PRODUCT INFORMATION

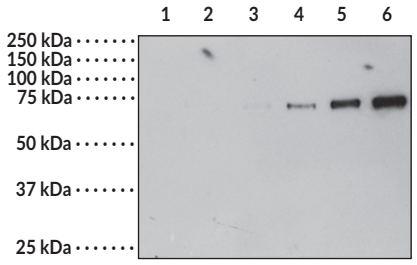
Nitrotyrosine Monoclonal Antibody (Clone CC.22.8C7.3)

Item No. 189542

Overview and Properties

Contents:	This vial contains 50 µg or 200 µg of protein G-purified IgG.
Synonym:	3-Nitrotyrosine, NT
Immunogen:	Peroxynitrite-treated KLH
Cross Reactivity:	(+) Chlorotyrosine (weakly)
Species Reactivity:	Species Independent
Form:	Liquid
Storage:	-20°C (as supplied)
Storage Buffer:	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Stability:	≥3 years
Clone:	CC.22.8C7.3
Host:	Mouse
Isotype:	IgG2b
Applications:	ELISA and Western blot (WB); the recommended starting concentration for ELISA is 2 µg - 15 ng/ml and 2 µg/ml for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



Lane 1: BSA (1 µg)
Lane 2: Nitrotyrosine BSA (0.01 µg)
Lane 3: Nitrotyrosine BSA (0.025 µg)
Lane 4: Nitrotyrosine BSA (0.05 µg)
Lane 5: Nitrotyrosine BSA (0.1 µg)
Lane 6: Nitrotyrosine BSA (0.2 µg)

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Description

Nitrotyrosine is a post-translational modification that is formed by the nitration of tyrosine.[1] Under conditions of oxidative stress, tyrosine is oxidized by reactive oxygen species (ROS) or, in the presence of hydrogen peroxide and nitrite, by myeloperoxidase (MPO) to yield a tyrosine radical that reacts with reactive nitrogen species (RNS), such as nitric oxide or peroxynitrite, to form nitrotyrosine. It exists in a free or protein-bound form and is commonly used as a marker of nitrosative or oxidative stress.[2] Nitrotyrosine residues have been found in a variety of proteins, including LDL, surfactant protein A, angiotensin II, and human and bovine serum albumin.[3] Free nitrotyrosine production induced by peroxynitrite is inhibited by the polyphenols epicatechin gallate, gallic acid, catechin, or epicatechin in cell-free assays, as well as in aortic rings isolated from normotensive and spontaneously hypertensive rats administered the antioxidant N-acetyl-cysteine (NAC; Item No. 20261).[4,5] Nitrotyrosine levels are increased in the affected tissues of numerous pathological conditions, including atherosclerosis, cancer, ulcerative colitis, Alzheimer's disease, and Parkinson's disease.[3] Autoantibodies that recognize nitrotyrosinated proteins are increased in the synovium of patients with rheumatoid arthritis and are positively correlated with joint and tendon inflammation.[1] Cayman's Nitrotyrosine Monoclonal Antibody (Clone CC.22.8C7.3) can be used for ELISA and Western blot (WB) applications.

References

1. Smallwood, M.J., Nissim, A., Knight, A.R., *et al.* Oxidative stress in autoimmune rheumatic diseases. *Free Radic. Biol. Med.* **125**, 3-14 (2018).
2. Teixeira, D., Fernandes, R., Prudêncio, C., *et al.* 3-Nitrotyrosine quantification methods: Current concepts and future challenges. *Biochimie* **125**, 1-11 (2016).
3. Oldreive, C. and Rice-Evans, C. The mechanisms for nitration and nitrotyrosine formation *in vitro* and *in vivo*: Impact of diet. *Free Radic. Res.* **35(3)**, 215-231 (2001).
4. Pannala, A.S., Rice-Evans, C.A., Halliwell, B., *et al.* Inhibition of peroxynitrite-mediated tyrosine nitration by catechin polyphenols. *Biochem. Biophys. Res. Commun.* **232(1)**, 164-168 (1997).
5. Cabassi, A., Dumont, E.C., Girouard, H., *et al.* Effects of chronic *N*-acetylcysteine treatment on the actions of peroxynitrite on aortic vascular reactivity in hypertensive rats. *J. Hypertens.* **19(7)**, 1233-1244 (2001).

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