

Animal Model

Angiotensinogen Transgenic Mice TGM(rAOPEN)123

Reference Number 03-00190

Abstract

Challenge

The renin-angiotensin system (RAS) is the most important regulator of blood pressure. Its multiple biological functions include increase in blood pressure, sodium retention in the kidney and regulation of the sympathetic tonus. Angiotensinogen (AOPEN) is mainly expressed by the liver and secreted into the circulation, but also local generation by heart and kidney seems to have a crucial role in the cardiovascular system. To exert its biological functions, AOPEN undergoes several enzymatic modifications ending in the biologically active peptide angiotensin II (AngII). Upregulation of the RAS not only leads to hypertension but also often goes along with end-organ damage, cardiac and renal failure and stroke. Since the mouse has become a model species in cardiovascular research, there is a strong demand for a mouse model with an activated RAS allowing detailed studies of AngII actions.

Technology

Transgenic mice have been generated which over-express the rat angiotensinogen gene (TGM(rAOPEN)123) in liver and brain. These mice develop hypertension and end-organ damage such as cardiac hypertrophy and fibrosis and renal dysfunction evidenced by albuminuria. Therefore, this animal model is a powerful tool for studying the function of the RAS in blood pressure regulation and the analysis of hypertension-induced end-organ damage.

Commercial Opportunity

Breeding pairs of TGM(rAOPEN)123 are available under Tangible Property Licence Agreement.

Further Reading

- Kimura et al., 1992, EMBO J, 11, 821-827.
- Kang et al., 2002, J Mol Med, 80, 359-366.