

Description of Additional Supplementary Files:

Supplementary Data 1: List of artificial peptides generated using a recurrent neural network (RNN)-based VAE.

Supplementary Data 2: List of peptides characterized in this study.

Supplementary Data 3: List of putative dual targeting sequences analyzed in this study.

Supplementary Data 4: Oligos, primers and synthetic genes used in this study.

Supplementary Data 5: List of plasmids used in this study.

Supplementary Data 6: List of strains constructed in this study.