



**Figure S1: The schematic of phage treatment in *S. Typhimurium*-infected mouse model established in this study.** After one-week acclimatization, 6-8 week-old female C57BL/6NJcl mice were orally fed with 100  $\mu$ L of 200 mg/mL streptomycin sulfate one day before *S. Typhimurium* oral infection with 100  $\mu$ L of  $10^9$  CFU/mL ( $10^8$  CFU/mouse). Infected mice were divided into 4 groups (7 mice per group) and orally fed 100  $\mu$ L of  $10^{11}$  PFU/mL ( $10^{10}$  PFU/mouse) of ST-W77, SE-W109, ST-W77 combined with SE-W109, and SM buffer as the indicated time point. All mice were euthanized on day 4 post-infection.

**Table S1. The list of bacterial and phage strains used in this study**

<b>Designation</b>	<b>Genotype and relevant characteristic</b>	<b>Reference</b>
S. Typhimurium IR715 (S. Tm)	Nalidixic acid-resistant derivative of ATCC 14028	(1)
ST-W77	Myovirus within the Viunalikevirus	(2)
SE-W109	Siphovirus within the Jerseylikevirus	(2)

**Table S2. The list of primers used in this study**

<b>Organism</b>	<b>Target gene</b>	<b>Primers</b>	<b>Reference</b>
<i>Homo sapiens</i>	<i>GAPDH</i>	5'-CCAGGAAATGAGCTTGACAAAGT-3' 5'-CCCACTCCTCCACCTTTGAC-3'	(3)
	<i>IL-8</i>	5'-GCCAACACAGAAATTATTGTAAAGCTT-3' 5'-CCTCTGCACCCAGTTTTTCCTT-3'	(4)
	<i>MIP-3A</i>	5'-CTGCTTTGATGTCAGTGCTGCTAC-3' 5'-CTGCCGTGTGAAGCCCACAATAAA-3'	(5)
	<i>IL-1B</i>	5'-AAACAGATGAAGTGCTCCTTCCAGG-3' 5'-TGGAGAACACCACTTGTTGCTCCA-3'	(6)
<i>Mus musculus</i>	<i>Gapdh</i>	5'-TGTAGACCATGTAGTTGAGGTCA-3' 5'-AGGTCGGTGTGAACGGATTTG-3'	(7)
	<i>Kc</i>	5'-TGCACCCAAACCGAAGTCAT-3' 5'-TTGTCAGAAGCCAGCGTTCAC-3'	
	<i>Nos2</i>	5'-CCAGCCTTGCATCCTCATTGG-3' 5'-CCAAACACCAAGCTCATGCGG-3'	
	<i>IL-17</i>	5'- GCTCCAGAAGGCCCTCAGA-3' 5'- AGCTTTCCTCCGCATTGA-3'	(8)
	<i>IFN-g</i>	5'- TCAAGTGGCATAGATGTGGAAGAA-3' 5'- TGGCTCTGCAGGATTTTCATG-3'	(8)
	<i>Zo-1</i>	5'-CAGGGCTCTTTGGAGGAA-3' 5'-TACACGATCGTGGCAATAAAC-3'	(9)

**Table S3. The criteria for mouse cecal histopathological scoring used in this study (10)**

<b>Score</b>	<b>Neutrophils infiltration</b>	<b>Mononuclear leukocyte infiltration</b>	<b>Submucosal edema</b>	<b>Epithelial damage</b>	<b>Exudate</b>
0	No changes (0-5)	No changes (0-5)	No changes	No changes	No changes
1	6-20	6-10	Detectable (<10%)	Desquamation	Slight accumulation
2	21-60	11-20	Mild (10-20%)	Mild erosion and mild loss of goblet cells / undifferentiated enterocytes hyperplasia	Mild accumulation
3	61-100	21-40	Moderate (21-40%)	Marked erosion and moderate loss of goblet cells / undifferentiated hyperplasia	Moderate accumulation
4	>100	>40	Marked (>40%)	Ulceration and marked loss of goblet cells / undifferentiated hyperplasia	Marked accumulation

## References:

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