Knock-in mouse model with labeled insulin provides essential tool for diabetes research and drug development

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Technology description

Publications

* C Talchai, S Xuan, T Kitamura, RA DePinho, D Accili. Generation of functional insulin-producing cells in the gut by Foxo1 ablation. Nature Genetics, Vol. 44, Mar. 2012, pp. 206-212.

Application area

Animal model to investigate genetic and environmental factors that cause insulin level and expression changes

Ability to track insulin production and secretion will provide insight into effectiveness of various drug compounds for diabetes treatment

Furtherin vivoinvestigation into insulin-secreting beta cells, which are labeled by the GFP

The labeling of cells that interact with insulin will allow precise extraction of these cells forex vivoexperiments

Identification of novel proteins that interact with insulin, which may serve as therapeutic targets for diabetes

Advantages

Directly labels insulinin vivosuch that the GFP is restricted only to the cells where insulin is found

All regulatory elements in the insulin gene are kept intact, so expression can't be falsely altered by other local factors (like in transgenic mice)

Any genetic or environment modifications to the endogenous insulin will be accurately represented by the GFP label

Institution

Columbia University

Inventors

Argiris Efstratiadis

联系我们

叶先生

电 话：021-65679356
手 机：13414935137
邮 箱：yeyingsheng@zf-ym.com