Supplemental Material

Supplemental Figures

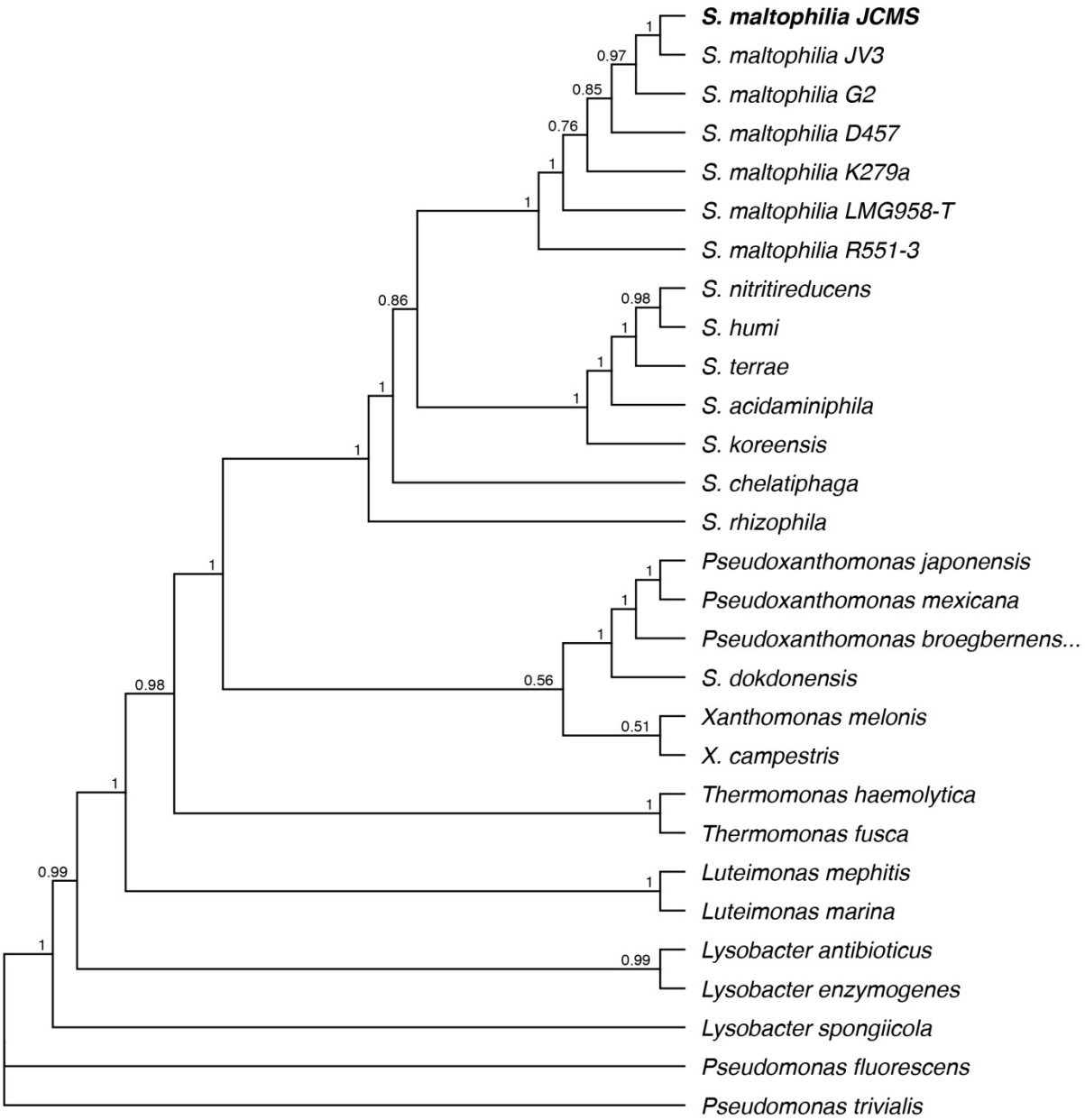

Figure S1. Bayesian phylogenetic tree of bacterial 16S rRNA gene sequences. Sequences included JCMS (KF724885), K279a, R551-3, JV3 (CP002986), G2 (EU927145) and those included in a previous study (1). *S. maltophilia* JCMS, R551-3

and K279a were involved in this study. Alignments and phylogenetic trees were generated using packages contained within the Geneious software package (Biomatters, Inc.). Full-length 16S rRNA sequences were aligned with ClustalW, and phylogenetic trees generated using MrBays (v.3.1.2.) (2) using default MrBayes parameters implemented within Geneious. We used a HKY85 sequence substitution model with a 4 category gamma-distributed rate variation across sites with *Pseudomonas fluorescens* as the out-group. The MCMC length was 1,100,000 with sampling every 200 generations using 4 heated chains. Posterior probabilities are indicated and branch lengths are proportional. JCMS is more closely related to K279a than to R551-3.

