

P009 eIF2/eIF2B bodies and their control in translation initiation and cell physiology

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The guanine nucleotide exchange factor, eukaryotic translation initiation factor 2B (eIF2B), provides an important focal point for the control of the initiation phase of protein synthesis. We have observed that both eIF2B and its G protein (eIF2) co-localise to cytoplasmic bodies within yeast cells. This localisation is specific to the translation initiation factors eIF2 and eIF2B, with approximately 20% and 40% of each factor respectively present in the focus. These eIF2/2B bodies are extremely dynamic as FRAP analysis reveals that eIF2 shuttles into these foci while eIF2B remains largely resident. Intriguingly, this rate of eIF2 shuttling reduces in response to conditions inhibiting eIF2B activity. We propose that this body serves as a centre for guanine nucleotide exchange of eIF2.

Further analysis of these foci has revealed their highly motile nature within the cell. Currently we are investigating this movement and will present data to suggest that an intact cytoskeleton maybe required for this movement. eIF2/2B foci are predominately mother cell specific. We have begun to address the inheritance of these eIF2/eIF2B foci within daughter cells and present evidence to suggest that the appearance of these foci in daughter cells may be linked to the G1/Start boundary.