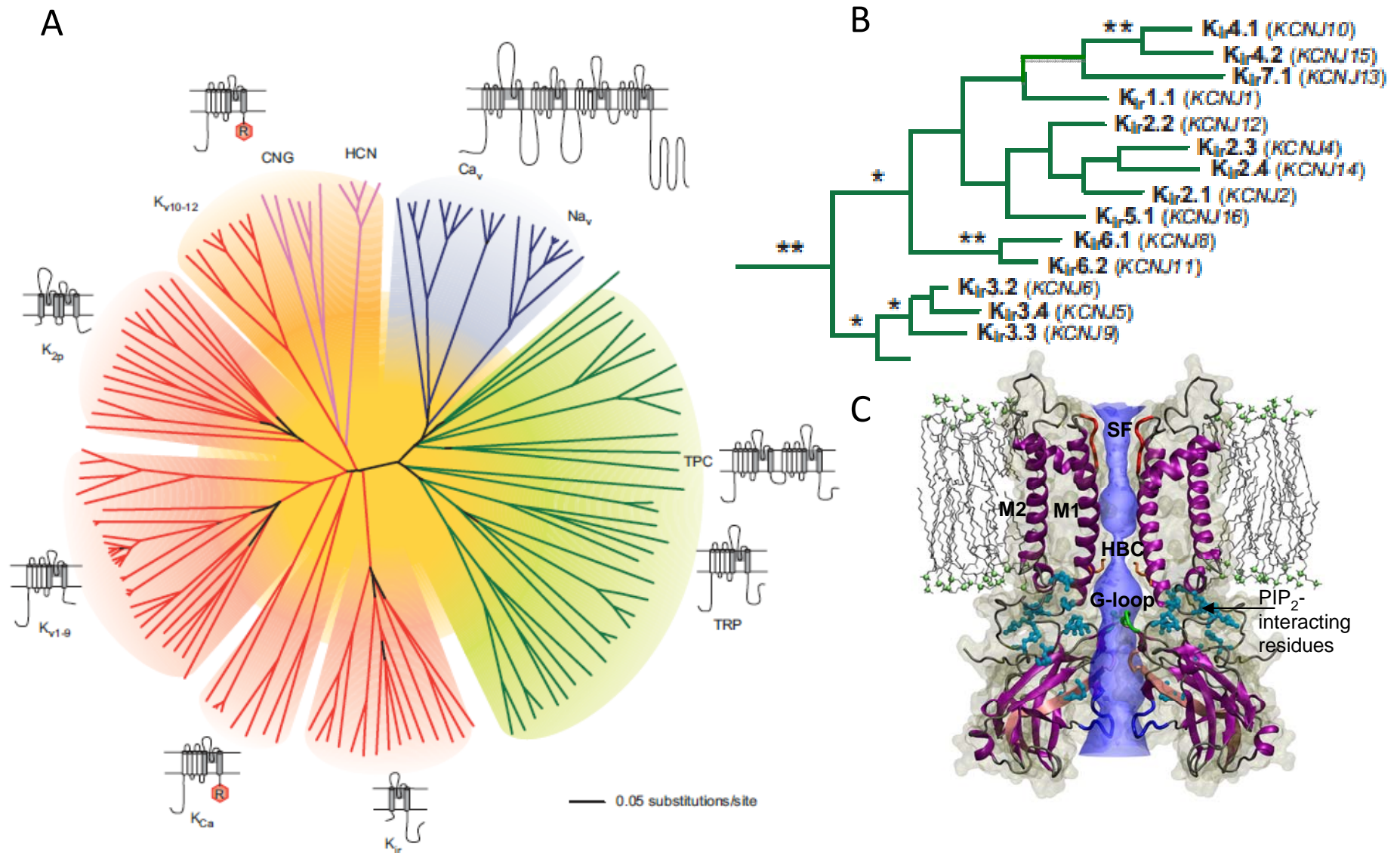
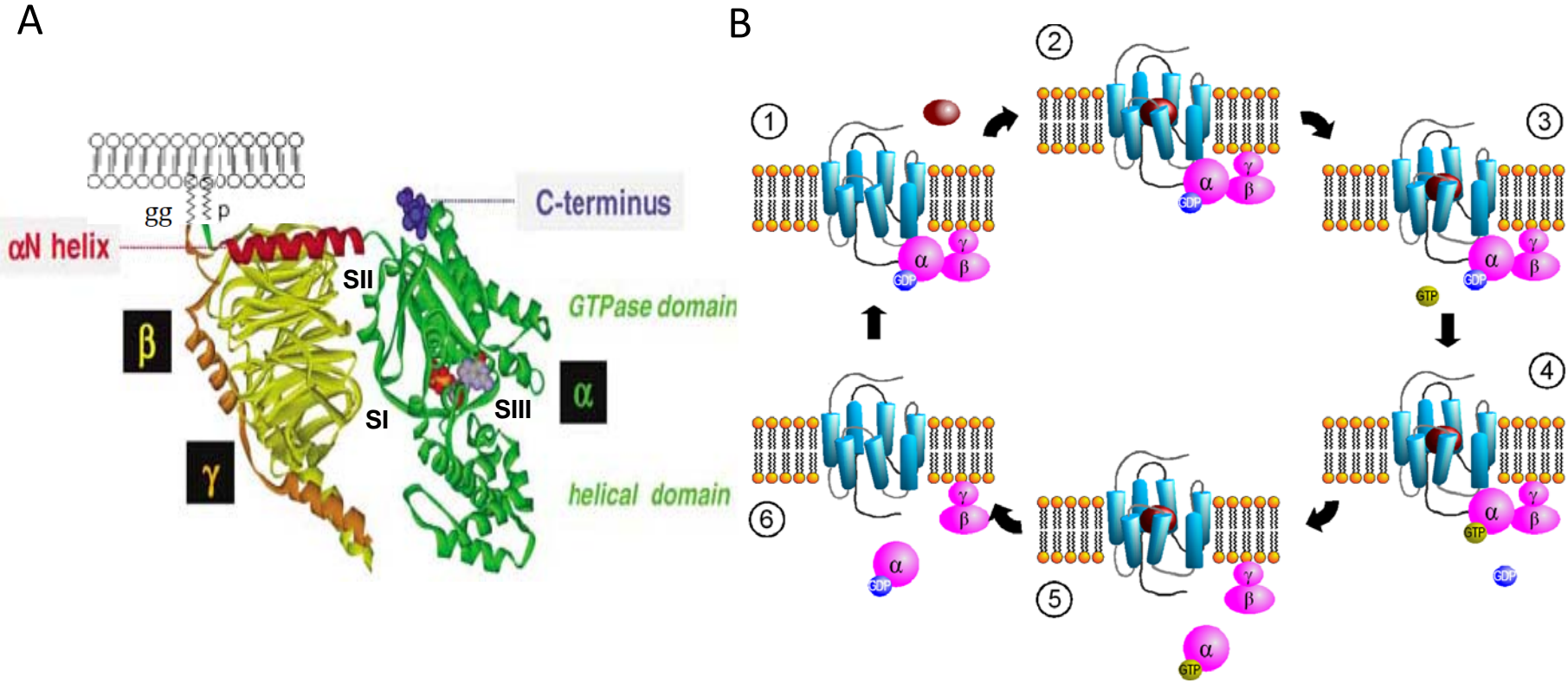


