

FANCA (C-20): sc-18664

BACKGROUND

Fanconi anemia (FA) is an autosomal recessive disorder characterized by bone marrow failure, birth defects and chromosomal instability. At the cellular level, FA is characterized by spontaneous chromosomal breakage and a unique hypersensitivity to DNA cross-linking agents. At least eight complementation groups (A-G) have been identified and six FA genes (for subtypes A, C, D2, E, F and G) have been cloned. The FA proteins lack sequence homologies or motifs that could point to a molecular function. The cellular accumulation of FA proteins, including FANCA and FANCG, is subject to regulation by TNF α signaling. Phosphorylation of FANCA (Fanconi anemia complementation group) proteins is thought to be important for the function of the FA pathway. FANCA, also known as FACA and FANCH, associates with the Brm-related gene 1 (BRG1) product, a subunit of the SWI/SNF complex which remodels chromatin structure through a DNA-dependent ATPase activity. FANCA is mainly expressed in lymphoid tissues, testis and ovary. The amino-terminal region of the FANCA protein is required for FANCG binding, FANCC binding, nuclear localization and functional activity of the complex. The human FANCA gene maps to chromosome 16q24.3 and encodes a 1,455 amino acid protein.

REFERENCES

1. Garcia-Higuera, I., et al. 1999. Fanconi anemia proteins FANCA, FANCC, and FANCG/XRCC9 interact in a functional nuclear complex. *Mol. Cell Biol.* 19: 4866-4873.
2. de Winter, J.P., et al. 2000. The Fanconi anemia protein FANCF forms a nuclear complex with FANCA, FANCC and FANCG. *Hum. Mol. Genet.* 9: 2665-2674.
3. Garcia-Higuera, I., et al. 2000. The Fanconi anemia proteins FANCA and FANCG stabilize each other and promote the nuclear accumulation of the Fanconi anemia complex. *Blood* 96: 3224-3230.
4. van de Vrugt, H.J., et al. 2000. Cloning and characterization of murine Fanconi anemia group A gene: FANCA protein is expressed in lymphoid tissues, testis, and ovary. *Mamm. Genome* 11: 326-331.
5. Yagasaki, H., et al. 2001. A cytoplasmic serine protein kinase binds and may regulate the Fanconi anemia protein FANCA. *Blood* 98: 3650-3657.
6. Futaki, M., et al. 2001. Fanconi anemia protein, FANCG, is a phosphoprotein and is upregulated with FANCA after TNF α treatment. *Biochem. Biophys. Res. Commun.* 281: 347-351.

CHROMOSOMAL LOCATION

Genetic locus: FANCA (human) mapping to 16q24.3; Fanca (mouse) mapping to 8 E2.

SOURCE

FANCA (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of FANCA 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 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-18664 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

FANCA (C-20) is recommended for detection of FANCA of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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 FANCA siRNA (h): sc-40567 and FANCA siRNA (m): sc-40568; and as shRNA Plasmid control antibody for FANCA shRNA Plasmid (h): sc-40567-SH and FANCA shRNA Plasmid (m): sc-40568-SH.

Molecular Weight of FANCA: 163 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.

SELECT PRODUCT CITATIONS

1. Pichierri, P., et al. 2004. BLM and the FANCA proteins collaborate in a common pathway in response to stalled replication forks. *EMBO J.* 23: 3154-3163.
2. Tremblay, C.S., et al. 2008. HES1 is a novel interactor of the Fanconi anemia core complex. *Blood* 112: 2062-2070.

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.