

P021 Translational control of 5'TOP (terminal oligopyrimidine tract) mRNAs

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All eukaryotic mRNAs process a cap structure (m7G(5')ppp(5')N) at the 5' end of their message. This cap structure directs the 40S ribosomal subunit to the 5' end of the message where it then scans in a 5' to 3' direction. Translation can commence when the 40S ribosomal subunit encounters the correct AUG start codon. The cap structure is recognised by a large complex of proteins called the eIF4F complex which in turn recruits the 43S pre-initiation complex. Most cellular messages have an A as the first nucleotide after the cap. However, 30% of messages within eukaryotic cells have a C (m7G(5')ppp(5')C) as the first nucleotide followed by a short poly-pyrimidine tract. These mRNAs are termed TOP (Terminal Oligopyrimidine) messages and are co-ordinately regulated by mitogenic, growth and nutritional stimuli. TOP mRNAs are probably the largest coordinated group of messages within the cell. However, the mechanism of their regulation still remains unclear.

We are using TOP mRNA reporter constructs to directly investigate which protein factors affect TOP mRNA translation. Methodology and results from these studies will be discussed.