

# OGG1/2 (G-20): sc-12076

## 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 mutation, respectively, 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 GC to TA transversions. The OGG1 gene encodes 8 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 mitochondrion.

## REFERENCES

- Shibutani, S., et al. 1991. Insertion of specific bases during DNA synthesis past the oxidation-damaged base 8-oxodG. *Nature* 349: 431-434.
- Cheng, K.C., et al. 1992. 8-hydroxyguanine, an abundant form of oxidative DNA damage, causes GT and AC substitutions. *J. Biol. Chem.* 267: 166-172.
- Ames, B.N., et al. 1993. Oxidants, antioxidants, and the degenerative diseases of aging. *Proc. Natl. Acad. Sci. USA* 90: 7915-7922.
- Hayakawa, M., et al. 1993. Age-associated damage in mitochondrial DNA in human hearts. *Mol. Cell. Biochem.* 119: 95-103.
- Nishioka, K., et al. 1999. Expression and differential intracellular localization of two major forms of human 8-oxoguanine DNA glycosylase encoded by alternatively spliced OGG1 mRNAs. *Mol. Biol. Cell* 10: 1637-1652.
- Boiteux, S., et al. 2000. The human OGG1 gene: structure, functions, and its implication in the process of carcinogenesis. *Arch. Biochem. Biophys.* 377: 1-8.
- Minowa, O., et al. 2000. Mmh/Ogg1 gene inactivation results in accumulation of 8-hydroxyguanine in mice. *Proc. Natl. Acad. Sci. USA* 97: 4156-4161.

## CHROMOSOMAL LOCATION

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

## SOURCE

OGG1/2 (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of OGG1/2 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-12076 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

OGG1/2 (G-20) is recommended for detection of OGG1 and OGG2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

OGG1/2 (G-20) is also recommended for detection of OGG1 and OGG2 in additional species, including bovine and porcine.

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: 38 kDa.

Molecular Weight of OGG-2: 36 kDa.

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

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

- Dezor, M., et al. 2011. Expression of 8-oxoguanine DNA glycosylase 1 (OGG1) and the level of p53 and TNF-α proteins in peripheral lymphocytes of patients with Alzheimer's disease. *Folia Neuropathol.* 49: 123-131.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.



Try **OGG1/2 (G-5): sc-376935**, our highly recommended monoclonal alternative to OGG1/2 (G-20). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **OGG1/2 (G-5): sc-376935**.