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BSRB, ABC Seminar rooms with zoom option

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Roadblocks on mRNAs? Gene Expression Regulation by Upstream Open Reading Frames in Plants

Abstract

30-70% of mRNAs in humans, mice and plants contain short ORFs, called upstream ORFs (uORFs), in their 5' leader sequences. The translation of uORFs is expected to repress the protein synthesis of their downstream main ORF (mORF) and to trigger mRNA degradation, presumably through nonsense-mediated decay (NMD). I will share our current progress investigating the global and gene-specific mechanisms by which uORFs regulate gene expression in Arabidopsis and tomato. I will discuss 1) different classes of uORFs revealed by Ribo-seq, 2) the roles of uORFs on transcription factor and protein kinase genes, 3) the mRNA stability of uORF-containing genes, and 4) cellular regulatory mechanisms to include or avoid uORFs on mRNA sequences.

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