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Migration of Connexin in the Membranes of Living Cells DAHARSH RANA, MATTHEW BLEDSOE, KARL MAY, JENNIFER KREFT, University of Texas at Tyler — The cell membrane has been traditionally represented using the fluid mosaic model consisting of phospholipids with proteins diffusing freely in them. But studies of the diffusion of proteins indicate interactions with other proteins in or near the cell membrane are important in determining the motion of membrane proteins. We have studied connexin, a gap-junction protein, to investigate the mechanism by which proteins move in the cellular membrane. Green fluorescence protein marker was used to label connexin. The motion of the protein as it migrated to the point of contact between cells was recorded in experiment. In addition, a lattice Boltzmann simulation has been developed to simulate the movement of connexin in a cellular environment. This computational data is validated by matching quantitatively experimental results and used to gain further insight into the mechanism of migration of connexin.

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