Research & Services | X-Ray Crystallography for Protein Structure Studies (Yissum)
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Oded Livnah, HUJI, Faculty of Science, The Alexander Silberman Institute for Life Sciences

Three-dimensional structure of proteins at the molecular level for the design and optimization of drugs

Categories	Life Sciences and Biotechnology

X-Ray Crystallographic Laboratory, The Wolfson Center for Applied Structural Biology, The Alexander Silberman Institute of Life Sciences, Faculty of Science

Research Capabilities

- The laboratory's main research focus is on the structural and biochemical studies of biologically related macromolecules using X-ray crystallographic techniques.
- One of the prime applications of any structural knowledge is the design and optimization of drugs targeted to relevant proteins.
- The laboratory is also involved in rational protein design of high affinity systems for biotechnological purposes. In addition the high affinity system may be utilized for numerous biotechnological and nanotechnological applications.
- Current studies involve alternative activation pathways of MAP kinases and corresponding structural alterations.

Advantages

The laboratory of X-ray crystallography is equipped with a full X-ray diffraction setup as well as an automated (robotic) crystallization facility. This equipment is available for all academic and industrial interests.

Research Background

The main goal of the laboratory's work is the X-ray elucidation of the three-dimensional structure of proteins at the molecular level, revealing the position of each and every atom in space. Insight into the architecture of these molecules leads to a better understanding of molecular recognition, biological processes, and factors that control correct conformational folding into functional molecules. Knowledge of these properties provides direct insight into the molecular basis of biological and biochemical pathways, with direct implication on disease processes and, consequently, for drug design strategies.

Researcher and Research Interests

Professor Oded Livnah. The research in Professor Livnah's laboratory mainly focuses on structural and biochemical studies of proteins. Research topics currently include signal transduction in MAP kinases, protein engineering, and determination of the structure of human heparanase. Professor Livnah was involved in research that resulted in a promising approach to help treat Alzheimer’s disease in a significant proportion of the population that suffers from a particularly rapid development of this disease.

Laboratory Contact

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