

Immune priming in *Armadillidium vulgare* against *Salmonella enterica*: direct or indirect costs on life history traits?

Cybèle Prigot-Maurice^{1*}, Charlotte Depeux^{1*}, Hélène Paulhac¹, Christine Braquart-Varnier^{1#}, Sophie Beltran-Bech^{1#}

¹ : Université de Poitiers, Laboratoire Écologie et Biologie des Interactions, UMR CNRS 7267, 3 rue Jacques Fort, TSA 51106, F-86073 POITIERS Cedex 9, France.

* Co-first authors

Co-last authors

Corresponding author: Cybèle Prigot-Maurice (cybele.prigot@gmail.com)

Supplementary material

Figure S1. Body weight of females before reproduction according to their priming treatment. NI: never-injected, control females; NP: non-primed females; LBP: females primed with sterile LB broth, SAP: females primed with 10^3 living *S. enterica*. NP, LBP and SAP females received the LD₅₀ injection. Mean \pm SE: Control = 0.15g \pm 0.008, NP = 0.12g \pm 0.01, LBP = 0.14g \pm 0.007, SAP = 0.12g \pm 0.007).

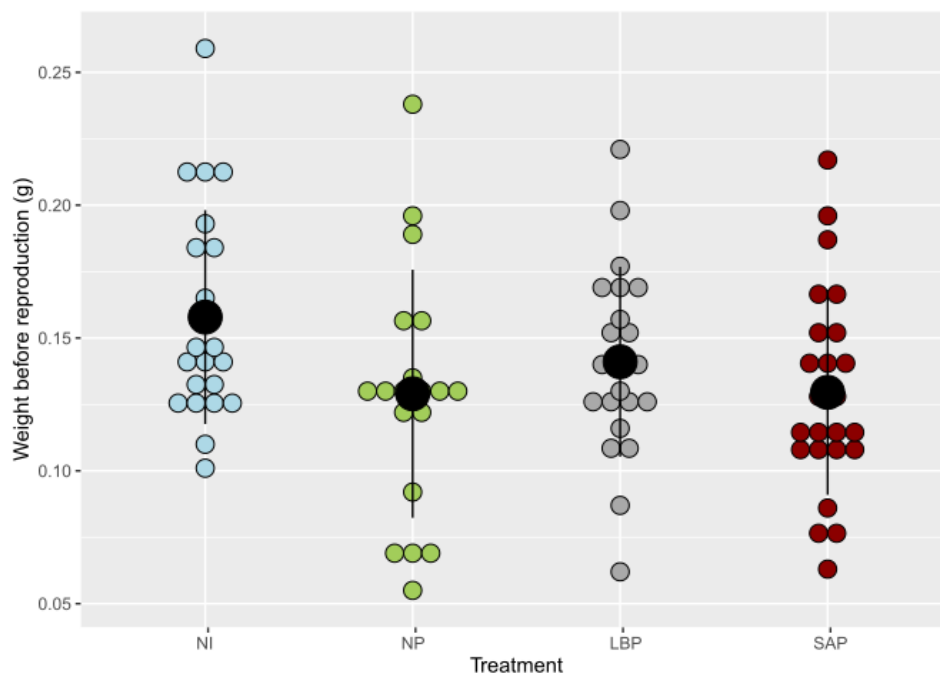


Figure S2. Number of offspring in the first clutch according to the females' treatment. NI: never-injected, control females; NP: non-primed females; LBP: females primed with sterile LB broth, SAP: females primed with 10^3 living *S. enterica*. NP, LBP and SAP females received the LD₅₀ injection.

