



PLEIOTROPIC EFFECTS OF STATINS

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Statins are known to be potent 3-hydroxy-3-methylglutaryl CoA reductase inhibitors and are widely used to treat cardiovascular diseases. However, the recent clinical trials have demonstrated that overall benefits observed with statins are greater than changes in lipid level alone, indicating the benefits beyond cholesterol inhibition termed as “pleiotropic effects.” Accumulating evidences suggest that some of the pleiotropic effects involve interaction and modification of membrane bilayers. Using the combined approach of biophysical and biological methods, we demonstrate that lipophilic, but not hydrophilic statins are capable enough to lower the damage caused by cholesterol dependent cytolytins. This protective ability of statins correlates with lipophilicity and its capability to interact with lipid bilayer. Our experimental results suggest that lipophilic statins portray the ability to associate with the membrane and hinder the ability of cholesterol dependent cytolytin to bind to membrane cholesterol. Further evaluation of capability of statins to modify cell membrane properties can be of great interest to develop better therapeutic approach for cardiovascular diseases, atherosclerotic plaque stabilization, neurodegenerative diseases etc. Better understanding of the potential of statins can also be useful as adjuvants for drug delivery.