Neuropeptide Y (NPY) Deficient Mice

Technology ID

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Category

Research Tools/Biological Materials/Mouse

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Biomaterial – Mouse

Biomaterial Description

Researchers in Professor Richard Palmiter's laboratory have developed a genetically modified mouse model lacking neuropeptide Y (NPY) to investigate the role of NPY in leptin signaling and seizure susceptibility. These mice exhibit heightened sensitivity to leptin and an increased propensity for seizures, making them a valuable tool for studying metabolic regulation and neurological disorders. The model provides insights into the interaction between neuropeptides and hormonal pathways in the central nervous system.

Applications

-Investigation of leptin signaling pathways in the absence of NPY

-Studies on seizure susceptibility and epileptogenesis

-Research on energy homeostasis, appetite regulation, and obesity

-Exploration of neuroendocrine interactions and hypothalamic function

-Preclinical testing of anti-epileptic and metabolic disorder therapies

Advantages

-Genetically defined model with targeted deletion of NPY

-Demonstrates enhanced leptin sensitivity, enabling studies of leptin resistance mechanisms

-Exhibits increased seizure susceptibility, useful for epilepsy research

-Non-invasive phenotype assessment through behavioral and metabolic assays

-Facilitates dual investigation of metabolic and neurological phenotypes in a single model

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