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Electron Microscopy to visualize T4 bacteriophage interactions with *Escherichia coli* strain DFB1655 L9, an isogenic derivative of strain MG1655 engineered to express O16 antigen

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SUPPLEMENTAL MATERIAL

TABLE S1. Primer sequences used for *E. coli* K-12 substrain and T4 bacteriophage confirmation

Primer	**Primer Sequence** (5’ to 3’)
ompC Forward	5’-GCAGGCCCTTTGTTCGATATCAAT-3'
ompC Reverse	5’-ATCAGTATGCAGTGGCATAAAAAAGC-3'
wbbL Forward	5’-CCCGAATTCATATGGTATATATAATAATCGTTTCCC-3'
wbbL Reverse	5’-CCCAAGCTTCTCGAGTTACGGGTGAAAAACTGATGAAATTC-3'
pUC19 Forward	5’-GTGAAATACCGCACAGATGC-3'
pUC19 Reverse	5’-GGCGTTACCCAACTTAATCG-3'
gp23 Forward	5’-GCCATTACTGGAAGGTGAAGG-3'
gp23 Reverse	5’-TTGGGTGGAATGCTTCTTTAG-3'
gp10 Forward	5’-CGAGGGCTTAGGTACTGC-3’
gp10 Reverse	5’-GGTGAGGTGCGGAACTTC-3’

TABLE S2. Thermal cycling parameters used for PCR based on primer set used

Stage	**Temperature** (°C)	**Duration** (mm:ss)
Initial Denaturation	*wbbL / ompC /* pUC19 - 95	03:00
	gp23 / gp10 - 95	10:00
Denaturation	95	00:30
Annealing	*ompC* - 51	00:30
	wbbL - 54	00:30
	pUC19 - 51	00:30
	gp23 - 50	00:30
	gp10 - 50	00:30
Extension	75	01:00
Final Extension	75	05:00
Hold	12	Infinite

