# The Amazing Ribosome

Ada Yonath

Department of Structural Biology, Weizmann Institute, Rehovot 76100, Israel

Ribosomes are the universal cellular machines that translate the genetic code into proteins. They posses spectacular architecture accompanied by inherent mobility that facilitate their smooth and efficient performance in decoding, peptide bond formation and nascent protein elongation. Owing to their fundamental role, ribosomes are targeted by many antibiotics, which paralyze the ribosomes by binding to their functional sites. The structural bases for the antibiotics binding modes, inhibitory action and synergism pathways were revealed by analyzing crystal structures of complexes of antibiotics with ribosomal particles. Issues concerning strategies for differentiation between ribosomes of patients and pathogens, and mechanism leading to bacterial resistance to antibiotics will be discussed.