

降钙素基因相关肽对兔成骨细胞增殖和TGF-B₁表达的影响(PDF)

《第三军医大学学报》 [ISSN:1000-5404/CN:51-1095/R] 卷: 34 期数: 2012年第05期 页码: 412-414 栏目: 论著 出版日期: 2012-03-15

Title: Calcitonin gene-related peptide induces osteoblasts proliferation by un-regulating tumor necrosis factor-B₁

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关键词: 降钙素基因相关肽; 成骨细胞转化生长因子-B₁; 成骨细胞; 细胞培养; 体外实验

Keywords: calcitonin gene-related peptide; transformation growth factor-B₁; osteoblasts; cell culture

分类号: R322.71; R329.2; R341

DOI: -

文献标识码: A

摘要: 目的 检测外源性降钙素基因相关肽(calcitonin gene-related peptide, CGRP)对体外培养兔成骨细胞转化生长因子-B₁(transformation growth factor-B₁, TGF-B₁)表达的调控作用,探讨其对成骨细胞增殖的影响。方法 将出生5 d以内新西兰大白兔头骨成骨细胞进行原代培养,用不同浓度的CGRP分别在不同时间段处理后,用MTT法检测细胞生长活力增殖情况;用Western blot检测成骨细胞TGF-B₁的蛋白表达。结果 成功分离并培养兔颅骨原代成骨细胞,进行碱性磷酸酶(ALP)染色鉴定成骨细胞。结果显示同一浓度的CGRP随着时间的增加MTT值呈增加趋势;而就同一时间点做比较,随着CGRP浓度的不断增加,MTT值也呈上升趋势,并且在48h和72h,这种趋势愈加明显(P<0.05)。另外随CGRP浓度的增加TGF-B₁条带灰度显著升高,显示TGF-B₁蛋白的表达逐渐增强(P<0.05),CGRP可能促进兔成骨细胞TGF-B₁的表达。结论 CGRP可能通过调节成骨细胞TGF-B₁蛋白的表达促进成骨细胞的增殖分化从而影响骨代谢。

Abstract: Objective To determine the effect of exogenous calcitonin gene-related peptide (CGRP) on the expression of tumor necrosis factor-B₁ (TGF-B₁) and cell proliferation in cultured rabbit osteoblasts. Methods Rabbit osteoblasts were primarily cultured from neonatal rabbits followed by identification with alkaline phosphatase (ALP) staining, and then treated by CGRP at different concentrations. The proliferation of osteoblasts were detected by MTT assay, and the expression of TGF-B₁ were detected by Western blotting. Results The rabbit osteoblasts were primarily cultured, and ALP staining indicated osteoblasts. With the elapse of treatment time, MTT assay showed that the cells were proliferated in an increasing trend under a certain concentration of CGRP. And at the same time point, MTT value also displayed an ascendant trend along with the increase of concentration. This trend became more and more obvious in 48 and 72 h (P<0.05). With the increase of CGRP concentration, TGF-B₁ protein expression was increased (P<0.05). Conclusion CGRP might promote the proliferation of cultured rabbit osteoblasts by regulating the expression of TGF-B₁.

参考文献/REFERENCES

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备注/Memo: -

更新日期/Last Update: 2012-03-01

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