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Research Article

Metabolic Roles of the M_3 Muscarinic Acetylcholine Receptor Studied with M_3 Receptor Mutant Mice: A Review

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receptors protected mice against various forms of experimentally or genetically induced obesity and obesity-associated metabolic deficits. Under all experimental conditions tested, M_3 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