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Autore	Atsuhiko Ichimura
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Sommario/riassunto	Food intake regulates energy balance and its dysregulation leads to metabolic disorder, such as obesity and diabetes. During feeding, free fatty acids (FFAs) are not only essential nutrients but also act as signaling molecules in various cellular processes. Recently, several orphan G protein-coupled receptors (GPCRs) that act as FFA receptors (FFARs) have been identified; GPR40/FFAR1, GPR119, and GPR120 are activated by medium- and long-chain FFAs. GPR84 is activated by medium-chain FFAs. GPR41/FFAR3 and GPR43/FFAR2 are activated by short-chain FFAs. These FFARs have come to be regarded as new drug targets for metabolic disorder such as obesity and type 2 diabetes, because a number of pharmacological and physiological studies have shown that these receptors are primarily involved in the energy metabolism in various tissues; insulin secretion, gastrointestinal hormone secretion, adipokine secretion, regulation of inflammation, regulation of autonomic nervous system, relation to gut microbiota, and so on. This Research Topic provides a comprehensive overview of the energy regulation by free fatty acid receptors and a new prospect for treatment of metabolic disorder such as obesity and type 2 diabetes.