

Studies on the effect of ionic liquids to ion channels incorporated into biomimetic membrane

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Ionic liquids have been accepted as non-toxic molecules to date. However, recent recently, toxicity of ionic liquid has been reported on diverse organisms. Because, the exact mechanism of the ionic liquid which acts on the cells is not disclosed, we have studied it through model membranes. In particular, in this paper, we revealed the influence and the mechanism of the ionic liquid on the membrane protein and membrane. We confirmed the effect of ionic liquid according to its length of alkyl chain and concentration through chemical and electrical methods. Consequently, ionic liquid, affected the deformation of the membrane protein by inserting into the membrane. And also, the positive charge of Ionic liquids helps reactions of membrane protein with ions or interrupts. This result was new discoveries that have never been researched. We believe this discoveries will aid the design of greener ILs.