P012 Identification of internal ribosome entry segment (IRES) *trans*-acting factors for the Myc family of IRESs

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The activity of cellular IRESs is controlled by IRES trans-acting factors and the data suggest that there are both specific ITAFs that control the activity of individual groups of IRESs and general ITAFs that are required by the majority of IRESs. In this regard it has been shown that the majority of cellular IRESs and many viral IRESs require polypyrimidine tract binding protein (PTB) for function. In contrast, c-myc and BAG-1 IRESs have been shown to require members of the poly rC protein family for activity. To date no comprehensive study has been carried out on a group of related IRESs to determine whether there are defined sets of ITAFs that interact with them. To address this question we have used an affinity chromatography approach to identify four proteins; PSF, p54nrb, GRSF1, and YB1 that interacted and stimulated Myc IRES (c-myc, L-myc and N-myc) family function (albeit with different affinities) but not that of Bag-1 or Apaf-1 IRES. Interestingly, it appears that YB1 specifically regulates the Myc family of IRESs. Thus this protein was shown to regulate Myc IRES activity *in vitro* and *in vivo* and moreover reduction of YB1 expression using RNAi reduced the expression of endogenous c-Myc protein but did not affect the mRNA levels strongly suggesting YB1 plays a role in controlling c-myc translation. These data could have important implications on the role of YB1 in oncogenic cell transformation.