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Dorjsuren Badamdorj* (dbadamdo@tnstate.edu), Department Of Mathematical Sciences, Tennessee State University, 3500 John A Merit Blvd, Nashville, TN 37221. *Spatial Distribution of Calcium-Gated Chloride Channels in Olfactory Cilia.*

To determine the spatial distribution of the chloride channels, we recorded from single cilia as calcium was allowed to diffuse down the length of the cilium and activate the channels. A mathematical model consisting of partial differential equations is developed for this experiment and used to estimate the spatial distribution of the chloride channels. On average, the channels were concentrated in a narrow band centered at a distance of 29% of the ciliary length, measured from the base of the cilium. This matches the location of the CNG channels determined previously. This non-uniform distribution of transduction proteins is consistent with similar findings in other cilia. (Received September 03, 2013)