Tissue-specifically autophagy deficient mice

We generated conditional knockout mice of Atg7. Atg7 is essential for ATG conjugation systems and autophagosome formation, amino acid supply in neonates, and starvation-induced bulk degradation of proteins and organelles in mice. Atg7 cKO mice are useful as model mice of disorders related to autophagy deficiency.

CHARACTERISTICS

➢ Tissue-specific autophagy deficiency

Atg7 cKO mice were generated by using the Cre-loxP technology. By crossing a line of transgenic mice that express the Cre recombinase under the tissue-specific expressing promoter, you can knock out Atg7 gene only in your intended tissue.

➢ Generation of tissue-specific Atg7-deficient mice

- A number of groups have generated various tissue-specific autophagy-deficient mice.
- Autophagy deficiency relates to many disorders such as neurodegenerative disorder, tumor formation, diabetes, etc.

disorder	tissue/cell	Cre Tg mice	phenotype	Ref.
Neuro-degenerative disorder	Brain	Nestin Cre tg	– behavioral defects, including abnormal limb-clasping reflexes and a reduction in coordinated movement – die within 28 weeks of birth	1
	Purkinje cells	Pcp2 Cre tg	– cell-autonomous, progressive dystrophy (manifested by axonal swellings) and degeneration of the axon terminals – ataxia of gait at one year old	2
Hepatitis, Liver cancer	Liver	Alb Cre tg	– enlargement of the liver – liver injury – benign adenoma	3
	Liver	Mx1 Cre tg		4
Diabetes	β-pancreatic cells	RIP Cre tg	– atrophia of β-pancreatic cells – reduction of insulin secretion – impairment of beta-cell adaptation to high-fat diet – ≒ type 2 diabetes	5

* Reference

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OFFERS

- ➢ Research and development using Atg7 cKO mice (license)
- ➢ Collaborative research with the inventor or commission of a particular research (collaborative research, commissioned research)

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