

论著

## Sonic hedgehog促1型糖尿病小鼠的伤口愈合

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摘要

目的: 研究sonic hedgehog (Shh) 及其受体Ptc1在糖尿病小鼠伤口愈合中的作用。方法: 分别在正常和链脲佐菌素 (STZ) 诱导的糖尿病小鼠建立皮肤损伤模型, Western印迹检测Shh和Ptc1的蛋白水平; 观察外源性Shh或Ptc1抑制剂cyclopamine对伤口愈合的影响。结果: (1) 正常小鼠损伤后皮肤组织中的Shh和Ptc1蛋白质表达明显升高; 外源性Shh对伤口愈合无明显促进作用, 但cyclopamine可以明显地抑制伤口愈合; (2) STZ诱导的糖尿病小鼠, 其皮肤组织中内源性的Shh和Ptc1蛋白水平明显下调; (3) 外源性Shh可显著促进糖尿病小鼠伤口的愈合, 且呈浓度依赖性; Cyclopamine则明显地抑制糖尿病小鼠的伤口愈合。结论: Shh-Ptc1通路参与了皮肤伤口愈合, 糖尿病伤口愈合延迟与Shh-Ptc1表达下调有关。

关键词 [Sonic hedgehog](#); [糖尿病](#); [伤口愈合](#)

分类号

## Delayed wound healing in type 1 diabetic mice improved by sonic hedgehog

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Abstract

Objective The present study was to determine the effect of sonic hedgehog (Shh) and its receptor Ptc1 on delayed wound healing in type 1 diabetic mice. Methods The skin wound models in normal and streptozotocin (STZ)-induced type 1 diabetic mice were used. Protein levels of both Shh and Ptc1 in skin tissues were determined using Western blotting; the effects of exogenous Shh or Ptc1 blocker cyclopamine on wound healing were observed. Results (1) In normal mice, the protein expressions of both Shh and Ptc1 were markedly increased after wounding. Exogenous Shh had no effects on wound healing; however, cyclopamine significantly decreased the wound healing in normal mice. (2) The protein levels of Shh and Ptc1 in skin tissues were significantly decreased in diabetic mice compared to normal mice. (3) Exogenous Shh accelerated the wound healing of diabetic mice in a dose-dependent manner. Cyclopamine significantly inhibited the wound healing in diabetic mice. Conclusion Shh-Ptc1 pathway is involved in skin wound healing, and the delayed wound healing in diabetes may be related to the downregulation of Shh-Ptc1.

Key words [sonic hedgehog](#) [diabetes](#) [wound healing](#)

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