

Do vesicles fuse during growth from a multilamellar substrate?

Y. M. S. Micheletto^{1,2}, C. M. Marques² and A. P. Schroder²

¹ *Universidade Federal do Rio Grande do Sul (UFRGS), Instituto de Química, Porto Alegre/RS, 91501-970, Brazil.-mynems@gmail.com*

² *Univ Strasbourg, CNRS, Inst Charles Sadron, UP 22, F-67083 Strasbourg, France.*

We study membrane transformations during growth by electroformation from multilamellar films. Using confocal and other optical microscopy techniques we visualize growth and possible fusion. For that purpose, we investigated mixtures of large unilamellar vesicles (LUVs) composed of DOPC with NBD-DOPE and giant unilamellar vesicles (GUVs) composed of DOPC with Rho-DOPE, as well as mixtures of green-labeled GUVs (DOPC with NBD-DOPE) and red-labeled GUVs (DOPC with rhodamine-DOPE). Our results reveal that although encapsulation of LUVs in GUVs can be easily achieved, growing of green-labeled GUVs in the presence of pre-formed red-labeled ones do not result in fusion. Our preliminary results thus suggest that the apparent fusion of vesicles during electroformation growth from a pre-oriented lamellar film is instead due to membrane rearrangements under constant topology.

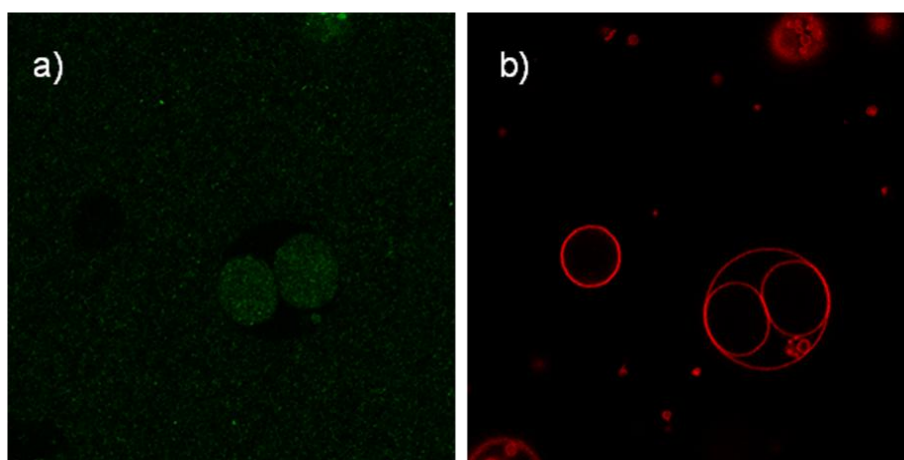


Figure 1: Confocal microscopy images of GUVs of rhodamine-DOPE (red) in the presence and in the absence of LUVs of NBD-DOPE (green) encapsulated. In confocal image (a) the NBD was excited at 488 nm and in (b) the rhodamine was excited at 543 nm.