Antibodies

Data Sheet

DITYROSINE (DT)

ANTIBODY, MONOCLONAL

Catalog no.:	AA1004.1
Immunogen:	3-(p-hydroxyphenyl) propionic acid dimer KLH-conjugated
Host:	Mouse
Clone no.:	1C3
Isotype:	$IgG_{2a(kappa)}$
Matrix:	Protein A purified, 10mM PBS (pH 7.4)
Specificity:	Specific for free dityrosine, 3-(p-hydroxyphenyl) propionic acid dimer, dityrosine-BSA conjugate, and dityrosine in proteins or peptides. There was no cross reactivity detected for the following compounds: tyrosine, 3-nitrotyrosine, 3-chlorotyrosine, aminotyrosine, phosphotyrosine, 3-(p-hydroxyphenyl) propionic acid, phenylalanine, 3,4-dihydroxyphenylacetic acid (DOPA)
Contents:	20 µg (lyophilized) Resuspend in 200 µl aqua bidest. for 100 µg/ml
Known applications:	ELISA[1, 2], Western Blot (4 µg/ml)[3, 5], immunohistochemistry (paraffin sections, 1µg/ml)[4, 6]

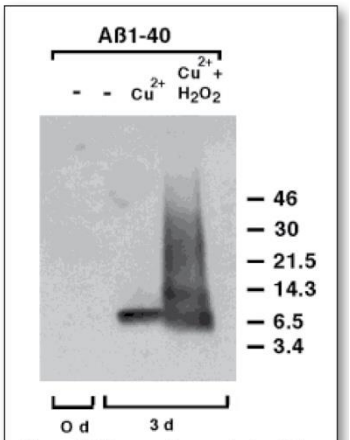

Figure 1: Western Blot analysis of dityrosine-cross-linked human Amyloid-β. 200 ng of Aβ1-40 peptides before and after Cu(II)-oxidation were separated by SDS-PAGE and immunoblotted with AA1004. AA1004 detects dimeric and trimeric Aβ1-40 species formed by oxidation.

Atwood CS et al. (2004) Biochemistry 43: 560-568

This antibody has not been tested for use in all applications. This does not necessarily exclude its use in non-tested procedures. The stated dilutions are recommendations only. End users should determine optimal dilutions in their system using appropriate negative/positive controls.

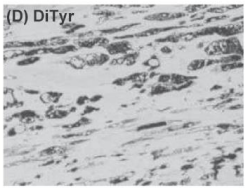

Figure 2: Immunohistochemistry image of dityrosine staining in paraffin section of human atherosclerotic lesion. The section was activated in Vector Antigen Unmasking Solution at 121°C for 10 min prior to blocking. The section was incubated with AA1004, followed by staining with avidin-biotin complex method using the Vectastain ABC-AP and Vector Alkaline Phosphatase Substrate Kit II (all Vector Laboratories, Burlingame, CA, USA). Section was counterstained with hematoxylin. AA1004 detects dityrosine in macrophage cells. Original magnification: x20.

Shiba Y et al. (2008) Chem Res Toxicol 21:1600-1609

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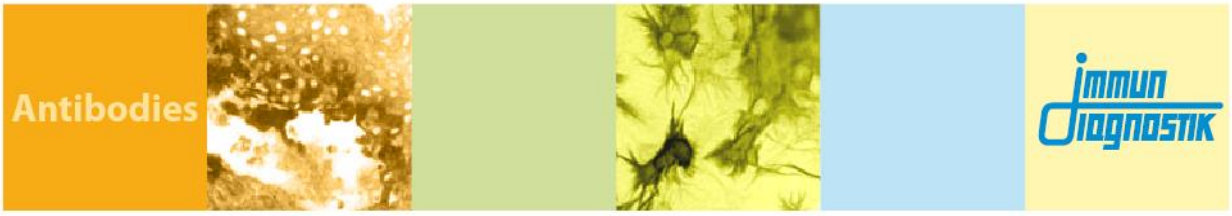

Store at: - 20 °C

Repeated thawing and freezing must be avoided.

References:

1. Kato Y, Wu X, Naito M, Nomura H, Kitamoto N, Osawa T (2000). Immunochemical detection of protein dityrosine in atherosclerotic lesion of apo-E-deficient mice using a novel monoclonal antibody. *Biochem Biophys Res Commun*. **275** (1), p11-15.

2. Kato Y, Kitamoto N, Kawai Y, Osawa T (2001). The hydrogen peroxide/copper ion system, but not other metal-catalyzed oxidation systems, produces protein-bound dityrosine. *Free Radical Biology and Medicine* **31**(5)**:** 624-632.

3. Atwood CS, Perry G, Zeng H, Kato Y, Jones WD, Ling KQ, Huang X, Moir RD, Wang D, Sayre LM, Smith MA, Chen SG, Bush AI (2004). Copper mediates dityrosine cross-linking of Alzheimer's amyloid-beta. *Biochemistry* **43**(2)**:** 560-568.

4. Shiba Y, Kinoshita T, Chuman H, Taketani Y, Takeda E, Kato Y, Naito M, Kawabata K, Ishisaka A, Terao J, Kawai Y (2008). Flavonoids as Substrates and Inhibitors of Myeloperoxidase: Molecular Actions of Aglycone and Metabolites. *Chemical Research in Toxicology* **21**(8)**:** 1600-1609.

5. Suderman RJ, Dittmer NT, Kramer KJ, Kanost MR (2010). Model reactions for insect cuticle sclerotization: participation of amino groups in the cross-linking of Manduca sexta cuticle protein MsCP36. *Insect Biochem Mol Biol* **40**(3)**:** 252-258.

6. Kimoto Y, Sugiyama A, Nishinohara M, Asano A, Masuda A, Ochi T, Takeuchi T (2011). Expressions of protein oxidation markers, dityrosine and advanced oxidation protein products in Cisplatin-induced nephrotoxicity in rats. *J Vet Med Sci* **73**(3)**:** 403-407.

Last updated on: 11 November 2021

For research use only

Publishing research using AA1004? Please let us know so that we can cite your publication as a reference.

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