

FN3K (G-15): sc-49676

BACKGROUND

Amines, including those present on proteins, spontaneously react with glucose to make fructosamines in a reaction termed glycation. Fructosamine 3-kinase (FN3K), a 309 amino acid enzyme initially identified in erythrocytes, catalyzes the ATP-dependent phosphorylation of the third carbon on both D- and L-fructosamines, leading to their destabilization and eventually, their removal from the protein. FN3K is a monomer that is ubiquitously expressed in mammalian tissue and phosphorylates both low molecular mass and protein-bound fructosamines which are formed as a result of glycation of glucose with primary amines. FN3K protects proteins from the harmful effects of nonenzymatic glycation, and may also be involved in peptide repair and cell metabolism. Abnormal expression of FN3K may lead to diabetic complications.

REFERENCES

1. Delplanque, J., et al. 2004. Tissue distribution and evolution of fructosamine 3-kinase and fructosamine 3-kinase-related protein. *J. Biol. Chem.* 279: 46606-46613.
2. Conner, J.R., et al. 2005. Some clues as to the regulation, expression, function, and distribution of fructosamine 3-kinase and fructosamine 3-kinase-related protein. *Ann. N.Y. Acad. Sci.* 1043: 824-836.
3. Fortpied, J., et al. 2005. Plant ribulosamine/erythrosamine 3-kinase, a putative protein-repair enzyme. *Biochem. J.* 388: 795-802.
4. Szwergold, B.S., et al. 2005. Intrinsic toxicity of glucose, due to non-enzymatic glycation, is controlled *in vivo* by deglycation systems including: FN3K-mediated deglycation of fructosamines and transglycation of aldoses. *Med. Hypotheses* 65: 337-348.
5. Szwergold, B.S., et al. 2005. Transglycation—a potential new mechanism for deglycation of Schiff's bases. *Ann. N.Y. Acad. Sci.* 1043: 845-864.
6. Delpierre, G., et al. 2006. Variability in erythrocyte fructosamine 3-kinase activity in humans correlates with polymorphisms in the FN3K gene and impacts on haemoglobin glycation at specific sites. *Diabetes Metab.* 32: 31-39.
7. Monnier, VM. 2006. The fructosamine 3-kinase knockout mouse: a tool for testing the glycation hypothesis of intracellular protein damage in diabetes and aging. *Biochem. J.* 399: 11-13.
8. da-Cunha, MV., et al. 2006. Increased protein glycation in fructosamine 3-kinase-deficient mice. *Biochem. J.* 399: 257-264.

CHROMOSOMAL LOCATION

Genetic locus: FN3K (human) mapping to 17q25.3; Fn3k (mouse) mapping to 11 E2.

SOURCE

FN3K (G-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of FN3K of human origin.

STORAGE

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

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-49676 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

FN3K (G-15) is recommended for detection of FN3K (fructosamine-3-kinase) of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

FN3K (G-15) is also recommended for detection of FN3K (Fructosamine-3-kinase) in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for FN3K siRNA (h): sc-60647, FN3K siRNA (m): sc-60648, FN3K shRNA Plasmid (h): sc-60647-SH, FN3K shRNA Plasmid (m): sc-60648-SH, FN3K shRNA (h) Lentiviral Particles: sc-60647-V and FN3K shRNA (m) Lentiviral Particles: sc-60648-V.

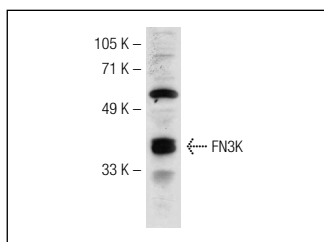
Molecular Weight of FN3K: 35 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



FN3K (G-15): sc-49676. Western blot analysis of FN3K expression in HeLa whole cell lysate.

RESEARCH USE

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