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Timed post-transcriptional events in neural stem cells determine their output

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Neural stem cell (NSC) differentiation requires precise spatiotemporal regulation during neurogenesis to generate a properly functioning central nervous system. This differentiation sequence is regulated by changes in gene expression (transcription) and protein synthesis (translation). Time-dependent gene transcription is thought to be a major regulator of NSC differentiation, but time-dependent regulation of mRNA translation is also emerging as a key control mechanism. Indeed, we found that RNA binding proteins (RBP) control spatiotemporal mRNA translation events in neocortical neural stem cells *in vivo* and dictate production of distinct neuronal subtypes. Interestingly, roles of these RBPs are under the control of a timed neurotrophic factor. This is a novel molecular mechanism of post-transcriptional control during NSC differentiation *in vivo*. These findings may open new avenues for treating neurodevelopmental disorders associated with abnormal NSCs, mRNA translation, and/or central nervous system development and regeneration.

Biography

Mladen-Roko Rasin has completed his MD and PhD from University of Zagreb and Post-doctoral studies from Yale University School of Medicine. He is an Associate Professor at Rutgers University. He has published more than 20 papers in reputed journals and has been serving as an Editorial Board Member of repute.

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