



## CDK2/Cyclin A2 (Human), Active

Full-length recombinant protein expressed in Sf9 cells

Cat# CY-SPC29

Lot No. L241-1  
5 µg 0.1 µg/µl

### Background:

CDK2 is a member of the Cyclin-Dependent Kinase family that is ubiquitously expressed. CDK2 is a catalytic subunit of the cyclin-dependent protein kinase complex, whose activity is restricted to the G1-S phase, and essential for cell cycle G1/S phase transition. CDK2 associates with and is regulated by the regulatory subunits of the complex including Cyclin A or E, CDK inhibitor p21Cip1 (CDKN1A) and p27Kip1 (CDKN1B) (1). CDK2 phosphorylates multiple cellular substrates including SMAD3 and FOXO1. Phosphorylation of FOXO1 leads to its inhibition (2).

### Product Description:

Recombinant full-length human CDK2 and Cyclin A2 were co-expressed by baculovirus in Sf9 insect cells using an N-terminal GST tag on both proteins. The CDK2 gene accession number is NM\_001798 ; Cyclin A2 is NM\_001237.

### Gene Aliases:

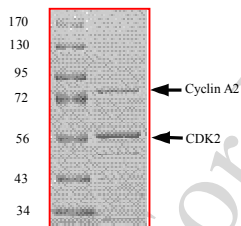
p33(CDK2)/ CCN1, CCNA

### Formulation:

Recombinant protein stored in 50mM Tris-HCl, pH 7.5, 150mM NaCl, 0.25mM DTT, 0.1mM EGTA, 0.1mM EDTA, 0.1mM PMSF, 25% glycerol.

### Purity & Molecular Weight:

The purity was determined to be >70% by densitometry.  
CDK2 Approx. MW 58kDa and Cyclin A2 Approx. MW 78kDa.



### Storage:

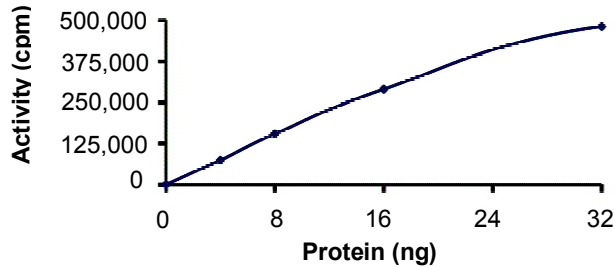
Store product at  $-70^{\circ}\text{C}$ . For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, avoid repeated handling and multiple freeze/thaw cycles.

### Stability:

1 year at  $-70^{\circ}\text{C}$  from date of shipment.

**Specific Activity:**

The specific activity of was determined to be 822 nmol /min/mg as per Activity Assay Protocol.

**Activity Assay Protocol:**

Assay activity of the kinase in a 25  $\mu$ L reaction consisting of 5  $\mu$ L of 5 X Kinase Assay Buffer, 10  $\mu$ L of 1 mg/ml the Substrate Solution, 5  $\mu$ L of diluted kinase and 5  $\mu$ L of 250  $\mu$ M ATP solution containing [ $\gamma$   $^{32}$ P] ATP (0.167  $\mu$ Ci/ $\mu$ L). Start the reaction by adding the ATP solution. Incubate for 15 minutes at 30°C. Terminate the reaction by spotting 20  $\mu$ L of the reaction mixture onto phosphocellulose P81 paper. Air-dry the P81 paper and sequentially wash 4 times for approximately 10 minutes each in 1% phosphoric acid with constant gentle stirring. Count the P81 paper in a liquid scintillation counter.

**Substrate Solution:**

Histone H1 diluted in distilled H<sub>2</sub>O to a final concentration of 1 mg/ml.

**5 X Kinase Assay Buffer:**

25mM MOPS, pH 7. 2, 12.5mM  $\beta$ -glycerol-phosphate, 25mM MgCl<sub>2</sub>, 5mM EGTA, 2mM EDTA. Add 0.25mM DTT to Kinase Assay Buffer prior to use.

**References:**

- 1.Levkau, B. et al: Cleavage of p21 (Cip1/Waf1) and p27 (Kip1) mediates apoptosis in endothelial cells through activation of Cdk2: role of a caspase cascade. *Molec. Cell* 1: 553-563, 1998.
- 2.Huang, H. et al: CDK2-dependent phosphorylation of FOXO1 as an apoptotic response to DNA damage. *Science* 314: 294-297, 2006.

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