

Chemical protein synthesis to study protein structure and function



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Total synthesis of protein via methods of organic chemistry evolved as a powerful methodology that allows for preparation of small and medium size proteins. Chemical strategies are inherently flexible and enable incorporation of the unlimited combinations of unnatural amino acids, post-translational modifications and various labels. In combination with various biophysical techniques, this approach has strong potential to contribute to better understanding of the challenging problems in protein chemistry and biology. In this lecture, I will present applications of chemical protein synthesis to dissecting mechanisms of protein misfolding and aggregation, studying structure and function of intrinsically-disordered proteins and designing new catalytic proteins.