Havel, H.A. (ed.): **Spectroscopic Methods for Determining Protein Structure in Solution**. - VCH Publishers, New York - Weinheim - Cambridge 1996. ISBN 1-56081-091-2.

The protein structure is usually determined in solid crystallic state using X-ray or electron diffraction and necessary related procedures (isomorphous replacement, anomalous diffraction, numerical reconstitution of the structure, *etc.*). By this approach the structure of several hundreds of proteins has been already determined with different level of resolution. A newly developing method of multidimensional NMR spectroscopy offers a possibility to assess the structure of low-mass proteins (up to about 30 kDa) in solution with a similar resolution as the X-ray diffraction. On the other hand, a series of indirect spectroscopic methods may give also an important and unique information concerning structures of biomolecules. The intention of this book is to provide a basic introduction to the application of some of the most important spectroscopic methods for determination of structural features of proteins in solution. Spectroscopic methods, except NMR, can generally give only restricted information on the primary or quaternary protein structure. They are usually used to get information on secondary and tertiary structure and their dynamics. The book should help the researcher to choose a suitable method or a combination of methods to obtain the desired structural information.

The book contains nine chapters written by specialists in individual spectroscopic techniques (eight of them from USA, two from Canada and one from Israel). The list of addresses of contributors and the subject index are given in the book. The introductory chapter (H.A.Havel) contains an overview of presented spectroscopic methods. Principal advantages and limitations of individual techniques are condensed in one table together with the structural type studied. Moreover, the discussion on this topic continues throughout the book. The other chapters deal with circular dichroism (M.G. Mulkerrin), energy transfer methods (E. Haas), derivative near-ultraviolet absorption (H.A. Havel), nonresonance Raman spectroscopy (L.G. Tensmeyer, E.W. Kauffman, II), ultraviolet resonance Raman spectroscopy (T.J. Thamann), infrared absorption methods (W.K. Surewicz, H.H. Mantsch), vibrational circular dichroism (T.A. Keiderling) and nuclear magnetic resonance (A.M. Gronenborn, G.M. Clore).

Each chapter contains to some extent the theoretical basis of the spectroscopic technique, description of the spectroscopic instruments and their technical data, sample preparation and handling, mathematical analysis of the spectra and data interpretation, practical examples of revealing structural information of proteins and basic references. In some cases the blok diagrams or schemes of experimental set-up are given.

The book can be found very interesting for teachers and students as the principles and applications are shown. Researchers studying other molecules than proteins may be inspired for application of the mentioned methods. Every reader might find some interesting topics. The explanation of Fourier self-deconvolution procedures in infrared spectra, applications of factor and cluster analyses and detection of short-lived conformers by energy trasnfer methods were interesting for me.

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