Uncovering the Sequence Grammar of Intrinsically Disordered Proteins

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Intrinsically disordered proteins (IDPs) make up roughly 30% of eukaryotic proteomes. As autonomous units, IDPs adopt heterogeneous ensembles of conformations and this preference for heterogeneity is encoded at the level of the amino acid sequences. *Trans* factors including nucleosome positioning barrier factors and transactivators are enriched in disordered regions. Our work over the past few years has helped demonstrate that sequences of IDPs can be partitioned into distinct conformational classes. These composition to conformation and sequence to conformation relationships are facilitating our understanding of the relationships between disorder and function. The talk will provide concrete illustrations of the role of IDPs in cell division and transcriptional regulation of Notch genes. The talk will also discuss connections to nucleosome positioning that is regulated by IDPs.