

Rabbit Anti-phospho-FANCD2 (Ser1404)antibody

SL13141R

Product Name	phospho-FANCD2 (Ser1404)
Chinese Name	磷酸化 FANCD2 抗体
Alias	FANCD2 (phospho S1404); FANCD2 (phospho Ser1404); p-FANCD2 (phospho S1404); FA 4; FA D2; FA4; FAC D2; FACD 2; FACD; FACD2; FAD; FAD2; FANC D2; FANCD 2; FANCD; Protein FACD2; Type 4 Fanconi pancytopenia; FACD2_HUMAN; Fanconi anemia group D2 protein; Protein FACD2.
Product Type	Phosphorylated anti
Research Area	Tumour Cell biology Chromatin and nuclear signals transcriptional regulatory factor
Immunogen Species	Rabbit
Clonality	Polyclonal
React Species	Human(predicted:Pig,Cow,Horse,Rabbit,Sheep)
Applications	Flow-Cyt=1 μ g/Test not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Theoretical molecular weight	162kDa
Cellular localization	The nucleus
Form	Liquid
Concentration	1mg/ml
immunogen	KLH conjugated Synthesised phosphopeptide derived from human FANCD2 around the phosphorylation site of Ser1404: QN(p-S)QE
Lsotype	IgG
Purification	affinity purified by Protein A
Buffer Solution	1M TBS(pH7.4) with 1% BSA, 3% Proclin300 and 50% Glycerol.
Storage	Shipped at 4°C. Store at -20 °C for one year. Avoid repeated freeze/thaw cycles.

Attention

This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

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Fanconi Anemia (FANC) is a human autosomal-recessive cancer susceptibility disorder characterized by congenital defects, progressive bone marrow failure, and cellular hypersensitivity to mitomycin C (MMC). The FANC subunit D2 protein is vital for cellular resistance to DNA cross-linking and the arrest of DNA synthesis after ionizing radiation. DNA damage activates the monoubiquitination of FANC D2, targeting nuclear foci containing the BRCA 1 protein.

Function:

Required for maintenance of chromosomal stability. Promotes accurate and efficient pairing of homologs during meiosis. Involved in the repair of DNA double-strand breaks, both by homologous recombination and single-strand annealing. May participate in S phase and G2 phase checkpoint activation upon DNA damage. Plays a role in preventing breakage and loss of missegregating chromatin at the end of cell division, particularly after replication stress. Required for the targeting, or stabilization, of BLM to non-centromeric abnormal structures induced by replicative stress. Promotes BRCA2/FANCD1 loading onto damaged chromatin. May also be involved in B-cell immunoglobulin isotype switching.

Product Detail

Subunit:

Interacts directly with FANCE and FANCI. Interacts with USP1 and MEN1. The ubiquitinated form specifically interacts with BRCA1 and BLM. Both the nonubiquitinated and the monoubiquitinated forms interact with BRCA2; this interaction is mediated by phosphorylated FANCG and the complex also includes XCCR3. The ubiquitinated form specifically interacts with MTMR15/FAN1 (via UBZ-type zinc finger), leading to recruit MTMR15/FAN1 to sites of DNA damage. Interacts with DCLRE1B/Apollo.

Subcellular Location:

Nucleus. Note=Concentrates in nuclear foci during S phase and upon genotoxic stress. At the onset of mitosis, excluded from chromosomes and diffuses into the cytoplasm, returning to the nucleus at the end of cell division. Observed in a few spots localized in pairs on the sister chromatids of mitotic chromosome arms and not centromeres, one on each chromatids. These foci coincide with common fragile sites and could be sites of replication fork stalling. The foci are frequently interlinked through BLM-associated ultra-fine DNA bridges. Following aphidicolin treatment, targets chromatid gaps and breaks.

Tissue Specificity:

Highly expressed in germinal center cells of the spleen, tonsil, and reactive lymph nodes, and in the proliferating basal layer of squamous epithelium of tonsil, esophagus, oropharynx, larynx and cervix. Expressed in cytotrophoblastic cells of the placenta and exocrine cells of the pancreas (at protein level). Highly expressed in testis, where expression is restricted to maturing spermatocytes.

Post-translational modifications:

Monoubiquitinated on Lys-561 during S phase and upon genotoxic stress by FANCL in complex with E2 ligases UBE2T or UBE2W (isoform 1 and isoform 2). Deubiquitinated by USP1 as cells enter G2/M, or once DNA repair is completed. Monoubiquitination requires the joint intervention of the FANCL core complex, including FANCA, FANCB, FANCC, FANCE, FANCF, FANCG, and FANCM, and proteins involved in cell cycle checkpoints and DNA repair, including RPA1, ATR, CHEK1 and BRCA1, and is mediated by FANCL/PHF9. Ubiquitination is required for binding to chromatin, interaction with BRCA1, BRCA2 and MTMR15/FAN1, DNA repair, and normal cell cycle progression, but not for phosphorylation on Ser-222 or interaction with MEN1.