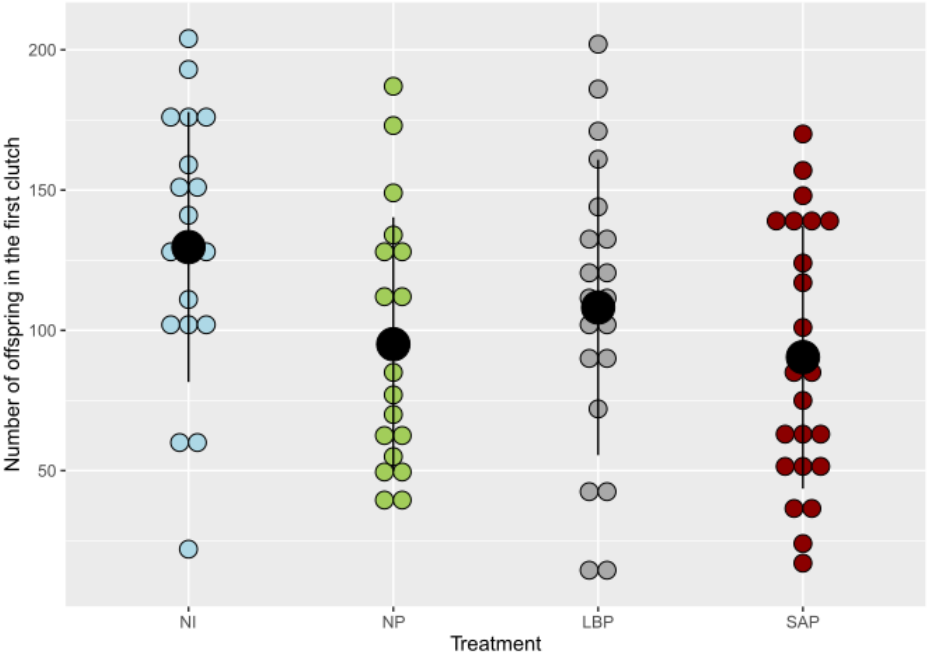


Figure S3. Total number of offspring (first and second clutches included) according to the females' treatment. NI: never-injected, control females; NP: non-primed females; LBP: females primed with sterile LB broth, SAP: females primed with 10^3 living *S. enterica*. NP, LBP and SAP females received the LD₅₀ injection.

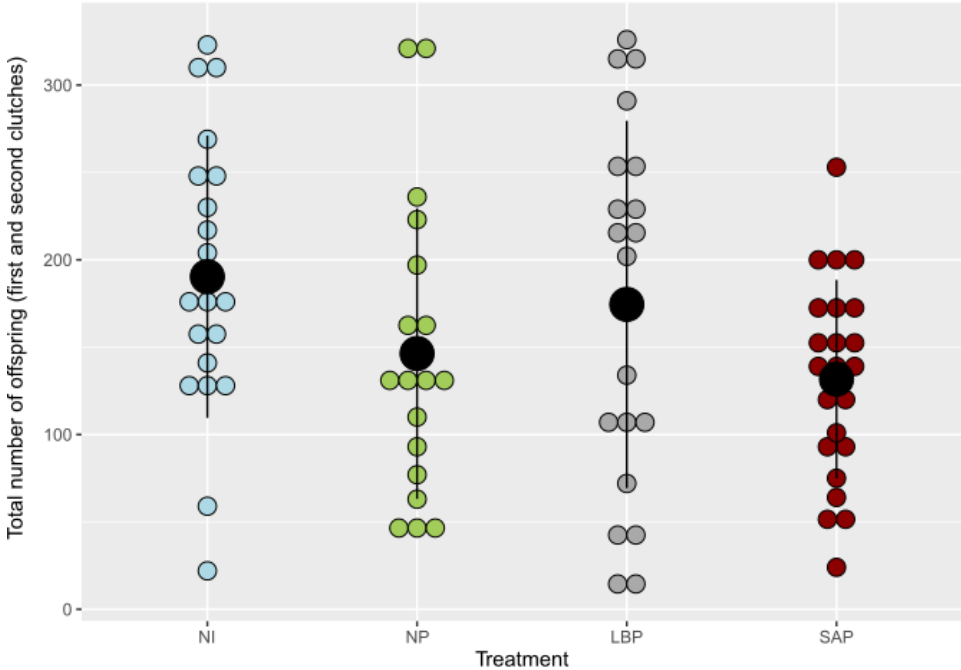


Table S1. Pairwise comparisons (Tukey adjustment) of survival rates according to females' treatments (NP: non-primed females; LBP: females primed with sterile LB broth; SAP: females primed with 10^3 *S. enterica* in the priming procedure; Control: never-injected females).

SURVIVAL RATES (frequency of living females)			
22 days after LD₅₀	estimate	SE	p-value
NP vs. LPB	0.914	0.494	0.064
NP vs. SAP	0.912	0.495	0.065
LBP vs. SAP	0.578	0.578	0.99
During the reproductive period			
	estimate	SE	p-value
NP vs. LPB	-0.33	0.627	0.952
NP vs. SAP	0.318	0.627	0.957
LBP vs. SAP	0.01	0.535	1.00
Control vs. NP	0.01	0.671	1.00
Control vs. LBP	-0.31	0.586	0.951
Control vs. SAP	-0.299	0.586	0.956

Table S2. Pairwise comparisons (Tukey adjustment) of body weight of females before reproduction, according to the treatments (NP: non-primed females; LBP: females primed with sterile LB Broth; SAP: females primed with 10^3 *S. enterica* during the priming procedure; Control: never-injected females).