The G-protein sensitive K⁺ channel



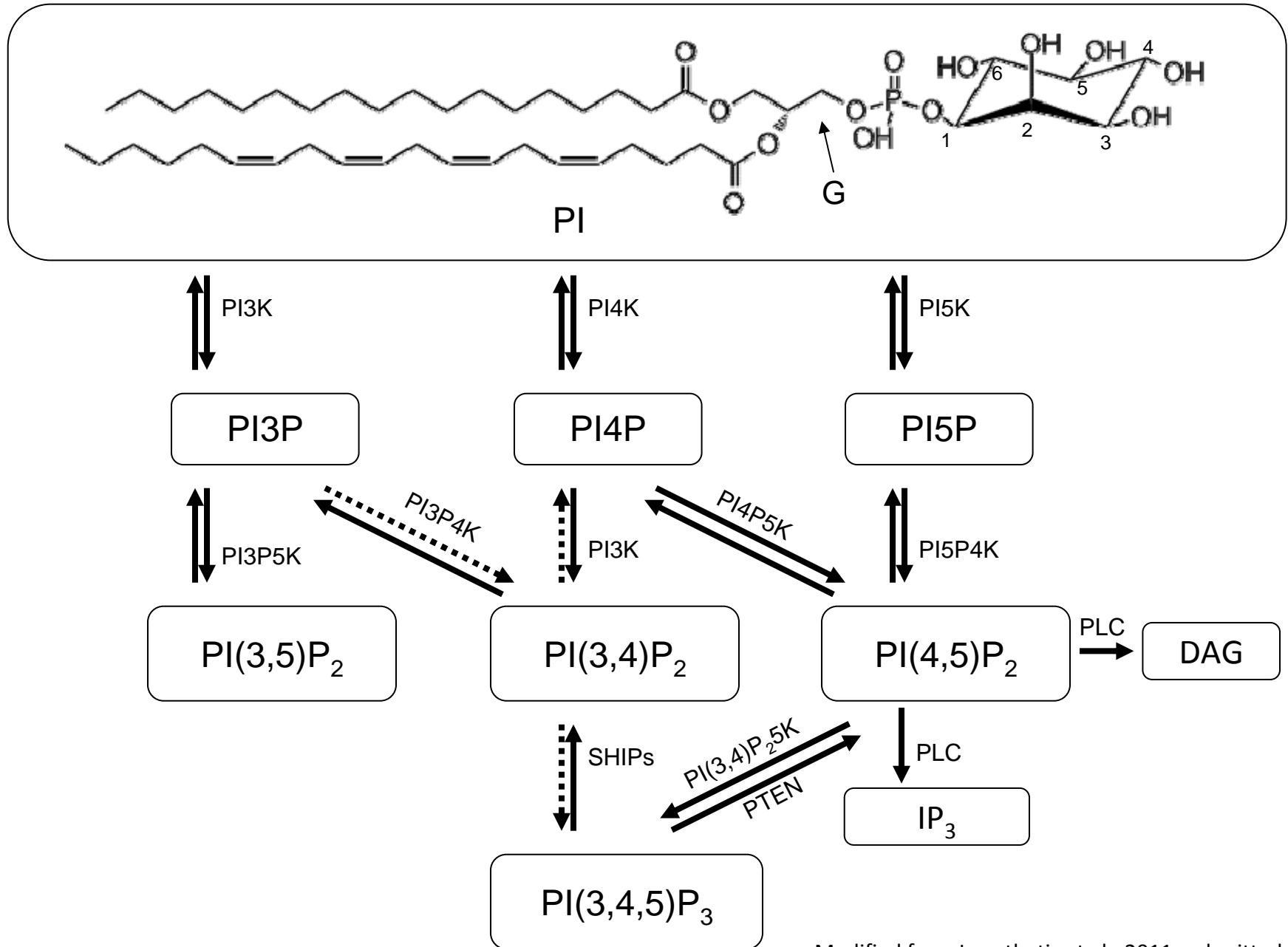
G protein signaling



Phosphoinositide signaling

