

Impact and outcomes

Structural Biology and Molecular Biophysics makes key contributions to various areas of the life sciences, from rational design of drugs and inhibitors, to deriving detailed predictive models of molecular systems, to molecular diagnostics and synthetic biology.

Nature has developed a wealth of solutions to difficult problems, from molecular recognition to synthesis of complex compounds that are nearly impossible to reproduce in the laboratory. Exploitation of this immensely rich store of solutions hinges on a detailed understanding of the molecular details of biological macromolecules and their interaction partners.

Modern mass spectrometry has become an exquisite tool to sift through complex mixtures of metabolites in cellular samples, aiding research in metabolic disorders and environmental impact analysis. X-ray crystallography continues to represent the method of choice to yield 3D representations of proteins and protein complexes at (near) atomic resolution, supporting the rational design of chemotherapeutics, while biophysical spectroscopy in conjunction with clever chemistry provides novel avenues for fast and reliable diagnostic tests, for instance in the detection of bacterial pathogens by cognate viruses.

