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Research Article

Metabolic Roles of the M₃ Muscarinic Acetylcholine Receptor Studied with M₃ Receptor Mutant Mice: A Review

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Abstract

The M₃ receptor is a central and protein-coupled. Recent studies reveal its functional overexpression is essential for experimental β-cell M₃ studies

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many of G family. have metabolic d or nAChRs are he ling through Recent e of M₃



receptors protected mice against various forms of experimentally or genetically induced obesity and obesity-associated metabolic deficits. Under all experimental conditions tested, M₃ receptor-deficient mice showed greatly ameliorated impairments in glucose homeostasis and insulin sensitivity, reduced food intake, and a significant elevation in basal and total energy expenditure, most likely due to increased central sympathetic outflow and increased rate of fatty acid oxidation. These findings are of potential interest for the development of novel therapeutic approaches for the treatment of obesity and associated metabolic disorders.

Key Words: : [Glucose homeostasis](#) [Insulin](#) [Knockout mice](#) [Muscarinic receptor](#) [Transgenic mice](#)

Related Research Data

Islet G protein-coupled receptors as potential targets for treatment of type 2 diabetes

Source: Springer Science and Business Media LLC

Overview of muscarinic receptor subtypes.

Source: Springer Berlin Heidelberg

Mapping physiological G protein-coupled receptor signaling pathways reveals a role for receptor phosphorylation in airway contraction

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β -Cell Function in Obese-Hyperglycemic Mice [ob/ob Mice]

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