

Table S2. Functions of the antioxidant proteins identified in the aqueous humor proteomics¹

Protein name	Antioxidative activity	Other functions
Elimination of oxidants		
Serum albumin	Free radical-trapping ²	Regulation of the colloidal osmotic pressure Transportation of zinc, calcium, and magnesium
Glutathione peroxidase	Catalyzation of the reduction of H ₂ O ₂ , lipid peroxides and organic hydroperoxide	
Peroxiredoxin-2	Catalyzation of the reduction of H ₂ O ₂ and organic hydroperoxides Regulation of the intracellular H ₂ O ₂ concentration	
Superoxide dismutase [Cu-Zn]	Catalyzation of the reduction of •O ₂ ⁻	
Peroxiredoxin-6	Catalyzation of the reduction of H ₂ O ₂ and organic hydroperoxides Protection of phospholipid from oxidative damage	
Catalase	Catalyzation of the reduction of H ₂ O ₂	Promotion of cell growth
Extracellular superoxide dismutase [Cu-Zn]	Catalyzation of the reduction of •O ₂ ⁻	
Protein/nucleic acid deglycase DJ-1	Oxidative stress sensor Elimination of H ₂ O ₂ Reduction of copper Interaction with NADPH oxidase	Neuroprotection
Cytochrome c	Inhibition of H ₂ O ₂ production Catalyzation of the reduction of •O ₂ ⁻	Electron carrier Inducement of apoptosis
Protein S100-A9	Oxidant scavenger	Modulation of the inflammatory and immune response
Metal-binding protein		
Serotransferrin	Iron-binding antioxidant capacity ³	Stimulation of cell proliferation
Ceruloplasmin	Iron-binding antioxidant capacity ³ Auxiliary of ascorbic acid	Development of fetal lung
Amyloid beta A4 protein	Reduction of copper Protection of lipoprotein from metal-catalyzed oxidation	Promotion of neuronal growth, adhesion and axonogenesis

Lipoprotein-related antioxidant protein		
Apolipoprotein A-I	Protection of phospholipid from oxidative damage ⁴	Transportation of cholesterol to the liver
Apolipoprotein A-IV	Inhibition of lipoprotein oxidation ⁵	Secretion and catabolism of chylomicrons and VLDL Transportation of cholesterol to the liver
Apolipoprotein D	Protection of lipid from oxidative damage Reduction of hydroperoxyeicosatetraenoic acid ⁶	Transportation and binding of bilirubin
Apolipoprotein E	Protection of cells from beta-amyloid peptides ⁷	Transportation of lipid between organs Production, conversion and clearance of lipoprotein
Auxiliary of other antioxidants		
Selenoprotein P	Auxiliary of selenium	
Glutathione reductase	Reduction of glutathione Catalyzation of the reduction of NADP ⁺	
Glutathione S-transferase	Conjugation of reduced glutathione	Prevention of neurodegeneration
Glutathione synthetase	Synthesis of glutathione	
Others		
Thioredoxin	Catalyzation of the dithiol-disulfide exchange reactions	
Alpha-1-antitrypsin	Inhibition of insulin-induced NO synthesis Protection of lung from smoking injury ⁸	Inhibition of proteases including trypsin, chymotrypsin, plasminogen etc.
Haptoglobin	Protection of cells from hemoglobin-driven oxidative damage ⁹	Recycle of heme iron Antibacterial activity Modulation of the acute phase response

NADPH: Nicotinamide adenine dinucleotide phosphate; NADP⁺: glyoxylate reductase; VLDL: very low-density lipoproteins

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