abcam

ab178705

Anti-FANCD2 antibody [EPR2279(3)]

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR2279(3)
Purification technique	Affinity purification Protein A
Specificity	This antibody only detects FANCD2 when dephosphorylated at Serine 1418.
Concentration	0.168 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Target data

See full target information FANCD2

Function	Required for maintenance of chromosomal stability (PubMed:11239453, PubMed:14517836). Promotes accurate and efficient pairing of homologs during

meiosis (PubMed:14517836). Involved in the repair of DNA double-strand breaks, both by homologous recombination and single-strand annealing (PubMed:15671039, PubMed:15650050, PubMed:30335751, PubMed:36385258). The FANCI-FANCD2 complex binds and scans double-stranded DNA (dsDNA) for DNA damage; this complex stalls at DNA junctions between double-stranded DNA and single-stranded DNA (By similarity). May participate in S phase and G2 phase checkpoint activation upon DNA damage (PubMed:15377654). Plays a role in preventing breakage and loss of missegregating chromatin at the end of cell division, particularly after replication stress (PubMed:15454491, PubMed:15661754). Required for the targeting, or stabilization, of BLM to non-centromeric abnormal structures induced by replicative stress (PubMed:15661754, PubMed:19465921). Promotes BRCA2/FANCD1 loading onto damaged chromatin (PubMed:11239454, PubMed:12239151, PubMed:12086603, PubMed:15115758, PubMed:15199141, PubMed:15671039, PubMed:18212739). May also be involved in B-cell immunoglobulin isotype switching.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Species reactivity
Mouse, Rat: We have preliminary internal testing data to indicate this antibody may not react with these species. Please contact us for more information.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	FANCD2 also known as Fanconi anemia group D2 functions mechanically in DNA repair processes. This protein plays a role in the cellular response to DNA damage specifically interstrand crosslinks. FANCD2 has a molecular weight of approximately 164 kDa. Expression of FANCD2 occurs broadly in various tissues but reaches higher levels in cells that undergo rapid division such as hematopoietic cells.
Biological function summary	FANCD2 collaborates with multiple proteins as part of the Fanconi anemia (FA) complex to ensure genomic stability. The FA complex operates by facilitating the repair of DNA interstrand crosslinks that impede replication. FANCD2 becomes activated through monoubiquitination which serves as a signal for recruitment to DNA damage sites. It essentially functions as a coordinator that brings together important components for repair.
Pathways	FANCD2 integrates into the Fanconi anemia pathway and the homologous recombination repair pathway. These pathways are critical for maintaining DNA integrity and preventing chromosomal instability. Within these pathways interactions with proteins such as BRCA1 and BRCA2 reinforce the repair processes. FANCD2's connection to these proteins exemplifies its role in complex mechanisms that preserve genomic fidelity.
Associated diseases and disorders	FANCD2 links significantly to Fanconi anemia a genetic disorder that causes bone marrow failure and increased cancer susceptibility. Damage or malfunction of FANCD2 can disrupt DNA repair leading to cellular dysfunction seen in this condition. Additionally there is a connection to breast cancer whereby FANCD2 interacts with BRCA2 indicating a shared pathway involved in tumor suppressor functions. These associations underline the importance of FANCD2 in disease pathology and its potential as a therapeutic target.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

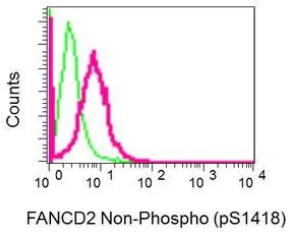
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
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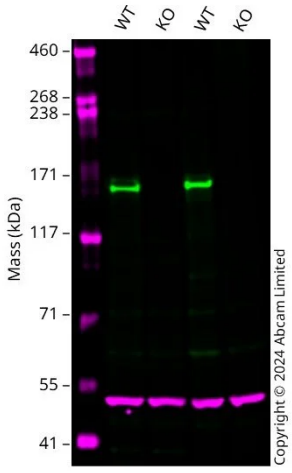
6 product images



Flow Cytometry (Intracellular) - Anti-FANCD2 antibody [EPR2279(3)] (ab178705)

FANCD2 Flow Cytometry (Intracellular) staining using rabbit Anti-FANCD2 antibody

Intracellular flow cytometric analysis of permeabilized HeLa cells labeling FANCD2 with ab178705 at 1/10 dilution (red) compared toa rabbit IgG negative control (green).



Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705)

FANCD2 Western blot staining using rabbit Anti-FANCD2 antibody

Western blot: Anti-FANCD2 antibody [EPR2279(3)] (ab178705) staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab178705 was shown to bind specifically to FANCD2. A band was observed at 160 kDa in wild-type HCT 116 cell lysates with no signal observed at this size in FANCD2 knockout cell line. To generate this image, wild-type and FANCD2 knockout HCT 116 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705) at 1/1000 dilution

Lane 1:
Wild-type HCT 116 cell lysate at 20 µg

Lane 2:
FANCD2 knockout HCT 116 cell lysate at 20 µg

Lane 3:
Wild-type HeLa ab255448 cell lysate at 20 µg

Lane 4:
FANCD2 knockout HeLa ab261743 cell lysate at 20 µg

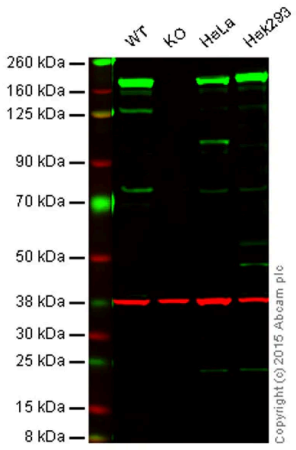
Secondary

Lanes 1 - 4:
Goat anti-Rabbit IgG H&L 800CW at 1/20000 dilution

Lanes 1 - 4:
Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 160 kDa



Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705)

FANCD2 Western blot staining using rabbit Anti-FANCD2 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab178705 observed at 166 kDa. Red - loading control, ab8245, observed at 37 kDa.
ab178705 was shown to specifically react with FANCD2 when FANCD2 knockout samples were used. Wild-type and FANCD2 knockout samples were subjected to SDS-PAGE. ab178705 and ab8245 (loading control to GAPDH) were diluted 1/1000 and 1/2000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed ab216776 secondary antibodies at 1/10000 dilution for 1 h at room temperature before imaging.
All lanes:
Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705) at 1/1000 dilution

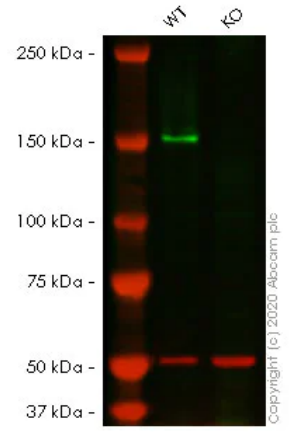
Lane 1:
Wild-type HAP1 cell lysate at 20 µg

Lane 2:
FANCD2 knockout HAP1 cell lysate at 20 µg

Lane 3:
HeLa cell lysate at 20 µg

Lane 4:
HEK293 cell lysate at 20 µg

Predicted band size: 166 kDa



Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705)

FANCD2 Western blot staining using rabbit Anti-FANCD2 antibody

Lanes 1- 2: Merged signal (red and green). Green - ab178705 observed at 166 kDa. Red - Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) observed at 50 kDa.
ab178705 was shown to react with FANCD2 in wild-type HeLa cells in western blot. Loss of signal was observed when knockout cell line ab261743 (knockout cell lysate ab257173) was used. Wild-type HeLa and FANCD2 knockout HeLa cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab178705 and Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye®800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye®680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705) at 1/1000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

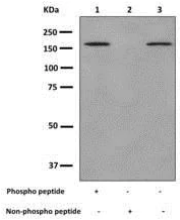
Lane 2:
FANCD2 knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human FANCD2 knockout HeLa cell line (ab261743)

Performed under reducing conditions.

Predicted band size: 166 kDa

Observed band size: 166 kDa



Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705)

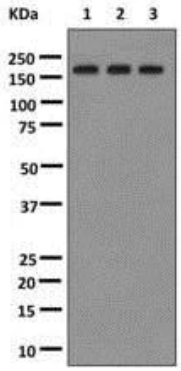
All lanes:
Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705) at 1/1000 dilution

Lane 1:
HeLa cell lysate at 10 µg with FANCD2 (pS1418) peptide

Lane 2:
HeLa cell lysate at 10 µg with Non-phospho peptide

Lane 3:
HeLa cell lysate at 10 µg

Predicted band size: 166 kDa



Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705)

All lanes:
Western blot - Anti-FANCD2 antibody [EPR2279(3)] (ab178705) at 1/1000 dilution

Lane 1:
HeLa cell lysate untreated at 10 µg

Lane 2:
HeLa cell lysate treated with Alkaline Phosphatase at 10 µg

Lane 3:
HeLa cell lysate treated with Lambda Phosphatase at 10 µg

Predicted band size: 166 kDa

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