Muscle Specific Fragile X Related Protein 1 Isoforms are Sequestered in the Nucleus of Undifferentiated Myoblast

ABSTRACT

During myogenesis, FXR1P isoforms exhibit a distinct pattern of subcellular partitioning that differs from other families of FMR proteins. As the role of this protein in Fragile X syndrome is still unknown, the model system described here should be viewed as primarily focusing on building models to understand the structure-function relationships among various members of the FARM family.

INTRODUCTION

Isoforms are fragments of the myoblast (Myoblast) that are sewn together into a single protein. The myoblast is a large organelle within which nuclei of undifferentiated myoblasts (MnOs) reside.

There are many different forms of the myoblast and they are composed of many different proteins. The myoblast is divided into 12 distinct segments which are composed of different parts of the protein and the myo-ins, respectively. The myoblast is composed of different parts of the protein and the myo-ins.

The myoblast is composed of different parts of the protein and the myo-ins. The myoblast is composed of different parts of the Among the three homologous members of the Fragile X Mental Retardation (FMR) protein family, two are expressed by the coding gene FMR1 and its association with hereditary mental retardation. The other two proteins encoded by highly conserved vertebrate genes, namely the FXR1P and FYR2P, contain NLS and NES components, and exhibit a relationship to messenger RiboNucleoParticles within actively translating ribosomes. Fragile X Mental Retardation is not associated with FMRP in humans, and it is unclear whether FXR1P and FxR2P are homologous proteins that can compensate for FMRF's absence. In contrast, all three members exhibit interaction with themselves and with each other in vitro studies. However, their distribution in specific mouse and human tissues showed distinct expression patterns, suggesting that each protein may function independently. The complex expression pattern of FXR1P has been shown to vary among mammalian cell lines due to the presence of six different isoforms and their level of specificity to each cell type. Specifically, 4 distinct FYR2P isomegaloid (MW 70 and 74 kDa) and 2 new super long isoflavons were identified in mouse models and are widely expressed in diverse cell line combinations and imperfectly imitated muscle differentiation.

CONCLUSION

Remarkable conclusions Research on FMR proteins has revealed that the FXR1 protein is cytoplasmic, but nuclear localization has been observed in undifferentiated cells from various tissues including human foetuses and mouse embryonic stem cells. Our model system of C2C4 myoblasts provides strong evidence that specific FRM1P isoforms are actually sequestered in the nucleus due to factors controlling cell differentiation. We also hypothesize that FMRP isophages may play a nuclear role in neuronal processes.