

Thursday November 21 , 2019- 10h00
Conference room AI 1153 (*) - EPFL - Lausanne

Dr. Violeta Castelo Szekely
CIG, UNIL, Switzerland (until April 2019)

“Denr-mediated translation reinitiation and links to the circadian clock”

Host: Prof. Johan Auwerx

Abstract:

The non-canonical initiation factor DENR promotes translation reinitiation on mRNAs harbouring upstream open reading frames (uORFs). Moreover, DENR depletion shortens circadian period in mouse fibroblasts, suggesting involvement of uORF usage in clock reinitiation. In this study, ribosome profiling was used to identify DENR-regulated transcripts transcriptome-wide and within the clock circuitry. 240 transcripts were uncovered with altered translation rates, and linear regression was used to extract predictive features of DENR dependence. Among core clock genes, Clock was identified as a DENR target, whose protein biosynthesis is regulated through two uORFs and an alternative coding sequence start codon. These findings provide insights into uORF-mediated translational regulation that control the mammalian circadian clock and gene expression at large.

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