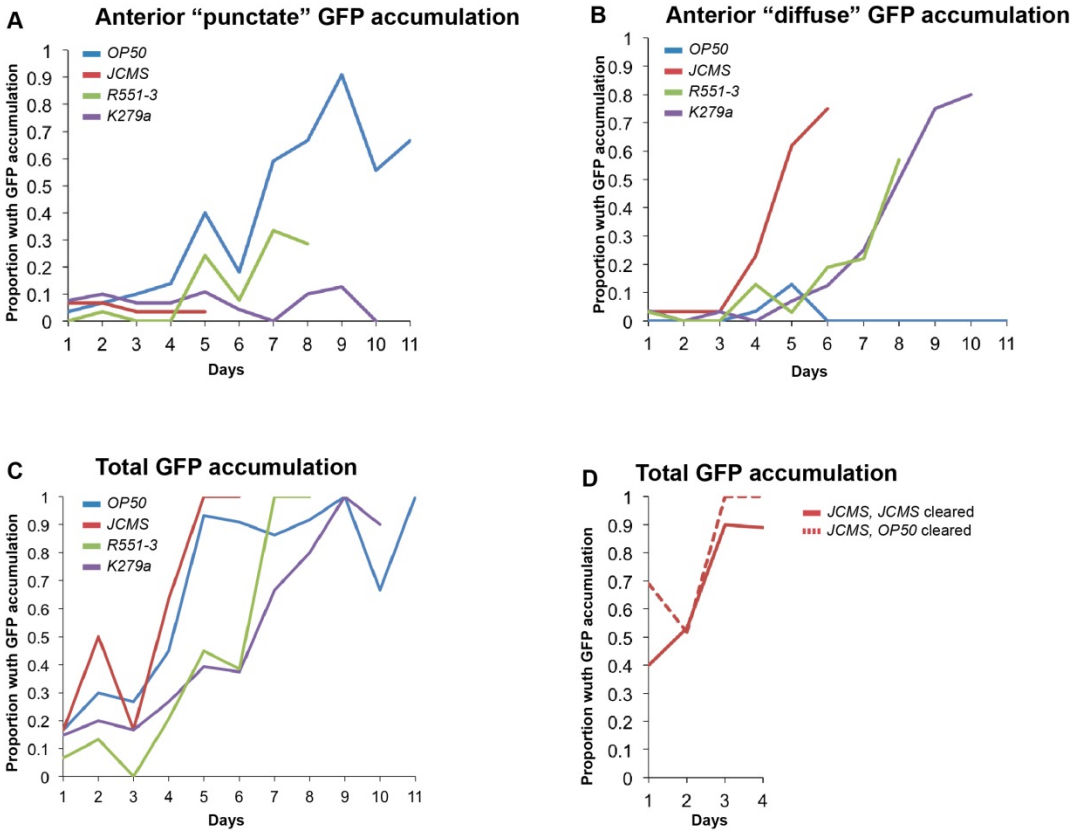

Figure S2. *S. maltophilia* JCMS accumulates in the intestine in a diffuse pattern. Nematodes were fed GFP versions of the various *S. maltophilia* strains. Intestinal accumulation of GFP-labeled bacteria was scored. Proportion of surviving nematodes after 1 hour of clearing on non-GFP bacteria of the same strain with (A) punctate GFP accumulation in the anterior portion of the intestine, (B) diffuse GFP accumulation in the anterior portion of the intestine and (C) total (anterior, middle and posterior) GFP accumulation for day 1 through 11. N = 153 for *S. maltophilia* JCMS, 189 for *S. maltophilia* R551-3, 209 for *S. maltophilia* K279a and 228 for *E. coli* OP50. D) Proportion of surviving nematodes fed JCMS-GFP after 1 hour of clearing on non-GFP OP50 (dashed line) and JCMS (solid line) with total GFP accumulation for day 1 - 4. N =

112 for clearing on OP50 and 117 for clearing on JCMS. *S. maltophilia* JCMS accumulated in the intestine to a greater extent when competing with *E. coli* OP50.

