Enhancement by Glucose of Low Density Lipoprotein-Oxidation by Peroxynitrite[§]

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Oxidation of low density lipoprotein (LDL) by copper ions is not influenced by glucose in a concentration range between 1 and 20 mM. LDL-oxidation by peroxynitrite or the simultaneous action of nitrogen monoxide and superoxide, produced by morpholino-sydnonimine (SIN-1) is considerably enhanced by typical hydroxyl-radical scavengers such as formate or mannitol and by glucose. Since both free radicals, nitrogen monoxide and superoxide, are produced by activated leukocytes and endothelial cells the presented reaction might represent a simple model for the cooperative function of reactive oxygen species (ROS) and glucose in certain diabetic blood vessel diseases such as atherogenesis and retinopathy.