Advances in PROTEIN CHEMISTRY and STRUCTURAL BIOLOGY

VOLUME 92

Dynamics of Proteins and Nucleic Acids

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Proteins and Nucleic Acids are biological macromolecules and their interactions underline all molecular processes in life. Their ability to participate in highly specific, effective and regulated interactions is determined by their structure. Proteins and Nucleic Acids are large molecules containing many degrees of freedom and therefore exhibit a broad variety of internal motions ranging from femtoseconds to milliseconds and hours. Numerous experimental (e.g. NMR, variety of spectroscopic and time-resolved techniques) and computational methods (e.g. Molecular Dynamics, Monte Carlo methods) became successfully applied to provide novel and mutually complementary information about proteins and nucleic acids dynamics and interactions. In this thematic volume of APCSB we present state-of-the-art contributions focused on protein and nucleic acids dynamics and interactions using instrumental or modelling approaches and their synergetic combination.

Cover image by Dr. Petur O. Heidarsson and Dr Ciro Cecconi: Mechanical manipulation of a single protein molecule using DNA molecular handles in an optical tweezers setup.

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An imprint of Elsevier
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ISBN 978-0-12-411636-8