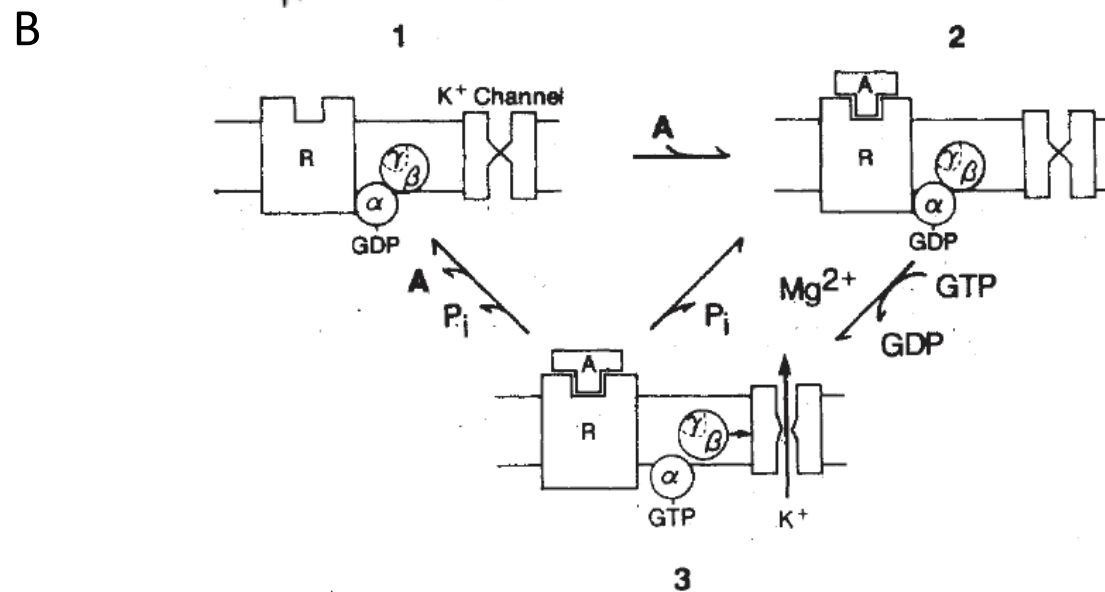
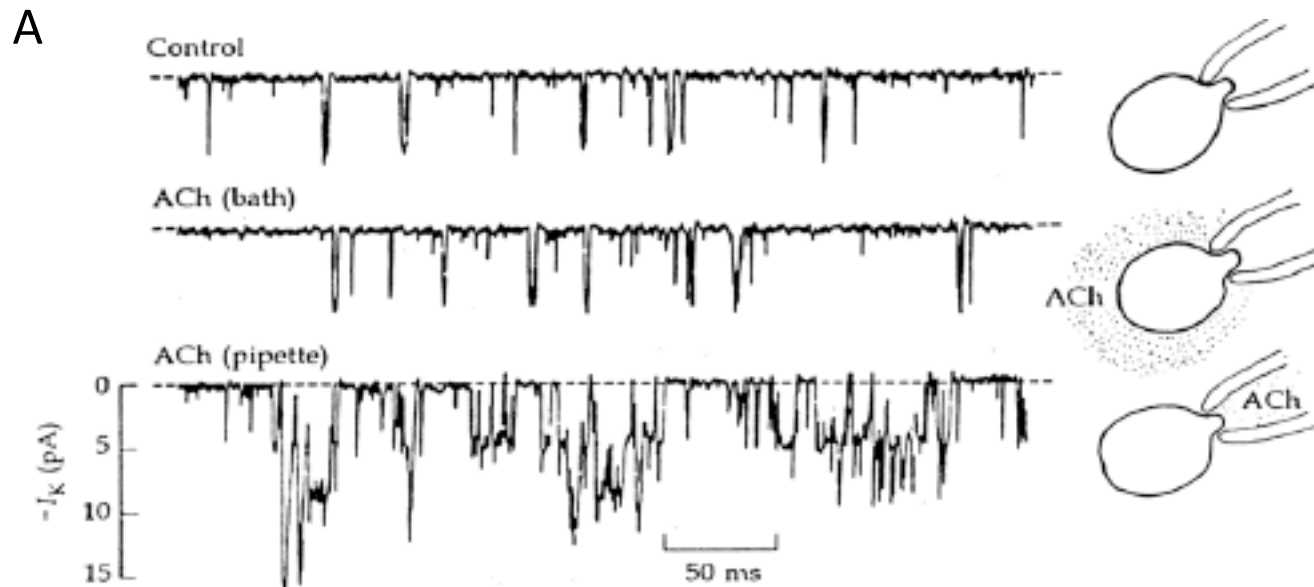
Logothetis, Figure 2

