

Microsymposium

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Protein Crystallography: Getting in on the Ground Floor

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The first diffraction pattern from crystals of a protein was obtained by Desmond Bernal and Dorothy Crowfoot Hodgkin in 1934. As early as 1939, Bernal described how such diffraction patterns might be used to determine the complete three-dimensional structure of a protein. It was not until 1954, however, that Max Perutz showed how isomorphous replacement could be used to determine the phases for crystalline hemoglobin. Using this approach, Kendrew and coworkers described the three-dimensional structure of myoglobin in 1960. In 1965, David Phillips' group determined the structure of hen egg-white lysozyme. Then, in 1967, three different protein crystal structures were reported. Macromolecular crystallography had come of age. The talk will touch on some of these early events and include reminiscences of work at the MRC Lab in David Blow's group leading up to the successful determination of the alpha-chymotrypsin structure.

Keywords: Chymotrypsin structure, First protein structures, Crystallography history