STUDY OF THE NANOSCOPIC ORGANIZATION OF CHOLESTEROL ENRICHED NANODOMAINS IN THE CELL MEMBRANE OF MOUSE SPERM

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ABSTRACT

Capacitation is an essential process of sperm maturation that occurs in the uterus. A key event for this process is the cholesterol efflux from the cell membrane. Evidence suggests that cholesterol is a component of lipid nanodomains (lipid rafts) whose organization and distribution change due to its efflux during the capacitation, however until now it has not been possible to observe these nanodomains directly in the cell. Our objective is to observe the dynamics of the organization of cholesterol enriched nanodomains during mouse sperm capacitation. To achieve this we propose the use of TIRF microscopy and super-resolution imaging (PALM or SRRF reconstruction) using the cholesterol marker Dronpa-D4 developed by Mizuno et al [1]. Preliminary results show that in non-capacitated sperm cholesterol is organized in nanodomains. Experiments are currently underway to observe how these nanodomains are reorganized during capacitation. This research is supported by DGAPA-PAPIIT project # IN211216 and the Postgraduate programme in Biochemical Sciences, UNAM.

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