

Description of Additional Supplementary Files:

Supplementary Data 1: Nanopore sequencing data

Supplementary Data 2: Search for PICMI using Genbank bacterial complete genomes database

Supplementary Data 3: Search for PICMI using NCBI Assembly database

Supplementary Data 4: Phages used in the present study

Supplementary Data 5: *Vibrio chagasii* strains (wild type) used in the present study

Supplementary Data 6: Strains used or established for the genetic approach

Supplementary Data 7: Primers used in this study

Supplementary Data 8: Plasmids used or established in the present study (stored in *E. coli*)

Supplementary Data 9: AlpA from the PICMI carried by *V. chagasii* and *V. aestuarianus* are interchangeable for PICMI excision

Supplementary Data 10: AlphaFold analyses

Supplementary Software File: MacSyFinder models used to identify PICMI