Drug-Receptor Interactions: Reading

Prof.Dr.Nuray ARI, 2018

- *Biomol Ther (Seoul). 2017 Jan 1;25(1):12-25. doi: 10.4062/biomolther.2016.165.*

- **Biased G Protein-Coupled Receptor Signaling: New Player in Modulating Physiology and Pathology.**

- Bologna Z, Teoh JP, Bayoumi AS, Tang Y, Kim IM.

- **Abstract**
- **G protein-coupled receptors (GPCRs) are a family of cell-surface proteins that play critical roles in regulating a variety of pathophysiological processes and thus are targeted by almost a third of currently available therapeutics. It was originally thought that GPCRs convert extracellular stimuli into intracellular signals through activating G proteins, whereas β-arrestins have important roles in internalization and desensitization of the receptor. Over the past decade, several novel functional aspects of β-arrestins in regulating GPCR signaling have been discovered. These previously unanticipated roles of β-arrestins to act as signal transducers and mediators of G protein-independent signalinghave led to the concept of biased agonism. Biased GPCR ligands are able to engage with their target receptors in a manner that preferentially activates only G protein- or β-arrestin-mediated downstream signaling. This offers the potential for next generation drugs with high selectivity to therapeutically relevant GPCR signaling pathways. In this review, we provide a summary of the recent studies highlighting G protein- or β-arrestin-biased GPCR signaling and the effects of biased ligands on disease pathogenesis and regulation.**