

P013 Investigating the subcellular localization of translation initiation factor eIF4F In NIH3T3 Fibroblasts

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The association of substantial proportions of mRNA and ribosomes with cytoskeletal elements has long been suggested, mainly on the basis of retention with cytoskeletal fractions remaining after gentle extraction of cells with non-ionic detergents. The movement of specific mRNAs along cytoskeletal networks in granules containing ribosomes and elongation factors has also been demonstrated in some cell types. However, there is relatively little information on the localisation of the initiation factors that mediate the recruitment of mRNAs for translation.

We present evidence that under normal growth conditions, there is little or no interaction between eIF4G, eIF4E and PABP with the cytoskeleton or between eIF4E and eIF4G and focal adhesions. We demonstrate that the pattern of localisation in these cells closely resembles the endoplasmic reticulum when initiation factors are co-stained with ER markers, and that the majority of these factors can be detergent extracted.

In spreading cells, eIF4G and eIF4E additionally co-localise with complexes of proteins that subsequently assemble to form focal adhesions. These complexes may form upstream of Rac-induced focal complexes and Rho-induced focal adhesions. We hypothesise that localised translation may be necessary for the formation of focal adhesions and for cell motility.

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