

Abstract Submitted
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Spatial gradients of Ran-GTP-importin- β complex around chromosomes in a cell of spheroidal shape¹ GUILLERMO RAMIREZ-SANTIAGO, GERARDO SOSA, Instituto de Fisica, UNAM, Mexico — The concept of signaling gradients of a diffusible and slowly degraded chemical plays an important role in the description of cell signal transduction. It has been suggested that the generation of spatial gradients around chromosomes of the complex, Ran-GTP-importin- β , promotes microtubule nucleation and growth of the mitotic-spindle in *Xenopus* egg extracts. Here we solved the appropriate reaction-diffusion equation in spheroidal coordinates, and use measured values of the diffusion coefficients and activities to find out how the magnitude of the gradients depend upon the shape and geometry of the chromatin and cytoplasm. We found that the greater the eccentricity the smaller the magnitude of the stationary gradient. When the chromatin becomes spherical the magnitude of the gradient of the complex appears to be optimized.

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