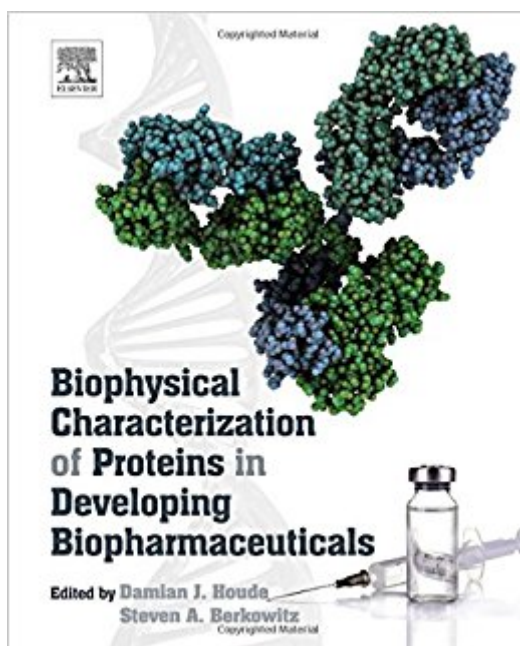




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# Biophysical Characterization Of Proteins In Developing Biopharmaceuticals



## Synopsis

Biophysical Characterization of Proteins in Developing Biopharmaceuticals is concerned with the analysis and characterization of the higher-order structure (HOS) or conformation of protein based drugs. Starting from the very basics of protein structure this book takes the reader on a journey on how to best achieve this goal using the key relevant and practical methods commonly employed in the biopharmaceutical industry today as well as up and coming promising methods that are now gaining increasing attention. As a general resource guide this book has been written with the intent to help today's industrial scientists working in the biopharmaceutical industry or the scientists of tomorrow who are planning a career in this industry on how to successfully implement these biophysical methodologies. In so doing a keen focus is placed on understanding the capability of these methodologies in terms of what information they can deliver. Aspects of how to best acquire this biophysical information on these very complex drug molecules, while avoiding potential pitfalls, in order to make concise, well informed productive decisions about their development are key points that are also covered. Presents the reader with a clear understanding of the real world issues and challenges in using these methods. Highlights the capabilities and limitations of each method. Discusses how to best analyze the data generated from these methods. Points out what one needs to look for to avoid making faulty conclusions and mistakes. In total it provides a check list or road map that empowers the industrial scientists as to what they need to be concerned with in order to effectively do their part in successfully developing these new drugs in an efficient and cost effective manner.

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Damian J. Houde is a scientist within Protein Pharmaceutical Development at Biogen Idec, Inc. in Cambridge, MA where he performs detailed biochemical and biophysical characterization studies on biopharmaceuticals, as well as evaluates new biochemical and biophysical protein characterization tools. Further he is an adjunct Professor within the Department of Chemistry and Chemical Biology at Northeastern University in Boston, MA. He teaches undergraduate and graduate level bioanalytical biochemistry. Steven A. Berkowitz is a principal investigator in the department of analytical development at Biogen Idec, Inc. in Cambridge MA. His technical areas of expertise are concentrated in the separation sciences and the physical sciences associated with the characterization of biopolymers and synthetic polymers where he has over 40 peer reviewed publication and has presented numerous talks and posters at a wide range of technical meetings. Much of Dr. Berkowitz's work has centered on assessing the physico-chemical properties, micro-heterogeneity and aggregation properties of biopharmaceuticals using light scattering,

analytical ultracentrifugation, chromatography, electrophoresis, and various forms of spectroscopy. His present responsibilities are now focused on providing biophysical information on the higher-order structure and structural dynamics of biopharmaceuticals and the development and evaluation of analytical tools such as H/DX-MS and NMR to support this area. Dr. Berkowitz received a B.S. degree in Biology from Fairleigh Dickinson University and a Ph.D. degree in Biochemistry from New York University. He then spent several years as a post-doctoral fellow at Yale University and the NIH. After his post-doctoral work Dr. Berkowitz held various positions at Celanese Research Company, J.T. Baker, and Lederle Laboratories before taking his present position at Biogen Idec.

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