

京都産業大学 総合生命科学部 バイオフィォーラム 2011

京都産業大学
DAY 2011

社会へ、未来へ。

最先端の生命科学研究に触れてみませんか

第12回 2月3日(金)開催【開場】16:00～【開演】16:30～(60分)

【場所】京都産業大学 15号館 1階 15102 セミナー室

【講師】National Research Council of Argentina (CONICET)

英語講演・通訳なし

Mariano G. Buffone 博士

【演題】「NEW CONCEPTS OF THE MOUSE SPERM ACROSOMAL EXOCYTOSIS」

【要旨】 Mammalian sperm must undergo a process termed capacitation to become competent to fertilize an egg. Capacitation renders the sperm competent by priming the cells to undergo a rapid exocytotic event called acrosomal exocytosis that is stimulated by the zona pellucida (ZP) of the egg or progesterone. Over the years, several biochemical events have been associated with the capacitation process; however, the question that has remained unanswered in investigations of capacitation is: What is the underlying reaction or set of reactions that transform the sperm cell from a state unresponsive to ZP or progesterone-stimulated acrosomal exocytosis to the state primed to respond to these stimuli? Our preliminary results demonstrate that the actin cytoskeleton plays a role in this process. The aim of this research was to understand how mammalian sperm acquire the competence to undergo acrosomal exocytosis during capacitation.

We evaluated the establishment and stabilization of the primed state of acrosomal exocytosis that develops during the course of sperm capacitation through the formation of intermediate stages of exocytosis.

To monitor the formation of intermediate stages of exocytosis, we used sperm from transgenic mouse GFP-Acr (green acrosomes) and the exposure of sp56 (monitored by flow cytometry and immunocytochemistry). We found that the actin polymerization that takes place during capacitation is essential in this process. Additionally, using Blue native gel electrophoresis and purified hybrid vesicles (generated by the fusion of the plasma membrane and the outer acrosomal membrane after exocytosis), we found that actin and several actin-related proteins participate in the formation of these intermediate stages of exocytosis.

There are several human health-related reasons these studies are significant. For example, an understanding this process may lead to a better understanding of certain cases of male infertility and to the development of pharmacological approaches to interfere with this process, leading to new contraceptive agents. Most importantly, since actin has been implicated in exocytosis occurring in many types of somatic cells, information gathered from studying the less complicated sperm system will likely impact our understanding of secretion in other organ systems such as endocrine or digestive tissues.

●お問合せ●

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●交通●

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地下鉄「北大路駅」下車→市バス(北3号系統)または京都バスで京都産大前下車

●主催●

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事前申込不要・入場無料