C



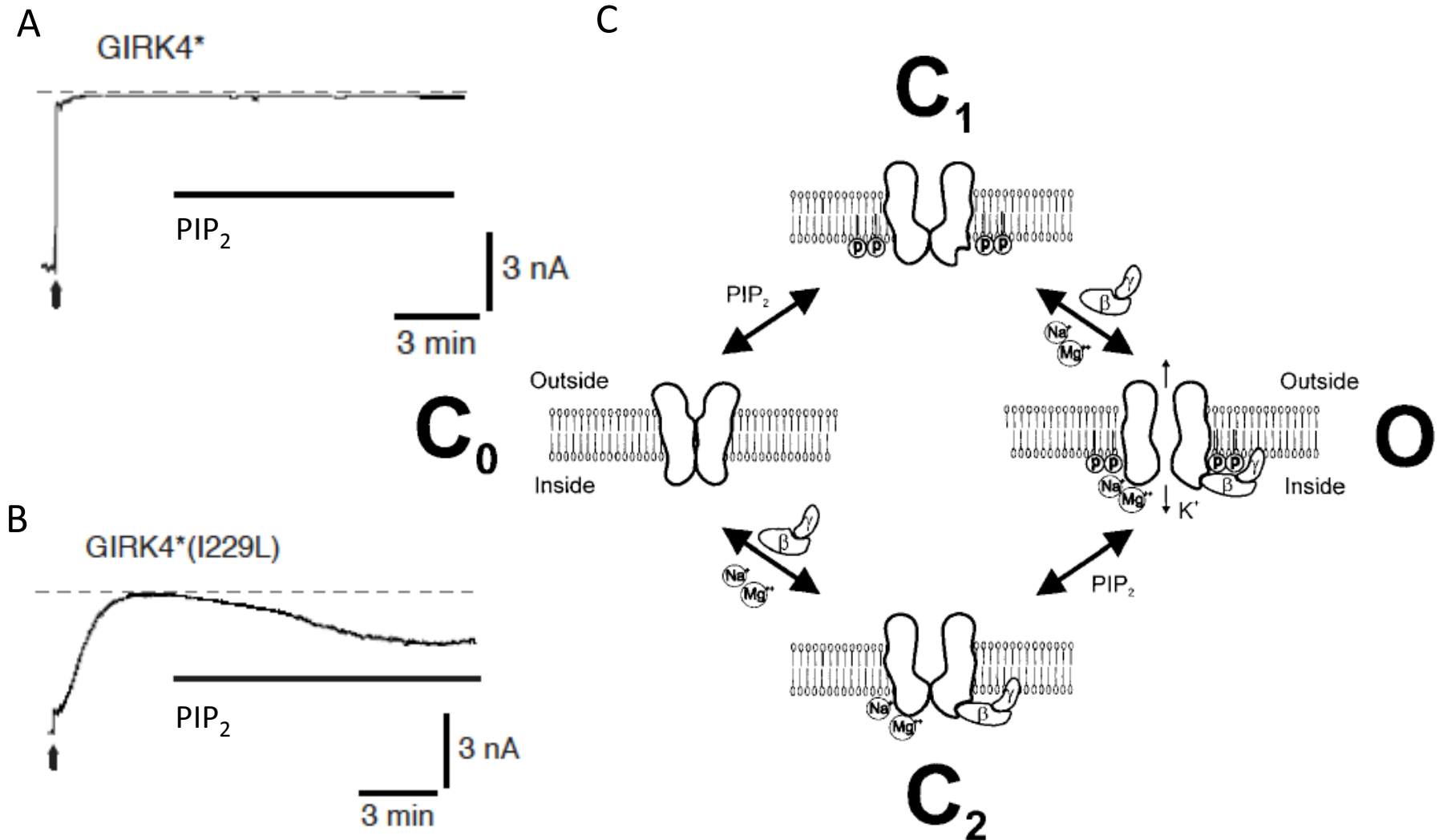
Modified from Logothetis et al., 2011, submitted

The G protein membrane-delimited signaling



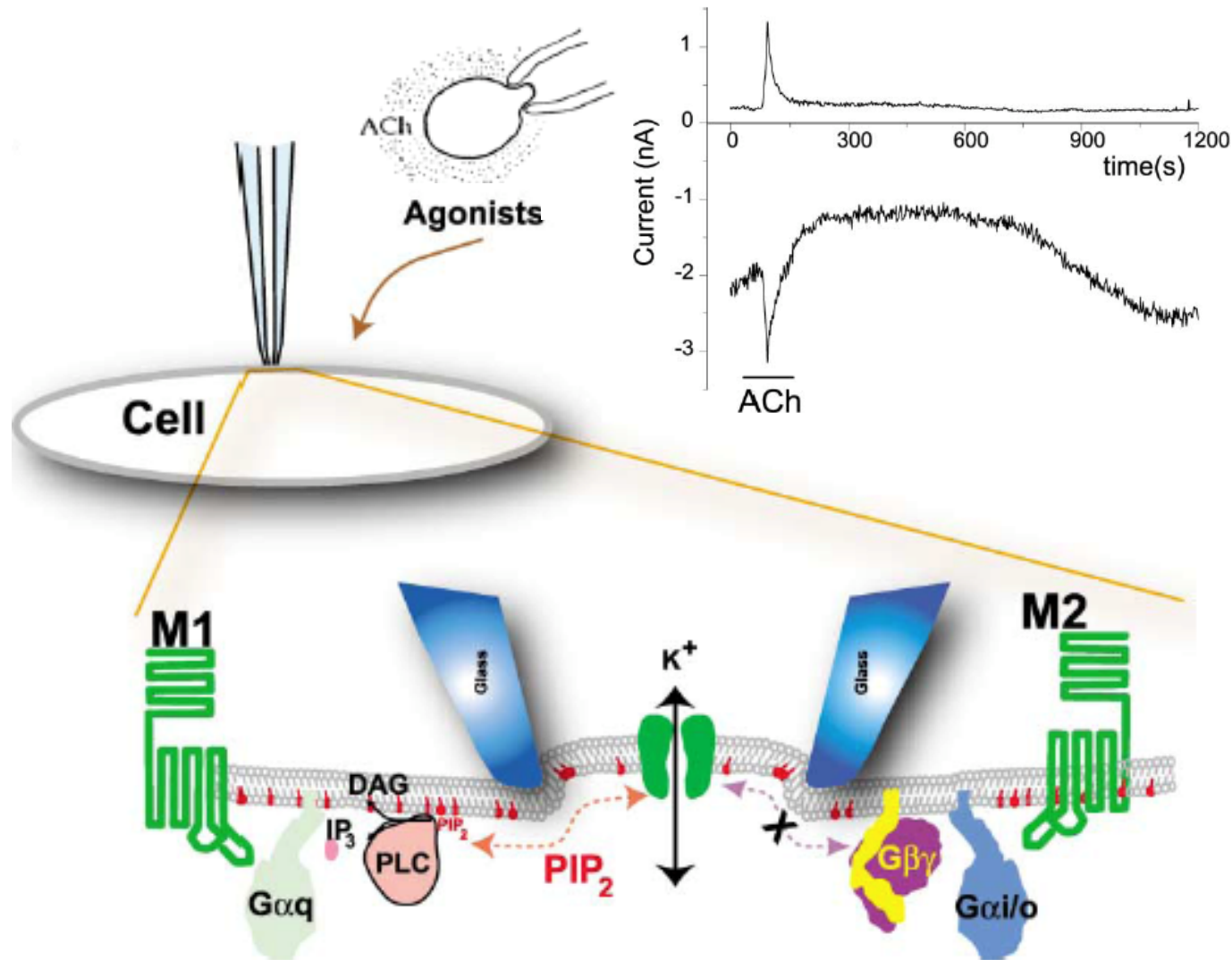
Soejima and Noma, 1984
 Logothetis et al., 1987

