

## **Toward understanding the subcellular organization and reorganization of GPCR signaling**

Basic concepts regarding how ligand-dependent GPCR signaling is organized in cells have recently changed. GPCRs were long-thought to initiate ligand-dependent signaling transduced by heterotrimeric G proteins only from the plasma membrane, and receptors present in intracellular membranes were assumed to be unable to engage G proteins. GPCRs are now widely recognized to engage G proteins from internal membrane locations as well as from the plasma membrane. I will briefly summarize evidence supporting this revised view, involving key contributions from many research groups. I will then discuss recent and ongoing studies in our laboratory that seek to elucidate the subcellular organization the cAMP cascade in particular, focusing on mechanisms and functional significance of cascade activation from endosomes.