# Séminaire de l’unité de recherche de l’institut du thorax

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**Primary transcripts of microRNAs encode regulatory peptides**

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Abstract

MicroRNAs (miRNAs) are small regulatory RNA molecules that inhibit expression of specific target genes by binding to and cleaving their messenger RNAs or otherwise inhibiting their translation into proteins. miRNAs are transcribed as much larger primary transcripts (pri-miRNAs), the function of which is not fully understood. We have shown that plant pri-miRNAs contain short ORFs that encode miPEPs, which are regulatory peptides. These peptides enhance the accumulation of their corresponding mature miRNAs, resulting in downregulation of their target genes. The mechanism of miPEP action involves increasing transcription of the pri-miRNA. Synthetic peptides applied to plants specifically trigger the accumulation of their corresponding miRNA, leading to developmental phenotypes, suggesting these peptides might find agronomical applications.