

Comment

The cell-free interaction between chromaffin granules and plasma membranes: An in vitro model for exocytosis?

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In a series of papers a new model system for exocytosis was presented by our group. Bovine adrenal medullary plasma membranes (PM) induced the release of the soluble content from chromaffin granules (CG) in a concentration dependent [1], Ca^{2+} -dependent [2] and an ATP-dependent manner [3]. This work further showed that all soluble components of the granular content were released simultaneously and in an all-or-none fashion [4,5]. Finally, a monoclonal antibody, raised against PM, was able to inhibit the CG-PM interaction [6] and this release was inhibited by sialic acid [7].

Since F. Konings left our group, we began to encounter the first difficulties, and even the basic interaction (i.e. release in a Ca^{2+} -dependent way) could no longer be reproduced. Furthermore, other laboratories, in which the CG-PM interaction was tested, also failed to reproduce this model system. Last year, when F. Konings was invited to demonstrate the complete experimental procedure, he was also unable to confirm the cell-free interaction between CG and PM.

The original experimental data were reinvestigated and it is very probable that they indicate artificial osmotic CG lysis due to alterations in the sucrose concentration during and after the incubation with PM. Indeed, the amount of release of the

granular content correlated very well with the varying sucrose concentrations present in the membrane fractions that were added to the incubation mixtures containing the CG; this sucrose was derived from the preparative PM gradient centrifugation and varied according to the required PM concentrations.

Since this model system is most likely based on an artifact and therefore unsuitable for the study of the molecular mechanisms of exocytosis, we would like to distance ourselves from the publications mentioned above.

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