

第30回 生体制御学セミナー

Role of Chemosensory Receptors, FFA2 & 3 on Colonic Functions

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Abstract:

The gastrointestinal (GI) mucosa comes in direct contact with a vast majority of potentially beneficial or harmful substances in the lumen and acts as a sensory organ by detecting luminal components and sending messages to the nervous system to initiate the appropriate response of digestion and absorption of nutrients and expulsion of drugs, toxins and microorganisms. Such physiological response of the GI tract to incoming nutrient is very important to be coordinated to allow correct processing of an ingested meal. This complex process of chemosensory perception is regulated by different sensors, including enteroendocrine cells, brush cells. Since nerve terminals do not reach the intestinal lumen and do not enter the mucosal lining, enteroendocrine cells or specialized epithelial cells serve as the first level of integration of information from the gut lumen. Recently, many G protein-coupled receptors (GPCRs) have been orphanized. Among them, free fatty acid (FFA) receptors are identified as membrane receptors and play significant roles in nutritional regulation. Each of the FFA receptors is expressed differentially, and they may play different functional roles. This finding has prompted reevaluation of the mechanism of actions of FFAs in health and disease. In this paper, we will discuss the recent knowledge on the roles of orphanized FFA receptors, FFA2 and FFA3 and their contributions for the regulation of colonic motility based on our studies.