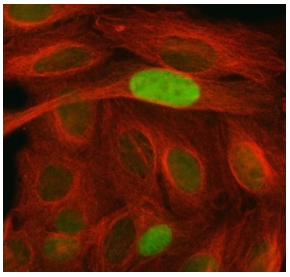
CDKN1A Antibody / Cyclin-Dependent Kinase Inhibitor 1 Antibody (RQ8115)

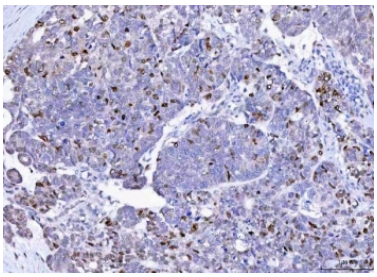
Catalog No.	Formulation	Size
RQ8115	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

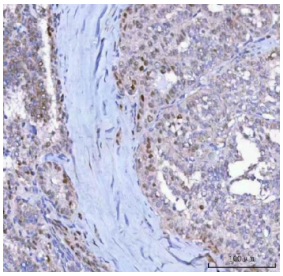
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P38936
Localization	Nuclear, cytoplasmic
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Immunofluorescence: 5ug/ml Direct ELISA: 0.1-0.5ug/ml
Limitations	This CDKN1A Antibody / Cyclin-Dependent Kinase Inhibitor 1 Antibody is available for research use only.



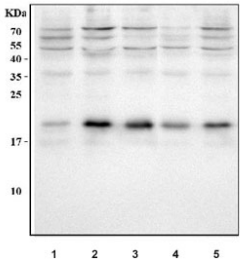
CDKN1A Antibody by IF in Human HeLa Cells. Immunofluorescent staining of FFPE human HeLa cells using Cyclin-Dependent Kinase Inhibitor 1 Antibody (green) and a beta-tubulin monoclonal antibody (red). CDKN1A immunoreactivity is predominantly nuclear, with variable staining intensity among cells. Beta-tubulin staining highlights the cytoplasmic microtubule network. Heat-induced epitope retrieval was performed by steaming in citrate buffer (pH 6) for 20 minutes.



CDKN1A Antibody by IHC in Human Ovarian Cancer. Immunohistochemical staining of FFPE human ovarian carcinoma tissue using Cyclin-Dependent Kinase Inhibitor 1 Antibody. Scattered tumor cells exhibit brown immunoreactivity, with staining observed in both nuclear and cytoplasmic regions. Nuclei are counterstained blue with hematoxylin. Heat-induced epitope retrieval was performed in EDTA buffer (pH 8) for 20 minutes.



CDKN1A Antibody by IHC in Human Thyroid Cancer. Immunohistochemical staining of FFPE human thyroid carcinoma tissue using Cyclin-Dependent Kinase Inhibitor 1 Antibody. Brown immunoreactivity is observed in subsets of tumor cells, with nuclear staining and variable cytoplasmic staining. Nuclei are counterstained blue with hematoxylin. Heat-induced epitope retrieval was performed in EDTA buffer (pH 8) for 20 minutes.



CDKN1A Antibody by WB in Human Cell Lines. Western blot analysis of human cell lysates using Cyclin-Dependent Kinase Inhibitor 1 Antibody. Lanes: 1) HeLa, 2) HepG2, 3) MCF7, 4) U-2 OS, and 5) SiHa. A band is detected at approximately 21 kDa in all five lysates, with varying signal intensity. The calculated molecular weight of CDKN1A is approximately 18 kDa, while the protein commonly migrates near 21 kDa by SDS-PAGE.

Description

CDKN1A Antibody / Cyclin-Dependent Kinase Inhibitor 1 Antibody targets p21, a protein that helps coordinate cell cycle progression with cellular growth conditions and stress responses. CDKN1A belongs to the CIP/KIP family of cyclin-dependent kinase inhibitors, which also includes p27 and p57. The protein is commonly known as p21, WAF1, or CIP1 and functions through interactions with cyclin-CDK complexes and proteins involved in DNA replication. Its activity contributes to the regulation of cell proliferation, differentiation, and cellular responses to DNA damage.

CDKN1A is an important downstream component of the p53 signaling pathway. Following certain forms of DNA damage, activated p53 promotes CDKN1A transcription, increasing p21 expression and limiting cell cycle progression. This response can provide time for DNA repair before cells enter subsequent phases of the cell cycle. However, p21 expression is not exclusively dependent on p53. Other transcription factors and signaling pathways regulate CDKN1A in response to differentiation signals, growth factors, and cellular stress.

At the molecular level, p21 interacts with cyclin E-CDK2 and cyclin A-CDK2 complexes to inhibit kinase activity and restrict DNA replication. Its effects on cyclin D-CDK4 and cyclin D-CDK6 complexes are more context-dependent, reflecting additional roles in complex assembly and regulation. Through these interactions, p21 influences the transition between proliferative and growth-arrested states. Sustained CDKN1A expression can also contribute to cellular senescence, although the establishment and maintenance of senescence involve multiple cooperating pathways.

Beyond cyclin-dependent kinase regulation, p21 binds proliferating cell nuclear antigen (PCNA), an essential factor in DNA replication and repair. This interaction can influence DNA synthesis and the coordination of replication-associated events. The biological functions of p21 also depend on its subcellular distribution. Nuclear p21 is closely associated with cell cycle inhibition, whereas cytoplasmic p21 can participate in signaling pathways affecting apoptosis and cellular survival. Protein phosphorylation and regulated degradation further influence its stability and activity.

CDKN1A expression is frequently examined in cancer research because alterations in cell cycle control and p53 signaling

are common features of tumor development. The relationship between p21 expression and tumor behavior is complex, with biological effects influenced by cellular context, localization, and interactions with other regulatory proteins. Research using CDKN1A Antibody can help investigate these mechanisms and clarify the contribution of p21 to checkpoint regulation, cellular senescence, and responses to genomic stress.

For additional research into CDKN1A-mediated cell cycle regulation and DNA damage responses, explore our p21 Antibody (V2431), featuring clone DCS-60.2.

Application Notes

Optimal dilution of the CDKN1A Antibody / Cyclin-Dependent Kinase Inhibitor 1 Antibody should be determined by the researcher.

Immunogen

E. coli-derived recombinant human protein (amino acids M1-R140) was used as the immunogen for the CDKN1A antibody.

Storage

After reconstitution, the CDKN1A antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

p21 antibody, p21 WAF1 antibody, p21 CIP1 antibody, Cyclin-Dependent Kinase Inhibitor 1A antibody, CDK Inhibitor p21 antibody

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