Transgenically Modified ApoE KO Rats

A genetically modified rodent model lacking apolipoprotein E is available for investigating cardiovascular disease, Alzheimer's disease, and neurodevelopmental disorders.

Therapeutic development often utilizes transgenically modified animals that lack a specific protein. By "knocking out" a gene and observing the corresponding phenotype, investigators can get a better sense of the role that a specific protein plays. Rodent models are particularly useful as many of the physiologic characteristics are similar to humans, while gene modifications are much easier in mice and rats.

A Purdue University researcher has developed a knockout rat that is deficient in apolipoprotein E (ApoE), an important protein that which binds to a specific receptor on liver cells and peripheral cells and helps in the transportation and metabolism of cholesterol. This model may be useful for studying cardiovascular disease, Alzheimer's disease, and other neurodevelopmental disorders. This research model will be created using transcription activator-like effector nucleases (TALENs), injecting recombinant DNA constructs directly into a fertilized egg, and then injecting these eggs into pseudopregnant females.

Advantages:

-Specific removal of apolipoprotein E with site-specific DNA nucleases

-Useful for wide range of clinically relevant disorders including cardiovascular disease and Alzheimer's disease

Potential Applications:

-Researching cardiovascular disease, Alzheimer's disease, and other neurodevelopment disorders

TRL: 6

Intellectual Property:

Technology ID

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Category

Biotechnology & Life Sciences/Synthetic Biology & Genetic Engineering
Biotechnology & Life Sciences/Biomarker Discovery & Diagnostics
Pharmaceuticals/Drug Discovery & Development

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