



THE DANISH CHEMICAL SOCIETY

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Nobel Prize Awardee in Chemistry 2009

Professor Ada Yonath

‘The amazing ribosome’

On Thursday June 17th at 4 pm Professor Ada Yonath from the Weizmann Institute of Science in Rehovot, Israel will give a lecture entitled ‘The amazing ribosome’ in auditorium 1 at the H.C. Ørsted institute in Copenhagen.

Abstract:

Ribosomes, the universal cellular machines, act as polymerases that translate the genetic code into proteins with high efficiency. They possess spectacular architecture accompanied by inherent mobility, allowing for their smooth performance. The peptide bond formation site (PTC) is located within a universal internal symmetrical region connecting all of the remote ribosomal features involved in its functions. The elaborate architecture of this region is capable of positioning both the amino acylated and peptidyl tRNA substrates in stereochemistry required for peptide bond formation, for substrate-mediated catalysis, and for substrate translocation. Hence, enabling the repetition of peptide bond formation and facilitating amino acid polymerization. The PTC is located above an elongated tunnel along which nascent chains progress until they emerge out of the ribosome. This tunnel may be involved in chaperoning function, provides the binding site of the first cellular chaperone that encounters the emerging nascent chain, and hosts a major family of antibiotics.



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