

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Regulation of Calcium signaling through spatial Organization¹

AMAN ULLAH, Ohio University, GHANIM ULLAH, Pennsylvania state university, KHALID MACHACA, Weill Cornell Medical College Qatar, PETER JUNG, Ohio University — Calcium waves and signals in oocytes are produced and sustained by the release of Ca^{2+} from the Endoplasmic Reticulum (ER) through clustered release channels. Changes in the spatial organization of calcium signaling effectors regulate the spatiotemporal features of the calcium signal as is e.g. observed during oocyte maturation. We report here how specific changes in the clustering of the calcium release channels in conjunction with physiologic alterations of other signaling effectors can affect a) the sensitivity of the signaling machinery to external factors, b) the time course of global intracellular signals and c), the speed and propagation range of intracellular calcium waves.

¹This work was supported by NSF.

Aman Ullah
Ohio University

Date submitted: 28 Nov 2009

Electronic form version 1.4