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Datasheet for 200-301-A99

8-Hydroxy Guanine Antibody

Overview

Description:	Anti-8-Hydroxy Guanine (MOUSE) Monoclonal Antibody - 200-301-A99
Item No.:	200-301-A99
Size:	100 µg
Applications:	IHC, IF, IP, WB
Reactivity:	Human, Mouse, Rat
Host Species:	Mouse

Product Details

Background:	DNA or RNA damage is due to environmental factors and normal metabolic processes inside the cell, that then hinder the ability of the cell to carry out its functions. There are four main types of DNA damage due to endogenous cellular processes: oxidation, alkylation, hydrolysis and mismatch of the bases. During the oxidation of bases, highly reactive chemical entities collectively known as RONS may develop. RONS stands for reactive oxygen and nitrogen species and includes nitric oxide, superoxide, hydroxyl radical, hydrogen peroxide and peroxynitrite. Numerous studies have shown that RONS cause a variety of other issues in addition to DNA damage. 8-hydroxyguanine, 8-hydroxy-2'-deoxyguanosine and 8-hydroxyguanosine are all RNA and DNA markers of oxidative damage. 8-hydroxy-2'-guanosine is produced by reactive oxygen and nitrogen species including hydroxyl radical and peroxynitrite. Specifically its high biological relevance is due to its ability to induce G to T transversions, which is one of the most frequent somatic mutations (2). 8-hydroxy-guanine has been the most frequently studied type of DNA base damage, with studies in diabetes, and cancer. Base modifications of this type arise from radical-induced hydroxylation and cleavage reactions of the purine ring. Finally, 8-hydroxy-guanosine, like 8-hydroxy-2'-guanosine, induces a mutagenic transversion of G to T in DNA. Its role has been tested specifically in the development of diabetes, hypertension and strokes.
Synonyms:	8 hydroxy 2' deoxyguanosine antibody, 8 hydroxyguanine antibody, 8 hydroxyguanosine antibody, 8 OHG antibody, 8-OHG antibody, 8OG antibody, 8OHdG antibody, 8OHG antibody, 8-Hydroxy Guanine Antibody, 8-OH-dG Antibody, DNA/RNA Damage Antibody
Host Species:	Mouse
Clonality:	Monoclonal
Clone ID:	15A3
Format:	IgG2b

Target Details

Reactivity:	Human, Mouse, Rat
Immunogen Type:	Native Protein
Immunogen:	This Protein G purified monoclonal antibody was prepared using conventional hybridoma technology after repeated immunizations with 8-hydroxy-guanosine-BSA and casein conjugates.
Purity/Specificity:	This Protein G purified Anti-8-Hydroxy Guanine monoclonal antibody recognizes markers of oxidative damage to DNA (8-hydroxy-2'-deoxyguanosine, 8-hydroxyguanine and 8-hydroxyguanosine).

Application Details

Tested Applications:	IHC
Suggested Applications:	IF, IP, WB (Based on references)
Application Note:	This Protein G purified antibody has been tested for use in immunohistochemistry, ICC/IF, Dot Blot, IP, Flow Cytometry, and ELISA. Specific conditions for reactivity should be optimized by the end user.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	User Optimized
FC:	User Optimized
IF:	User Optimized
IHC:	1:1000
IP:	User Optimized

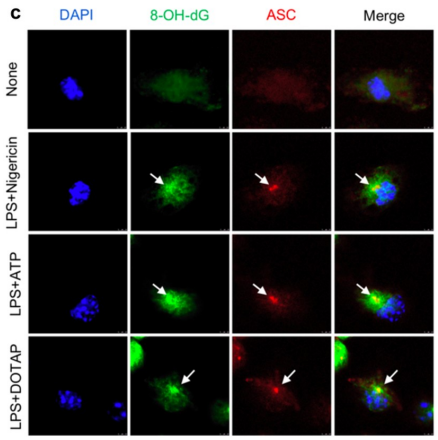
Formulation

Physical State:	Liquid (sterile filtered)
Concentration:	1.0 mg/mL by UV absorbance at 280 nm
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Preservative:	0.09% (w/v) Sodium Azide
Stabilizer:	50% (v/v) Glycerol

