

Invitation to BiRT Seminar Series „die Welt der biologischen Interaktionen“



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Lost in translation: messenger RNA moving to distant tissues

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Campus Tulln / UFT – Seminarraum 17

In plants the phloem vasculature serves as a transport pathway for mobile signals such as sugars and hormones, and peptides. These signaling molecules contribute to the intercellular communication coordinating plant growth and development. Notably also endogenous produced RNAs such as small interfering RNAs (siRNAs), microRNAs (miRNAs), transfer RNAs (tRNAs), and protein encoding messenger RNAs (mRNAs) are delivered to distant tissues.

Recent advances in the analysis of the mobile transcriptome indicate that thousands of mRNAs move along the plant axis, and that a surprising high number is delivered to specific tissues. This led to the identification of tRNA-like sequence (TLS) mobility motifs and m⁵C secondary base modifications both seemingly sufficient and necessary for mRNA long-distance transport.

Summarized we established, i) that a dedicated mRNA transport pathway exists in plants, ii) that transported mRNAs are translated in receiving cells. These insights let us conclude that transcript and protein activity in a given cell-type does not necessarily correlate with detected gene promoter activity (=expression).

Host: Christoph Schüller