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Therapeutics administered during *ex vivo* liver machine perfusion: An overview

Buchwald JE *et al.* *Ex vivo* liver machine perfusion therapeutics

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Abstract

Although the use of extended criteria donors has increased the pool of available livers for transplant, it has also introduced the need to develop improved methods of protection against ischemia-reperfusion injury (IRI), as these ‘marginal’ organs are particularly vulnerable to IRI during the process of procurement, preservation, surgery, and post-transplantation. In this review, we explore the current basic science research investigating therapeutics administered during *ex vivo* liver machine perfusion aimed at mitigating the effects of IRI in the liver transplantation process. These various categories of therapeutics are utilized during the perfusion process and include evoking the RNA interference pathway, utilizing defatting cocktails, and administering classes of agents such as vasodilators, anti-inflammatory drugs, human liver stem cell-derived extracellular vesicles, and δ -opioid agonists in order to reduce the damage of IRI. *Ex vivo* machine perfusion is an attractive alternative to static cold storage due to its ability to continuously

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Mar 03, 2016 · Although several **ex vivo viability** indicators such as **bile production** 9, **adenosine triphosphate content** 6, and **hepatic aminotransferase release** 10 are used during functional liver perfusion, very little is known about the **molecular mechanisms of ex vivo recovery of the liver** and the metabolic processes that underlie functional recovery.

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Author: Bote G. Bruinsma, Bote G. Bruinsma, Gauth...

Publish Year: 2016

Machine Perfusion - an overview | ScienceDirect Topics

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Hypothermic **machine perfusion** (HMP) is a dynamic cold preservation method at 4°C which ensures homogeneous and continuous supply of metabolic substrates to the graft **during the ex vivo period** (Henry et al., 2012).

(PDF) Ex-vivo Normothermic Liver Perfusion: An Update

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Jan 17, 2019 · Table 1 Current observational studies and randomized trials (RCT) on human machine liver