

# 大鼠肺缺血再灌注损伤后前炎症细胞因子IL-1 $\beta$ mRNA的表达分析

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## 摘要

[摘要] 目的 通过对大鼠移植肺灌注后、冷缺血保存和再灌注期间前炎症细胞因子IL-1 $\beta$ mRNA的表达进行分析,探讨IL-1 $\beta$ 在此过程中介导的移植肺炎性损伤机制。方法 本研究大鼠分6组,包括:正常肺(未灌注)对照组、仅肺灌注处理组、肺灌注后冷缺血保存6h、12h、24h各1组、冷缺血保存24h后左肺移植再灌注3h组。在相应各时间点采取肺组织,用荧光定量实时PCR法检测IL-1 $\beta$ mRNA的表达并进行髓过氧化物酶(MPO)活性测定。结果 除冷缺血12h组和冷缺血24h组之间IL-1 $\beta$ mRNA表达相对量差别不显著外(P=0.167),其余各组之间IL-1 $\beta$ 表达相对量差别均有显著统计学意义(P<0.05)。仅灌注组、冷缺血组和24h冷缺血移植再灌注3h组的IL-1 $\beta$ mRNA表达相对量均高于正常对照组,且随处理时间的延长而表达增加。仅灌注组、冷缺血组和24h冷缺血移植再灌注3h组的MPO活性均高于正常对照组,且随处理时间的延长而表达增加,P<0.05。各组肺组织中MPO活性和IL-1 $\beta$ mRNA相对表达量呈较强的正相关关系,相关系数r=0.869,P<0.01。结论 前炎症因子IL-1 $\beta$ 在肺缺血再灌注损伤机制中发挥着重要炎性损伤作用,可以作为移植肺功能评价及预后的重要指标之一;IL-1 $\beta$ 基因的表达在保存液灌注后的冷缺血保存早期就开始出现,而不是在再灌注之后的事件。

关键词 [前炎症细胞因子; IL-1 \$\beta\$ ; 荧光定量实时PCR; 肺缺血再灌注损伤; 肺移植](#)

分类号

## The Expression of proinflammatory cytokine IL-1 $\beta$ mRNA after lung ischemia-reperfusion injury in rat transplant model

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## Abstract

[Abstract] Objective To study the role of IL-1 $\beta$  in ischemia-reperfusion inflammatory injury of the graft lung in rat model. Methods There were 6 rat groups included in this study. Lung tissues were taken before flushing (nomal), 6h, 12h and 24h cold ischemic storage after flushing, 3h reperfusion after transplantation(after 24h cold ischemic storage). Quantitative real-time RT-PCR was used to analyze the expression of IL-1 $\beta$ mRNA in lung tissues at all time points. Myeloperoxidase(MPO) activity (the change in absorbance at 460 nm over 1 minute) was recorded in each group. Results IL-1 $\beta$ mRNA expression was obviously increased in groups 6h, 12h and 24h cold ischemic storage after flushing, 3h reperfusion after transplantation (after 24h cold ischemic storage), and much higher than that in the nomal lung tissue group (P<0.05). IL-1 $\beta$ mRNA expression increased with the cold storage time. MPO activity was increased obviously in groups 6h, 12h and 24h cold ischemic storage after flushing, 3h reperfusion after transplantation, P<0.05. IL-1 $\beta$ mRNA expression had a strong correlation with MPO activity (r = 0.869, P<0.01). Conclusion Proinflammatory cytokine IL-1 $\beta$  plays an important role in ischemia-reperfusion injury of the lung. Not initiated after reperfusion, IL-1 $\beta$  is increased as early as the lung graft is flushed, then sets the stage for pro-inflammatory responses in the grafts during cold storage.

**Key words** [proinflammatory cytokine](#) [IL-1 \$\beta\$](#)  [quantitative real-time RT-PCR](#) [ischemia-reperfusion injury](#) [lung transplantation](#)

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