

论著

## 丹皮酚对高脂血清损伤的人内皮细胞的保护作用

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**摘要** **目的** 观察丹皮酚对高脂血清损伤的人脐静脉内皮细胞(HUVECs)的保护作用, 并探讨其作用机制。**方法** 20%高脂血清作用于HUVECs细胞24 h制备高脂血清损伤模型。丹皮酚组细胞加入20%高脂血清24 h后再分别加入丹皮酚124, 247和495  $\mu\text{mol} \cdot \text{L}^{-1}$ 。采用倒置显微镜观察HUVECs形态学变化; MTT法检测细胞存活率; 用硝酸还原酶法检测一氧化氮(NO)含量; 用RT-PCR法检测内皮型一氧化氮合酶(eNOS)mRNA的表达。**结果** 与正常对照组相比, 模型组中大部分细胞出现片状分离和脱落, 然而丹皮酚干预后细胞形态趋于正常。丹皮酚能够显著提高细胞存活率( $P < 0.01$ )。经丹皮酚124, 247和495  $\mu\text{mol} \cdot \text{L}^{-1}$ 干预后, 细胞存活率从模型组的(53.0 ± 10.1)%依次升高至(68.4 ± 9.1)%, (84.5 ± 6.7)%, (98.1 ± 7.5)%。丹皮酚能够显著提高NO含量和eNOS mRNA水平( $P < 0.01$ )。NO含量从模型组的(54 ± 4)  $\mu\text{mol} \cdot \text{L}^{-1}$ 依次升高至79 ± 6, 115 ± 5和(136 ± 6)  $\mu\text{mol} \cdot \text{L}^{-1}$ ; eNOS mRNA的表达水平由模型组的0.215 ± 0.060增加至0.451 ± 0.045, 0.563 ± 0.013, 0.704 ± 0.068。**结论** 丹皮酚可能通过上调高脂血清损伤人脐静脉内皮细胞eNOS的表达促进NO的合成, 从而发挥其对高脂血清损伤内皮细胞的保护作用。

**关键词** [丹皮酚](#) [内皮细胞](#) [一氧化氮](#) [一氧化氮合酶](#)

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## Protective effect of paeonol on human umbilical vein endothelial cells injured by hyperlipidemic serum

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### Abstract

**OBJECTIVE** To investigate protective effect of paeonol (Pae) on human umbilical vein endothelial cells (HUVECs) injured by hyperlipidemic serum and explore its possible mechanism. **METHODS** The injury model was induced by 20% hyperlipidemic serum incubating HUVECs for 24 h. Pae 124, 247 and 495  $\mu\text{mol} \cdot \text{L}^{-1}$  were given followed by administration of hyperlipidemic serum for 24 h. The morphological changes were observed under inverted microscope, cell survival rate was evaluated by MTT method, the nitric oxide (NO) content was measured by nitric acid reductase method and the endothelial nitric oxide synthase (eNOS) mRNA expression was determined by RT-PCR. **RESULTS** Compared with normal control group, most cells in model group split and exfoliated. However, the morphology was tending to normal level after intervention with Pae. Pae significantly improved cell viability ( $P < 0.01$ ). Compared with model group, the survival rate increased from (53.0 ± 10.1)% to (68.4 ± 9.1)%, (84.5 ± 6.7)% and (98.1 ± 7.5)%, respectively. The NO content and eNOS mRNA expression both increased greatly in Pae groups ( $P < 0.01$ ). Compared with model group, content of NO increased from 54 ± 4 to 79 ± 6, 115 ± 5 and (136 ± 6)  $\mu\text{mol} \cdot \text{L}^{-1}$ , respectively. The expression level of eNOS mRNA improved from 0.215 ± 0.060 to 0.451 ± 0.045, 0.563 ± 0.013, 0.704 ± 0.068, respectively. **CONCLUSION** Pae exerts protective effect on HUVECs injured by hyperlipidemic serum by increasing eNOS mRNA expression, which might therefore improve the content of NO.

**Key words** [paeonol](#) [endothelial cells](#) [nitric oxide](#) [nitric oxide synthase](#)

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