

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: **Sequence alignment of ShkA orthologs.** This sequence alignment (in FASTA format) underlies the phylogenetic tree and Weblogos shown in Supplementary Figs 3a, b and 4a.

File Name: Supplementary Data 2

Description: **List of plasmids used in this study.**

File Name: Supplementary Data 3

Description: **List of oligonucleotides used in this study.**

File Name: Supplementary Data 4

Description: **List of strains used in this study.**