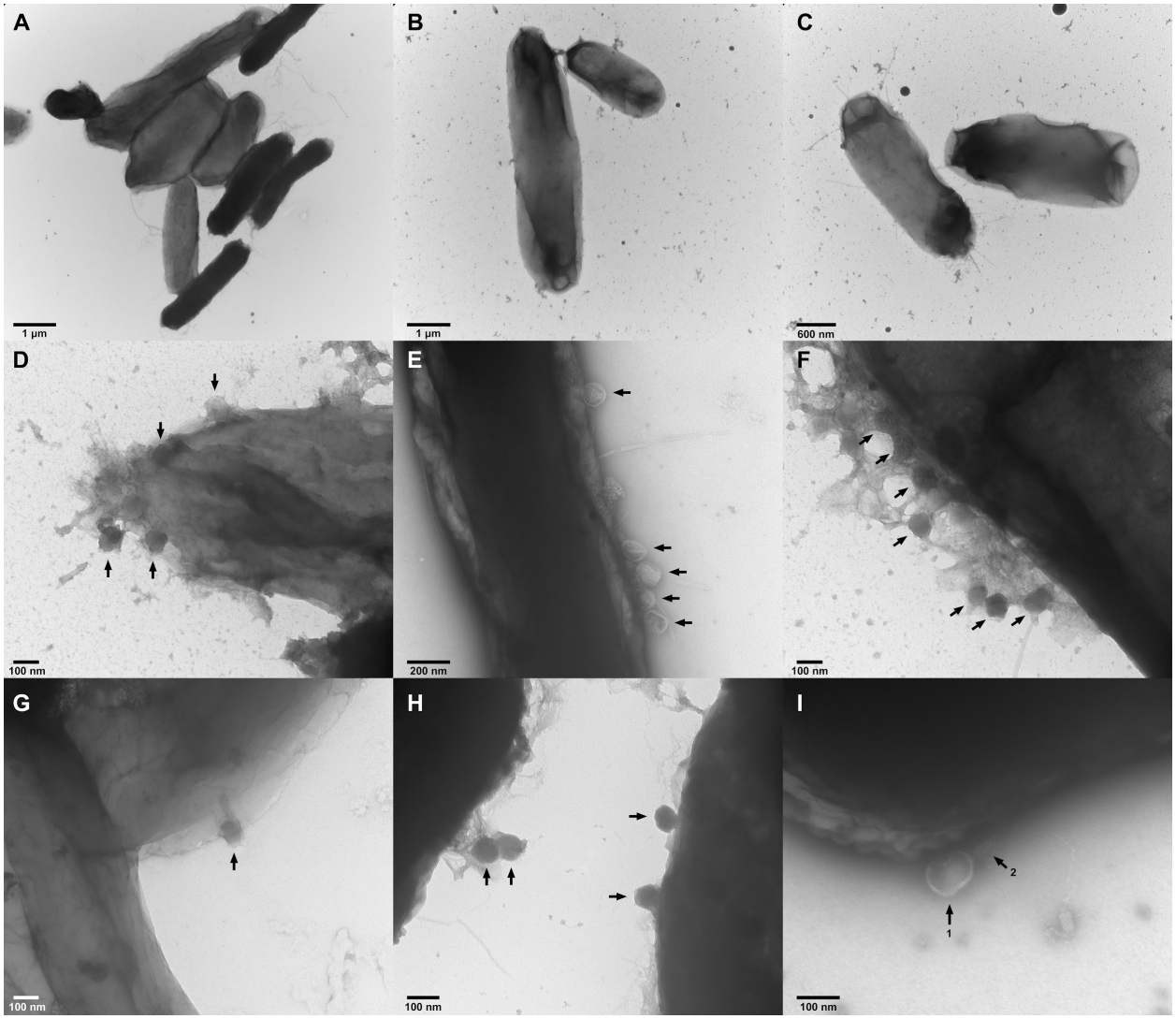

FIG. S1 *E. coli* K-12 MG1655 under the Hitachi H7600 transmission electron microscope. (A) 20000X Magnification. (B) 20000X Magnification. (C) 30000X Magnification. (D-I) Multiple phage appear to be bound to *E. coli* K-12 MG1655 as indicated by black arrows. (D) 120000X Magnification. (E) 100000X Magnification. (F) 120000X Magnification. (G) 120000X Magnification. (H) 150000X Magnification. (I) T4 bacteriophage attached to an *E. coli* K-12 MG1655 cell can be clearly seen with the capsid (1) and tail (2). 200000X Magnification.

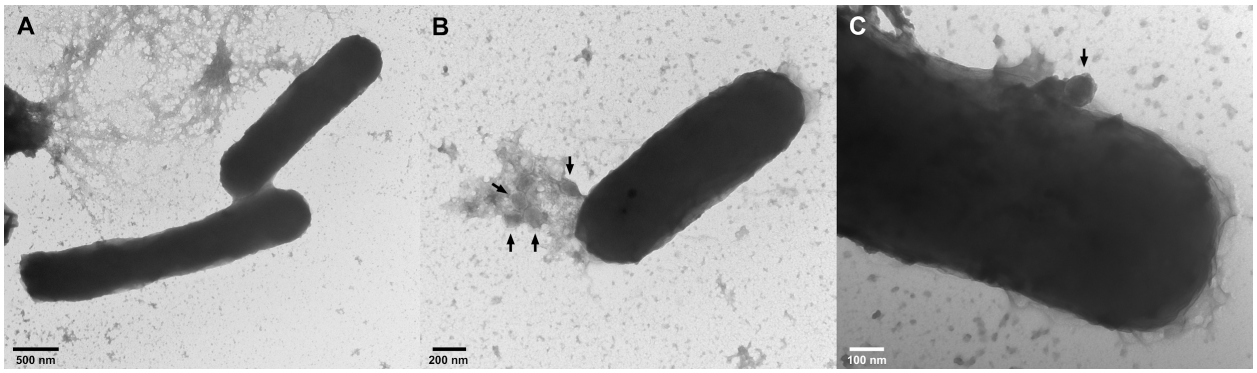

FIG. S2 *E. coli* K-12 DFB1655 L9 under the Hitachi H7600 transmission electron microscope. (A) *E. coli* K-12 DFB1655 L9 are present with no phage adhered. 40000X Magnification. (B) T4 bacteriophage appears to be clustered, indicated by the black arrows, but not adhered to the *E. coli* K-12 DFB1655 L9 cell. 80000X Magnification. (C) T4 bacteriophage on the surface of an *E. coli* K-12 DFB1655 L9 cell indicated by the black arrow. 150000X Magnification.

