

OGG1/2 (G-5): sc-376935



The Power to Question

BACKGROUND

8-oxoguanine (8-oxoG), an oxidized form of guanine, is produced by reactive oxygen species in both DNA and nucleotide pools during normal aging. Accumulation of 8-oxoG increases the occurrence of A:T to C:G or G:C to T:A transversion mutations, because 8-oxoG forms a stable basepair with adenine as well as with cytosine. OGG1 (for 8-oxoG DNA glycosylase), also designated MMH, is a DNA repair enzyme that corrects these mutations. Inactivation of the OGG1 gene leads to a mutator phenotype, characterized by the increase in G:C to T:A transversions. The OGG1 gene encodes eight isoforms (OGG1A-C, OGG2A-E) which result from alternative splicing of a single messenger RNA. The OGG1A splice variant is the most prevalent form and localizes to the nucleus, whereas the OGG2A splice variant is targeted to the mitochondria.

CHROMOSOMAL LOCATION

Genetic locus: OGG1 (human) mapping to 3p25.3; Ogg1 (mouse) mapping to 6 E3.

SOURCE

OGG1/2 (G-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 13-49 near the N-terminus of OGG1/2 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

OGG1/2 (G-5) is available conjugated to agarose (sc-376935 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376935 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376935 PE), fluorescein (sc-376935 FITC), Alexa Fluor® 488 (sc-376935 AF488), Alexa Fluor® 546 (sc-376935 AF546), Alexa Fluor® 594 (sc-376935 AF594) or Alexa Fluor® 647 (sc-376935 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376935 AF680) or Alexa Fluor® 790 (sc-376935 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376935 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

OGG1/2 (G-5) is recommended for detection of OGG1 and OGG2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for OGG1/2 siRNA (h): sc-43983, OGG1/2 shRNA Plasmid (h): sc-43983-SH and OGG1/2 shRNA (h) Lentiviral Particles: sc-43983-V.

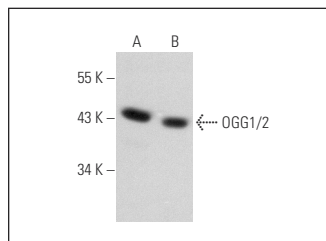
Molecular Weight of OGG-1/OGG-2: 39/47 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

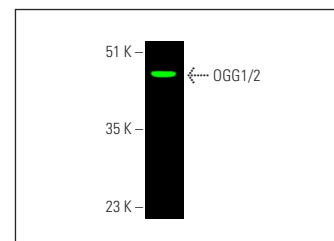
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



OGG1/2 (G-5): sc-376935. Western blot analysis of OGG1/2 expression in HeLa (A) and Jurkat (B) whole cell lysates.



OGG1/2 (G-5): sc-376935. Near-infrared western blot analysis of OGG1/2 expression in Jurkat whole cell lysate. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.

SELECT PRODUCT CITATIONS

1. Yasukawa, T., et al. 2015. *Drosophila* OGG1 is required to suppress 8-oxo-guanine accumulation following oxidative stress. *Genes Genet. Syst.* 90: 11-20.
2. Zhou, X., et al. 2016. OGG1 is essential in oxidative stress induced DNA demethylation. *Cell. Signal.* 28: 1163-1171.
3. Ganapathy, V., et al. 2017. Electronic cigarette aerosols suppress cellular antioxidant defenses and induce significant oxidative DNA damage. *PLoS ONE* 12: e0177780.
4. Zhou, X., et al. 2018. OGG1 regulates the level of symmetric dimethylation of Histone H4 arginine-3 by interacting with PRMT5. *Mol. Cell. Probes* 38: 19-24.
5. Fan, Y.G., et al. 2019. Paricalcitol accelerates BACE1 lysosomal degradation and inhibits calpain-1 dependent neuronal loss in APP/PS1 transgenic mice. *EBioMedicine* 45: 393-407.
6. Pao, P.C., et al. 2020. HDAC1 modulates OGG1-initiated oxidative DNA damage repair in the aging brain and Alzheimer's disease. *Nat. Commun.* 11: 2484.
7. de Assis, A.L.E.M., et al. 2021. Chlorine, chromium, proteins of oxidative stress and DNA repair pathways are related to prognosis in oral cancer. *Sci. Rep.* 11: 22314.
8. Liu, X., et al. 2022. Co-exposure of polystyrene microplastics and iron aggravates cognitive decline in aging mice via ferroptosis induction. *Ecotoxicol. Environ. Saf.* 233: 113342.
9. Xian, H., et al. 2022. Oxidized DNA fragments exit mitochondria via mPTP- and VDAC-dependent channels to activate NLRP3 inflammasome and interferon signaling. *Immunity* 55: 1370-1385.e8.

RESEARCH USE

For research use only, not for use in diagnostic procedures.