

Subcellular Locations of Opioid Receptor Function

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An emerging question in GPCR biology is whether ligand-induced activation of receptors is restricted to the plasma membrane or can occur also from internal locations. I will discuss recent efforts to address this question for catecholamine and opioid receptors. Our results suggest that both classes of GPCR have the potential to undergo ligand-induced activation not only in the plasma membrane but also in endosomes and the Golgi apparatus. An unexpected finding is that non-peptide opioid drugs can differ considerably from physiological peptide ligands in the location at which they produce receptor activation. I will discuss efforts to explore functional consequences of distinct subcellular activation locations by focusing on cAMP signaling.