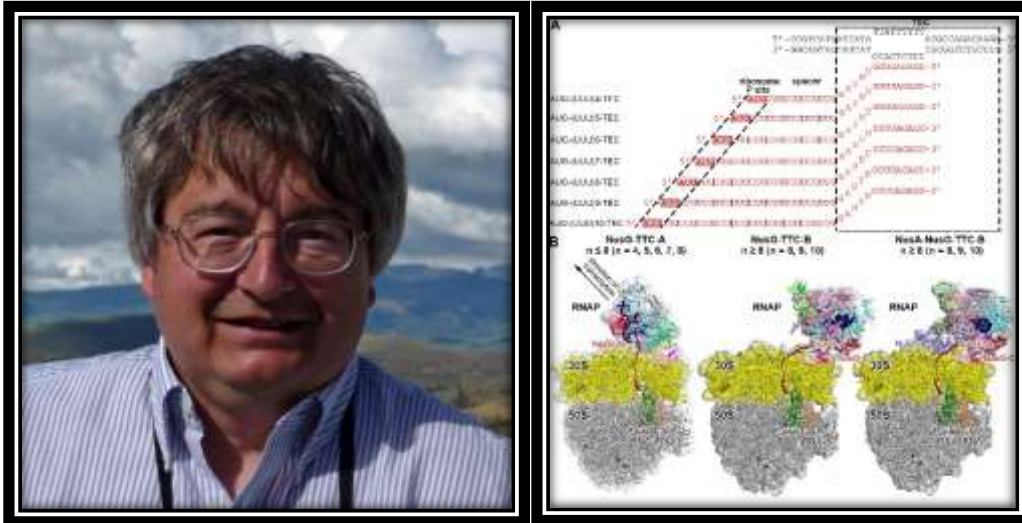# Webinar

Structural basis of transcription-translation coupling

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In bacteria, transcription and translation are coupled processes, in which movement of RNA polymerase (RNAP) synthesizing mRNA is coordinated with movement of the first ribosome translating mRNA. Coupling is modulated by the transcription factors NusG--which is thought to bridge RNAP and ribosome--and NusA. Here, we report cryo-EM structures of Escherichia coli transcription-translation complexes (TTCs) containing different-length mRNA spacers between RNAP and the ribosome active-center P-site. Structures of TTCs containing short spacers show a state incompatible with NusG bridging and NusA binding (TTC-A; previously termed "expressome"). Structures of TTCs containing longer spacers reveal a new state compatible with NusG bridging and NusA binding (TTC-B) and reveal how NusG bridges and NusA binds. We propose that TTC-B mediates NusG- and NusA-dependent transcription-translation coupling.

All are welcome to attend. Registration is at no-cost, but sign-up is required:
Registration Link: https://us02web.zoom.us/webinar/register/WN_xnTLmybUSj6LcMsEjKoSGg

This webinar series is jointly hosted by the NIH Transformative High Resolution CryoEM Program Service Centers: the National Center for CryoEM Access and Training (NCCAT), the Pacific Northwest Center for CryoEM (PNCC), and the Stanford-SLAC CryoEM Center (S2C2) who provide no-cost access to cryoEM instrumentation and training. In this monthly series, we will highlight cryoEM methods and use the Q&A session after the seminar to stimulate discussion of best practices and interesting challenges that will be helpful to researchers new to the field. Representatives from all three service centers will also be on hand to answer questions about the CryoEM resources available to biomedical researchers and how to access them.