custom antibodies & services

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TECHNICAL DATASHEET

Monoclonal Anti-**Nitrotyrosine** Clone **6B2** Ref # BIO.000.2

Product description

Description	Monoclonal antibody to nitrotyrosine protein	
Host species	Mouse	
Tested applications	ELISA, IP, WB	
Cross reactivity	Determined by competitive ELISA	
	Nitrotyrosine:	95 % of inhibition
	Tyrosine:	0 % of inhibition
	Nitrotryptophan:	4 % of inhibition
	Aminotyrosine:	0 % of inhibition
	Phosphotyrosine:	2 % of inhibition
	Chlorotyrosine:	3 % of inhibition
Specificity	Antibody specific of nitrotyrosine either free or incorporated in proteins such as human serum nitro albumin, nitro haemoglobin and nitro insulin Reactivity against all species	
Epitope	Protein-bound nitrotyrosine	

Target exploration

Overview:

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. aminoacids, 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 ($O_2^{\cdot-}$), and nitric oxide (NO). Indeed, $O_2^{\cdot-}$ very rapidly reacts with NO and therefore, as long as the NO/ $O_2^{\cdot-}$ ratio is ≥ 1, $O_2^{\cdot-}$ will therefore preferentially react with NO rather than with macromolecules, thus generating reactive nitrogen species (RNS): nitrosonium (NO^+), N_2O_3 and peroxinitrite ($ONOO^-$).

These RNS induce posttranslational modifications: for NO^+ and N_2O_3, S-nitrosation (Cys-SNO) and for $ONOO^-$, tyrosine nitration (Tyr-NO_2), methionine sulfoxidation (Met-SOH) and thiol oxidation (RS- S-R). When the $O_2^{\cdot-}$/NO ratio becomes > 1, the $O_2^{\cdot-}$ and NO.2 ions and thereafter the OH. 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_2 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-NO2 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.

Properties

Format	Liquid - 1mg/ml
Storage instructions	Store at +4ºC short term (1-2 weeks). Aliquot and store at -20ºC or -80ºC. Avoid repeated freeze / thaw cycles
Storage buffer	Phosphate Buffered Saline 10 mM – NaCl 0.15 M– pH 7.4 – Thimerosal 0,01% may be used as preservative
Purity	Purified by Affinity chromatography on Protein A
Isotype	IgG1
Restrictions	For research use only

Applications

WB	1/10,000
IP	1/1,000
ELISA	1/10,000 to 1/500,000

Optimal dilutions/concentrations should be determined by the end user

Publications

- García-Heredia JM et al. - Nitration of tyrosine 74 prevents human cytochrome c to play a key role in apoptosis signaling by blocking caspase-9 activation – Biochimica et Biophysica Acta, 1797: 981-993 (2010)

- Csibi A et al. - Angiotensin II Inhibits Insulin-Stimulated GLUT4 Translocation and Akt Activation through Tyrosine Nitration-Dependent Mechanisms – PLoS One. 2010 Apr 7;5(4):e10070