

MBG FOCUS TALK



Thursday 19 September 2024 @ 09:00-09:45

Faculty Club (1870-816)



Ulf Andersson Vang Ørom

MBG, Aarhus University

RNA-protein interactions in biology

RNA-protein interactions are essential for many biological processes. While proteins are well known to be involved in processing RNA in splicing and decay, RNA can also direct both localization and function of proteins. The latter is primarily seen for long non-coding RNAs often reported to affect transcription factor function in the nucleus of the cell. This binding is believed to be mediated by structural elements in the RNA formed by sequence composition and modification of RNA bases.

In our work we focus on how RNA-interactions can affect protein activity and localization. We take a particular interest in nuclear RNA-protein interactions, where we have identified a number of dual DNA and RNA binding proteins in the cell's nucleus with roles in transcription and phase separation.

Our recent work addresses the identification and functional understanding of RNA modifications in specifying RNA processing and functional protein interactions. Here, we show a role of RNA acetylation in the cell's response to stress and formation of stress granules, and that RNA acetylation can affect both protein localization and enzymatic activity. Our findings link RNA acetylation to such diverse processes as phase separation and histone modifications and underline the importance of RNA-protein interactions in biology.