



Singapore Developmental Biology Club

SEMINAR ANNOUNCEMENT

26 January 2011, Wednesday
Breakthrough Theatre, Level 4, Matrix Building, Biopolis,
Singapore
5.30PM – 6.30PM



Dr. Leah Vardy

PRINCIPAL INVESTIGATOR

TRANSLATIONAL REGULATION IN STEM CELLS
INSTITUTE OF MEDICAL BIOLOGY, A*STAR

*Seminar Title: Profiling Translation
in Embryonic Stem Cells*

The successful manipulation of embryonic stem cells for therapeutic applications will require a detailed understanding of the molecular pathways underlying gene expression on all levels. Translational control is increasingly being recognized as an important regulator of gene expression during development and allows precise spatial and temporal regulation of protein production. We have taken a genomics approach to identify mRNAs that are differentially translated in ES cells and cells undergoing differentiation to Neural Precursor Cells (NPCs). We have identified a selection of mRNAs whose translation, as indicated by polysome recruitment, is regulated on differentiation to NPCs. Here we describe studies on one translationally controlled candidate, Amd1, a key regulator in the synthesis of polyamines. Translational down regulation and consequent decrease in protein levels of Amd1 is required for NPC differentiation. Its translational repression is mediated by an NPC enriched miRNA through targeting its 3'UTR. In addition, high Amd1 protein levels are required for maintenance of the ES cell state. These data highlight the important role played by translational control of mRNAs in ES cell maintenance and differentiation.

All are welcome

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