SANTA CRUZ BIOTECHNOLOGY, INC.

GGCX (H-135): sc-98671

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The Power to Question

BACKGROUND

GGCX (γ-glutamyl carboxylase), also known as GC or VKCFD1 (Vitamin K-dependent γ-carboxylase), is a 758 amino acid multi-pass membrane protein. Localized to the membrane of the endoplasmic reticulum, GGCX functions to mediate the vitamin K-dependent carboxylation of glutamate residues on target proteins, thereby producing calcium binding γ-carboxyglutamate (Gla) residues on these proteins and simultaneously converting vitamin K to vitamin K epoxide. GGCX exists as a monomer and, via its ability to modify glutamate residues, it accomplishes the post-translational changes that are necessary for the activity of all vitamin K-dependent proteins (such as blood coagulation and bone matrix proteins). Defects in the gene encoding GGCX are the cause of combined deficiency of vitamin K-dependent clotting factors 1 (VKCFD1) and PXE-like disorder with multiple coagulation factor deficiency, both of which are characterized by abnormal skin, blood or bone function.

REFERENCES

1. Brenner, B., et al. 1998. A missense mutation in γ-glutamyl carboxylase gene causes combined deficiency of all vitamin K-dependent blood coagulation factors. Blood 92: 4554-4559.
2. Lin, P.J., et al. 2004. Binding of the factor IX γ-carboxyglutamic acid domain to the vitamin K-dependent γ-glutamyl carboxylase active site induces an allosteric effect that may ensure processive carboxylation and regulate the release of carboxylated product. J. Biol. Chem. 279: 6560-6566.
3. Rishavy, M.A., et al. 2004. A new model for vitamin K-dependent carboxylation: the catalytic base that deprotonates vitamin K hydroquinone is not Cys but an activated amine. Proc. Natl. Acad. Sci. USA 101: 13732-13737.
4. Wadelius, M., et al. 2005. Common VKORC1 and GGCX polymorphisms associated with warfarin dose. Pharmacogenomics J. 5: 262-270.
5. Tie, J.K., et al. 2006. Identification of the N-linked glycosylation sites of vitamin K-dependent carboxylase and effect of glycosylation on carboxylase function. Biochemistry 45: 14755-14763.
6. Kimura, R., et al. 2006. Polymorphisms in vitamin K-dependent γ-carboxylation-related genes influence interindividual variability in plasma protein C and protein S activities in the general population. Int. J. Hematol. 84: 387-397.
7. Cha, P.C., et al. 2007. High-resolution SNP and haplotype maps of the human γ-glutamyl carboxylase gene (GGCX) and association study between polymorphisms in GGCX and the warfarin maintenance dose requirement of the Japanese population. J. Hum. Genet. 52: 856-864.

CHROMOSOMAL LOCATION

Genetic locus: GGCX (human) mapping to 2p11.2; Ggcx (mouse) mapping to 6 C1.

SOURCE

GGCX (H-135) is a rabbit polyclonal antibody raised against amino acids 158-292 mapping at the N-terminus of GGCX 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.

APPLICATIONS

GGCX (H-135) is recommended for detection of GGCX 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).

GGCX (H-135) is also recommended for detection of GGCX in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for GGCX siRNA (h): sc-75125, GGCX siRNA (m): sc-75126, GGCX shRNA Plasmid (h): sc-75125-SH, GGCX shRNA Plasmid (m): sc-75126-SH, GGCX shRNA (h) Lentiviral Particles: sc-75125-V and GGCX shRNA (m) Lentiviral Particles: sc-75126-V.

Molecular Weight of GGCX: 94 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.