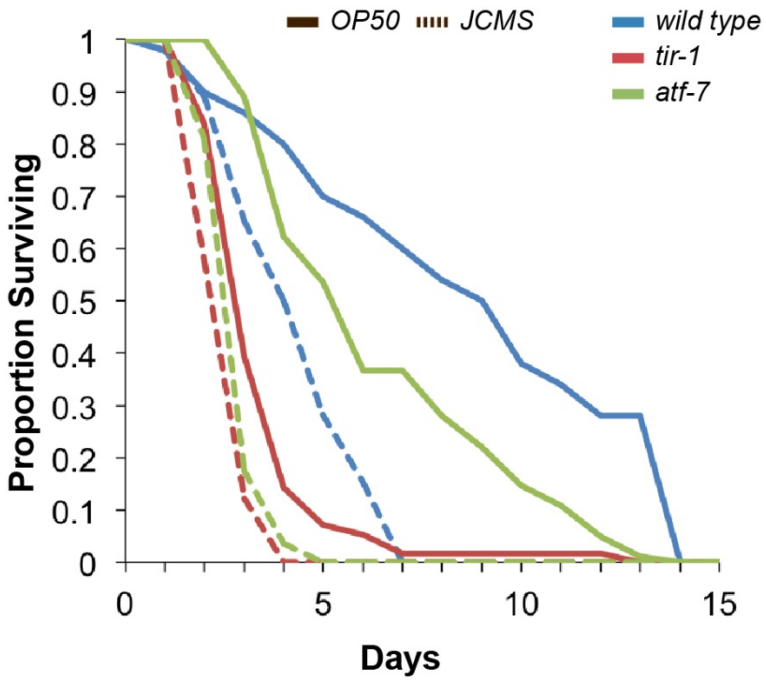

Figure S3. Survival of select p38 MAPK immune pathway mutants.

Survival of wild-type nematodes (WT, blue) and *tir-1(qd4)* (red) and *atf-7(qd137)* (green) mutants on *E. coli* OP50 (solid lines) and *S. maltophilia* JCMS (dashed lines). Results plotted are the proportion of surviving nematodes using Kaplan-Meier estimates generated in R for at least three replicate samples of 10 to 15 nematodes. Sample sizes and p values from the application of Cox proportional hazards models are included in Table 1. Survival of *tir-1* and *atf-7* mutants was significantly shorter than wild type on JCMS and OP50.

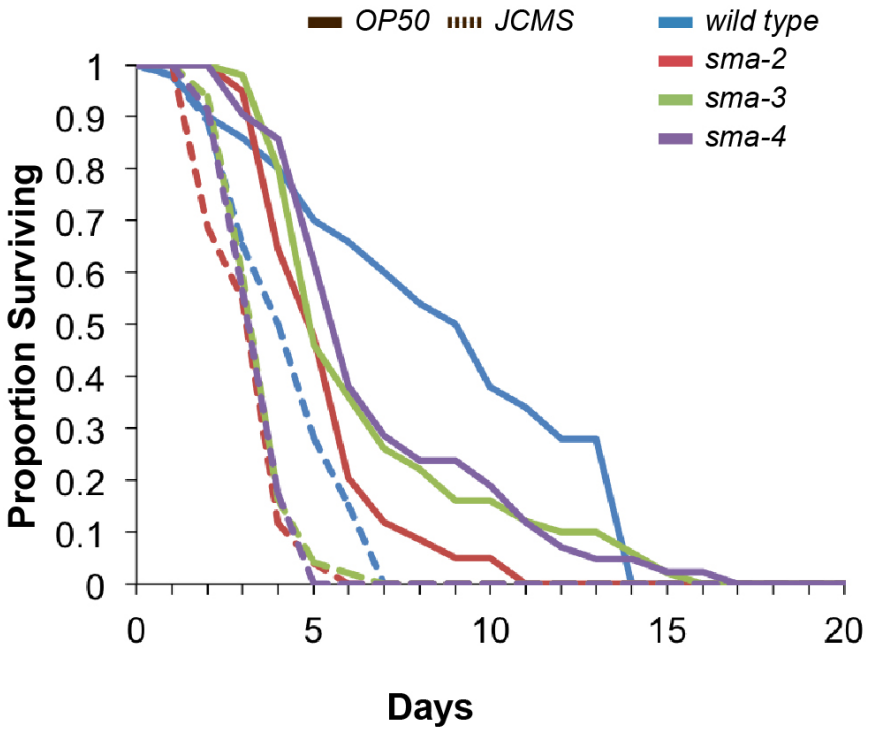

Figure S4. Survival of select TGFβ-like immune pathway mutants.

