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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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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

Plasma Membrane Localization and Functional Rescue of Truncated Forms of a G Protein-coupled Receptor

Source: Journal of Biological Chemistry

Ringier, M., et al. (2003) Plasma Membrane Localization and Functional Rescue of Truncated Forms of a G Protein-coupled Receptor. *Journal of Biological Chemistry*, 278(12), 11511-11518.

Source: Journal of Biological Chemistry
Dual Regulation of Insulin Secretion by the Pancreatic β -Cell
Source: Journal of Biological Chemistry
Unconjugated β -Acetylcholine in the Pancreas
 β 3-Adrenoceptors in the Pancreas

Source: Journal of Biological Chemistry
Muscarinic Regulation of Islet Hormone Secretion - Implications for Health and Disease
Source: Journal of Biological Chemistry

Autonomic regulation of islet hormone secretion - Implications for health and disease

Source: Diabetologia

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Source: Neuroscience

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Beneficial metabolic effects of M3 muscarinic acetylcholine receptor deficiency

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Source: Experimental Biology and Medicine

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Uncoupling proteins 2 and 3: potential regulators of mitochondrial energy metabolism.

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ChemInform Abstract: Therapeutic Opportunities for Muscarinic Receptors in the

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