

HYDROGEN EXCHANGE MASS SPECTROMETRY OF PROTEINS

**Fundamentals, Methods,
and Applications**

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Hydrogen exchange mass spectrometry is widely recognized for its ability to probe the structure and dynamics of proteins. The application of this technique is becoming widespread due to its versatility for providing structural information about challenging biological macromolecules such as antibodies, flexible proteins and glycoproteins. Although the technique has been around for 25 years, this is the first definitive book devoted entirely to the topic.

Hydrogen Exchange Mass Spectrometry of Proteins: Fundamentals, Methods, and Applications brings into one comprehensive volume the theory, instrumentation, and applications of Hydrogen Exchange Mass Spectrometry (HX-MS) – a technique relevant to bioanalytical chemistry, protein science and pharmaceuticals. The book provides a solid foundation in the basics of the technique and data interpretation to inform readers of current research in the method and illustrative examples of its use in biochemistry, pharmaceutical chemistry and biophysics.

In-depth chapters on the fundamental theory of hydrogen exchange and tutorial chapters on measurement and data analysis provide the essential background for those ready to adopt HX-MS. Expert users may advance their current understanding through chapters on methods including membrane protein analysis, alternative proteases, millisecond hydrogen exchange, top-down mass spectrometry, histidine exchange and method validation. All readers can explore the diversity of HX-MS applications in areas such as ligand binding, membrane proteins, drug discovery, therapeutic protein formulation, biocomparability, and intrinsically disordered proteins.

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