CREATIVE BIOMART®
Assay Kit

Protein Carbonyl Content Assay Kit (Fluorometric)

Product Information

Cat

Kit-1073

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Description

Protein carbonylation occurs when chronically elevated blood sugar levels create a microenvironment for sugars to covalently react with amino acids forming non-enzymatic adducts. Oxidative stress, the excessive production of ROS, can also give rise to the production of protein carbonyls. Over time, these two processess create Advanced Glycation End-products (AGEs) with proteins. The major functional outcome of protein-reactive AGEs is reduced enzymatic activity. Soluble AGEs can also bind and activate the receptor of advanced glycation end-products (RAGE). Receptor-dependent outcomes lead to tissue dysfunction, oxidative stress, and activation of monocytes, endothelial cells and mesangial cells. In Alzheimer's Disease (AD) protein carbonyls are a marker of oxidative stress in the brain and are elevated in serum and plasma proportional to the cognitive severity. Protein Carbonyl Content Assay Kit uses Fluoroscein-5-Thiosemicarbazide (FTC), a fluorescent probe which covalently reacts with oxidized residues (i.e Cysteine, Lysine, Arginine, Histidine and Aspartic Acid) on proteins. The protein carbonyl content is determined by the generation of a stable fluorometric signal (Ex/Em 485/535 nm) and comparedto the protein concentration determined in the BCA Assay to quantitate nmoles of carbonyl/mg protein. The kit is simple, requires no harsh chemicals, can quantitate carbonyls in serum or plasma and produces more reliable and reproducible results than the comparable colorimetric assays. It can detect carbonyl groups in samples with protein concentrations as low as 1 mg/ml!

Applications

Quantification of carbonyl content as a putative biomarker for research in disease areas such as diabetes, multiple sclerosis, and Alzheimer's diseas.

Storage

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-20°C
Shipping
Gel Pack
Size
100 assays
Kit Components
Protein Carbonyl Assay Buffer; 100% TCA Solution; 10% Streptozocin Solution; 6 M Guanidine Solution; Sample Dilution Buffer; FTC (10 mM in DMSO); Positive Control Protein (10 mg/ml)
Target Species
Mammalian
Detection method Fluorometric (Ex/Em 485/535 nm)
Features & Benefits
Simple procedure; validated with human serum samples containing pmol of carbonylated protein

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