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Anti-DDB1 Picoband Antibody

Catalog # ABO12264

Product Information

Application	WB, IHC-P, IHC-F, ICC
Primary Accession	Q16531
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for DNA damage-binding protein 1(DDB1) detection. Tested with WB, IHC-P, IHC-F, ICC in Human;Mouse;Rat.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Additional Information

Gene ID	1642
Other Names	DNA damage-binding protein 1, DDB p127 subunit, DNA damage-binding protein a, DDBa, Damage-specific DNA-binding protein 1, HBV X-associated protein 1, XAP-1, UV-damaged DNA-binding factor, UV-damaged DNA-binding protein 1, UV-DDB 1, XPE-binding factor, XPE-BF, Xeroderma pigmentosum group E-complementing protein, XPCe, DDB1, XAP1
Calculated MW	126968
Application Details	Immunohistochemistry(Paraffin-embedded Section), 0.5-1 □g/ml, By Heat Immunohistochemistry(Frozen Section), 0.5-1 □g/ml Immunocytochemistry, 0.5-1 □g/ml Western blot, 0.1-0.5 □g/ml
Subcellular Localization	Cytoplasm. Nucleus. Primarily cytoplasmic. Translocates to the nucleus following UV irradiation and subsequently accumulates at sites of DNA damage.
Source	Eukaryota
Protein Name	DNA damage-binding protein 1
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg NaN3.
Immunogen	E.coli-derived human DDB1 recombinant protein (Position: S1011-H1140). Human DDB1 shares 99.2% amino acid (aa) sequence identity with both mouse and rat DDB1.

Purification	Immunogen affinity purified.
Cross Reactivity	No cross reactivity with other proteins
Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.
Sequence Similarities	Belongs to the DDB1 family.

Protein Information

Name	DDB1
Synonyms	XAP1
Function	Involved in DNA repair and protein ubiquitination, as part of the UV-DDB complex and DCX (DDB1-CUL4-X-box) complexes, respectively (PubMed:14739464, PubMed:15448697, PubMed:16260596, PubMed:16407242, PubMed:16407252, PubMed:16482215, PubMed:16940174, PubMed:17079684, PubMed:25970626). Core component of the UV-DDB complex (UV-damaged DNA- binding protein complex), a complex that recognizes UV-induced DNA damage and recruits proteins of the nucleotide excision repair pathway (the NER pathway) to initiate DNA repair (PubMed:15448697, PubMed:16260596, PubMed:16407242, PubMed:16940174). The UV-DDB complex preferentially binds to cyclobutane pyrimidine dimers (CPD), 6-4 photoproducts (6-4 PP), apurinic sites and short mismatches (PubMed:15448697, PubMed:16260596, PubMed:16407242, PubMed:16940174). Component of numerous distinct DCX (DDB1-CUL4-X-box) E3 ubiquitin- protein ligase complexes which mediate the ubiquitination and subsequent proteasomal degradation of target proteins (PubMed:14739464, PubMed:16407252, PubMed:16482215, PubMed:17079684, PubMed:18332868, PubMed:18381890, PubMed:19966799, PubMed:22118460, PubMed:25043012, PubMed:25108355, PubMed:28886238, PubMed:41565821). The functional specificity of the DCX E3 ubiquitin-protein ligase complex is determined by the variable substrate recognition component recruited by DDB1 (PubMed:14739464, PubMed:16407252, PubMed:16482215, PubMed:17079684, PubMed:18332868, PubMed:18381890, PubMed:19966799, PubMed:22118460, PubMed:25043012, PubMed:25108355). DCX(DDB2) (also known as DDB1-CUL4-ROC1, CUL4-DDB-ROC1 and CUL4-DDB-RBX1) may ubiquitinate histone H2A, histone H3 and histone H4 at sites of UV- induced DNA damage (PubMed:16473935, PubMed:16678110, PubMed:17041588, PubMed:18593899). The ubiquitination of histones may facilitate their removal from the nucleosome and promote subsequent DNA repair (PubMed:16473935, PubMed:16678110, PubMed:17041588, PubMed:18593899). DCX(DDB2) also ubiquitinates XPC, which may enhance DNA-binding by XPC and promote NER (PubMed:15882621). DCX(DTL) plays a role in PCNA- dependent polyubiquitination of CDT1 and MDM2-dependent ubiquitination of TP53 in response to radiation-induced DNA damage and during DNA replication (PubMed:17041588). DCX(ERCC8) (the CSA complex) plays a role in transcription-coupled repair (TCR) (PubMed:12732143, PubMed:32355176, PubMed:38316879). The DDB1-CUL4A-DTL E3 ligase complex regulates the circadian clock function by mediating the ubiquitination and degradation of CRY1 (PubMed:26431207). DDB1-mediated CRY1 degradation promotes FOXO1 protein stability and FOXO1-mediated gluconeogenesis in the liver (By similarity). By acting on TET dioxygenases, essential for oocyte maintenance at the primordial follicle stage, hence essential for female fertility (By similarity).

