

Microsymposium

MS69.O06

The Structure of the Yeast Mitochondrial Large Ribosomal Subunit

A. Brown¹, A. Amunts¹, X. Bai¹, J. Llácer¹, T. Hussain¹, P. Emsley¹, F. Long¹, G. Murshudov¹, S. Scheres¹, V. Ramakrishnan¹
¹MRC-LMB, Cambridge, UK

Mitochondria have specialized ribosomes that have diverged from their bacterial and cytoplasmic counterparts. We have solved the structure of the yeast mitoribosomal large subunit using single-particle electron cryo-microscopy. The resolution of 3.2 Ångstroms enabled a nearly complete atomic model to be built de novo and refined, including 39 proteins, 13 of which are unique to mitochondria, as well as expansion segments of mitoribosomal RNA. The structure reveals a new exit tunnel path and architecture, unique elements of the E site and a putative membrane docking site.

Keywords: Ribosome, Cryo-EM