

ESM6. Table of final models for the post-hibernation titer and relative mRNA expression of cytokine genes with Type II sums of squares. Estimates and standard errors for the main effects were obtained from linear model using function lm in R. Covariates and interactions not included in the final models are shown in parentheses. Significant effects ($p < 0.05$) are shown in bold. *Ifng* expression was below detection level in most individuals.

Response variable	Independent variables	Type II Sum Sq	Df	F	Estimate ±SE	Pr(>F)	
February anti- <i>Pd</i> titer	Pre-hibernation titer (high vs. low)	1204.76	1	59.08	1.68±14.23	6.36E-08	***
	Infection	772.26	1	37.87	28.45±2.92	2.34E-06	***
	Time to euthanasia	114.78	1	5.63	-0.39±0.07	2.60E-02	*
	Proportion SMI lost	84.27	1	4.13	87.85±29.96	5.33E-02	.
	Pre-hibernation titer (high vs. low) x Infection	1165.77	1	57.16	-27.79±3.68	8.45E-08	***
	Pre-hibernation titer (high vs. low) x Proportion SMI lost	132.51	1	6.50	-85.54±33.56	1.76E-02	*
	Pre-hibernation titer (high vs. low) x Time to euthanasia	574.26	1	28.16	0.41±0.08	1.92E-05	***
	(Infection x Time to euthanasia)	0.85	1	0.04	-0.02±0.08	8.41E-01	
	(Infection x Proportion SMI lost)	38.45	1	1.88	-55.43±40.46	1.85E-01	
	Residuals	489.45	24				
Interleukin-6, wing	Infection	4.72	1	6.50	0.77±0.3	1.60E-02	*
	Proportion SMI lost	4.86	1	6.69	-7.23±2.8	1.46E-02	*
	(Time to euthanasia)	0.76	1	1.00	0.01±0.01	3.27E-01	
	(Infection x Time to euthanasia)	0.052	1	0.07	-0.003±0.01	7.95E-01	
	(Infection x Proportion SMI lost)	0.047	1	0.61	-4.97±6.38	4.43E-01	
	Residuals	22.54	31				
Interleukin-1 β , wing	Infection	0.71	1	1.87	0.30±0.22	1.82E-01	
	Proportion SMI lost	3.58	1	9.36	-5.73±1.87	4.54E-03	**
	(Time to euthanasia)	0.16	1	0.42	0.001±0.006	5.22E-01	

	(Infection x Time to euthanasia)	0.51	1	1.33	-0.01±0.01	2.58E-01	
	(Infection x Proportion SMI lost)	0.47	1	1.23	-4.85±4.37	2.77E-01	
	Residuals	11.87	31				
Interleukin-6, lymph node	Infection	1.65	1	4.68	0.50 ± 0.24	4.02E-02	*
	Proportion SMI lost	0.49	1	1.40	2.89 ± 2.45	2.48E-01	
	(Time to euthanasia)	0.40	1	1.06	-0.002±0.01	3.14E-01	
	(Infection x Time to euthanasia)	0.21	1	0.56	-0.007±0.01	4.60E-01	
	(Infection x Proportion SMI lost)	0.00	1	0.01	-0.38±5.19	9.42E-01	
	Residuals	8.81	25				
Interleukin-17A, lymph node	Infection	8.25	1	7.99	1.11±0.39	9.10E-03	**
	Proportion SMI lost	0.01	1	0.01	0.34±3.78	9.29E-01	
	(Time to euthanasia)	0.75	1	0.71	-0.01±0.01	4.08E-01	
	(Infection x Time to euthanasia)	0.67	1	0.64	0.01±0.02	4.33E-01	
	(Infection x Proportion SMI lost)	1.46	1	1.39	9.34±7.95	2.52E-01	
	Residuals	25.80	25				
Interleukin-4, lymph node	Infection	1.09	1	2.38	0.38±0.24	1.34E-01	
	Proportion SMI lost	0.02	1	0.04	0.45±2.30	8.45E-01	
	(Time to euthanasia)	0.002	1	0.37	-0.01±0.01	5.47E-01	
	(Infection x Time to euthanasia)	0.80	1	1.69	0.01±0.01	2.05E-01	
	(Infection x Proportion SMI lost)	0.16	1	0.34	2.92±5.03	5.66E-01	
	Residuals	13.29	29				