Survival of wild-type nematodes (WT, blue) and *sma-2(e502)* (red), *sma-3(e491)* (green) and *sma-4(e729)* (purple) mutants on *E. coli* OP50 (solid lines) and *S. maltophilia* JCMS (dashed lines). Results plotted are the proportion of surviving nematodes using Kaplan-Meier estimates generated in R for at least three replicate samples of 10 to 15 nematodes. Sample sizes and p values from the application of Cox proportional hazards models are included in Table 1. Survival of *sma-2, sma-3* and *sma-4* mutants was significantly shorter than wild type on JCMS and OP50.

Supplemental Tables

Table S1. Survival of nematodes fed *E. coli*, *P. aeruginosa*, *E. faecalis* and *S. maltophilia* strains[a]

Control	Mean[b]	SE	N[c]	Treatment	Mean[b]	SE	N[c]	Hazard ratio	p value[d]
OP50	8.53	0.187	243	**JCMS**	4.69	0.0884	150	8.62	<2E-16
OP50	8.53	0.187	243	**R551-3**	6.73	0.294	49	2.27	4.7E-07
OP50	8.53	0.187	243	**K279a**	9.17	0.536	49	0.772	0.106
K279a	9.17	0.536	49	**JCMS**	4.69	0.0884	150	9.83	<2E-16
R551-3	6.73	0.294	49	**JCMS**	4.69	0.0884	150	4.11	6.1E-13
V583	4.11	0.181	63	**JCMS**	4.69	0.0884	150	0.752	0.0663
PA14	3.68	0.134	73	**JCMS**	4.69	0.0884	150	0.494	1.2E-06
PA14	3.68	0.134	73	**K279a**	9.17	0.536	49	0.0511	1.1E-14

[a] Control and treatment bacteria: *P. aeruginosa* PA14, *E. coli* OP50, *E. faecalis* V583, *S. maltophilia* JCMS, K279a and R551-3. [b] Mean survival in days. [c] Number of nematodes tested. [d] P values of < 0.05 were considered significant and are given for the survival predictor of bacterial treatment for Cox proportional hazards models in R.

Table S2. Effect of different media on the survival of nematodes fed *S. maltophilia* strains and *P. aeruginosa* PA14[a]

Control	Mean[b]	SE	N[c]	Treatment	Mean[b]	SE	N[c]	Hazard ratio	p value[d]
PA14 NGM	3.68	0.13	73	**PA14 PGS**	2.88	0.266	43	2.09	0.00154*
JCMS NGM	4.69	0.0884	150	**JCMS PGS**	5.6	0.358	30	0.442	0.00016
JCMS NGM	4.69	0.0884	150	**JCMS BHI**	5.71	0.305	29	0.389	1.86E-5
K279a NGM	9.17	0.536	49	**K279a PGS**	5.63	0.26	55	2.76	3.44E-6
K279a NGM	9.17	0.536	49	**K279a BHI**	5.76	0.304	54	3.18	5.2E-7
R551-3 NGM	6.7	0.27	47	**R551-3 PGS**	5.4	0.44	28	1.48	0.103
R551-3 NGM	6.7	0.27	47	**R551-3 BHI**	4.3	0.25	29	4.17	1.17E-07
OP50 NGM	8.31	0.164	240	**OP50 PGS**	5.1	0.35	27	4.65	8.8E-13
OP50 NGM	8.31	0.164	240	**OP50 BHI**	6.6	0.18	25	2.87	2.4E-06
PA14 PGS	2.88	0.266	43	**K279a PGS**	5.63	0.26	55	0.215	1.7E-9
PA14 PGS	2.88	0.266	43	**JCMS PGS**	5.6	0.358	30	0.175	1.1E-7

[a] Control and treatment bacteria: *P. aeruginosa* PA14, *E. coli* OP50, *S. maltophilia* JCMS, K279a and R551-3. Control and treatment growth medium: NGM = nematode growth medium, BHI = brain heart infusion medium (enriched media) and PGS = peptone-glucose-sorbitol (fast killing media). [b] Mean survival in days. [c] Number of nematodes tested. [d] P values of < 0.05 were considered significant and are given for the survival predictor of bacterial treatment for Cox proportional hazards models in R. * Date of experimentation was observed to have a significant effect and was included in this model.

