

Supplemental Figure 1: BVES messenger RNA in the colon by high resolution *in situ* hybridization (RNAscope).

Supplemental Figure 2: Colonic crypts were isolated for immunoblot and immunofluorescence done on swiss-rolls. (A) Zo-1 expression is quantified (*Bves*^{-/-} vs. WT, 1.3 ± 0.1 vs. 1.0 ± 0.1 $P=0.13$, n=2) and E-cadherin expression ($P=ns$, n=4). Immunofluorescence shown for ZO-1 and E-cadherin. (B) Immunofluorescence shown for β -catenin.

Supplemental Figure 3: Immunofluorescence for (A) myosin 2B, (B) phalloidin, and (C) myosin 2C. Myosin 2C expression quantified by immunoblot (*Bves*^{-/-} vs. WT, 1.5 ± 0.1 vs. 1.0 ± 0.1 fold increase, $*P<0.05$, n=2).

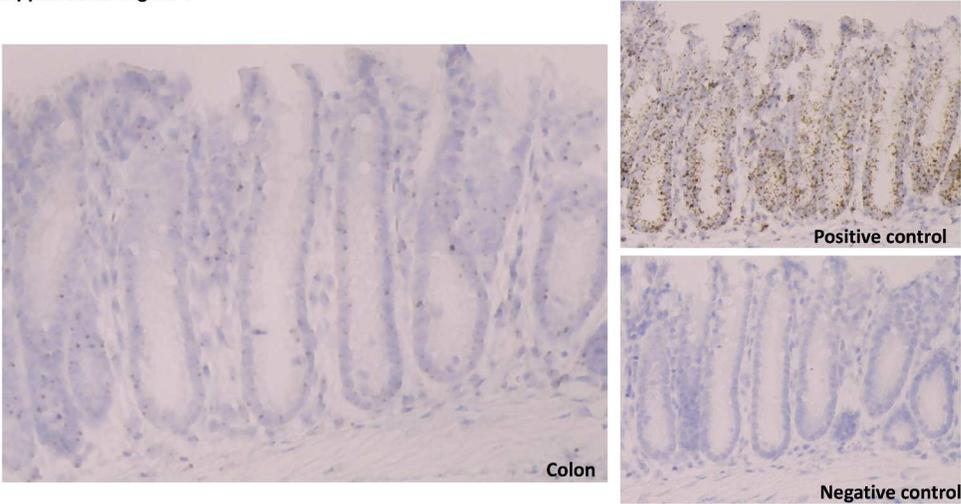
Supplemental Figure 4: Apoptosis quantified via TUNEL staining after *C.rodentium* (*Bves*^{-/-} vs. WT, 2.9 ± 0.2 vs. 2.5 ± 0.7 , $P=0.92$).

Supplemental Figure 5: Body weights shown for (A) Acute DSS (Day 5; *Bves*^{-/-} vs. WT, $0.99 \pm 0.02x$ vs. $1.03 \pm 0.01x$ original body weight, $P=0.14$, n=6-7) and (B) Injury-Repair

trials. (C) *Cxcl1* mRNA expression was quantified ($P=ns$, $n=4$). (D) Neutrophil count by Ly6B.2 positive cells quantified by immunofluorescence (Day 5 after acute DSS; *Bves*^{-/-} vs. WT, $P=ns$, $n=4$).

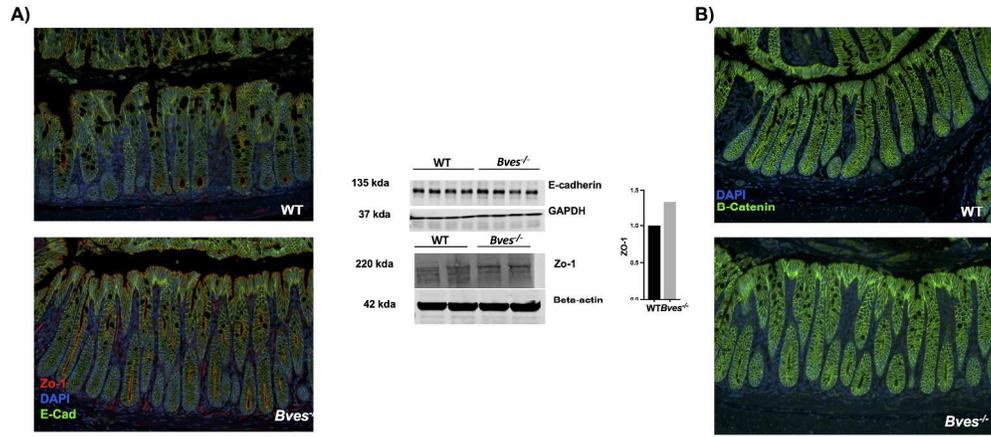
Supplemental Figure 6: (A) Overexpression of *BVES* quantified at mRNA level (empty vector (EV) vs. *BVES*, 1.0 ± 0.07 vs. 324.5 ± 32.2 , $***P<0.001$). (B) *Il-8* mRNA expression quantified after 3 hour EPEC infection (EV vs. *BVES*, 13.3 ± 1.7 fold vs. 5.7 ± 1.2 fold, $*P<0.05$, 2 experiments with 3 replicates each time). (C) Number of actin stalks quantified after 3 hours EPEC infection (EV vs. *BVES*, 11.1 ± 0.8 vs. 3.8 ± 0.9 , $***P<0.001$, 2 experiments with 3 replicates each time). Red cells express *BVES*, and green dots represent individual actin stalks. Images are taken using confocal microscopy, 63x.

