

Oxidative & Cellular Stress

Oxidative stress is caused by the presence of any of a number of **reactive oxygen species** (ROS) which the cell is unable to counterbalance. The result is damage to one or more biomolecules including **DNA, RNA, proteins** and **lipids**. Oxidative stress has been implicated in the natural aging process as well as a variety of disease states:

- Neoplastic: Hematological and Solid Tumor
- Metabolic: Obesity and Diabetes
- Neurological: Alzheimer's and Parkinson's diseases



[Select Oxidative Stress Assays by Sample Type](#)

[Antioxidant Assays](#)

[Antioxidant Capacity Assays](#)

[Antioxidant Enzyme Activity Assays](#)

[Ascorbic Acid Assay \(FRASC\)](#)

[Cell Based Exogenous Antioxidant Assay](#)

[Chitosan Assay Kit](#)

[Flavonoid Assay](#)

[Glutathione Assays](#)

[Hydrogen Sulfide Gas Assay](#)

[DNA / RNA Damage and Repair](#)

[8-OHG RNA Damage ELISA](#)

[8-OHdG DNA Damage ELISA](#)

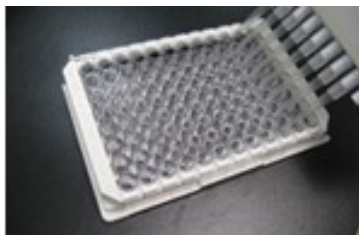
[AP Sites Quantitation Kit](#)

[Comet Assays and Slides](#)

[DNA Double-Strand Break Assay](#)

[Poly \(ADP-Ribose\) ELISA](#)

[UV Induced DNA Damage Assays](#)



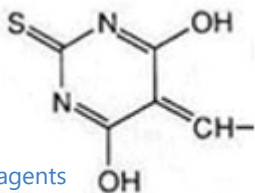
Lipid Peroxidation

[8-iso-Prostaglandin F2a Assay](#)

[HNE \(4-Hydroxynonenal\) Assays and Reagents](#)

[MDA \(Malondialdehyde Assays and Reagents](#)

[Oxidized LDL ELISA Kits](#)



Oxidase/Peroxidase Activity Assays

[Monoamine Oxidase Assays](#)

[Myeloperoxidase Chlorination Activity Assay](#)

[Peroxidase / Hydrogen Peroxide Assays](#)

Protein Oxidation / Nitration

[Advanced Glycation End Products](#)

[Advanced Oxidation Protein Products \(AOPP\) Assay](#)

[Oxidized / Modified Human Lipoproteins](#)

[Protein Carbamylation Assays and Reagents](#)

[Protein Carbonyl Assays and Reagents](#)

[Nitrotyrosine ELISA Kit](#)



Reactive Oxygen Species (ROS) Assays

[Hydrogen Peroxide Assays](#)

[Nitric Oxide Assays](#)

[Universal ROS and RNS Assays](#)

Marker or Type of Damage	Sample Type				
	Cells	Tissues	Blood	Urine	Other
<i>DNA / RNA Damage</i>					
8-Hydroxyguanosine (8-OHG)	X	X	X	X	Cerebrospinal fluid
*8-Hydroxydeoxyguanosine (8-OHdG)	X	X	X	X	
Abasic (AP) sites	X	X			
BPDE DNA Adduct	X	X			
Double-strand DNA breaks	X				
Comet Assay (general DNA damage)	X				
UV DNA Damage (CPD, 6-4PP)	X				
<i>Lipid Peroxidation</i>					
4-Hydroxynonenal (4-HNE)	X	X	X		
8-iso-Prostaglandin F2alpha (8-isoprostane)	X	X	X	X	
Malondialdehyde (MDA)	X	X	X	X	
TBARS	X	X	X	X	
<i>Protein Oxidation / Nitration</i>					
*Protein Carbonyl Content (PCC)	X	X	X		
3-Nitrotyrosine	X	X	X		
Advanced Glycation End Products (AGE)	X	X	X		
Advanced Oxidation Protein Products (AOPP)	X	X	X		
CEL Protein Adducts	X	X	X		
CML Protein Adducts	X	X	X		
Methylglyoxal Adducts	X	X	X		
<i>Reactive Oxygen Species</i>					
Universal ROS / RNS	X	X	X	X	
Hydrogen Peroxide	X	X	X	X	
Nitric Oxide	X	X	X	X	
<i>Antioxidants</i>					
Catalase	X	X	X		
Glutathione	X	X	X	X	
Superoxide Dismutase	X	X	X		
Oxygen Radical Antioxidant Capacity (ORAC)	X	X	X	X	Food samples
Hydroxyl Radical Antioxidant Capacity (HORAC)	X	X	X	X	Food samples

Selection Guide for Oxidative Stress Assays by Sample Type