

Structure of elongation factor 4 bound to the ribosome

Veerendra Kumar¹

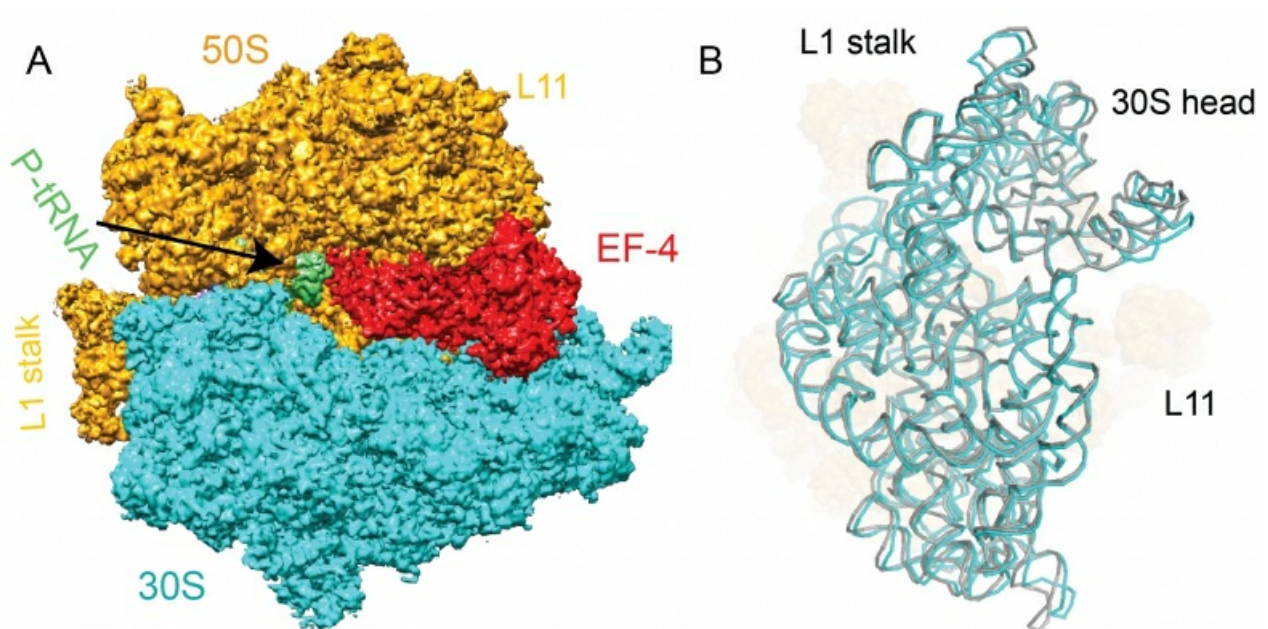
¹*Institute of Molecular and Cell Biology, Singapore, Singapore, Singapore*
E-mail: veerendrak@imcb.a-star.edu.sg

Elongation factor 4 (EF4) is a member of the family of ribosome-dependent translational GTPase factors, along with elongation factor G and BPI-inducible protein A. Although EF4 is highly conserved in bacterial, mitochondrial, and chloroplast genomes, its exact biological function remains controversial. Here we present the cryo-EM reconstruction of the GTP form of EF4 bound to the ribosome with P and E site tRNAs at 3.8-Å resolution. Interestingly, our structure reveals an unrotated ribosome rather than a clockwise-rotated ribosome, as observed in the presence of EF4-GDP and P-site tRNA. In addition, we also observed a counterclockwise-rotated form of the above complex at 5.7-Å resolution. Taken together, our results shed light on the interactions formed between EF4, the ribosome, and the P site tRNA and illuminate the GTPase activation mechanism at previously unresolved detail.

[1] Kumar et al (2016) Structure of the GTP Form of Elongation Factor 4 (EF4) Bound to the Ribosome. JBC 291(25):12943-50

[2] Kumar et al (2015) Structure of BipA in GTP form bound to the ratcheted ribosome. PNAS Vol 112 (35) 10944-10949

[3] Chen Yun et al (2013) Structure of EF-G-ribosome complex in a pretranslocation state. NSMB 20: 1077-1084.



Keywords: [Elongation Factor 4](#), [Ribosome](#), [Cryo-EM](#)