PIP₂ gating of GIRK channels

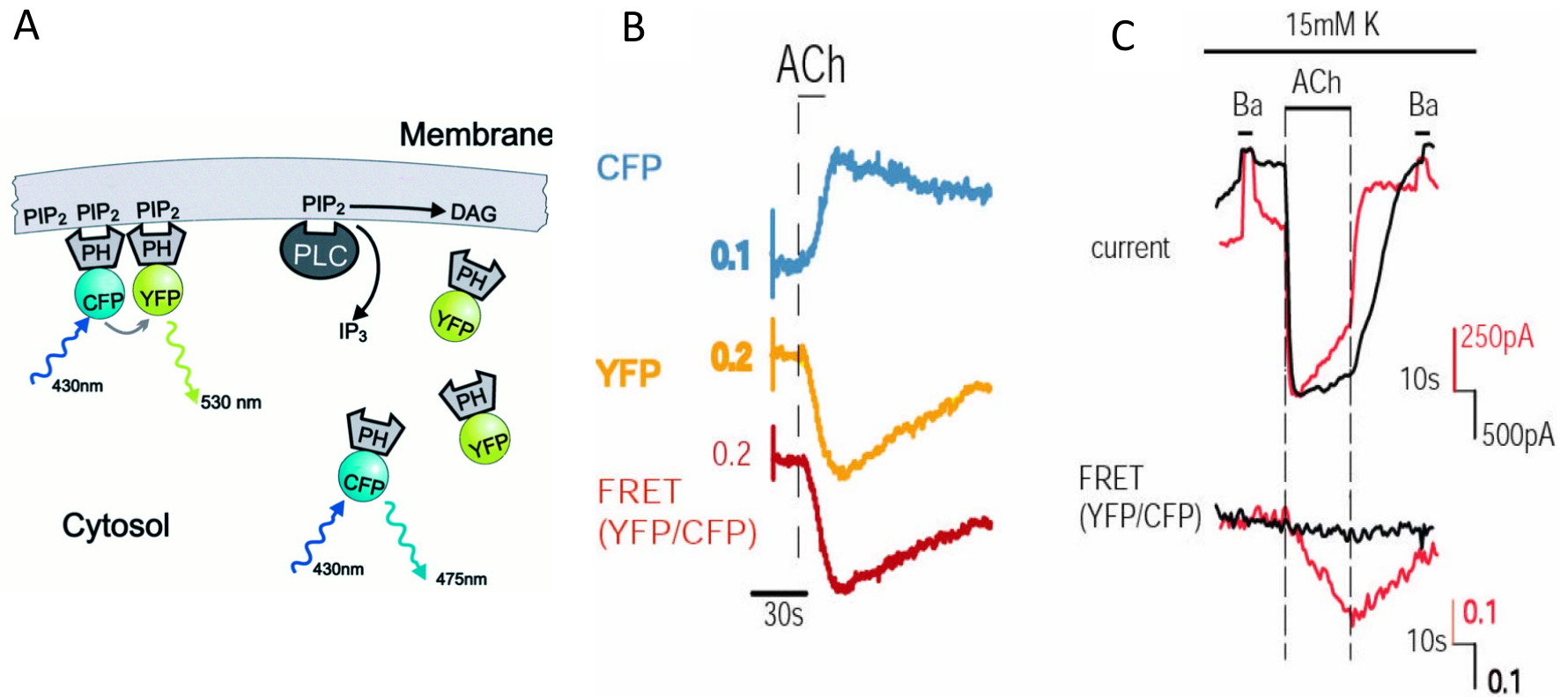


Zhang et al., 1999; Petit-Jacques et al., 1999

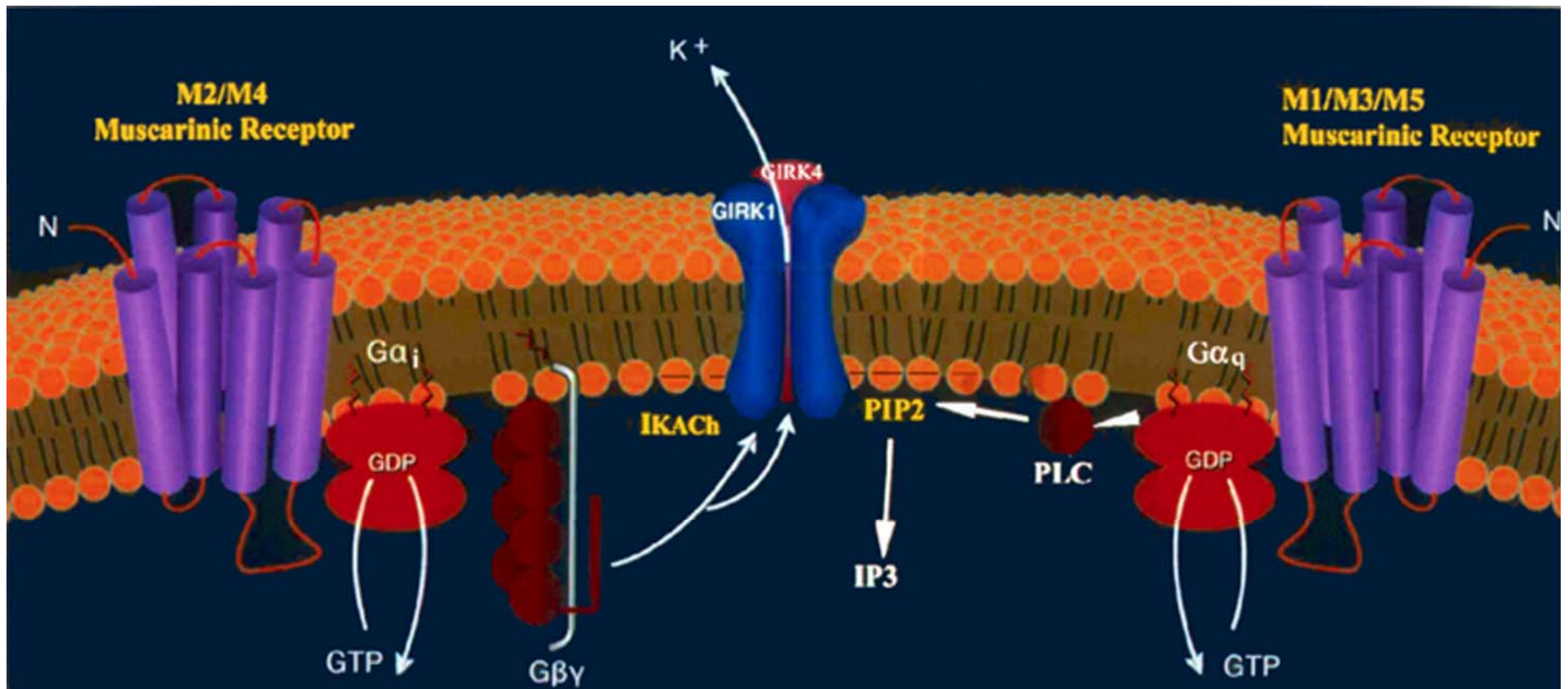
The PIP_2 hydrolysis membrane-delimited signaling



