Title:	Characterization of rat liver mitochondrial permeabilty transition pore
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Abstract:	The mitochondrial permeability transition (MPT) is considered to contribute substantially to the regulation of normal mitochondrial metabolism and plays as an important mediator of cell death. MPT is regulated in a tissue specific manner. The importance of this work is highlighted by the fact that knowledge regarding liver MPT may serve as important determinants of the physiological state of the liver. Our results suggest that liver mitochondria exhibit a cyclosporin A sensitive, exogenous calcium mediated full scale MPT opening, indicative of classical MPT. Transmission electron microscopy suggests a homogeneous mitochondrial population. Complex II substrate (succinate) in comparison to complex I substrate (NADH) induces increased MPT opening. Reactive Oxygen Species induces liver mitochondrial MPT opening and is abrogated by ascorbic acid and #-tocopherol. Liver MPT is sensitive to redox modulation. Reducing and oxidizing agents decrease and increase MPT opening respectively. MPT of liver mitochondria show typical pH dependence, acidic and alkaline pH induces MPT closure while, maximal MPT opening and calcium sensitivity was achieved at a pH range of ~7.2-7.4. ATP inhibited, while ADP activated MPT opening. Thus, our study demonstrates that all the major MPT functions in normal liver mitochondria could be determined by simple mitochondrial swelling assay under well-defined conditions, thereby suggesting its application in therapeutic diagnostics.
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