Synopsis of Original Research Paper

Role of free fatty acid receptor GPR120 in skin

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Free fatty acids are not only essential nutritional components but they also function as signaling molecules. By utilizing the human genome database and G-protein-coupled receptor (GPCR) deorphanizing strategy, we successfully identified multiple receptors for free fatty acids (FFAs) which have been proposed to play a critical role in various components of metabolic regulation.Among the FFA receptors, we previously showed that GPR120, which is expressed in large intestine, adipose tissue, lung and skin, functions as a receptor for unsaturated long-chain FFAs such as alpha-linolenic acid (α-LA). We also developed specific antibody against the extracellular domain of GPR120 and GPR40, respectively. We also found that GPR120-deficient mice were obese with high-fat diet feeding, suggesting that GPR120 plays an important role in lipid metabolism. Furthermore, we have been able to use these antibodies to describe for the first time and in detail the expression and localization of the GPR120 protein in a number of mouse tissues; skin, lung, large intestine and adipose tissue. This anti-GPR120 antibody and selective ligand should prove useful for further analysis of the physiological role of fatty acid receptor GPR120 in skin.