Assessment of *Salmonella Typhimurium* load within infected nematodes

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**CONTEXT**

The nematode *Caenorhabditis elegans* is a powerful model system for the study of host-pathogen interactions. This study looked at innate immune response of *C. elegans* to *Salmonella Typhimurium*. To test whether the altered resistance of lys-7 and abl-1 (tyrosine kinase ABL-1) mutant nematodes to *Salmonella Typhimurium* was due to a lower bacterial load within infected animals, wild type (N2), lys-7 and abl-1 animals were exposed to *S. Typhimurium* L1019, and infectious burden quantified over time through viable counts [1].

**MATERIAL**

- Precellys 24 homogenizer.
- Precellys kit: 03961-1-004 (0.5 mm glass beads).
- Sample: *C. elegans* (Six animals at L4 stage) infected with *S. Typhimurium* strain L1019.
- Buffer: 200 μl M9 with 25 mM levamisole hydrochloride.
- 10 replicates / 5 time points (5 days).


**PROTOCOL**

- Precellys 24: 6500 rpm, 1x10s.
- Analysis: Lysates were serially diluted in M9 and plated onto LB plates containing kanamycin (30 μg/ml) to select for L1019. Colonies were counted by eye and scaled to the original concentration per nematode.

**RESULTS**

Infection load was assessed through viable counts for 5 days / each 24 hours. lys-7 and abl-1 mutant animals are tolerant of *S. Typhimurium* infection (Figure 1a). There was no difference between any of the strains (p 0.2) showing that lys-7 and abl-1 single mutants are tolerant to *S. Typhimurium* infection for at least six days (Figure 1b).

**CONCLUSION**

Lysing nematodes infected with *Salmonella* using the Precellys 24 does not affect the bacteria viability, allowing infection load to be accurately assessed. The potential to process up to 24 individual samples in a short time period with no risk of cross-contamination and reproducibility has considerable benefits over traditional homogenization methods.

In this study, Precellys 24 homogenizer was also used to lyse worm to extract total RNA in order to prepare cDNA and perform an qRT-PCR.

For more details, please contact precellys@bertin.fr

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