

DESCRIPTION	
Species Reactivity	Human/Mouse/Rat
Specificity	Detects human, mouse, and rat CDK2 in Western blots. In Western blots, less than 1% cross-reactivity with recombinant human (rh) CDK4 and rhCDK6 is observed.
Source	Polyclonal Goat IgG
Purification	Antigen Affinity-purified
Immunogen	<i>E. coli</i> -derived recombinant human CDK2 Met1-Leu298 Accession # P24941
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

APPLICATIONS
Please Note: Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

	Recommended Concentration	Sample
Western Blot	1 µg/mL	See Below
Immunocytochemistry	5-15 µg/mL	See Below
Immunohistochemistry	3-15 µg/mL	See Below

DATA

Western Blot

Detection of Human/Mouse CDK2 by Western Blot. Western blot shows lysates of HEK293 human embryonic kidney cell line, HeLa human cervical epithelial carcinoma cell line, K562 human chronic myelogenous leukemia cell line, and Balb/3T3 mouse embryonic fibroblast cell line. PVDF membrane was probed with 1 µg/mL Goat Anti-Human/Mouse CDK2 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF4654) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). For additional reference, recombinant human CDK2, CDK4, and CDK6 (5 ng/lane) were included. A specific band for CDK2 was detected at approximately 34 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Western Blot

Detection of Rat CDK2 by Western Blot. Western blot shows lysates of C6 rat glioma cell line. PVDF membrane was probed with 1 µg/mL of Goat Anti-Human/Mouse CDK2 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF4654) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF017). A specific band was detected for CDK2 at approximately 34 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

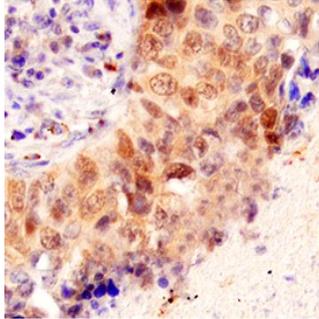
Immunocytochemistry

CDK2 in K562 Human Cell Line. CDK2 was detected in immersion fixed K562 human chronic myelogenous leukemia cell line using Goat Anti-Human/Mouse CDK2 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF4654) at 5 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for [Fluorescent ICC Staining of Non-adherent Cells](#).

Immunocytochemistry

CDK2 in 3T3-L1 Mouse Cell Line. CDK2 was detected in immersion fixed 3T3-L1 mouse embryonic fibroblast adipose-like cell line using Goat Anti-Human/Mouse CDK2 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF4654) at 15 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Goat IgG Secondary Antibody (red; Catalog # NL001) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm and nuclei. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

Immunohistochemistry



CDK2 in Human Lung Cancer Tissue.
CDK2 was detected in immersion fixed paraffin-embedded sections of human lung cancer tissue using Goat Anti-Human/Mouse CDK2 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF4654) at 3 µg/mL for 1 hour at room temperature followed by incubation with the Anti-Goat IgG VisUCyte™ HRP Polymer Antibody (Catalog # VC004). Tissue was stained using DAB (brown) and counterstained with hematoxylin (blue). Specific staining was localized to cytoplasm and cancer cell nuclei. View our protocol for [IHC Staining with VisUCyte HRP Polymer Detection Reagents](#).

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <ul style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

CDK2 (cyclin-dependent kinase 2), a serine/threonine protein kinase, is the catalytic subunit of the heterodimeric cyclin-dependent kinase complex required for G1/S phase transition. The kinase activity of CDK2 is regulated by the association with a cyclin subunit, CDK inhibitors, and its phosphorylation state. The active CDK2/cyclin A complex interacts with the N-terminus of E2F-1 and directs the phosphorylation of E2F-1 and DP-1. The active CDK2/cyclin E complex phosphorylates Rb which disrupts its binding to E2F, allowing E2F activation and transcription of the genes necessary for S-phase entry and progression. Inhibition of the CDK2/cyclin complex can be attributed to its association with p21^{Waf1/Cip1} and p27^{Kip1} and the phosphorylation of CDK2 on Thr14 and Tyr15. The activation of the CDK2/cyclin complex requires the phosphorylation of Thr160 and the dephosphorylation of Tyr14 and Tyr15.