

Study of mechanism and condition for ischemic preconditioning induced by volatile anesthetics pretreatment in the liver

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2002 Fiscal Year Final Research Report Summary

Study of mechanism and condition for ischemic preconditioning induced by volatile anesthetics pretreatment in the liver

Research Project

Project/Area Number

12470314

Research Category

Grant-in-Aid for Scientific Research (B)

Allocation Type

Single-year Grants

Section

一般

Research Field

Anesthesiology/Resuscitation studies

Research Institution

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2000 – 2002

Keywords

volatile anesthetics / ischemic preconditioning / isolated perfused liver / liver slice incubation / apoptosis / patch clamp / K-ATP channel

Research Abstract

Halothane, isoflurane and sevoflurane attenuated ischemia-reperfusion injury in the perfused liver of fasted rats, suggesting a possible involvement of ischemic preconditioning.

In the rat liver slice incubation, isoflurane attenuated apoptosis induced by hypoxic challenge. Suppression of apoptosis is predominant in the hepatocyte.

Direct effect of isoflurane on K-ATP channel was studied in isolated pancreatic β cells using whole cell patch clamp method. Isoflurane suppressed K-ATP channel in a dose-dependent manner. Repeated treatment of isoflurane enhanced the suppression of K-ATP channel.

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