ICGEB International Centre for Genetic Engineering and Biotechnology | Developing Knowledge

ICGEB International SEMINAR PROGRAMME 2018

Friday, 23 March 2018 | 12:00 noon | ICGEB Seminar Room, W building | Padriciano, 99, Trieste, ITALY

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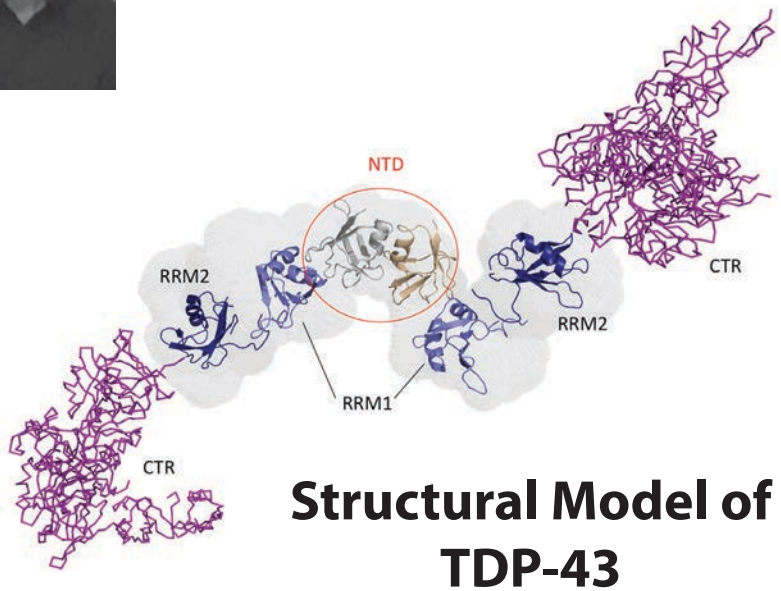

Structural Model of TDP-43

One third of eukaryotic proteins contain disordered regions which do not adopt well folded structures. Nevertheless, these regions regulate gene expression and protein function and play key roles in cancer, viral infections and neurodegenerative diseases. Due to their disordered nature, these proteins are not amenable to characterization by cryo-electron microscopy or X-ray crystallography. Fortunately, atomic level information on their dynamics and conformation can be obtained by utilizing NMR spectroscopy. In fact, over the last 15 years, NMR methods specifically optimized for characterizing disordered proteins have been developed. TDP-43 is an essential protein whose disordered C-terminal region forms aggregates which are strongly linked to ALS. Recent NMR studies have shown that a hydrophobic sub-segment of the C-terminal region adopts a partially folded alpha helical conformation and that the following Q/N-rich sub-segment tends to form beta hairpin structures. These conformers are likely to be involved in the formation of pathological TDP-43 aggregates.

"Studying Intrinsically Disordered Proteins by NMR: Application to ALS-Related Proteins"

Host: E. Buratti

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