Supplementary figures for the article:

Title: Symbionts shape host innate immunity in honey bees

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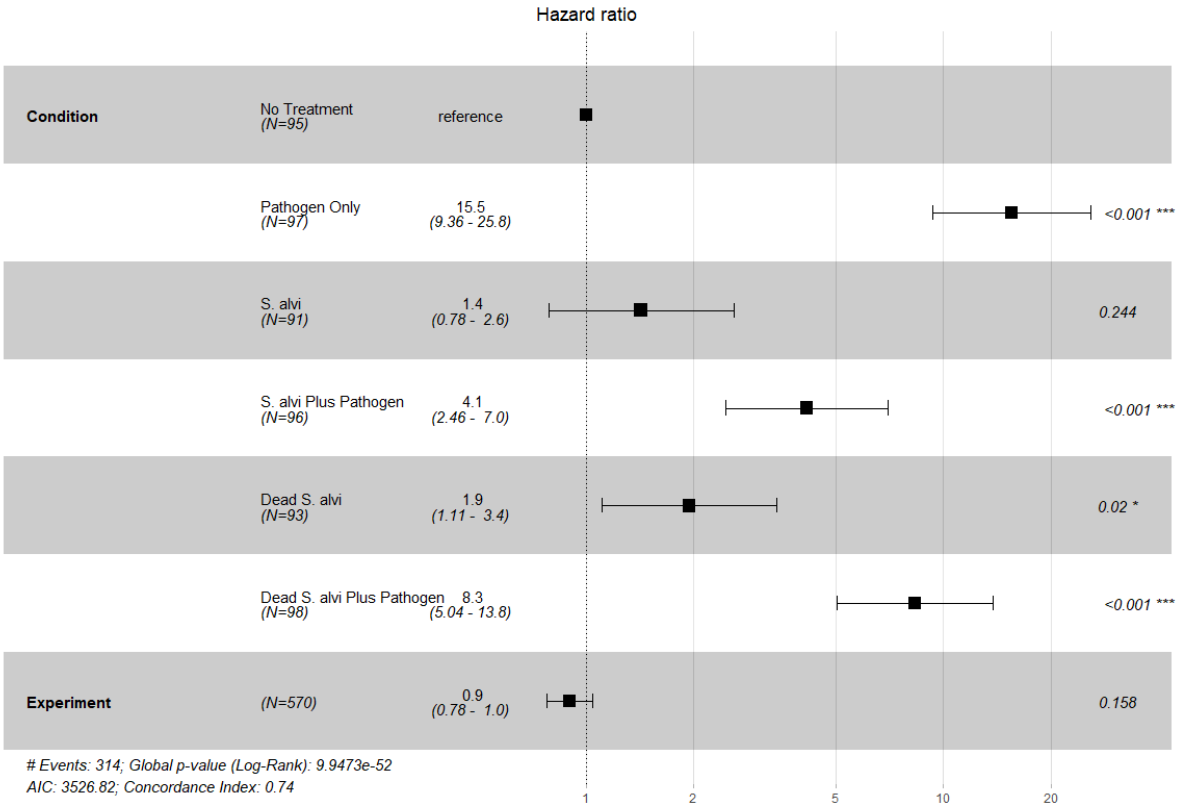
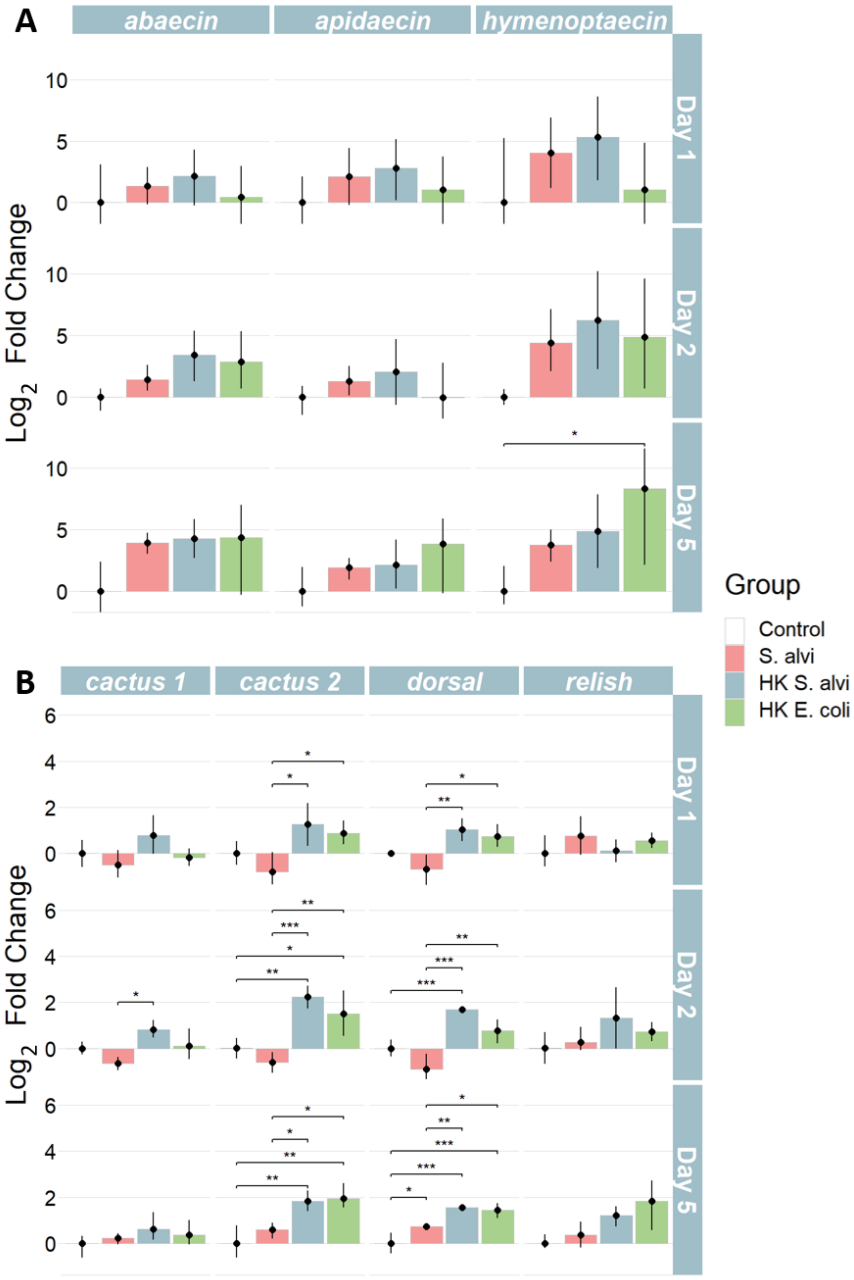