	Maternal factor required for proper zygotic genome activation and genome reprogramming (By similarity).
Cellular Location	Cytoplasm. Nucleus. Note=Primarily cytoplasmic (PubMed:10777491, PubMed:11673459). Translocates to the nucleus following UV irradiation and subsequently accumulates at sites of DNA damage (PubMed:10777491, PubMed:11673459). More concentrated in nuclei than in cytoplasm in germinal vesicle (GV) stage oocytes, zygotes and the 2-cell stage, but distributed in the cytoplasm at the MII-stage oocytes (By similarity). {ECO:0000250|UniProtKB:Q3U1J4, ECO:0000269|PubMed:10777491, ECO:0000269|PubMed:11673459}

Background

The protein encoded by this gene is the large subunit (p127) of the heterodimeric DNA damage-binding (DDB) complex while another protein (p48) forms the small subunit. And this protein complex functions in nucleotide-excision repair and binds to DNA following UV damage. Defective activity of this complex causes the repair defect in patients with xeroderma pigmentosum complementation group E (XPE) - an autosomal recessive disorder characterized by photosensitivity and early onset of carcinomas. However, it remains for mutation analysis to demonstrate whether the defect in XPE patients is in this gene or the gene encoding the small subunit. In addition, Best vitelliform mascular dystrophy is mapped to the same region as this gene on 11q, but no sequence alternations of this gene are demonstrated in Best disease patients. The protein encoded by this gene also functions as an adaptor molecule for the cullin 4 (CUL4) ubiquitin E3 ligase complex by facilitating the binding of substrates to this complex and the ubiquitination of proteins.

Images

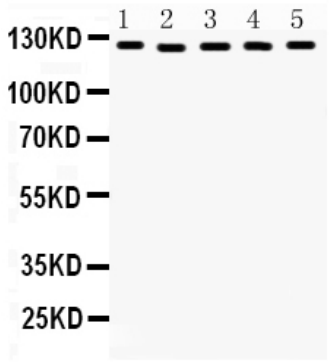
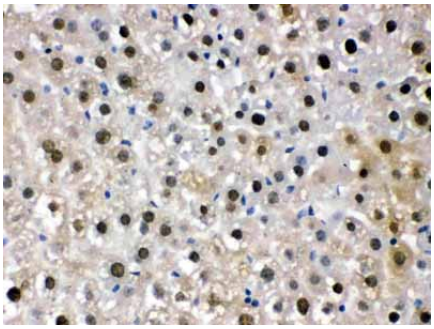


Figure 1. Western blot analysis of DDB1 using anti-DDB1 antibody (ABO12264). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 50ug of sample under reducing conditions. Lane 1: Rat Brain Tissue Lysate,Lane 2: Rat Liver Tissue Lysate,Lane 3: Mouse Ovary Tissue Lysate,Lane 4: Mouse Testis Tissue Lysate,Lane 5: MCF-7 Whole Cell Lysate. After Electrophoresis, proteins were transferred to a Nitrocellulose membrane at 150mA for 50-90 minutes. Blocked the membrane with 5% Non-fat Milk/ TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-DDB1 antigen affinity purified polyclonal antibody (Catalog # ABO12264) at 0.5 □¼g/mL overnight at 4 □°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:10000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit with Tanon 5200 system. A specific band was detected for DDB1 at approximately 127KD. The expected band size for DDB1 is at 127KD.

Figure 2. IHC analysis of DDB1 using anti-DDB1 antibody (ABO12264).DDB1 was detected in paraffin-embedded section of Mouse Liver Tissue. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 □¼g/ml rabbit anti-DDB1 Antibody



(ABO12264) overnight at 4 °C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 °C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) with DAB as the chromogen.

