

Structural Biology and Structural Genomics Using NMR Spectroscopy

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In today's post-genomic era, with the availability of the complete DNA sequences of a wide range of organisms, structural biologists are faced with new opportunities and challenges in "structural genomics". In contrast to classical structural biology, research in structural genomics is focused on gene products with unknown structures, unknown functions, and minimal similarity to previously studied proteins. A precisely formulated goal of structural genomics is to determine representative three-dimensional structures for all important protein families in the protein universe. This requires 'high-throughput' technology for protein production and structure determination, and the long-term outlook is to predict the corresponding physiological protein functions from knowledge of the new three-dimensional structures. This presentation will be focused on the role of NMR spectroscopy in the pursuit of these goals within the California-based Joint Center for Structural Genomics (JCSG; PI Dr. Ian A. Wilson, Protein Structure Initiative Grant U54 GM074898, National Institute of General Medical Sciences).