
# *ABSTRACT*

*"Intrinsically disordered proteins in cellular function and disease"*


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Our traditional view of proteins is rooted in the notion that a well-defined three-dimensional structure is the prerequisite of their function. The evidence is steadily growing, however, that for a significant fraction of the proteome the functionally relevant state is not structured [1,2]. This recognition has called for the extension of the protein structure-function paradigm to encompass such proteins and protein domains, now termed intrinsically unstructured, intrinsically disordered (IDPs) or natively unfolded. Here the current state of this rapidly advancing field is surveyed [3]. It is shown that such proteins are common in living organisms and play important roles in the regulation of key cellular processes of signaling and transcription. It will be shown that we have multiple experimental techniques at our disposal for the characterization of the structural ensemble of IDPs, and also that structural disorder provides advantages so that IDPs often surpass globular proteins in terms of functional specificity, versatility, speed and control [4]. Because of their important functions, however, IDPs are also often involved in disease, such as cancer and neurodegeneration. Thus, it is argued that understanding this structural phenomenon at atomic resolution not only represents a novel challenge for extending the structure-function paradigm, but also presents novel targets and raises new hope for drug discovery [5].



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