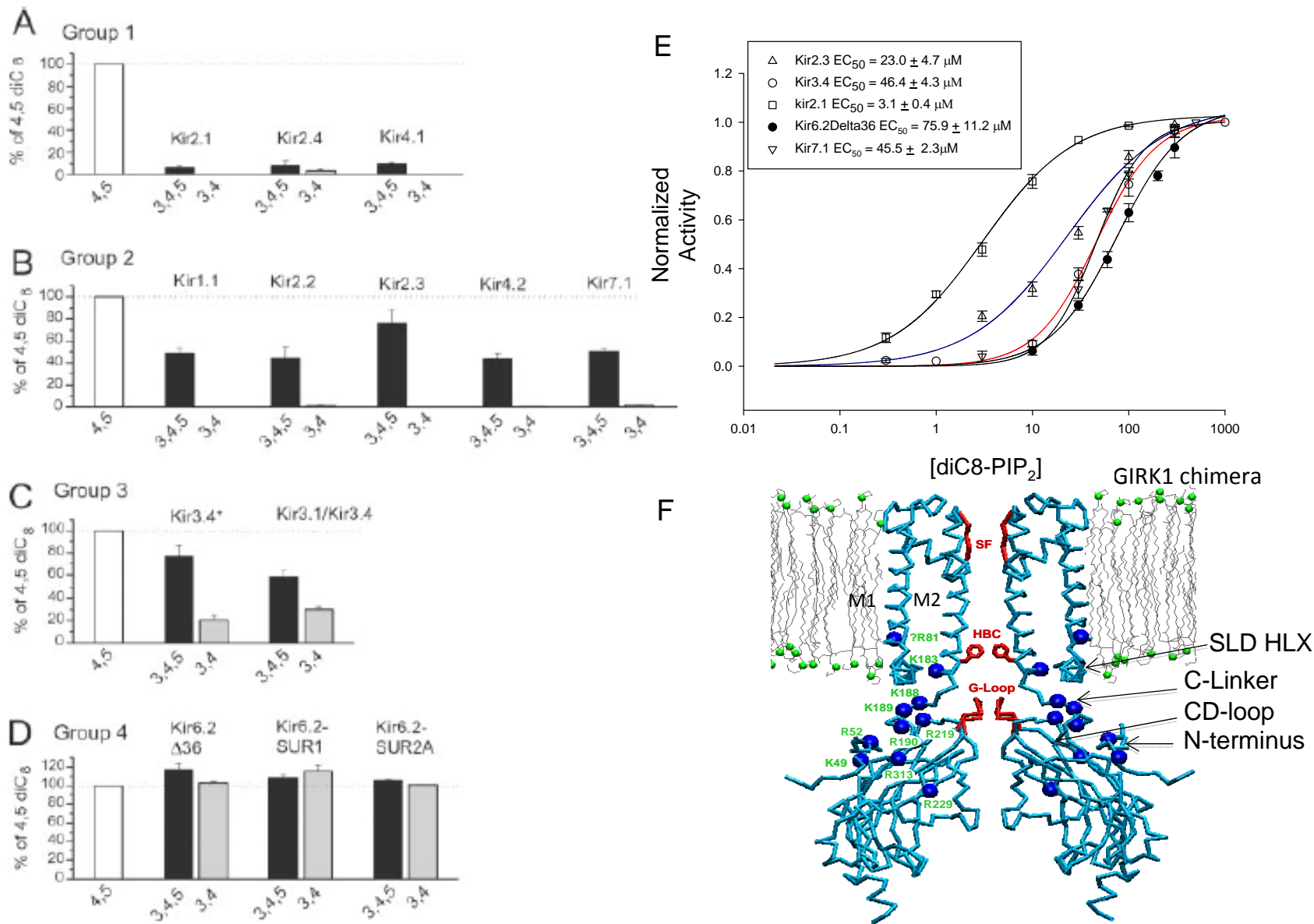
PIP₂ hydrolysis underlies current desensitization



