Abstract Submitted
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Calcium waves in the the maturing oocyte[1] AMAN ULLAH, Ohio University, GHANIM ULLAH, The Pennsylvania State University, PETER JUNG, Ohio University, KHALED MACHACA, Weill Cornell Medical College, Quatar — Calcium waves in oocytes are sustained by release of Ca2+ from the endoplasmic reticulum (ER) through clustered release channels. As the oocytes matures, a) the calcium waves slow down by about a factor of two, b) the overall duration of Ca2+ elevation grows substantially, and c) the cell is more susceptible to wave initiation. At the same time, the kinetics of release of Ca2+ from a single cluster is changed only insignificantly. Based on a computational model that accurately reproduces elemental Ca2+ release kinetics from channel clusters, we propose that the changing spatial organization of signaling effectors is a common underlying cause for all the above described observations as the Ca2+ signaling machinery matures.

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