Supplementary Materials

Using magnetic nanoparticles to explore symbiotic interactions

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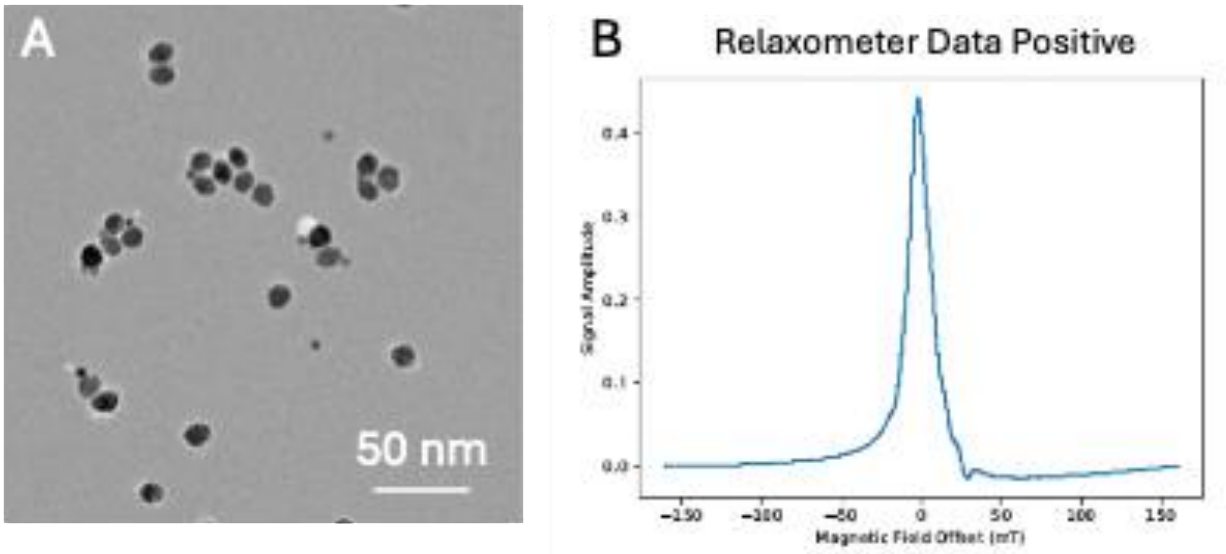
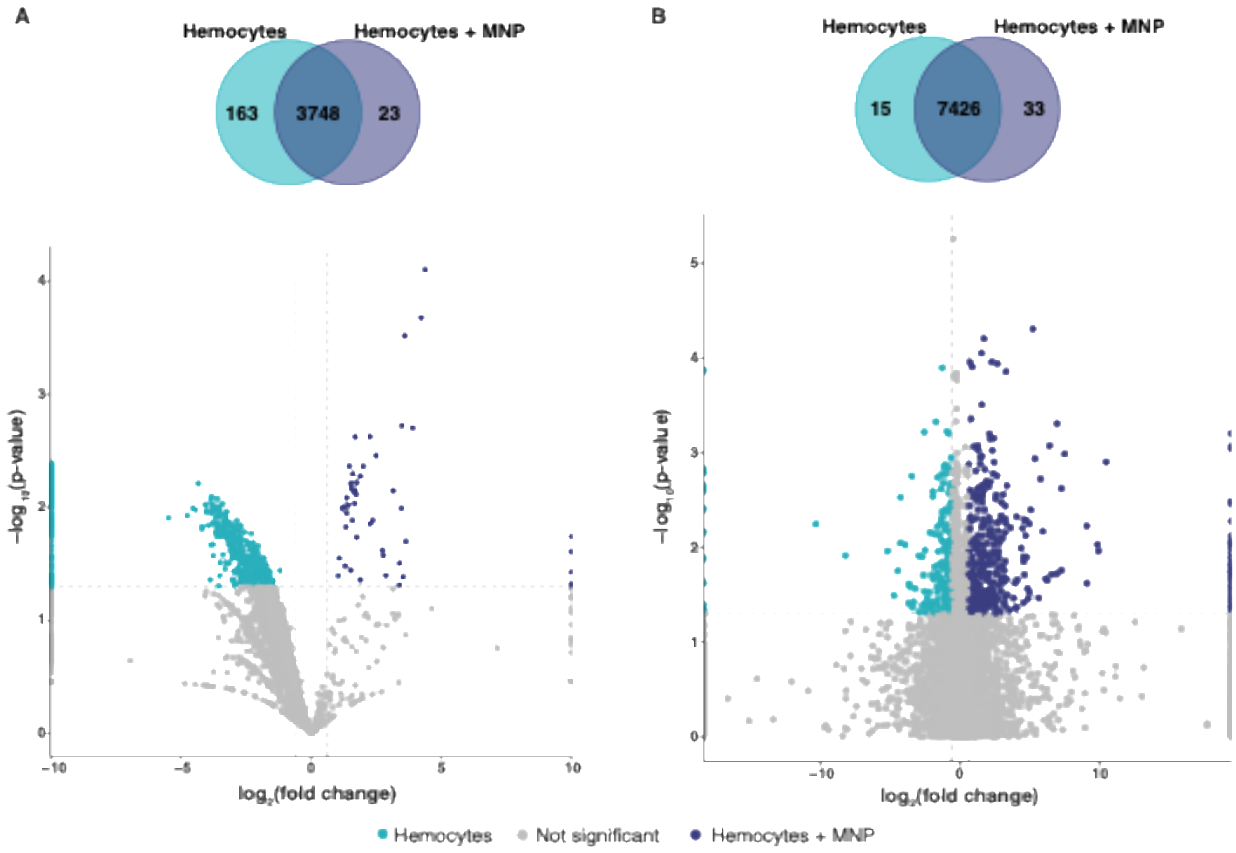
Running Title: Magnetic nanoparticles as tools for symbiosis

Keywords: magnetic nanoparticles, magnetic particle imaging, *Euprymna scolopes*, *Vibrio fischeri*, symbiosis, metabolomics, proteomics



Supplemental Figure S1. Overview of the magnetic nanoparticles properties (MNPs) used in this study. (**A**) Transmission electron micrograph of the MNPs depicting uniform shape and monodispersal. (**B**) Relaxometer measurement of the dynamic relaxation of MNPs in the positive mode revealing signal amplitude of 28.1 AU per mg of Fe under magnetic particle imaging with a full width at half maximum measurement at 16.2 mT.



Supplemental Figure S2. Effect of magnetic nanoparticles uptake on the proteomes or metabolomes of *E. scolopes* hemocytes. (**A**) Uncorrected volcano plot and Venn diagram of shared proteins between hemocytes with and without magnetic nanoparticles (MNPs). (**B**) Uncorrected volcano and Venn diagram of shared metabolites between hemocytes with and without MNPs.