



BIOLOGY COLLOQUIUM

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Hosted by Dr Kim Chu-Young

Structural Insights into Translational Control



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Translation is tightly controlled at initiation and termination stages of protein synthesis. Programmed cell death protein 4 (Pdc4), a novel tumor suppressor protein inhibits translation through interaction with translation initiation factor eIF4A, thereby resulting in the suppression of neoplastic transformation and tumor invasion. We have determined the crystal structures of Pdc4 in free form and in complex with eIF4A. Our structural and mutational analyses reveal the structural basis for translational inhibition by Pdc4. Viruses often exploit or subvert host machinery for their own purposes during replication. Retroviruses, murine leukemia virus manipulates the translational machinery by using its reverse transcriptase (RT) to interact with the polypeptide release factor eRF1. In this talk, I will also discuss how RT inhibits eRF1, enhance the efficiency of readthrough, and thus cause higher level of RT synthesis.