ApoE3Leiden Mouse

Market sectors: Obesity, Diabetes, Artherosclerosis.

Apolipoprotein E is a constituent of VLDLs, chylomicrons, and HDLs and is essential for receptor-mediated uptake of remnant lipoproteins. ApoE deficiency in mice leads to elevated plasma cholesterol levels that are due to the accumulation of remnant lipoproteins, and ApoE deficiency is associated with the development of atherosclerosis. In addition, these mice develop a fatty liver when fed normal chow and show a decreased VLDL-triglyceride secretion. In humans, the mutant ApoE3Leiden isoform is associated with a dominantly inherited form of familial dysbetalipoproteinemia. The ApoE3Leiden gene contains a tandem repeat of codons 120 to 126, yielding a protein of 306 amino acids. Transgenic mice expressing ApoE3Leiden develop hyperlipidemia as a result of defective binding of E3Leiden-containing remnant lipoproteins to the LDL receptor and to the LDL receptor–related protein and are susceptible to diet-induced atherosclerosis.

Apolipoprotein E (ApoE)-deficient mice develop hepatic steatosis and show impaired very low density lipoprotein (VLDL)-triglyceride (TG) secretion. These effects are normalized with the introduction of the human ApoE3 gene. The APOE3Leiden mouse displays a human-like plasma lipid profile and is sensitive to diet-induced hyperlipidemia, obesity and insulin resistance as well as premature atherosclerosis.

Researchers at the LUMC are interested in research collaborations using the ApoE3Leiden Mouse including crossbreeding to develop novel mouse models.

Key benefits

- Model can be used to titrate cholesterol and triglyceride levels.
- Model responds to hypolipidemic drugs currently in use.

Applications

- Studies for hyperlipidemia, atherosclerosis, obesity and insulin resistance.
- Screening compounds for their effects on HDL levels.
- Crossbreeding to develop novel mouse models for research use.

Development stage

- The ApoE3Leiden mouse has been used in numerous studies over the past decade.
- Well validated model.

Further information

Andrea Hall – Business Developer
Email: a.m.hall@luris.nl
Telephone: + 31 (0) 71 526-5665
Our ref#: **INV-09MC204**