[1]吴虹辰,胡俊,周晓杨,等.一种新的突变SOD1转基因小鼠模型的构建及鉴定[J].第三军医大学学报,2014,36(09):928-931.

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一种新的突变SOD1转基因小鼠模型的构建及鉴定(PD

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Title: Construction and identification of a transgenic mice expressing a new mutant SOD1 gene

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关键词: 肌萎缩侧索硬化症; 突变SOD1; 转基因小鼠

Keywords: amyotrophic lateral sclerosis; mutant SOD1; transgenic mice

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摘要: 目的 构建表达一种新的突变SOD1(mSOD1)转基因小鼠模型，观察其临床表型，明确该mSOD1类型与肌萎缩侧索硬化(amyotrophic lateral sclerosis，ALS)的发病关系。 方法 构建携带mSOD1基因的PCI质粒载体，通过受精卵原核注射的方法制备转基因小鼠。利用PCR方法鉴定出生的后代，采用转轮实验和足迹分析观察转基因小鼠的临床表型。 结果 PCR结果证实获得了表达人mSOD1的转基因小鼠；行为学检测显示，转基因小鼠在转轮上停留时间为（59.17±26.27）s，明显短于野生型小鼠[(171.83±20.98)s,*P*<0.01]，转基因小鼠在出生8个月左右出现双下肢跛行、拖曳，足迹欠规整，后肢足间距为（34.83±9.72）mm，明显小于野生型小鼠[(52.78±7.22) mm, *P*<0.01]。 结论 成功构建了mSOD1转基因小鼠，该转基因小鼠出现了类似ALS的临床表型。

Abstract: Objective To establish a transgenic mice expressing a new human mutant SOD1 gene (mSOD1, GenBank ID EF143990), observe the clinical phenotype of this mice model, and determine the relationship of the gene with amyotrophic lateral sclerosis (ALS). Methods A PCI plasmid carrying mSOD1 gene was constructed, and was microinjected into the pronuclei of fertilized mouse egg. Born offspring of these mice were identified by PCR. The clinical phenotypes of the mice were experimented by rota-rod test and footprint analysis.

Results PCR results confirmed that the transgenic mice expressing mSOD1 gene were established successfully. Behavioral testing showed that the lasting time staying on the wheel was significantly shorter in the transgenic mice than the wild-type ones (59.17±26.27 *vs* 171.83±20.98 s, *P*<0.01). The transgenic mice showed double-leg lameness and drag in 8 months after born and impaired walking patterns in footprint. Hind limb extension was significantly shorter in the transgenic mice than the wild-type ones (34.83±9.72 *vs* 52.78±7.22 mm, *P*<0.01). Conclusion An mSOD1 transgenic mice model is successfully established, and presents similar clinical phenotype of ALS.

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