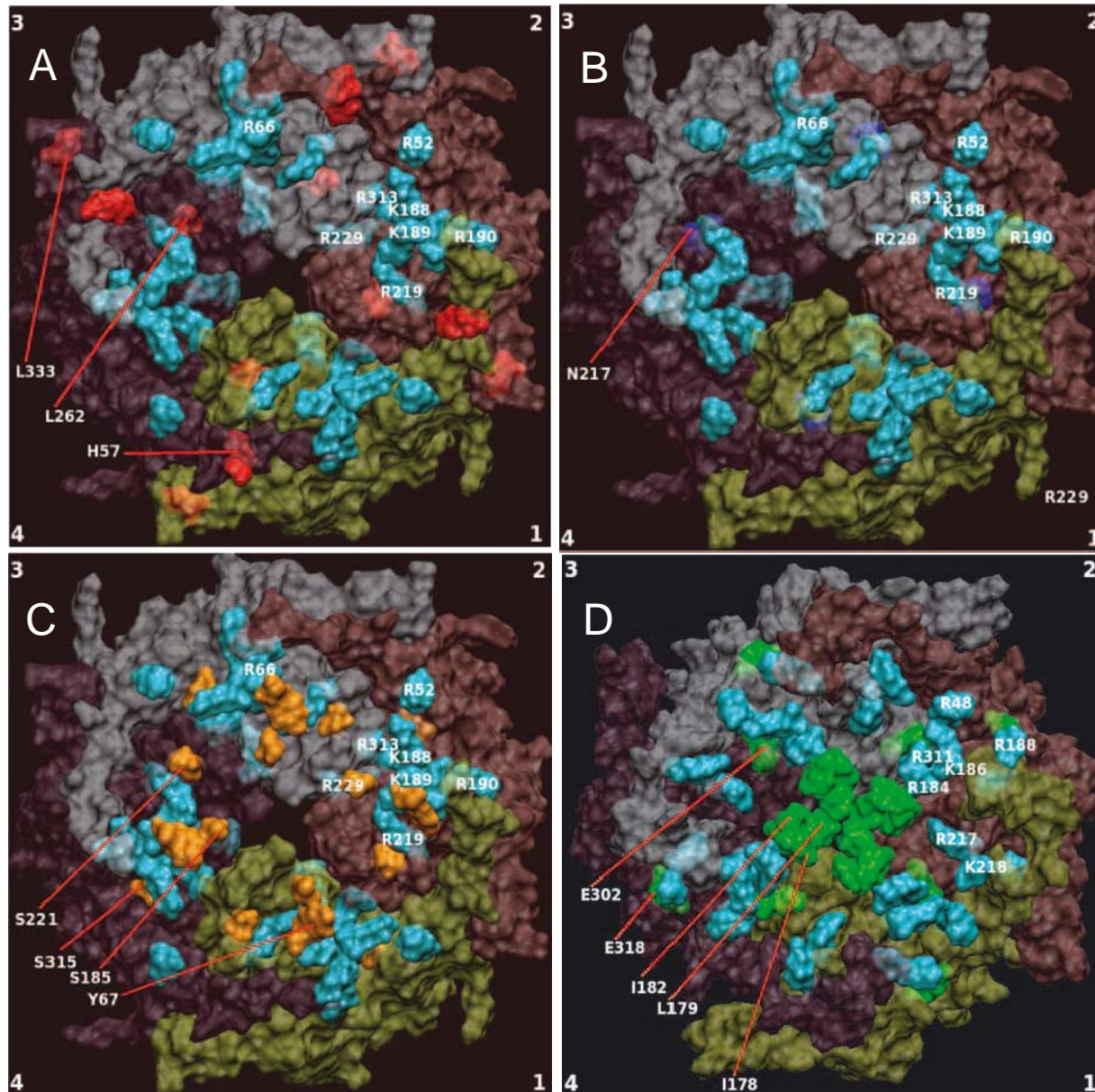
Convergence of two signaling mechanisms on K_{ACh}



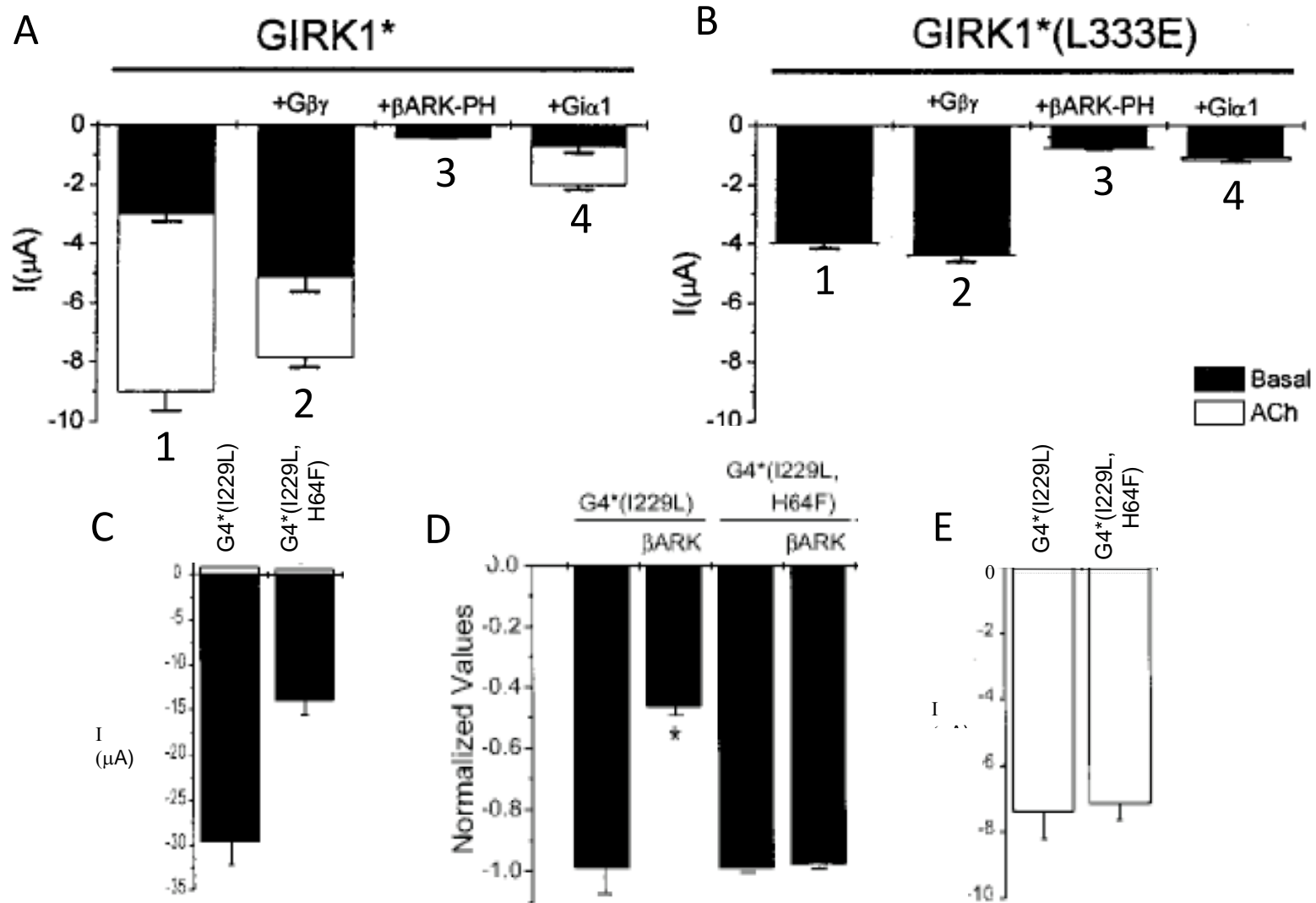
Kir channel specificity for PIPs and GIRK interaction sites



