

FN3K (E-9): sc-271503

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. Swergold, 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. Swergold, 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. da-Cunha, M.V., 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.

SOURCE

FN3K (E-9) is a mouse monoclonal antibody raised against amino acids 53-111 mapping near the N-terminus of FN3K 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.

FN3K (E-9) is available conjugated to agarose (sc-271503 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271503 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271503 PE), fluorescein (sc-271503 FITC), Alexa Fluor[®] 488 (sc-271503 AF488), Alexa Fluor[®] 546 (sc-271503 AF546), Alexa Fluor[®] 594 (sc-271503 AF594) or Alexa Fluor[®] 647 (sc-271503 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-271503 AF680) or Alexa Fluor[®] 790 (sc-271503 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

FN3K (E-9) is recommended for detection of FN3K of 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), immunohistochemistry (including paraffin-embedded sections) (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 FN3K siRNA (h): sc-60647, FN3K shRNA Plasmid (h): sc-60647-SH and FN3K shRNA (h) Lentiviral Particles: sc-60647-V.

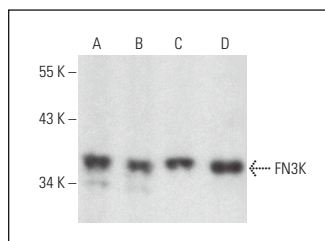
Molecular Weight of FN3K: 35 kDa.

Positive Controls: human brain extract: sc-364375, human kidney extract: sc-363764 or human heart extract: sc-363763.

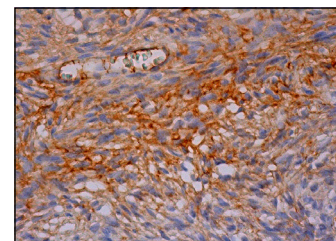
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



FN3K (E-9): sc-271503. Western blot analysis of FN3K expression in human brain (A), human kidney (B), human spinal cord (C) and human heart (D) tissue extracts.



FN3K (E-9): sc-271503. Immunoperoxidase staining of formalin fixed, paraffin-embedded human ovary tissue showing cytoplasmic staining of ovarian stroma cells.

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.

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