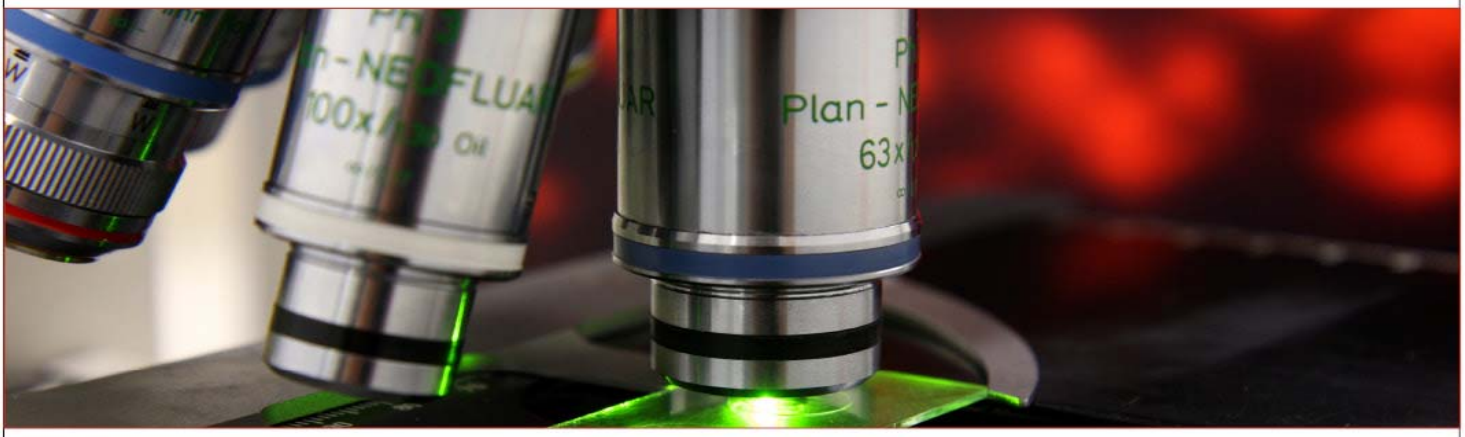
SÉMINAIRES ET CONFÉRENCES



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« Imaging single mRNPs reveals new insights into translation and RNA localization »

Some mRNAs can be translated at specific intracellular sites. Local translation of mRNAs plays an important role in the spatial control of gene expression. However, only a few studies have analyzed mRNA localization in a systematic manner, and none have analyzed mRNA localization with respect to the location of the encoded protein. Thus, we still have a limited view of mRNA localization and local translation in human cells. To provide a broader view of these processes, we performed a dual mRNA/protein localization screen in which the localization of about 500 mRNAs and their encoded protein were simultaneously analyzed in HeLa cells. This revealed that a number of mRNAs adopt specific sub-cellular localizations, with some patterns not described previously. To directly assess where mRNAs are translated, we developed an imaging tool that can visualize single polysomes in live cells. We show that this tool can resolve the dynamics of translation at the level of single mRNAs, and that it can be used to determine where and when specific mRNAs are translated. Application of this tool to specific mRNAs reveals surprising aspects of localized translation.

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Le lundi 30 juillet 2018, 11h30

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