Phosphorylated in response to various genotoxic stresses by ATM and/or ATR. Upon ionizing radiation, phosphorylated by ATM on Ser-222 and Ser-1404. Phosphorylation on Ser-222 is required for S-phase checkpoint activation, but not for ubiquitination, foci formation, or DNA repair. In contrast, phosphorylation by ATR on other sites may be required for ubiquitination and foci formation.

Defects in FANCD2 are a cause of Fanconi anemia complementation group D type 2 (FANCD2) [MIM:227646]. A disorder affecting all bone marrow elements and resulting in anemia, leukopenia and thrombopenia. It is associated with cardiac, renal and limb malformations, dermal pigmentary changes, and a predisposition to the development of malignancies. At the cellular level it is associated with hypersensitivity to DNA-damaging agents, chromosomal instability (increased chromosome breakage) and defective DNA repair.

SWISS:
Q9BXW9

Gene ID:
2177

Database links:

[Entrez Gene: 2177](#) Human

[Entrez Gene: 211651](#) Mouse

[Entrez Gene: 312641](#) Rat

[Omim: 613984](#) Human

[SwissProt: Q9BXW9](#) Human

[SwissProt: Q80V62](#) Mouse

[SwissProt: Q6IV68](#) Rat

[Unigene: 208388](#) Human

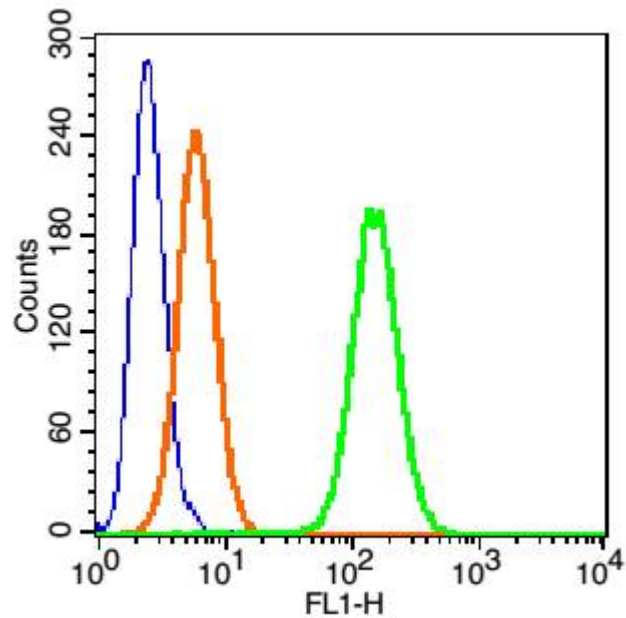
[Unigene: 160061](#) Mouse

[Unigene: 203979](#) Rat

FANCD2 是一种在 DNA 损伤修复过程中起重要作用的蛋白质，其作用在于通过修补 DNA 损伤或促进有缺陷细胞自杀来预防癌症，所以低水平的 FANCD2 会导致 DNA 损伤，从而诱发癌症。

有学者认为:FANCD2 是个重要的抵御癌症蛋白，而香烟会破坏它的制造过程当然还可能包含有其他蛋白，但至少 FANCD2 是关键的主要蛋白，因为含有非常高水平 FANCD2 的细胞能够抵御香烟的毒害作用。

FANCD2 蛋白在保护肺细胞抵御香烟威胁时有重要作用；FANCD2 蛋白是负责修复受损 DNA 的重要蛋白，而受香烟燃烧产生的烟雾影响的肺细胞很少产生 FANCD2 蛋白，没有 FANCD2 蛋白，受损的 DNA 导致 Tumour 细胞增殖扩散并无法控制。研究表明，FANCD2 蛋白在保护肺细胞抵御香烟威胁时有重要作用，也可解释为什么香烟燃烧产生的烟雾对肺细胞具有如此大的危害。



Product Picture

Blank control(blue): Hela Cells(fixed with 2% paraformaldehyde (10 min) and then permeabilized with ice-cold 90% methanol for 30 min on ice).

Primary Antibody: Rabbit Anti-phospho-FANCD2(Ser1404)/AF488

Conjugated antibody (SL13141R/AF488), Dilution: 1 μ g in 100 μ L 1X PBS containing 0.5% BSA;

Isotype Control Antibody: Rabbit IgG/AF488 (orange) ,used under the same conditions.