

## Nitro tyrosine mAb (Clone 6B2) antibody

### Quality Control Certificate of Analysis

Catalogue No.: A010-6B2AP

Unit Size: 20 µl

Lot No: 1211-02

**Background:** A large number of physiological and pathological events lead to so called stress conditions to which the organism can adapt within certain limits by regulating the activity of a series of enzymatic cascades. Most stress responses are characterized by an increased generation of "free radicals" which encompass both reactive oxygen (ROS) and nitrogen species (RNS). Most of these species react with macromolecules of the organism, i.e. amino acids, proteins, lipids and DNA, leading to functional alterations which can either participate to adaptation or lead to cell death. Oxidative stress however, has different functional consequences depending not only upon its intensity and duration, but also upon the nature of the free radicals, ROS or RNS, generated. Interestingly, the nature of these reactive species depends on the ratio between the initially produced ROS, superoxide anion (O<sub>2</sub><sup>-</sup>), and nitric oxide (NO). Indeed, O<sub>2</sub><sup>-</sup> very rapidly reacts with NO and therefore, as long as the NO/O<sub>2</sub><sup>-</sup> ratio is = 1, O<sub>2</sub><sup>-</sup> will therefore preferentially react with NO rather than with macromolecules, thus generating reactive nitrogen species (RNS): nitrosonium (NO<sup>+</sup>), N<sub>2</sub>O<sub>3</sub> and peroxynitrite (ONOO<sup>-</sup>). These RNS induce posttranslational modifications: for NO<sup>+</sup> and N<sub>2</sub>O<sub>3</sub>, S-nitrosation (Cys-SNO) and for ONOO<sup>-</sup> tyrosine nitration (Tyr-NO<sub>2</sub>), methionine sulfoxidation (Met-SOH) and thiol oxidation (RS-S-R). When the O<sub>2</sub><sup>-</sup>/NO ratio becomes > 1, the O<sub>2</sub><sup>-</sup> and NO<sub>2</sub> ions and thereafter the OH<sup>•</sup> radicals cause irreversible oxidations and peroxidations of macromolecules which generally lead to cell death(1-4). The monoclonal antibodies have been selected for their high affinity and specificity towards Tyr-NO<sub>2</sub> residues. They do not cross-react with Tyr or Tyr derivatives such as aminotyrosine, chlorotyrosine or phosphotyrosine, neither with nitroTrp which can also be generated in response to peroxynitrite. They also recognize Tyr-NO<sub>2</sub> residues in various sequences as shown by their ability to recognize nitrated proteins including albumin, ovalbumin, insulin, hemoglobin, KLH and various cytoplasmic and mitochondrial proteins.

**Description:** Lyophilised **Mouse** monoclonal affinity purified antibody (A010-6B2AP) containing IgG1 antibody specific for Nitrotyrosine

**Vial Constituents:** Lyophilised A010-6B2 (20 µl) in Phosphate Buffered Saline 10 mM, NaCl 0.15 M (pH 7.4) Thimerosal 0,01% may be used as preservative

**Immunogen:** Protein-bound nitrotyrosine

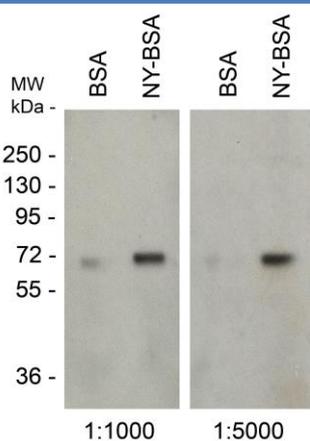
**Storage Instructions:** Lyophilised antibody is stable at 4 °C when stored with desiccant. Reconstitute lyophilised powder in 20 µl of 18 MΩ H<sub>2</sub>O, aliquot and store frozen at -80 °C for 1 year. Avoid freeze - thaw cycles.

**Antibody Isotype:** IgG1.

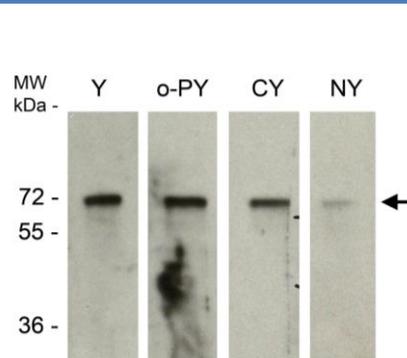
**Antibody Purity:** Protein A affinity purified.

**Tested Applications:** WB 1:5000

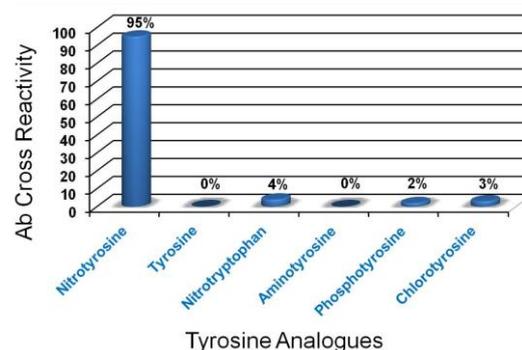
**Antibody specificity / Cross Reactivity:** Nitrotyrosine either free or incorporated in proteins such as human serum nitro albumin, nitro haemoglobin and nitro insulin. All species



**Figure 1**



**Figure 2**



**Figure 3**

**Figure 1:** Western Blot using 1:1000 and 1:5000 Nitrotyrosine Clone 6B2 mouse monoclonal Ab (A010-6B2AP) against 10µg of BSA and NY-BSA. 10% gel, PVDF membrane. **Figure 2:** Western Blot using 1:5000 Clone 6B2 (A010-6B2AP) Ab against 10µg of NY-BSA + 100 µg/ml Tyrosine (Y), O-Phospho-L-Tyrosine (o-PY), 3-Chloro-L-Tyrosin (CY) and Nitrotyrosine (NY). 10% gel, PVDF membrane, 10 second film exposure. NY largely blocked Ab staining, CY caused some inhibition whereas Y and o-PY had no effect. Figure 3: The cross reactivity of Tyrosine analogues with 6B2 Ab determined by competitive ELISA.

**Related Products:** Anti-Nitro Tyrosine Clone 2E11 (A010-2E11AP)

#### Background references:

- García-Heredia, J. M., Díaz-Moreno, I., Nieto, P. M., Orzáez, M., Kocanis, S., Teixeira, M., Pérez-Payá, E., Díaz-Quintana, A., and De la Rosa, M. A. (2010) *Biochim Biophys Acta* 1797, 981-993
- Csibi, A., Communi, D., Müller, N., and Bottari, S. P. (2010) *PLoS One* 5, e10070