

POSTER PRESENTATION

Open Access

UTR extension and alternate polyadenylation in neuroplasticity: an emerging paradigm?

Benjamin J Harrison^{1†}, Robert M Flight^{2†}, Abdallah M Eteleeb^{3†}, Eric C Rouchka^{3*}, Jeffrey C Petruska^{1,4,5*}

From UT-KBRIN Bioinformatics Summit 2014
Cadiz, KY, USA. 11-13 April 2014

Background

The 3'-untranslated region (3'UTR) of mRNA transcripts contributes to cell-type specific or developmental-stage specific regulation of gene functions by modifying cellular localization, stability and/or translational efficiency of transcripts.

Materials and methods

Using RNA-seq to profile transcripts from neural tissue undergoing axonal plasticity, we detected approximately 1000 previously uncharacterized 3'UTR sequences, of which more than 100 are highly regulated when plasticity is induced.

Results

Computational analyses of the novel UTR sequences, focusing on RNA-binding protein (RNAbp) interaction motifs revealed strongly over-represented RNAbps with known roles in nervous system pathologies. We consider the implications of 3'UTR transcript extension and protein interaction in the context of axonal plasticity and the consequences of mis-regulation of this process during neurological disease.

Authors' details

¹Department of Anatomical Sciences and Neurobiology, University of Louisville, Louisville, KY 40202, USA. ²Department of Cellular and Molecular Biochemistry, University of Kentucky, Lexington, KY, 40508, USA. ³Department of Computer Engineering and Computer Science, University of Louisville, Louisville, KY 40292, USA. ⁴Department of Neurological Surgery, University of Louisville, Louisville, KY 40202, USA. ⁵Kentucky Spinal Cord Injury Research Center, University of Louisville, Louisville, KY 40202, USA.

* Correspondence: eric.rouchka@louisville.edu; j.petruska@louisville.edu

† Contributed equally

¹Department of Anatomical Sciences and Neurobiology, University of Louisville, Louisville, KY 40202, USA

³Department of Computer Engineering and Computer Science, University of Louisville, Louisville, KY 40292, USA

Full list of author information is available at the end of the article

Published: 29 September 2014

doi:10.1186/1471-2105-15-S10-P11

Cite this article as: Harrison *et al.*: UTR extension and alternate polyadenylation in neuroplasticity: an emerging paradigm? *BMC Bioinformatics* 2014 **15**(Suppl 10):P11.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

