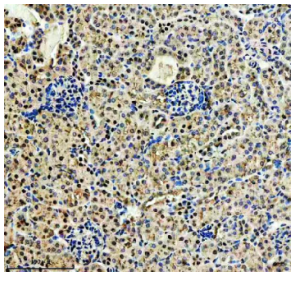
Phospho-CDK2/CDK1 (Thr160/Thr161) Antibody [clone 31C95] (FY12650)

Catalog No.	Formulation	Size
FY12650	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

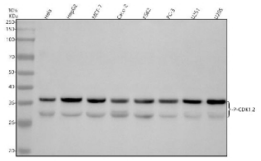
Recombinant RABBIT MONOCLONAL

Bulk quote request

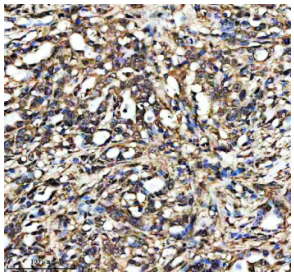
Availability	2-3 weeks
Species Reactivity	Human, Mouse
Format	Liquid
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	31C95
Purity	Affinity-chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	P24941, P06493
Localization	Cytoplasm
Applications	Western Blot : 1:500-1:2000 Immunohistochemistry : 1:50-1:200
Limitations	This Phospho-CDK2/CDK1 (Thr160/Thr161) antibody is available for research use only.



Immunohistochemical staining of CDK2(Phospho-T160)/CDK1(Phospho-T161) using anti-Phospho-CDK2/CDK1 (Thr160/Thr161) antibody. CDK2(Phospho-T160)/CDK1(Phospho-T161) was detected in a paraffin-embedded section of mouse kidney tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with a dilution of 1:50 rabbit anti-Phospho-CDK2/CDK1 (Thr160/Thr161) antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Western blot analysis of CDK2(Phospho-T160)/CDK1(Phospho-T161) using anti-Phospho-CDK2/CDK1 (Thr160/Thr161) antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Hela whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human MCF-7 whole cell lysates, Lane 4: human Caco-2 whole cell lysates, Lane 5: human K562 whole cell lysates, Lane 6: human PC-3 whole cell lysates, Lane 7: human U251 whole cell lysates, Lane 8: human U2OS whole cell lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA 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-Phospho-CDK2/CDK1 (Thr160/Thr161) antibody at a dilution of 1:500 overnight at 4oC, 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 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. Western blot probed with anti-phospho-CDK1/CDK2 (Thr161/Thr160) shows a main band at ~34 kDa corresponding to the full-length phosphorylated CDK1/2 and a weaker ~30 kDa band consistent with the deltaT-CDK2/1 isoform produced by alternative translation initiation.



Immunohistochemical staining of CDK2(Phospho-T160)/CDK1(Phospho-T161) using anti-Phospho-CDK2/CDK1 (Thr160/Thr161) antibody. CDK2(Phospho-T160)/CDK1(Phospho-T161) was detected in a paraffin-embedded section of human pancreas cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with a dilution of 1:50 rabbit anti-Phospho-CDK2/CDK1 (Thr160/Thr161) antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.

Description

Phospho-CDK2/CDK1 (Thr160/Thr161) antibody detects cyclin dependent kinase 2 and cyclin dependent kinase 1 when phosphorylated at their critical threonine residues required for activation. CDK2, encoded by the CDK2 gene, and CDK1, encoded by the CDK1 gene, are central regulators of the eukaryotic cell cycle. Both kinases belong to the cyclin dependent kinase family and function by binding specific cyclins that direct their activity at distinct phases of the cycle. Phosphorylation of CDK2 at threonine 160 and CDK1 at threonine 161 is essential for full catalytic activity and progression through S phase and mitosis.

Phospho-CDK2/CDK1 (Thr160/Thr161) antibody is widely applied in cancer biology, cell cycle research, and molecular pharmacology. Detection of phosphorylation at these residues provides a direct measure of CDK activation status. In proliferating cells, CDK2 in complex with cyclin E or cyclin A promotes DNA replication, while CDK1 in complex with cyclin B drives mitotic entry. By monitoring phosphorylation at Thr160 and Thr161, researchers can assess how CDK activation is controlled during the cell cycle and disrupted in disease.

In western blot assays, Phospho-CDK2/CDK1 (Thr160/Thr161) antibody detects phosphorylated isoforms distinct from inactive CDK2 and CDK1. Immunohistochemistry highlights nuclear staining in actively cycling cells within tissues, while immunofluorescence reveals subcellular localization of active kinase complexes at replication foci and mitotic structures. These methods provide powerful tools for visualizing CDK activity in situ.

CDK2 and CDK1 phosphorylation is regulated by cyclin binding and CDK activating kinase (CAK). In addition to activating phosphorylation, inhibitory phosphorylation at other residues fine tunes kinase activity, ensuring proper timing of cell cycle transitions. Aberrant phosphorylation results in unscheduled proliferation, genomic instability, and oncogenesis. By applying Phospho-CDK2/CDK1 (Thr160/Thr161) antibody, scientists can study how signaling pathways converge on CDK regulation and explore therapeutic strategies that target cell cycle kinases.

In oncology, dysregulated CDK2 and CDK1 activity is a hallmark of many tumors. Overexpression of cyclins, loss of CDK inhibitors such as p21 or p27, and altered phosphorylation lead to unchecked proliferation. Small molecule inhibitors of CDKs are under clinical development, and monitoring phosphorylation status provides a biomarker for therapeutic efficacy. This antibody therefore supports translational research linking kinase signaling to cancer therapy.

Beyond cancer, CDK2 and CDK1 phosphorylation contributes to developmental biology, stem cell regulation, and tissue regeneration. Phosphorylation at Thr160 and Thr161 ensures fidelity of DNA replication, chromosome segregation, and genome stability. Dysregulation is implicated in infertility, developmental syndromes, and age related decline. The phospho-specific antibody provides a means to evaluate CDK function across diverse biological systems.

Phosphorylation dynamics also link CDKs to DNA damage response and stress signaling. Upon genotoxic stress, inhibitory pathways suppress CDK activity to allow repair before replication or division. Conversely, inappropriate activation leads to replication stress and apoptosis. By using Phospho-CDK2/CDK1 (Thr160/Thr161) antibody, researchers can examine how stress signals intersect with cell cycle progression and contribute to disease mechanisms.

Phospho-CDK2/CDK1 (Thr160/Thr161) antibody from NSJ Bioreagents delivers dependable specificity for studying these key regulatory phosphorylation events. Its performance across multiple applications supports both mechanistic studies of kinase regulation and translational work in oncology and regenerative medicine. By enabling detection of CDK phosphorylation, the antibody provides insight into the molecular switches that drive cell division and maintain genomic stability.

Application Notes

Optimal dilution of the Phospho-CDK2/CDK1 (Thr160/Thr161) antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Phospho-CDK2(T160)+CDK1(T161) was used as the immunogen for the Phospho-CDK2/CDK1 (Thr160/Thr161) antibody.

Storage

Store the Phospho-CDK2/CDK1 (Thr160/Thr161) antibody at -20oC.