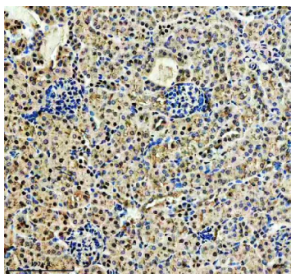
Phospho-CDK2/CDK1 (pThr160/pThr161) Antibody / Cell Cycle Activation Marker [clone 31C95] (FY12650)

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

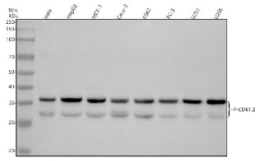
Recombinant RABBIT MONOCLONAL

Bulk quote request

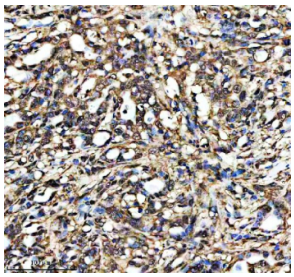
Availability	2-3 weeks
Species Reactivity	Human, Mouse
Format	Liquid
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	31C95
Purity	Affinity-chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	P24941, P06493
Localization	Cytoplasm
Applications	Western Blot : 1:500-1:2000 Immunohistochemistry : 1:50-1:200
Limitations	This Phospho-CDK2/CDK1 (pThr160/pThr161) Antibody / Cell Cycle Activation Marker is available for research use only.



Phospho-CDK2/CDK1 Antibody Mouse Kidney IHC. Immunohistochemistry analysis of FFPE mouse kidney tissue stained with phospho-CDK2/CDK1 antibody detecting CDK2 phosphorylated at Thr160 and CDK1 phosphorylated at Thr161, clone 31C95. Renal tubular epithelial cells show moderate to strong nuclear and cytoplasmic HRP-DAB brown staining, consistent with active cell cycle progression and kinase activation, while glomerular structures display lower staining intensity. Nuclei are counterstained blue. HIER: heat-mediated antigen retrieval in EDTA buffer (pH 8.0).



Phospho-CDK2/CDK1 Antibody Multi-Cell WB. Western blot analysis of human HeLa, HepG2, MCF-7, Caco-2, K562, PC-3, U251, and U2OS cell lysates using phospho-CDK2/CDK1 antibody detecting CDK2 phosphorylated at Thr160 and CDK1 phosphorylated at Thr161, clone 31C95. A prominent band is observed at approximately 34 kDa, consistent with the predicted molecular weight of full-length CDK2 and CDK1. A weaker band is detected at approximately 30 kDa, consistent with a truncated CDK isoform arising from alternative translation initiation. Signal across multiple cell lines reflects basal phosphorylation associated with cell cycle progression and kinase activation.



Phospho-CDK2/CDK1 Antibody Human Pancreatic Tumor IHC. Immunohistochemistry analysis of FFPE human pancreatic cancer tissue stained with phospho-CDK2/CDK1 antibody detecting CDK2 phosphorylated at Thr160 and CDK1 phosphorylated at Thr161, clone 31C95. Tumor epithelial cells show widespread nuclear and cytoplasmic HRP-DAB brown staining, consistent with elevated cell cycle activity and kinase activation, while surrounding stromal elements display lower staining intensity. Nuclei are counterstained blue. HIER: heat-mediated antigen retrieval in EDTA buffer (pH 8.0).

Description

Cyclin-dependent kinase 2 (CDK2) and cyclin-dependent kinase 1 (CDK1) are essential regulators of cell cycle progression that control transitions through the G1/S and G2/M phases, respectively. Activation of these kinases is tightly regulated by phosphorylation within the activation loop, specifically at threonine 160 in CDK2 and threonine 161 in CDK1. Phospho-CDK2/CDK1 (pThr160/pThr161) Antibody, clone 31C95, is designed to detect these phosphorylation events, providing a direct readout of CDK activation and cell cycle progression.

Phosphorylation at Thr160 and Thr161 is mediated by CDK-activating kinase (CAK) and is required for full catalytic activity of CDK2 and CDK1. This modification induces conformational changes within the kinase domain that enable substrate binding and efficient phosphorylation of downstream targets. Detection of these phosphorylation sites therefore reflects the active forms of CDK2 and CDK1 and their engagement in cell cycle regulation.

CDK2 is primarily active during the G1/S transition, where it promotes DNA replication through phosphorylation of proteins involved in replication initiation. CDK1, in contrast, is essential for entry into mitosis and regulates multiple processes including chromatin condensation, nuclear envelope breakdown, and mitotic spindle formation. Despite their distinct roles, both kinases share a conserved activation mechanism involving phosphorylation of the T-loop at Thr160 or Thr161, making these sites reliable markers of kinase activation.

Unlike total CDK detection, which reflects protein expression levels, phospho-specific detection at these activation sites provides insight into functional kinase activity and cell cycle status. Increased phosphorylation is typically observed in proliferating cells and during active phases of the cell cycle, while reduced phosphorylation is associated with quiescence or cell cycle arrest. Monitoring these sites therefore enables assessment of cell cycle dynamics in a wide range of biological contexts.

Subcellularly, activated CDK2 and CDK1 are localized primarily in the nucleus, where they interact with cyclins and phosphorylate substrates involved in DNA replication and mitosis. Immunodetection often reveals nuclear or pan-cellular staining patterns depending on the phase of the cell cycle and cellular context.

This antibody may also detect phosphorylated forms of CDK1 and CDK2 simultaneously due to conservation of the activation loop sequence. In western blot analysis, a major band is typically observed at approximately 34 kDa corresponding to full-length CDK1 and CDK2, with additional lower molecular weight bands potentially representing truncated isoforms generated by alternative translation initiation.

Dysregulation of CDK activation is a hallmark of cancer and contributes to uncontrolled cell proliferation. Detection of phosphorylation at Thr160 and Thr161 provides a useful marker for assessing cell cycle activity, kinase activation, and response to therapeutic agents targeting CDK signaling pathways. Phospho-CDK2/CDK1 (pThr160/pThr161) Antibody, clone 31C95, enables selective detection of these activation events, supporting studies of cell cycle progression and proliferative signaling. This antibody is part of our full phospho antibody collection which can be explored for additional phosphorylation-specific targets and pathway markers.

Application Notes

Optimal dilution of the Phospho-CDK2/CDK1 (pThr160/pThr161) Antibody / Cell Cycle Activation Marker should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Phospho-CDK2(pT160)+CDK1(pT161) was used as the immunogen for the Phospho-CDK2/CDK1 (pThr160/pThr161) Antibody.

Storage

Store the Phospho-CDK2/CDK1 (pThr160/pThr161) Antibody at -20oC.

Alternate Names

Phospho CDK2 CDK1 antibody, CDK2 pThr160 antibody, CDK1 pThr161 antibody, CDK2 Thr160 antibody, CDK1 Thr161 antibody, CHEK2 phospho antibody, CDK activation loop antibody, phosphorylated CDK1 CDK2 antibody, cell cycle CDK activation antibody, clone 31C95 antibody