



Supplementary Fig. S5. The Sequence logo of Sec/SPI generated with (A) known Sec/SPI sequences (represented by information content) and (B) predicted Sec/SPI sequence patterns via LoRA-tuned ESM2-3B (represented by attention weights). (C) Comparison between the gold-standard sequence logo and the predicted sequence pattern using Spearman's Rank Correlation between information content and attention weights. Each dot represents one position on the sequence.