WEIGHT OF FEMALES			
	estimate	SE	p-value
NP vs. LPB	0.01	0.012	0.76
NP vs. SAP	-0.0007	0.012	0.99
LBP vs. SAP	0.01	0.011	0.76
Control vs. NP	0.03	0.012	0.09
Control vs. LBP	0.01	0.012	0.46
Control vs. SAP	0.02	0.012	0.07

Table S3. Pairwise comparisons (Tukey adjustment) of the number of offspring in the first clutch according to females' treatments (NP: non-primed females; LBP: females primed with sterile LB Broth; SAP: females primed with 10^3 *S. enterica* during the priming procedure; Control: never-injected females).

NUMBER OF OFFSPRING IN THE FIRST CLUTCH			
	estimate	SE	p-value
NP vs. LBP	-14.37	15.4	0.78
NP vs. SAP	-2.21	14.8	0.99
LBP vs. SAP	12.16	14.8	0.84
Control vs. NP	39.38	16.4	0.08
Control vs. LBP	25.01	15.9	0.40
Control vs. SAP	37.18	15.7	0.09

Table S4. Average marginal effects of the interaction between the probability to produce a second clutch and the body weight of females by treatment (NP: non-primed, Control females; LBP: females primed with sterile LB Broth; SAP: females primed with 10^3 *S. enterica* in the priming procedure; Control: never-injected females).

MEAN WEIGHT = 0.06 g

Treatment	Predicted probability of second clutch	95% CI
Control	0.70	[0.16, 0.96]
NP	0.79	[0.35, 0.96]
LBP	0.76	[0.18, 0.98]
SAP	0.71	[0.26, 0.94]

MEAN WEIGHT = 0.20 g

Treatment	Predicted probability of second clutch	95% CI
Control	0.35	[0.11, 0.70]
NP	0.26	[0.05, 0.71]
LBP	0.32	[0.07, 0.76]
SAP	0.27	[0.06, 0.71]

Table S5. Pairwise comparisons (Tukey adjustment) of the total number of offspring according to females' treatments (NP: non-primed, Control females; LBP: females primed with sterile LB Broth; SAP: females primed with 10^3 *S. enterica* in the priming procedure; Control: never-injected females).

TOTAL NUMBER OF OFFSPRING (first and second clutches included)			
	estimate	SE	p-value
NP vs. LPB	-35.5	27.2	0.56
NP vs. SAP	5.5	26.2	0.99
LBP vs. SAP	41.0	26.1	0.40
Control vs. NP	56.7	28.7	0.20
Control vs. LBP	21.2	28.0	0.87
Control vs. SAP	62.2	27.4	0.11

Table S6. Statistical results of haemocyte parameters and senescence biomarkers analysis (generalized linear mixed effect models).

HAEMOCYTE CONCENTRATION			
	χ^2	df	p-value
Treatment	2.77	3	0.42
Total number of offspring	0.00	1	0.99
Number of clutches	0.16	1	0.68
Treatment*Total number of offspring	1.56	3	0.66
Treatment*Number of clutches	0.52	3	0.91
HAEMOCYTE VIABILITY			
	χ^2	df	p-value
Treatment	1.04	3	0.79
Total number of offspring	1.15	1	0.28
Number of clutches	0.11	1	0.73
Treatment*Total number of offspring	0.67	3	0.87
Treatment*Number of clutches	0.91	3	0.82
SIZE OF VIABLE HAEMOCYTES			
	χ^2	df	p-value
Treatment	2.60	3	0.55
Total number of offspring	0.64	1	0.64
Number of clutches	12.99	1	0.003
Treatment*Total number of offspring	2.71	3	0.43
Treatment*Number of clutches	3.62	3	0.30
β-GALACTOSIDASE ACTIVITY			
	χ^2	df	p-value
Treatment	7.10	3	0.06
Total number of offspring	0.46	1	0.49
Number of clutches	0.08	1	0.76
Treatment*Total number of offspring	2.42	3	0.48
Treatment*Number of clutches	2.24	3	0.52