

Structure of the 70S ribosome from human pathogen *Staphylococcus aureus*

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Abstract

© 2016 The Author(s). Comparative structural studies of ribosomes from various organisms keep offering exciting insights on how species-specific or environment-related structural features of ribosomes may impact translation specificity and its regulation. Although the importance of such features may be less obvious within more closely related organisms, their existence could account for vital yet species-specific mechanisms of translation regulation that would involve stalling, cell survival and antibiotic resistance. Here, we present the first full 70S ribosome structure from *Staphylococcus aureus*, a Gram-positive pathogenic bacterium, solved by cryo-electron microscopy. Comparative analysis with other known bacterial ribosomes pinpoints several unique features specific to *S. aureus* around a conserved core, at both the protein and the RNA levels. Our work provides the structural basis for the many studies aiming at understanding translation regulation in *S. aureus* and for designing drugs against this often multi-resistant pathogen.

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