



ALBUMIN, NITRATED

from bovine serum

Product Number **N 8159**

Product Description

Albumin, Nitrated (Nitrated BSA), is prepared by chemical modification of bovine serum albumin (BSA) by peroxy-nitrite.

Albumin, Nitrated may be used as a positive control in immunoblotting (68 kDa) using Anti-Nitrotyrosine (Product No. N 0409) as the detecting antibody.

Peroxy-nitrite (ONOO^-), a potent oxidant linked to cellular oxidative damage, is an important member of the family of reactive oxygen and nitrogen species, rapidly generated *in vivo* from nitric oxide ($\text{NO}\cdot$) and superoxide anion ($\text{O}_2^{\cdot-}$).^{1,2} The production of peroxy-nitrite *in vivo* has been demonstrated in the macrophage immune response and under conditions of oxidative stress such as ischemia-reperfusion.^{3,4}

Peroxy-nitrite can react with a wide range of biological molecules, including proteins, lipids and nucleic acids. It promotes the nitration of tyrosine residues in proteins,⁵ oxidation of redox metal centers,⁶ DNA,⁷ lipids,⁸ and nitrosation of cysteine residues in proteins, suggesting that peroxy-nitrite plays a major role in oxidative cellular damage. Peroxy-nitrite has been implicated in the pathogenesis of several inflammatory, infectious, and degenerative human disease.^{9,10} These include neurological conditions such as Alzheimer's disease, amyotrophic lateral sclerosis (ALS), the pathogenesis of asthma, atherosclerosis, and a variety of conditions precipitated by endothelial injury.¹¹⁻¹⁴

In light of its highly reactive nature, evidence for a role of peroxy-nitrite *in vivo* is largely based on the detection of 3-nitrotyrosine, the major product of peroxy-nitrite reaction, in injured tissues.^{9,12, 14}

Peroxy-nitrite reacts with superoxide dismutase (SOD) or transition metals to form nitronium-like reactive species, which then nitrates tyrosine to form 3-nitrotyrosine in tissue proteins.⁵ Nitration of active-site tyrosines is known to compromise protein structure and function.¹⁵ Nitration of tyrosine has been shown to block tyrosine phosphorylation, a key event in signal transduction cascades, suggesting a role for peroxy-nitrite as a signaling molecule.¹⁶

Product Information

Reagent

Allbumin, Nitrated is supplied as lyophilized protein at a minimum of 0.1 mg/vial. The product is lyophilized from 0.01 M phosphate buffered saline, pH 7.4. It does not contain a preservative.

Storage/Stability

Store at $-20\text{ }^\circ\text{C}$. After reconstitution of lyophilized material, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

For immunoblotting: use 1 μg /lane of the product and a 1:1,000 working dilution of Anti-Nitrotyrosine (Product No. N 0409).

References

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