SANTA CRUZ BIOTECHNOLOGY, INC.

FANCD2 (H-300): sc-28194

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 8 complementation groups (A-G) have been identified and 6 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. Phosphorylation of FANC (Fanconi anemia complementation group) proteins are thought to be important for the function of the FA pathway. Several FA proteins, including FANCA, FANCC, FANCF, and FANCG, interact in a nuclear complex, and this complex is required for the activation (monoubiquitination) of the downstream FANCD2 protein. When monoubiquitinated, the FANCD2 protein co-localizes with the breast cancer susceptibility protein BRCA1 in DNA damage induced foci. In male meiosis, FANCD2 also co-localizes with BRCA1 at synaptonemal complexes. The human FANCD2 gene maps to chromosome 3p25.3, contains 44 exons and encodes a 1,451 amino acid nuclear protein that exists as two protein isoforms.

CHROMOSOMAL LOCATION

Genetic locus: FANCD2 (human) mapping to 3p25.3; Fancd2 (mouse) mapping to 6 E3.

SOURCE

FANCD2 (H-300) is a rabbit polyclonal antibody raised against amino acids 1172-1471 mapping at the C-terminus of FANCD2 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

FANCD2 (H-300) is recommended for detection of FANCD2 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), 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 FANCD2 siRNA (h): sc-35356, FANCD2 siRNA (m): sc-35357, FANCD2 shRNA Plasmid (h): sc-35356-SH, FANCD2 shRNA Plasmid (m): sc-35357-SH, FANCD2 shRNA (h) Lentiviral Particles: sc-35356-V and FANCD2 shRNA (m) Lentiviral Particles: sc-35357-V.

Molecular Weight of FANCD2: 150 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, MCF7 nuclear extract: sc-2149 or mouse brain extract: sc-2253.

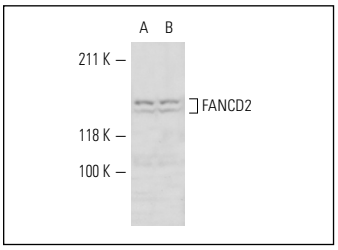
RESEARCH USE

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

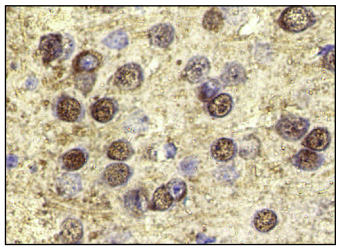
STORAGE

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

DATA



FANCD2 (H-300): sc-28194. Western blot analysis of FANCD2 expression in HeLa (**A**) and MCF7 (**B**) nuclear extracts.



FANCD2 (H-300): sc-28194. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse brain tissue showing nuclear localization in select cells.

SELECT PRODUCT CITATIONS

1. Levitus, M., et al. 2004. Heterogeneity in Fanconi anemia: evidence for 2 new genetic subtypes.
2. Bobliolo, M., et al. 2007. Histone H2AX and Fanconi anemia FANCD2 function in the same pathway to maintain chromosome stability. EMBO J. 26: 1340-1351.
3. Rulten, S.L., et al. 2008. Alcohol induces DNA damage and the Fanconi anemia D2 protein implicating FANCD2 in the DNA damage response pathways in brain. Alcohol. Clin. Exp. Res. 32: 1186-1196.
4. Zhi, G., et al. 2009. Fanconi anemia complementation group FANCD2 protein serine 331 phosphorylation is important for fanconi anemia pathway function and BRCA2 interaction. Cancer Res. 69: 8775-8783.
5. Ozawa, H., et al. 2010. FANCD2 mRNA overexpression is a bona fide indicator of lymph node metastasis in human colorectal cancer. Ann. Surg. Oncol. 17: 2341-2348.
6. Palagyi, A., et al. 2010. Genetic inactivation of the Fanconi anemia gene FANCC identified in the hepatocellular carcinoma cell line HuH-7 confers sensitivity towards DNA-interstrand crosslinking agents. Mol. Cancer 9: 127.
7. Wilson, J.B., et al. 2010. Several tetratricopeptide repeat (TPR) motifs of FANCG are required for assembly of the BRCA2/D1-D2-G-X3 complex, FANCD2 monoubiquitylation and phleomycin resistance. Mutat. Res. 689: 12-20.
8. Rudland, P.S., et al. 2010. Significance of the *Fanconi anemia* FANCD2 protein in sporadic and metastatic human breast cancer. Am. J. Pathol. 176: 2935-2947.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.