At the interface between chemistry and biology: in order to understand the way a living organism functions as well as the role of the various proteins involved, scientists have long sought to see their structures. For this, X-ray diffraction has proved to be an extremely powerful technique. It does have one limitation: the proteins must be in a crystalline form.

“Growing” protein crystals ...

Proteins are very large biological molecules (macromolecules) and essential for life. They are made of amino acids. Each protein has a specific function, directly linked to its three-dimensional structure, i.e. the manner in which the amino acids are laid out, one against the other in space. Proteins do not naturally form crystals, so these crystals have to be grown artificially.

... to study them.

There exists a very strong relationship between the atomic arrangement (the structure) of a biological macromolecule and its function: the precise knowledge acquired about its forms means that a hypothesis can be made regarding its role and the manner in which it carries out its function. Studies relate to both basic research, in order to acquire a precise understanding of the biological processes, and applied research, leading to the synthesis of new medicines.