Supplemental Figure 1



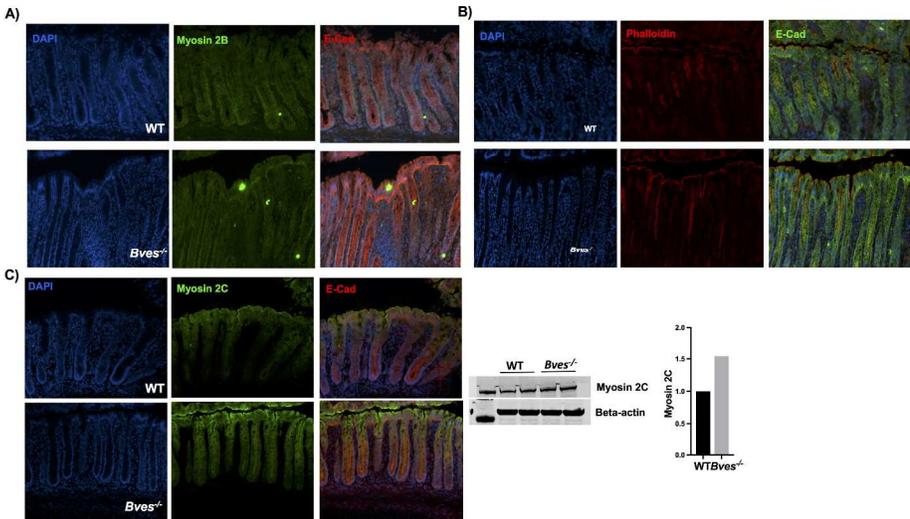
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Supplemental Figure 2



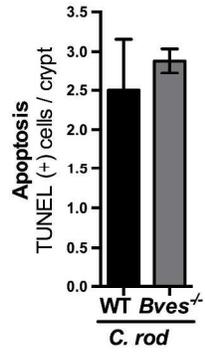
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Supplemental Figure 3



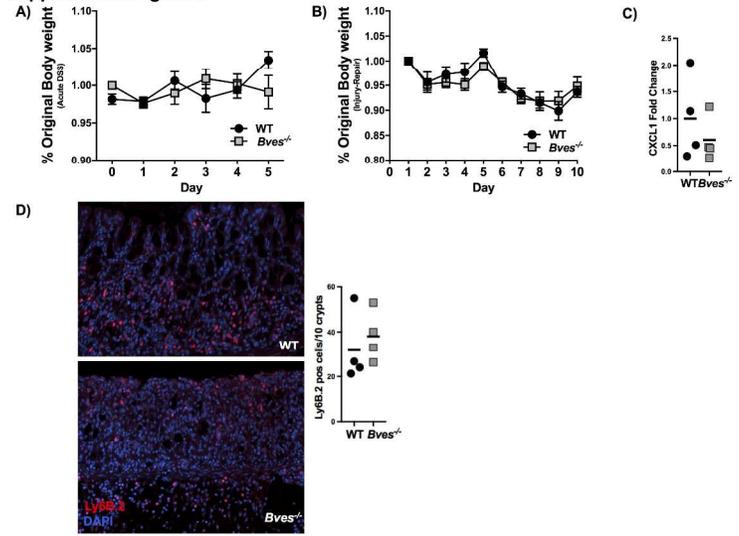
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Supplemental Figure 4



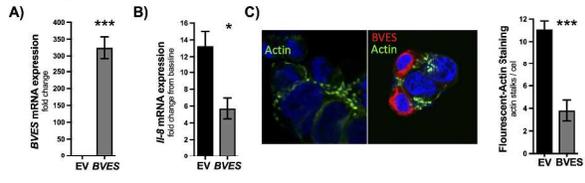
338x190mm (300 x 300 DPI)

Supplemental Figure 5



338x190mm (300 x 300 DPI)

Supplemental Figure 6



338x190mm (300 x 300 DPI)

S1 Table. Cytokine and chemokine concentrations in colonic tissues after adjusting for baseline levels.