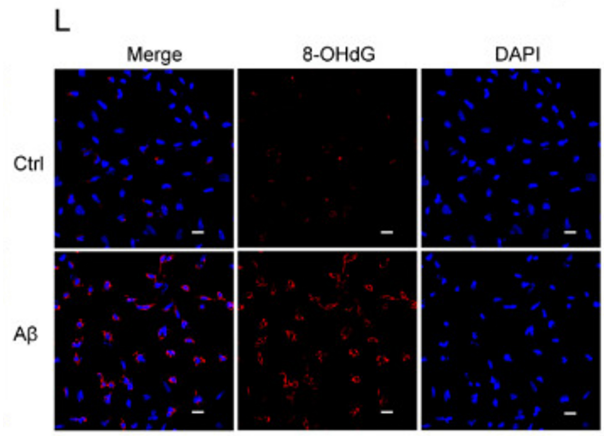
Shipping & Handling

Shipping Condition:	Dry Ice
Storage Condition:	Store Anti-8-Hydroxy Guanine antibody at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.
Expiration:	Expiration date is one (1) year from date of receipt.

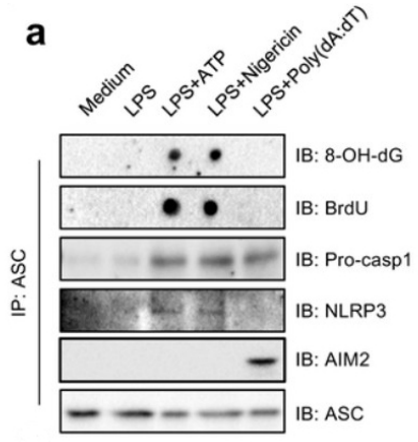
Images



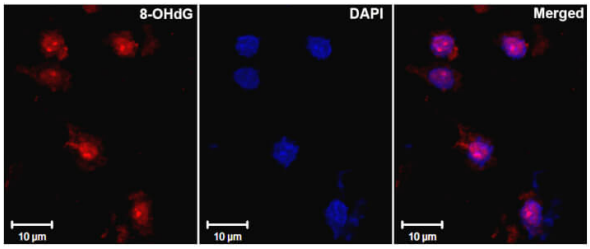
Immunofluorescence Microscopy
C) Representative fluorescent microscopy images of wild-type BMDMs that were co-stained for 8-OH-dG, ASC and DAPI before and after stimulation with LPS plus the indicated inflammasome activators. Results are typical of three independent experiments. Scale bars, 5 µm.
Extended Data Fig. 2
PMID: 30046112



Immunofluorescence Microscopy
(L) Representative images of 8-OHDG staining in 3L NSC treated with Aβ (5 µM) at 72 h. The pictures were obtained via Olympus FV3000. Scale bar, 20 µm. The data were presented as mean ± SEM, n ≥ 3 independent experiments, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, analyzed using unpaired Student's t-test (two-tailed). Fig 2. PMID: 38397428



Western Blot
A) Inflammasomes from BMDMs after indicated treatments were immunoprecipitated with ASC antibodies. The immunocomplexes were spotted on a nitrocellulose membrane, UV-crosslinked and probed with antibodies to 8-OH-dG and BrdU, or separated by SDS-PAGE and immunoblotted with antibodies to pro-Casp1, NLRP3, AIM2 and ASC. Data are representative of three independent experiments. Fig 5. PMID: 30046112



Immunofluorescence Microscopy
Immunofluorescence of mouse monoclonal anti-8-hydroxy-guanine antibody.
Tissue: Ischemic rat brain.
Fixation: formalin fixed paraffin embedded.
Antigen retrieval: not required.
Primary antibody: 8 hydroxy guanine antibody.
Localization: nuclear.
Staining: antibody as red signal with a DAPI blue nuclear counterstain.

References

- Li R et al. Alzheimer's Amyloid-β Accelerates Cell Senescence and Suppresses SIRT1 in Human Neural Stem Cells. *Biomolecules.* (2024)
- Peng J et al. Idebenone attenuates cerebral inflammatory injury in ischemia and reperfusion via dampening NLRP3 inflammasome activity. *Mol Immunol.* (2020)
- Zhong, Z et al. New mitochondrial DNA synthesis enables NLRP3 inflammasome activation. *Nature* (2018)
- Jabir et al. Mitochondrial damage contributes to Pseudomonas aeruginosa activation of the inflammasome and is downregulated by autophagy. *Autophagy* (2015)
- Shimada K et al. Oxidized mitochondrial DNA activates the NLRP3 inflammasome during apoptosis. *Immunity* (2012)

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