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S E M I N A I R E

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“Entering membranes: Stories learned from fluorescent probes and myristoyl switches”

Many signaling processes in living cells involve molecules permanently or transiently associated with cell membranes. Moreover, specialized molecules can be inserted into cell membranes as probes reporting on the membrane environment. In this talk, I will first focus on the modeling of membrane-embedded fluorescent probes, showing how a combination of classical molecular dynamics simulations and quantum calculations reveals the details of the membrane embedding as well as the optical properties of these probes [1,2]. I will then demonstrate how these findings can guide the interpretation of fluorescence microscopy experiments probing the cellular environment [3]. The second part of my talk will be dedicated to reversible membrane association of peripheral membrane proteins. In particular, I will present insights from molecular simulations into the binding mechanism of recoverin, a myristoylated calcium-sensing protein which is involved in vision adaptation and whose membrane association is governed by the concentration of calcium ions in the cytoplasm [4].

[1] S. Timr et al., J. Phys. Chem. B. 2014, 118, 855-63.

[2] S. Timr et al., J. Phys. Chem. B. 2015, 119, 9706-16.

[3] J. Lazar, A. Bondar, S. Timr, and S.J. Firestein, Nat. Methods 2011, 8, 684-90.

[4] S. Timr et al., 2017, in preparation.

Mercredi 26 avril 2017
14h30

BIBLIOTHEQUE