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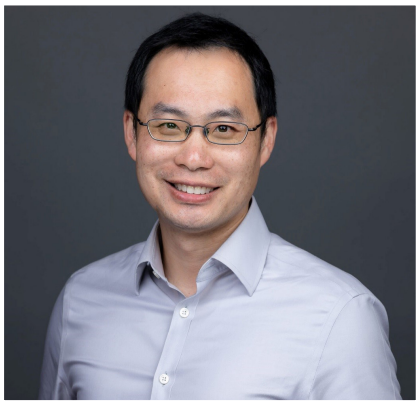
MEET THE EDITOR

Meet our Editorial Board Member: Dr. Xiaobin Xu



Xiaobin Xu

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Dr. Xiaobin Xu was born in Quanzhou, China. He received his Bachelor of Science degree and Master of Science degree in Chemistry at Sichuan University, Chengdu, China. Xiaobin pursued his Ph.D. degree in Chemistry at Boston University, Boston, MA, USA, under the mentorship of Professor Catherine E. Costello. His Ph.D. research focused on proteomics and biological applications of mass spectrometry, especially for characterization of structures, interactions, and functions of proteins. He identified interacting proteins and functions of Synphilin-1, a protein implicated in Parkinson's disease, using tandem affinity purification, quantitative proteomics, chemical cross-linking, mass spectrometry, and biochemical assays.

In the summer of 2013, Dr. Xu worked at Biogen, Cambridge, MA, USA, as an intern. At Biogen, he established the hydrogen-deuterium exchange mass spectrometry (HDX-MS) workflow in the drug discovery department. Dr. Xu not only studied the conformational changes in a therapeutic target protein superoxide dismutase 1 (SOD1), but also mapped epitopes of a potential therapeutic antibody specific to SOD1, helping identify the identification of the therapeutics for the target disease, amyotrophic lateral sclerosis (ALS).

In October 2013, Dr. Xu joined Regeneron Pharmaceuticals, Tarrytown, NY, USA, working in the Analytical Chemistry Group. At Regeneron, Xiaobin leads a team to provide analytical characterization of therapeutic protein drug candidates and products to support drug development activities at all stages, helped advance 4 drugs (e.g., Libtayo) to FDA approval and 8 drugs to clinical trials. He authored analytical characterization sections for 7 FDA regulatory submissions including Investigational New Drug (IND), comparability, and Biologics License Application (BLA). Xiaobin also spearheaded analytical characterization and developability risk assessment for drug candidate selections, established the assessment workflow, evaluated 23+ drug development programs, a vital role that prevent potential program failures at the early stages and may save the company millions of dollars. In addition, he collaborated with multidisciplinary teams to plan, execute, and accomplish 10+ joint research projects, and liaised with cross-functional CMC (Chemistry, Manufacturing and Controls) teams to support drug development activities. Because of his excellent work, Xiaobin has been well recognized at Regeneron as an outstanding scientist and featured on Regeneron's website (link).

Dr. Xu's research interests include mass spectrometry-based therapeutic protein/biomarker quantification, hydrogen-deuterium exchange mass spectrometry (HDX-

MS) and chemical cross-linking mass spectrometry for protein conformation and protein-protein interaction studies, post-translational modifications, top-down mass spectrometry, host cell protein identification and quantification, separation of mAbs and mAb fragments, bioanalytical method development and validation, and laboratory automation.

At Regeneron, Xiaobin developed many novel analytical methods for therapeutic protein characterization, such as, 1) immunocapture LC-MS for monitoring and modeling post-translation modifications (PTMs) of monoclonal antibodies (mAbs) changes in vivo; 2) LC-MS based multi-attribute method (MAM) for characterization of product quality attributes (PQAs) of mAbs; 3) LC-MRM-MS to quantify host cell proteins (HCPs), biomarkers, therapeutic mAbs, and anti-drug antibodies (ADAs); 4) HDX-MS to study mAb conformational changes, dimer interface, and high viscosity; 5) nanoLC-MS to identify and quantify HCPs in sub-visible and visible particles from biologic drug products; 6) Immunocapture-LC/MS assay for anti-drug-antibody (ADA) isotyping and quantification in preclinical/clinical studies. Dr. Xu has 11+ years of experience in protein characterization and proteomics research using LC-MS with 12+ publications and patents, and 21+ conference and seminar presentations.

Dr. Xu actively contributes to many professional communities. He serves as an editor or associate editor for 4 scientific journals and a reviewer for 8 scientific journals. He also serves as a scientific advisor for a national-wide analytical conference. Besides work, he enjoys hiking, cycling, traveling, and photographing. He has visited 30 out of 60 national parks in the United States. He is in the company cycling team and has attended many cycling events.

Selected Publications

1. Xu X, Yang L, Qu Y, Li L, Zhou X. Tetraethylammonium dichlorido[N, N'-(4,5-dichloro-o-phenylene)bis(4-tert-butylpyridine-2-carboxamide)-k^{4}N]-ferrate(III)-acetonitrile solvate. Acta Crystallogr E63, m1790 (2007).
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5. Xu X. Chemical cross-linking mass spectrometry for profiling protein structures and protein-protein interactions. J Proteomics Bioinform 8, e28 (2015).
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7. Xu X. In vivo characterization of therapeutic monoclonal antibodies. J Appl Bioanal 2 (1), 10-15 (2016).
8. Xu X. C-termini Analysis of Monoclonal Antibody fragmentation. Open Access J Pharm Res 1(1), 000102 (2016).
9. Xu X, Qiu H, Li N. LC-MS multi-attribute method for characterization of biologics. J Appl Bioanal 3(2), 21-25, (2017).