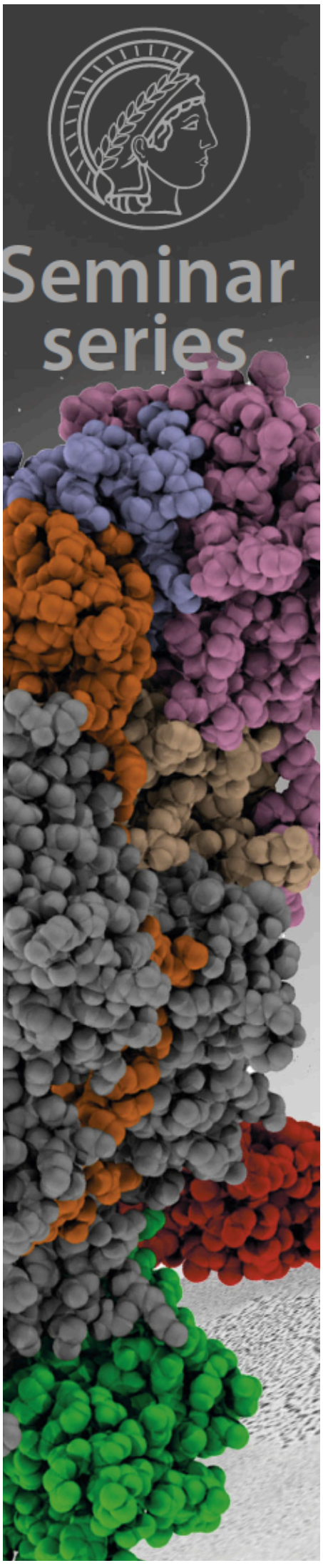
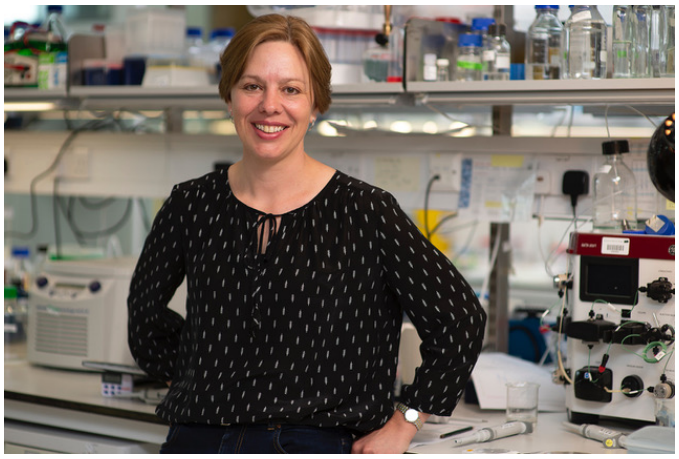


Thursday
24 May 2018
1.00 pm

Lori Passmore

MRC Laboratory of Molecular Biology



Mechanistic insight into the eukaryotic poly(A) tail machinery

Almost every eukaryotic mRNA has a 3' poly(A) tail that contributes to post-transcriptional regulation of gene expression by regulating translation and mRNA stability. The poly(A) tail is added to pre-mRNAs in the nucleus by the 1 MDa cleavage and polyadenylation factor (CPF). CPF contains 15 different protein subunits, most of them essential for viability in yeast. CPF cleaves the mRNA with an endonuclease subunit, adds a poly(A) tail with its polymerase, and regulates transcription via two protein phosphatases.

Cytoplasmic deadenylases shorten or remove poly(A) tails. Deadenylation occurs in both gene- and context-specific manners to allow differential control of poly(A) tail lengths, for example in response to microRNAs or other regulatory signals. The major deadenylase activities in eukaryotes are found within the Pan2–Pan3 and Ccr4–Not complexes.

We use a hybrid approach combining structural (cryo-EM, x-ray crystallography, NMR), biochemical, biophysical and genetic techniques to gain insights into the molecular mechanisms of the poly(A) machinery. Our new mechanistic insights will be presented.

Host: Prof. Dr. Patrick Cramer
Place: Max Planck Institute for Biophysical Chemistry
Department of Molecular Biology
T2, 2nd floor