MG-BSA

CATALOG NUMBER: STA-306 **STORAGE:** -20ºC

QUANTITY AND CONCENTRATION: 100 µL of 1.0 mg/mL MG-BSA in 1X PBS.

SHELF LIFE: 1 year from date of receipt under proper storage conditions; aliquot to avoid multiple freeze thaw cycles

Background

The non-enzymatic reaction of reducing carbohydrates with lysine side chains and N-terminal amino groups of macromolecules (proteins, phospholipids and nucleic acids) is called the Maillard reaction or glycation. The products of this process, termed advanced glycation end products (AGEs), adversely affect the functional properties of proteins, lipids and DNA. Tissue levels of AGE increase with age and the formation of AGEs is predominantly endogenous, though these products can also be derived from exogenous sources such as food and tobacco smoke. AGE modification of proteins can contribute to the pathophysiology of aging and long-term complications of diabetes, atherosclerosis and renal failure. AGEs also interact with a variety of cell-surface AGE-binding receptors (RAGE), leading either to their endocytosis and degradation or to cellular activation and pro-oxidant or pro-inflammatory events.

Several AGE structures have been reported, such as N^{ε}-(carboxymethyl) lysine (CML), N^{ε}-(carboxyethyl) lysine (CEL), pentosidine, and Methylglyoxal (MG) derivatives. MG is formed through non-oxidative mechanisms from triose phosphates during anaerobic glycolysis and it can modify amino acids, nucleic acids, and proteins. MG reacts with arginine, lysine and cysteine residues of proteins to form AGEs. MG is involved in various pathological processes. For example, MG derivatives are found elevated in diabetes.

MG-BSA was prepared by reacting BSA with methylglyoxal, and followed by extensive dialysis.

Methods

Dilute the MG-BSA with SDS-PAGE reducing sample buffer to 1.0-10 µg/mL and boil for 5 minutes. Load 10 µL per lane for western blot analysis of MG protein adducts.

References

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