

论文

高温致神经管畸形相关基因CDK109克隆及其致畸相关性分析

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摘要:

目的 通过筛选高温致畸金黄地鼠胚胎神经管cDNA文库,克隆高温致畸相关基因CDK109。方法 利用本室构建的高温致畸胚胎神经管cDNA文库,采用噬菌斑原位杂交方法,用寡核苷酸探针筛选cDNA文库,挑取阳性噬菌斑,将其转化为质粒,再通过限制性酶切鉴定阳性克隆并测序,将该基因标记探针与孕8.5d高温致畸胚胎神经管组织和正常对照胚胎神经管组织总RNA进行NORTHERN杂交,以便确认该基因在高温致神经管畸形中的异常表达。结果 成功地从高温致畸金黄地鼠胚胎神经管cDNA文库中筛选出高温致畸相关基因CDK109全长,其在高温致畸组的表达明显高于对照组。结论 CDK109在神经管中的高表达与高温致神经管畸形密切相关。

关键词: 神经管缺损; 高温, 诱发; cDNA文库; 基因, CDK109; 金仓鼠

Cloning and relativity analysis of gene CDK109 related to neural tube defects induced by hyperthermia

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Abstract:

Objective To screen for gene CDK109 from the cDNA library of the neural tube from golden hamster treated with hyperthermia, clone this gene and analyze its relativity with neural tube defects (NTDs) induced by hyperthermia. Methods With Benton Davis hybridization, a oligonucleotide probe was used to screen the cDNA library of the neural tube from golden hamster model treated with hyperthermia, which had been constructed in our laboratory. Then the positive phage clone was transfected into E.coli BM25.8, the plasmid was isolated and identified by restriction enzyme digestion, and the positive plasmid was sequenced and blasted. By Northern blot, expression of screened gene CDK109 was detected and reconfirmed in heat-treated and control groups of golden hamsters on pregnant day 8.5. Results The whole length of the CDK109 gene was successfully screened from the cDNA library of the neural tube from golden hamsters treated with hyperthermia. Its expression in the heat-treated group was evidently higher than in the control group. Conclusion Increased expression of CDK109 is closely related to neural tube defects induced by hyperthermia.

Keywords: Neural tube defects; Hyperthermia, induced; cDNA library; Genes, CDK109; Mesocricetus

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