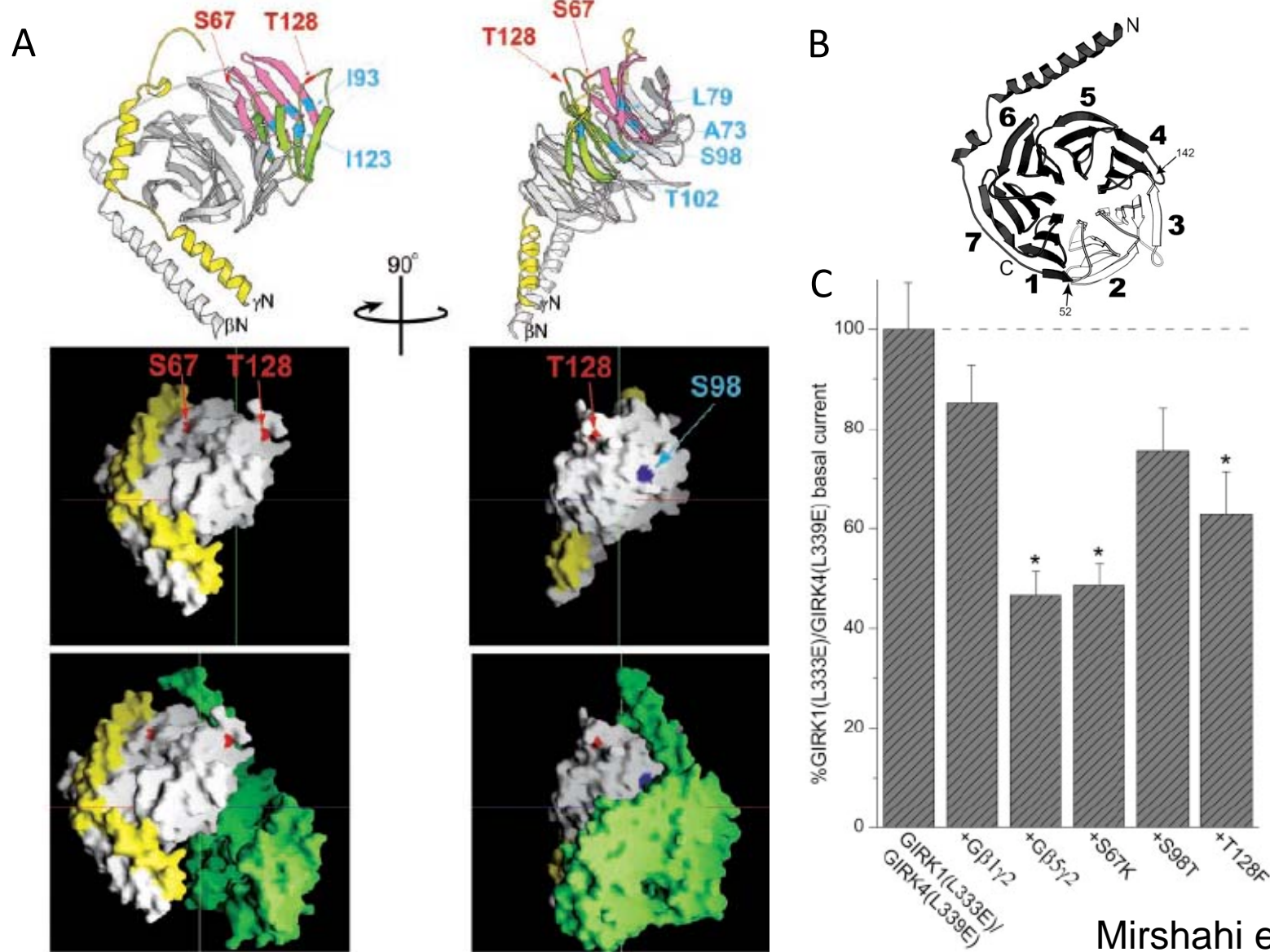
Positions of sites of action of $G\beta\gamma$, Na^+ , PKA, PKC, and pH relative to those of PIP_2



Channel mutants differentiate basal from agonist-induced GIRK activity



G α -dependent and independent G $\beta\gamma$ residues that affect GIRK activity



Reconstitution of both active G protein subunits is required to activate the GIRK1 chimera