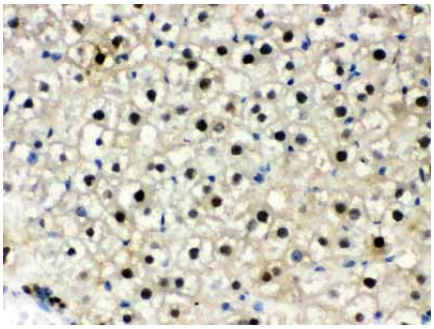


Figure 3. IHC analysis of DDB1 using anti-DDB1 antibody (ABO12264).DDB1 was detected in paraffin-embedded section of Rat Liver Tissue. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml rabbit anti-DDB1 Antibody (ABO12264) overnight at 4 °C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 °C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) with DAB as the chromogen.

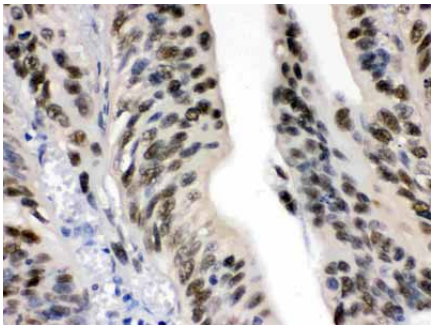
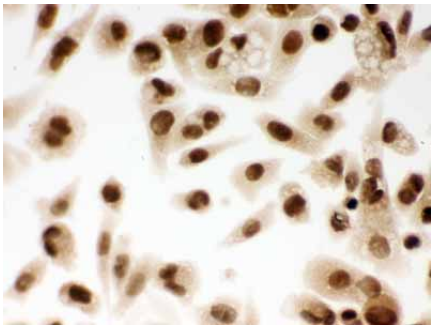


Figure 4. IHC analysis of DDB1 using anti-DDB1 antibody (ABO12264).DDB1 was detected in paraffin-embedded section of Human Intestinal Cancer Tissue. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml rabbit anti-DDB1 Antibody (ABO12264) overnight at 4 °C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 °C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) with DAB as the chromogen.



Figure 5. IHC analysis of DDB1 using anti-DDB1 antibody (ABO12264).DDB1 was detected in immunocytochemical section of A549 cell. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml rabbit anti-DDB1 Antibody (ABO12264) overnight at 4 °C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 °C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) with DAB as the chromogen.

Figure 6. IHC analysis of DDB1 using anti-DDB1 antibody (ABO12264).DDB1 was detected in immunocytochemical section of PC-3 cell. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 µg/ml rabbit anti-DDB1 Antibody (ABO12264) overnight at 4 °C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30



minutes at 37 □°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) with DAB as the chromogen.

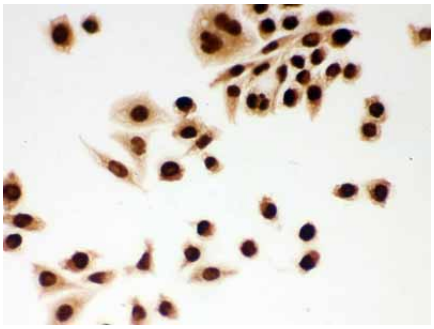


Figure 7. IHC analysis of DDB1 using anti-DDB1 antibody (ABO12264).DDB1 was detected in immunocytochemical section of SMMC-7721 cell. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 □¼g/ml rabbit anti-DDB1 Antibody (ABO12264) overnight at 4 □°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 □°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) with DAB as the chromogen.

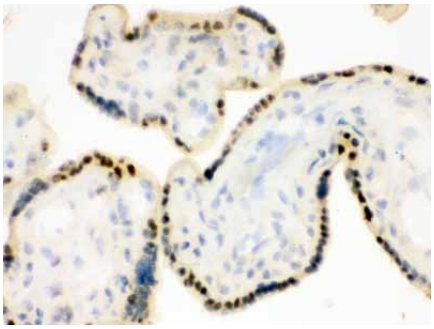


Figure 8. IHC analysis of DDB1 using anti-DDB1 antibody (ABO12264).DDB1 was detected in frozen section of human placenta tissue . Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 □¼g/ml rabbit anti-DDB1 Antibody (ABO12264) overnight at 4 □°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37 □°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC) with DAB as the chromogen.

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