Further classification of μ-opioid analgesics based on “intracellular biased-signaling through μ-opioid receptors”

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Since the choice of opioid analgesics that can be used for supportive and palliative care in patients with cancer has increased, it is necessary to understand the intracellular signaling of each drug. Although all opioid analgesics used in clinical practice are μ-opioid receptor agonists, they exhibit individual profiles with different levels of analgesia and side effects. Recently, it has been shown that μ-opioid receptor agonists regulate at least two pathways after the stimulation of μ-opioid receptors: a G protein-coupled signaling pathway and a β-arrestin recruitment pathway. In the present study, we further re-classified μ-opioid analgesics by organizing individual drug profiles based on intracellular responses generated by various μ-opioid analgesics. We here propose the usefulness of appropriate combinations of μ-opioid receptor agonists due to biased classification with intrinsic signaling. In this symposium, we will discuss the latest knowledge on μ-opioid receptor-biased signaling by μ-opioid analgesics.