Damage to Subcellular Structures Evoked by Lipid Peroxidation

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The influence of lipid peroxidation (LP) on the rate of disruption of rat liver and kidney subcellular structures was studied under two experimental conditions. Damage to cell organelles was found only when peroxidation process carried out into large granule fraction suspensions. Exogenous thiobarbituric acid positive products were noneffective as membrane labilizers. Age, organ and cell organelle-linked differences in the response towards LP produced damage were observed. Rat liver peroxisomes showed higher stability than those of kidney with respect to injury induced by peroxidation process. In addition, in rat kidney and neonatal rat liver samples the lysosomes were found to be more sensitive than mitochondria to the damaging effect of this process. Thiourea, an inhibitor of diene conjugate formation as well as manitol and ethanol known as hydroxyl radical scavengers were tested as terminators of LP and as membrane protectors. Effectiveness was demonstrated only for thiourea.