Role of tryptophan residues in ion channel function

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(Introduced by David Adams)

The linear peptide gramicidin forms prototypical ion channels specific for monovalent cations and has been extensively used to study the organization, dynamics and function of membrane spanning channels. The role of tryptophan residues is a key issue in ion permeation by gramicidin (Becker *et al.*, 1991). We have monitored the organization and dynamics of gramicidin tryptophans in various types of microheterogenous molecular assemblies using wavelength-selective fluorescence and other approaches (Rawat *et al.*, 2004; Kelkar & Chattopadhyay, 2005). Taken together, these results provide comprehensive information on the dynamics of the functionally important tryptophan residues of gramicidin. Experiments using synthetic analogues of gramicidin containing single tryptophan residues further help to delineate the crucial role of tryptophan in maintaining the ion conducting conformation of gramicidin.

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