



ISTA Lecture

# Initiation of translation in eukaryotes and bacteria

**Venki Ramakrishnan (MRC Laboratory of Molecular Biology)**

**Host: Leonid Sazanov**

The initiation of translation is a key regulatory step in protein synthesis. Defects in initiation are related to diseases including cancer, and many viruses hijack the protein synthesis machinery by shutting down initiation of host genes and using alternative initiation mechanisms. I will describe how the cryoelectron microscopy can be used to capture ribosomal complexes in various states of initiation and thus shed light on the mechanism of initiation.

## Bio

Venki Ramakrishnan received his bachelor's degree in physics from Baroda University in India in 1971 and his Ph.D. in physics from Ohio University in 1976. He then studied biology for two years at the University of California, San Diego before beginning his postdoctoral work with Peter Moore at Yale University. Since 1999, he has been a group leader at the MRC Laboratory of Molecular Biology in Cambridge, England. He received the Nobel Prize for Chemistry in 2009 and was the president of the Royal Society from 2015-2020.

In 2000, his laboratory determined the atomic structure of the 30S ribosomal subunit and its complexes with ligands and antibiotics. This work led to insights into how the ribosome "reads" the genetic code, as well as antibiotic function. Ramakrishnan's lab subsequently determined high-resolution structures of functional complexes of the entire ribosome at various stages along the translational pathway, which led to insights into its role in protein synthesis during decoding, peptidyl transfer, translocation and termination. More recently his laboratory has been applying cryoelectron microscopy to study eukaryotic and mitochondrial translation.

Ramakrishnan is the author of *Gene Machine*, a very frank popular memoir about the race for the structure of the ribosome.

**Friday, May 13, 2022 05:00pm - 06:00pm**

**ISTA Lecture Young Lounge** ISTA Campus Raiffeisen Lecture Hall



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[Lecture Young Lounge page.](#)

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