

Oxidative Stress

All living cells try to maintain a normal reduced environment. When this state is lost due to the production of reactive oxygen species (ROS) like peroxides and free radicals, there is considerable damage to the cell components like proteins, lipids and DNA. These cells are thus under oxidative stress, which disturbs the equilibrium between the products of such ROS and the cells capacity to steadily detoxify these reactive intermediates, and also repair the damage that has been caused to them. These oxidizing species include the more reactive ones like free radicals and peroxides and the less reactive ones like superoxides. The more reactive ones cause permanent cell damage which eventually triggers apoptosis and the greatest levels of stress triggers necrosis. The less reactive superoxides can be converted by oxidoreductases into more aggressive intermediates which cause extensive cell damage. In normal metabolic cells, these ROS are produced at very low levels and the damage caused is instantly repaired. Intense oxidative stress on the other hand results in ATP depletion, necrosis or controlled apoptotic death. The antioxidant enzymes within the cells like catalase, superoxide dismutase (SOD), lactoperoxidases and glutathione peroxidase inhibit the production of such free radicals and thus protect cells in order to maintain the balance.

Oxidative stress is a hallmark of a number of diseases including Alzheimer's disease, Parkinson's disease, Sickle cell disease, heart failure, myocardial infarction, Schizophrenia, fragile X syndrome, diabetes, cancer, cardiovascular disease and chronic fatigue syndrome. These pathological changes in the cells primarily occur due to DNA damage, oxidation of amino acids, proteins, polyunsaturated fatty acids and enzyme cofactors which subsequently causes cell death due to apoptosis or necrosis.

BioVision has a number of kits, antibodies, proteins and antioxidants in this behalf to help researchers study and understand the detailed mechanisms on this front.

Assay Kits

Product Name	Cat. No.	Size
Aconitase Activity Assay Kit	K716	100 assays
Ascorbic Acid Assay Kit	K661	100 assays
Ascorbic Acid Assay Kit II (FRASC)	K671	100 assays
Catalase Activity Assay Kit	K773	100 assays
DNA Damage Quantification Kit	K253	25 assays
Ethanol Assay Kit	K620	100 assays
Glutamate Assay Kit	K629	100 assays
Glutathione (GSH/GSSG/Total) Assay Kit	K264	100 assays
Glutathione Colorimetric Detection Kit	K261	100 assays
Glutathione Fluorometric Detection Kit	K251	100 assays
Glutathione Peroxidase Activity Assay Kit	K762	100 assays
Glutathione Reductase Activity Assay Kit	K761	200 assays
GST Colorimetric Activity Assay Kit	K263	100 assays
GST Fluorometric Activity Assay Kit	K260	100 assays
HAT Activity Assay Kit	K332	100 assays

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Assay Kits

Product Name	Cat. No.	Size
HDAC Colorimetric Activity Assay Kit	K331	100 assays
HDAC Fluorometric Activity Assay Kit	K330	100 assays
HDAC Inhibitor Drug Screening Kit	K340	100 assays
Hydrogen Peroxide Assay Kit	K265	200 assays
Lipid Peroxidation (MDA) Assay Kit	K739	100 assays
Myeloperoxidase (MPO) Colorimetric Activity Assay Kit	K744	100 assays
Myeloperoxidase (MPO) Fluorometric Activity Assay Kit	K745	100 assays
Nitric Oxide Colorimetric Assay Kit	K262	200 assays
Nitric Oxide Fluorometric Assay Kit	K252	2 x 96 assays
SOD Activity Assay Kit	K335	100 assays
Thioredoxin Reductase Activity Assay Kit	K763	100 assays
Total Antioxidant Capacity (TAC) Assay Kit	K274	100 assays
Uric Acid Assay Kit	K608	100 assays
Xanthine Oxidase Activity Assay Kit	K710	100 assays

Antibodies

Product Name	Cat. No.	Size
Catalase Antibody	3806	30 µg, 100 assays
Myeloperoxidase (MPO) Antibody	3831	30 µg, 100 assays
SOD-1 Antibody	3458	30 µg, 100 assays

Antioxidants

Product Name	Cat. No.	Size	CAS Number
(-)-Epigallocatechin gallate	1841	50 mg	989-51-5
Celastrol	1940	5 mg, 25 mg	34157-83-0
Curcumin, Curcuma longa (High Purity)	1850	10 mg, 50 mg	458-37-7
Deferoxamine Mesylate	1883	500 mg, 1 g	138-14-7
Genistein	1533	10 mg, 100 mg	446-72-0
Genistin	1535	10 mg	529-59-9
IPAM	1817	100 mg, 500 mg, 1 g	5814-93-7
Naringenin	1772	250 mg, 1 g	480-41-1
Piperlongumine	1919	10 mg, 50 mg	20069-09-4
Piperlonguminine	1988	10 mg, 50 mg	5950-12-9
Quercetin, Dihydrate	1773	250 mg, 1 g	6151-25-3
Reduced Glutathione (GSH)	1242	1 g	70-18-8
Resveratrol	1758	100 mg, 500 mg	501-36-0
Rosmarinic Acid	1843	50 mg, 250 mg	20283-92-5
Tiliroside	1879	1 mg, 5 mg	20316-62-5

GST Inhibitors

Product Name	Cat. No.	Size	CAS Number
GST Inhibitor-1 (Cibacron Blue 3G-A, Sodium Salt)	1555R	1 g	84166-13-2
GST Inhibitor-2 (Ethacrynic acid)	1556	1 g	58-54-8

GST Inhibitors

Product Name	Cat. No.	Size
Catalase, Human Erythrocytes	4712	1 mg
Glutathione Sepharose	6555	1 ml, 10 ml, 50 ml
Myeloperoxidase, Human Neutrophil	4744	100 µg
Superoxide Dismutase, human recombinant	4802	20 µg, 20 µg, 1 mg

Please visit www.BioVision.com for a comprehensive overview on our products!