5	67/84	<0.0001 [¶]
		3	14.5 ± 0.6	61/84	<0.0001 [¶]
		4*	16.3 ± 0.6	65/72	<0.0001 [¶]
<i>daf-16(mu86) kri-1(ok1251); glp-1(e2141ts)</i>	none	1	14.0 ± 0.3	62/72	<0.0001 [¶]
		2*	14.6 ± 0.4	72/84	<0.0001 [¶]
		3	15.5 ± 0.4	74/84	<0.0001 [¶]
<i>daf-16(mu86); glp-1(e2141ts); daf-12(rh61rh411)</i>	none	1	11.0 ± 0.2	70/84	<0.0001 ^{¶, †}
		2*	11.1 ± 0.2	69/84	0.0004 [¶]
		3	10.9 ± 0.3	77/84	<0.0001 ^{¶, †}
<i>daf-16(mu86); glp-1(e2141ts); daf-9(rh50)</i>	none	1*	11.8 ± 0.4	23/72	0.0010 [¶]
		2	14.5 ± 0.6	16/83	0.57 [¶]
		3	14.0 ± 0.7	18/84	0.0028 [¶]

*Indicates experiments whose graphs appear in Figure 5.

#Some animals were censored (see Experimental Procedures).

P value calculations are versus the following:

§*daf-16*; *glp-1*; *muEx158*.

¶same background plus *muEx158*.

†*daf-16*; *glp-1*.

Table S4. Effect of *kri-1* Loss of Function on *daf-2* Dauer Formation

Genotype		25.5°C			
Background	RNAi treatment	% dauer	% adult	% L1/L2 arrest	n
<i>rrf-3(pk1426); daf-2(e1368)</i>	control	98.8	1.2	0	87
	<i>daf-12</i>	13.9	38.0	48.1	108
	<i>kri-1</i>	89.9	0	10.1	89

rrf-3(pk1426); daf-2(e1368) animals were raised at 20°C on the indicated RNAi plates, and their progeny scored for dauer formation, larval arrest, or growth to adulthood at 25.5°C (see Experimental Procedures).