Analyte	WT <i>C. rod</i>	<i>Bves</i> ^{-/-} <i>C. rod</i>
CCL2	1.6 ± 0.8	2.4 ± 0.5
CCL3	3.3 ± 0.9	4.9 ± 1.6
CCL4	6.3 ± 1.9	3.6 ± 0.7
CCL5	1.6 ± 0.2	1.2 ± 0.1
CXCL1	2.5 ± 0.8	6.2 ± 0.8*
CXCL2	38.2 ± 17.4	43.9 ± 12.4
CXCL10	4.0 ± 1.0	5.8 ± 1.0
G-CSF	1.4 ± 0.7	10.5 ± 1.6***
GM-CSF	1.6 ± 0.4	1.0 ± 0.2
IL-1 α	0.7 ± 0.2	0.2 ± 0.0
IL-1 β	2.4 ± 0.9	6.4 ± 1.4
IL-2	0.8 ± 0.1	0.8 ± 0.1
IL-4	0.6 ± 0.1	0.7 ± 0.1
IL-5	0.4 ± 0.1	0.5 ± 0.1
IL-6	7.4 ± 4.0	32.9 ± 6.3**
IL-7	1.0 ± 0.1	2.4 ± 0.4***
IL-9	1.5 ± 0.3	1.5 ± 0.2
IL-10	0.4 ± 0.1	0.5 ± 0.0
IL-15	0.4 ± 0.1	1.1 ± 0.3
IL-17	1.6 ± 0.4	5.5 ± 0.8**
TNF- α	3.9 ± 1.2	4.8 ± 0.9
IFN- γ	6.4 ± 2.6	6.2 ± 1.1

Values represent the mean \pm SEM of the cytokine/chemokine concentrations relative to baseline in the colonic tissues, measured by Luminex assay. *WT C. rod* is adjusted according to baseline measurement in *WT Ctrl* mice, and *Bves*^{-/-} *C. rod* is adjusted according to baseline measurement in *Bves*^{-/-} *Ctrl* mice. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$; $n = 3-9$ uninfected and $n = 6-7$ infected mice for each genotype.

S2 Table. Cytokine and chemokine concentrations in colonic tissues

Analyte	WT Ctrl	<i>Bves</i> ^{-/-} Ctrl	WT <i>C. rod</i>	<i>Bves</i> ^{-/-} <i>C. rod</i>
CCL2	4.7 ± 0.7	10.2 ± 3.2	7.3 ± 3.6	24.6 ± 5.0†
CCL3	3.4 ± 0.6	4.5 ± 0.4	11.3 ± 3.1**	13.5 ± 2.8
CCL4	1.0 ± 0.1	3.4 ± 1.1	6.4 ± 1.9	12.0 ± 2.3
CCL5	13.3 ± 2.5	27.5 ± 3.2**	20.8 ± 2.9*	31.2 ± 2.5†
CXCL1	10.0 ± 2.0	8.9 ± 0.9	25.2 ± 8.3	55.2 ± 7.3†
CXCL2	4.2 ± 1.4	4.7 ± 0.9	161.6 ± 73.5*	207.7 ± 58.6
CXCL10	30.2 ± 5.9	23.6 ± 2.1	121.6 ± 30.9**	135.7 ± 24.4
G-CSF	21.1 ± 9.4	1.6 ± 0.2*	30.0 ± 14.0	19.2 ± 2.9
GM-CSF	2.3 ± 0.4	5.6 ± 1.2	3.7 ± 1.0	5.7 ± 1.3
IL-1 α	7.9 ± 2.2	54.4 ± 15.6**	5.5 ± 1.4	8.8 ± 1.8
IL-1 β	14.2 ± 5.1	4.2 ± 0.5*	34.1 ± 13.4	27.0 ± 6.0
IL-2	0.5 ± 0.1	0.6 ± 0.1	0.4 ± 0.1	0.5 ± 0.1
IL-4	0.2 ± 0.0	0.2 ± 0.0	0.1 ± 0.0**	0.1 ± 0.0
IL-5	0.2 ± 0.0	0.9 ± 0.1**	0.1 ± 0.0	0.5 ± 0.1†
IL-6	1.5 ± 0.7	0.5 ± 0.1*	11.0 ± 6.0	15.5 ± 3.0
IL-7	2.2 ± 0.3	1.0 ± 0.2	2.1 ± 0.1	2.4 ± 0.4
IL-9	9.5 ± 2.6	7.9 ± 1.1	14.3 ± 2.6	11.7 ± 1.8
IL-10	1.7 ± 0.2	2.6 ± 0.5	0.7 ± 0.1**	1.4 ± 0.1††
IL-15	3.6 ± 1.5	9.7 ± 1.2*	1.5 ± 0.4	11.1 ± 2.6††
IL-17	2.2 ± 0.5	0.9 ± 0.1*	3.4 ± 0.8	4.9 ± 0.7
TNF- α	1.9 ± 0.4	1.5 ± 0.1	7.4 ± 2.4*	7.2 ± 1.3
IFN- γ	2.3 ± 0.4	2.2 ± 0.3	15.1 ± 6.0**	13.8 ± 2.4

Values represent the mean \pm SEM of the cytokine/chemokine concentrations (pg/mg total protein) in the colonic tissues, measured by Luminex assay. Ctrl, uninfected mice; *C. rod*, *C. rodentium*-infected mice. * P <0.05, ** P <0.01 vs. WT ctrl; † P <0.05, †† P <0.01, vs. WT mice infected with *C. rodentium*; n =3-9 uninfected and n =6-7 infected mice for each genotype.