REGIONAL CENTRE FOR BIOTECHNOLOGY
Seminar series

To translate, remain silent or get destroyed: How are mRNA fate decisions made?

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Seminar Room

Regulation of mRNA translation and decay plays a key role in modulating gene expression in all studied model organisms. An underlying theme has emerged from work done in above field in different model systems over last decade. This theme emphasizes that the core machinery involved in process of translation and mRNA decay is highly conserved. With the aim of understanding the mechanism of translation repression, I focused on Scd6. It is a translational repressor with a C-terminal RGG-motif. Its various orthologs including RAP55 in humans have been implicated in translation repression and mRNA stabilization. However the mechanism of action of Scd6 or any of the orthologs was unknown. My results have now established that Scd6 acts through its C-terminal RGG-motif to bind eIF4G and repress translation. I further looked at two other RGG-motif proteins involved in RNA-metabolism in yeast, Npl3 and Sbp1. Both of these bind eIF4G and repress translation via their RGG-motif. This work identifies an exciting new role of eIF4G in facilitating translation repression by recruiting RGG-motif proteins. This is in contrast to its known role as a translation initiation factor. We propose that eIF4G functions as an integrator of mRNP fate by facilitating recruitment of different factors during mRNP transitions.