Table S3. Survival of nematodes fed non-GFP *E. coli*, *S. maltophilia* versus GFP strains[a]

Control	Mean[b]	SE	N[c]	Treatment	Mean[b]	SE	N[c]	Hazard ratio	p value[d]
JCMS	4.94	0.15	50	**JCMS GFP**	4.88	0.135	50	1.23	0.318
R551-3	6.62	0.357	52	**R551-3 GFP**	6.82	0.323	44	0.95	0.805
K279a	8.87	0.418	47	**K279a GFP**	9.56	0.47	45	0.777	0.23
OP50	8.82	0.343	50	**OP50 GFP**	7.65	0.364	54	1.37	0.124

[a] Control and treatment bacteria: *E. coli* OP50, *S. maltophilia* JCMS, R551-3 and K279a non-GFP (control) and GFP (treatment). [b] Mean survival in days. [c] Number of nematodes tested. [d] P values of < 0.05 were considered significant and are given for the survival predictor of bacterial treatment for Cox proportional hazards models in R.

Table S4. Survival of nematodes fed heat and antibiotic treated *E. coli* and *S. maltophilia* versus non-treated strains[a]

Control	Mean[b]	SE	N[c]	Treatment	Mean[b]	SE	N[c]	Hazard ratio	p value[d]
OP50	9.16	0.47	68	**OP50 DT**	13.9	0.688	60	0.302	3.82E-03*
OP50	12.8	0.746	53	**OP50 CT**	4.9	0.484	52	5.12	1.34E-11
OP50	9.16	0.47	68	**OP50 HK**	7.7	0.414	61	5.1	0.000451*
K279a	10.7	0.369	59	**K279a DT**	16.3	0.737	62	0.0665	4.23E-06*
K279a	11.9	0.54	42	**K279a CT**	15.1	0.828	54	0.21	1.92E-08
K279a	10.7	0.369	59	**K279a HK**	9.25	0.532	53	1.14	0.822*
R551-3	6.65	0.219	74	**R551-3 DT**	4.46	0.501	39	4.91	5.49E-03*
R551-3	9.5	0.526	45	**R551-3 CT**	11.5	0.875	54	0.46	0.0011
R551-3	6.65	0.219	74	**R551-3 HK**	5.79	0.372	56	1.32	0.48*
JCMS	3.98	0.0986	60	**JCMS DT**	11.6	0.774	62	0.113	3.01E-05*
JCMS	4.7	0.134	43	**JCMS CT**	11.5	0.542	51	0.08	3.4E-11
JCMS	3.98	0.0986	60	**JCMS HK**	9.13	0.482	46	0.031	3.25E-07*

[a] Control and treatment bacteria: Non-treated (control), heat killed (HK), doxycycline treated (DT) and ciprofloxacin treated (CT) (treatment) *E. coli* OP50, *S. maltophilia* JCMS, R551-3 and K279a. [b] Mean survival in days. [c] Number of nematodes tested. [d] P values of < 0.05 were considered significant and are given for the survival predictor of bacterial treatment for Cox proportional hazards models in R. *Date of experimentation was observed to have a significant effect and was included in this model along with the interaction between treatment and date.

Table S5. Survival of nematodes fed *E. coli* treated with OP50 secretions versus *S. maltophilia* secretions[a]

Control	Mean[b]	SE	N[c]	Treatment	Mean[b]	SE	N[c]	Hazard ratio	p value[d]
OP50 secretions	9.01	0.601	47	**JCMS secretions**	8.23	0.438	57	0.591	0.401
OP50 secretions	9.01	0.601	47	**R551-3 secretions**	7.91	0.376	58	0.477	0.2296
OP50 secretions	9.01	0.601	47	**K279a secretions**	9.31	0.557	49	0.177	0.00905

[a] Bacterial secretion control and treatment: *E. coli* OP50 (control), *S. maltophilia* JCMS, R551-3 and K279a (treatment). [b] Mean survival in days. [c] Number of nematodes tested. [d] P values of < 0.05 were considered significant and are given for the survival predictor of bacterial treatment for Cox proportional hazards models (all full factorial models also including date of experimentation) in R.

Supplemental References

1. **Ryan, R. P., Monchy, S., Cardinale, M., Taghavi, S., Crossman, L., Avison, M. B., Berg, G., van der Lelie, D., Dow, J. M.** Jul 2009. The versatility and adaptation of bacteria from the genus *Stenotrophomonas*. *Nat Rev Microbiol* 7 (7): 514-525.

2. **Huelsenbeck, J. P., Ronquist, F.** 1 August 2001. MRBAYES: Bayesian inference of phylogenetic trees. *Bioinformatics* 17 (8): 754-755.