In animal cells, the last step in cell division, abscission, relies on the structure called the midbody. Midbodies and midbody-associated factors are necessary for cytokinesis and also appear to play a role post-mitotically. In certain cell types, midbody accumulation leads to altered growth and development, suggesting that signals from midbodies can lead to dramatic cell fate and proliferative changes. Traditional approaches have suggested that translation ceases during mitosis. However, recent work by others, our midbody proteome, and our preliminary transcriptome data has led to a hypothesis that translation of midbody-enriched mRNAs may play a critical role during cytokinesis. The mechanisms underlying the coordination of RNA regulation during cell division and post-mitotically will be a focus of this talk.

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