

**P012** Re-programming of translation in C2C12 myoblasts during differentiation

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Cell fate specification is achieved by differential gene expression, involving regulation of transcription, RNA processing, translation and post-translational events. Whilst the role of transcriptional regulation in cellular differentiation is well characterised, much less is known about the role of translational control in the essential re-programming of gene expression. Previous studies indicate that the co-ordinated assembly and phosphorylation of translation factors required to bind the mRNA to the ribosome may mediate the selection of specific mRNAs for translation. We wish to assess the role for these processes in modulating gene expression in the context of muscle cell differentiation.

Our data suggests that the process of myogenesis is associated with changes in the composition of the eIF4F complex and activation state of several kinases known to impinge upon translation initiation. As well as using a proteomics approach to observe enhanced or decreased expression of proteins during myogenesis, we are also using siRNAs to further investigate the role of Mnk1 as inhibition of total Mnk signalling with CGP57380 accelerates the rate of differentiation. This work is supported by grants from the Wellcome Trust. SJM is a Senior Research Fellow of The Wellcome Trust and JLC is supported by a Wellcome Trust Prize Studentship.