Supplementary Figure 1 Bees challenged by the pathogen *S. marcescens* have higher survival when pre-inoculated with *S. alvi*

Hazard plot detailing effect of honey bee treatment and replicate experiments on honey bee survival after inoculation with PBS or 5 ul of the pathogen *S. marcescens* at OD_{600} = 1. Honey bees given no bacterial inoculum and no pathogen exposure used as a reference group. Bees treated with live *S. alvi* or heat-killed *S. alvi* without pathogen exposure were affected much less than honey bees exposed to the pathogen, regardless of prior treatment. Total N = 570 bees.


A
abaecin
apidaecin
hymenoptaecin
Day 1
Day 2
Day 5
Log2 Fold Change
B
cactus 1
cactus 2
dorsal
relish
Group
Control
S. alvi
HK S. alvi
HK E. coli

Supplementary Figure 2 Live and heat-killed *S. alvi* trigger differential host immune gene expression

Bee gene expression relative to the housekeeping gene *RPS18* measured using qPCR from cDNA derived from bee whole abdomens 1,2, and 5 day(s) post treatment. HK = heat-killed. (A) Bees inoculated with live *S. alvi*, heat-killed *S. alvi*, and heat-killed *E. coli* trigger non-significant upregulation of AMPs compared to the uninoculated control group. (B) Bees inoculated with heat-killed *S. alvi* or *E. coli* had significantly higher expression of *cactus2* and *dorsal* than the control or live *S. alvi* groups. Total N = 54 bees from one hive. *** = $P < 0.001$, ** = $P < 0.01$, * = $P < 0.05$. P-values obtained using Tukey Honest Significant Difference method.

Supplementary Table 1 qPCR primer sequences for gene expression analysis

Gene	Source	Forward	Reverse
Abaecin	[23]	TCGGATTGAATGGTCCCTGAC	ATCTTCGCACTACTCGCCAC
Apidaecin	[23]	GTAGGTCGAGTAGGCGGATCT	TTTTGCCTTAGCAATTCTTGTTG
Cactus-1	[53]	CTATCGTGGAGAAACTGCGTAT	TCAGGAAGTGGTTCTGGTATTG
Cactus-2	[53]	ATCAGACGGCTCTGCTCTAT	TCGTCTTCGTCAGTGGTATCT
Dorsal	[54]	AGAGATGGAACGCAGGAAAC	TGACAGGATATAGGACGAGGTAA
Dredd	[54]	GCGTCATAAAGAAAAAGGATCA	TTTCGGGTAATTGAGCAACG
Hymenoptaecin	[55]	GTCGTCCATCCTTGGACATT	TTTCCCAAACTCGAATCCTG
PGRP-LC	[54]	TCCGTCAGCCGTAGTTTTTC	CGTTTGTGCAAATCGAACAT
Pirk	This Study	GCCCGAAATCTAGCAAGGATAA	TTCCTCTCCTCGTCCATCTT
Relish	[55]	GGAGCTGATCCAAATCGAAC	AGTGGCATCCATCCATCATT
RPS18	[53]	AGGTGTTGGTCGTCGTTAT	CATTCTCCAGCACGCTTAT
Toll	[54]	TAGAGTGGCGCATTGTCAAG	ATCGCAATTTGTCCCAAAAC