Biophysical Society 54TH ANNUAL MEETING
SAN FRANCISCO, CALIFORNIA, FEBRUARY 20-24, 2010

Presentation Abstract

Session Title:	Epithelial Channels & Physiology
Location:	Hall D
Presentation Number:	511-Pos
Board Number:	B392
Presentation Time:	2/21/2010 1:45:00 PM
Abstract Title:	A MULTIDOMAIN MODEL FOR ELECTRODIFFUSION AND WATER FLOW
Author Block:	**Yoichiro Mori**[1], Robert S. Eisenberg[2]. [1]University of Minnesota, Minneapolis, MN, USA, [2]Rush Medical Center, Chicago, IL, USA.
Abstract Body:	Fluid flow and its coupling to electrodiffusion is involved in many physiological systems from the kidney to the lens of the eye, where it has been studied in some detail (Journal of Membrane Biology (2007) 216:1-16). We formulate a mathematical model that describes electrodiffusion and water flow in three dimensions with resolution and scale appropriate for analysis of tissues. The mathematical model presented can be seen as a coarse-grained version of a model used in (PNAS(2008) 105:6463-6468) to model cellular and subcellular electrodiffusion. We shall discuss the relationship of the general model to other macroscopic models in electrophysiology, and show preliminary computations and applications.
Commercial Relationship:	**Y. Mori**, None; **R. Eisenberg**, None.