

### **Description of Additional Supplementary Files**

**Supplementary Movie 1** -\_Timelapse image sequence of E. coli B cells infected with T7-mC-gp10.

#### **Supplementary Datasets**

Supplementary Data 1: Fragment sequences of T7 phage genomes engineered in this work and rebooted Felix01,

Supplementary Data 2: Primers used to assemble T7 genomes in this work as well as the assembly maps,

Supplementary Data 3: Mutations table from all the fully sequenced phages in this work,

Supplementary Data 4: Plasmids used in this work,

Supplementary Data 5: Comparison of the tail and tail fiber mutations leading to ReLPS strains infection with other work.

Supplementary Data 6: Correspondence between accession number and sample.