

辛醇预处理可减轻模拟缺血再灌注引起的心肌细胞水肿 [\(点击查看pdf全文\)](#)

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Title: Octanol preconditioning alleviates mouse cardiomyocyte swelling induced by simulated ischemia/reperfusion challenge in vitro

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摘要: 目的探讨心肌连接蛋白43形成的半通道是否参与模拟缺血/再灌注心肌细胞容量的调节。方法C57BL/6小鼠心脏分离

的心肌细胞分为对照组、模拟缺血/再灌注组和模拟缺血/再灌注组+辛醇(半通道阻滞剂),于再灌注60min时采用Calcein荧光

染色和激光共聚焦显微镜分层扫描进行心肌细胞容量的分析;并用台盼蓝染色进行心肌细胞存活率的计算。结果

(1)应用荧

光染色和激光共聚焦显微镜行细胞容量测定具有稳定性和可重复性;(2)和对照组相比,模拟缺血/再灌注诱导心肌细胞水肿明

显[(126±6)%vs100%,P<0.05]。半通道阻滞剂辛醇减轻缺血/再灌注导致的细胞水肿明显减轻(113±6)%,P<0.05;(3)与对照

组相比,缺血/再灌注组心肌细胞存活率明显降低[(19±2)%vs(45±3)%,P<0.01],而半通道阻滞剂辛醇明显降低了缺血/再灌注

导致的心肌细胞的死亡(31±2)%,P<0.01。结论在离体的小鼠心肌细胞中,半通道阻滞剂辛醇减轻了缺血/再灌注诱导的心肌

细胞的水肿,从而减轻缺血再灌注导致的心肌细胞的死亡。

Abstract: Objective To investigate the role of connexin 43-formed hemichannels in cell volume regulation induced by

simulated ischemia/reperfusion (SI/R). Methods Mouse cardiomyocytes isolated on a Langendorff apparatus with enzyme

solution were aliquoted into control, SI/R and SI/R +octanol groups. Calcein-AM was used to stain the cells and the cell volume

was measured with confocal microscope by stack scanning. Trypan blue was used to measure the cell viability after the

treatments. Results Calcein-AM staining and cofocal microscopy yielded stable and reproducible results for cell volume

measurement. Mouse cardiomyocytes subjected to simulated SI/R showed obvious cell swelling as compared with the control

cells [(126±6)%vs100%,P<0.05], and octanol preconditioning significantly attenuated the cell swelling [(113±6)%,P<0.05].

SI/R caused a significant reduction of the cell viability compared to the control cells [(19±2)%vs(45±3)%,P<0.01], and octanol

preconditioning obviously reduced the viability of the cells with SI/R challenge [(31±2)%,P<0.01].

Conclusion Connexin

43-formed hemichannels are involved in the regulation of cardiomyocyte volumes induced by SI/R challenge, and octanol can

alleviate the cell swelling to enhance the viability of the cardiomyocytes following SI/R.

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