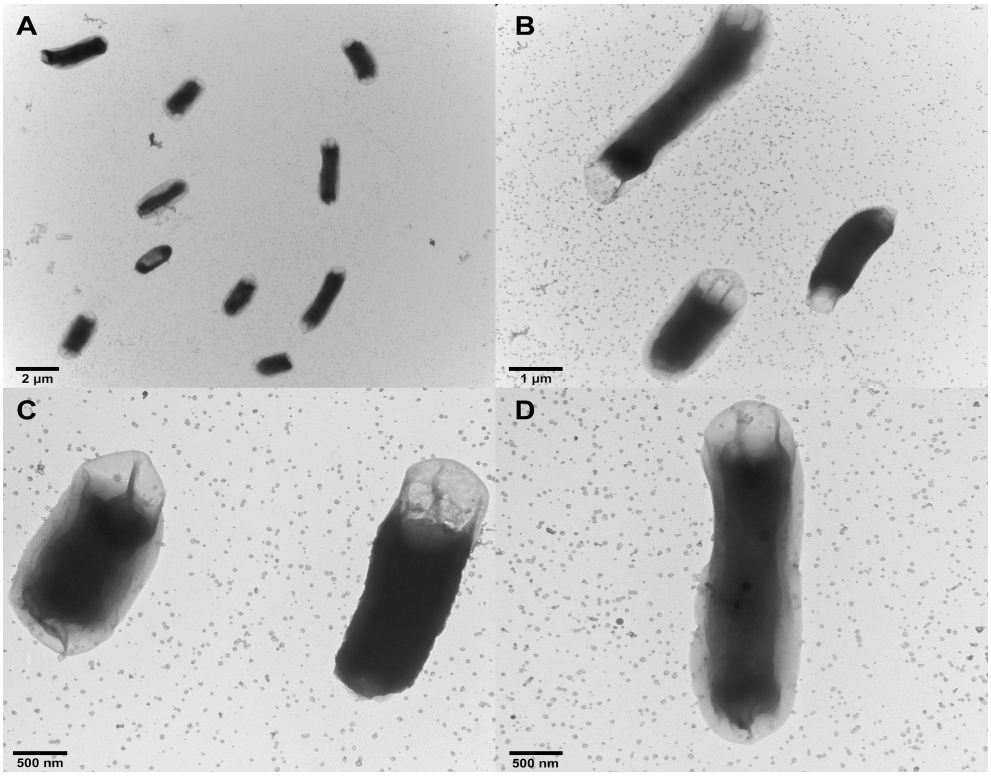

FIG. S3 Transmission Electron micrograph of *E. coli* K-12 JW2203-1. (A-D) *E. coli* K-12 JW2203-1 cells appear smaller in size to *E. coli* K-12 MG1655 and *E. coli* K-12 DFB1655 L9, are approximately 1-2 μm in length and 1 μm in width and have transparent ends. (A) 8000X Magnification. (B) 20000X Magnification. (C) 40000X Magnification. (D) 40000X Magnification.

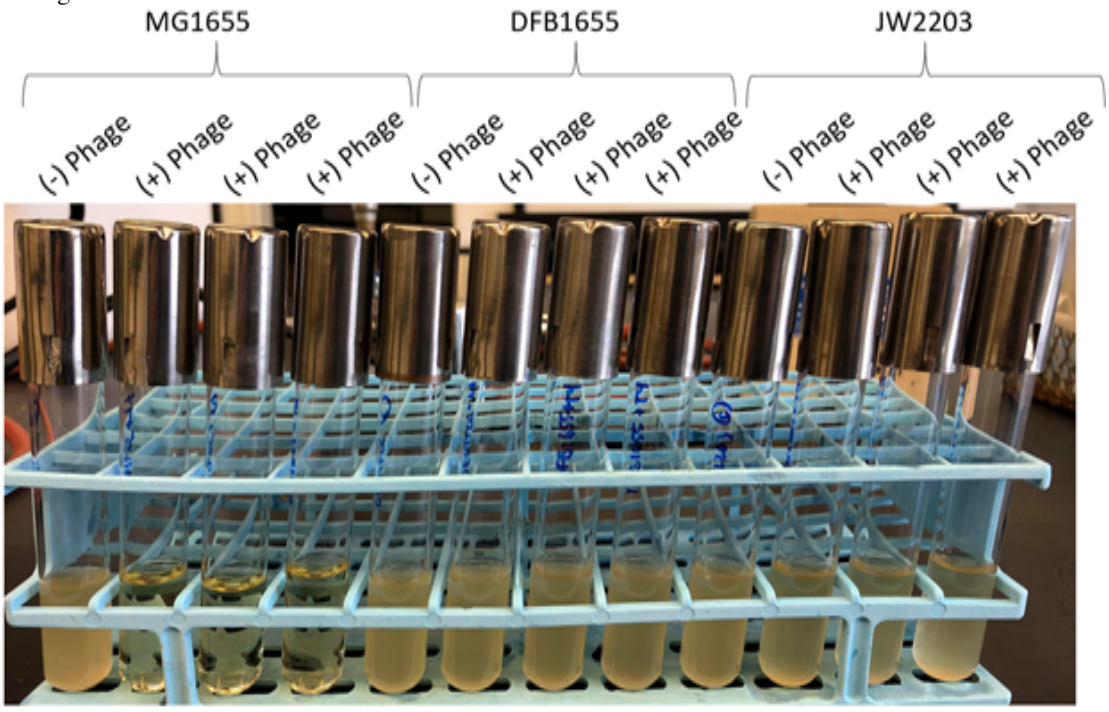

FIG. S4 Confirmation of *E. coli* K-12 substrain MG1655, DFB1655 L9, and JW2203-1 infection phenotypes**.** For each substrain, n=1 tube was used as a negative control (no phage). n=3 tubes for each substrain were spiked with a final concentration of 1/100 of the T4 bacteriophage stock solution. All tubes were inoculated with a single colony of the respective *E. coli* K-12 substrain and were left to grow overnight at 37°C shaking at 200 RPM.