

# Supporting Information

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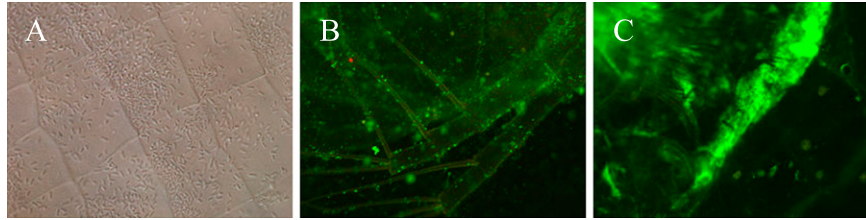


Fig. S1. *Brevundimonas* sp. attached to the carapace of *Daphnia magna* as observed by (A) phase-contrast microscopy (1,000 $\times$ ) and (B) epifluorescence microscopy (500 $\times$ ). (C) Dense aggregation of green fluorescent *Brevundimonas* sp. was also visible inside the animal's gut (100 $\times$ ).

**Table S1. Summary of linear-regression analyses for upward and downward transport experiments with *Brevundimonas* sp.**

	No. of <i>Daphnia</i>	Regression equation	$r^2$	$P$ for $y$ intercept	$P$ for slope
Upward transport					
Trial 1					
	0	$Y = 653.6 + 212.8X$	0.671	0.053	0.090
	20	$Y = 1,808.8 + 912X$	0.997	<0.001	<0.001
	80	$Y = 2,751.2 + 1,261.6X$	0.972	0.003	0.002
Trial 2					
	0	$Y = 76.0X$	0.625	1.000	0.111
	20	$Y = 106.4 + 547.2X$	0.952	0.585	0.005
	80	$Y = 258.4 + 1,079.2X$	0.938	0.556	0.007
Trial 3					
	0	$Y = 0$	NA	NA	NA
	20	$Y = -30.4 + 532X$	0.966	0.843	0.003
	80	$Y = 30.4 + 760X$	0.989	0.807	<0.001
Downward transport					
Trial 1					
	0	$Y = 7.6 + 45.6X$	0.837	0.807	0.029
	20	$Y = -349.6 + 2,120.4X$	0.988	0.359	<0.001
	80	$Y = 1,368 + 2,599.2X$	0.930	0.267	0.008
Trial 2					
	0	$Y = -152.0 + 197.6X$	0.797	0.360	0.041
	20	$Y = -182.4 + 1,907.6X$	0.971	0.722	0.002
	80	$Y = -91.2 + 2,409.2X$	0.985	0.842	<0.001
Trial 3					
	0	$Y = 30.4 + 349.6X$	0.965	0.767	0.003
	20	$Y = 91.2 + 1,672X$	0.994	0.651	<0.001
	80	$Y = 456 + 2,432X$	0.983	0.386	<0.001

$Y$ , bacterial concentration (cells·mL<sup>-1</sup>);  $X$ , migration cycle; NA, not applicable, because no bacteria were dispersed across the pycnocline.

**Table S2. Summary of linear-regression analyses for experiments with *Pseudonocardia* sp. and *Pimelobacter* sp.**

	No. of <i>Daphnia</i>	Regression equation	$r^2$	<i>P</i> for y intercept	<i>P</i> for slope
<i>Pseudonocardia</i> sp.					
Upward transport	0	$Y = 0$	NA	NA	NA
	40	$Y = -30.4 + 136.8X$	0.880	0.699	0.018
Downward transport	0	$Y = 0$	NA	NA	NA
	40	$Y = 395.2X$	0.983	1.000	<0.001
<i>Pimelobacter</i> sp.					
Upward transport	0	$Y = 121.6 + 167.2X$	0.465	0.664	0.205
	40	$Y = 182.4 + 942.4X$	0.978	0.432	0.001
Downward transport	0	$Y = 121.6 + 167.2X$	0.672	0.515	0.089
	40	$Y = 182.4 + 1,307.2X$	0.977	0.568	0.002

Y, bacterial concentration (cells·mL<sup>-1</sup>); X, migration cycle; NA, not applicable, because no bacteria were dispersed across the pycnocline.