# Data Sheet (Cat.No.TMAH-00887)

## Anti-Phospho-CDK2 (Tyr15) Antibody (4J837)

### Product Details

| | |
|---|---|
| Ig Type: | Rabbit IgG |
| Reactivity: | Human |
| Conjugation: | Unconjugated |
| Clone: | 4J837 |
| Purification: | Affinity-chromatography |

### Applications

| | |
|---|---|
| Verified Activity: | 1. Western Blot<br>-Positive WB detected in:Hela whole cell lysate, 293 whole cell lysate(treated with Pervanadate or not)<br>-All lanes:Phospho-CDK2 antibody at 0.8μg/ml<br>-Secondary: Goat polyclonal to rabbit IgG at 1/50000 dilution<br>-Predicted band size: 34 KDa<br>-Observed band size: 34 KDa<br>2. Immunocytochemistry analysis of TMAH-00887 diluted at 1:80 and staining in Hela cells (treated with Pervanadate) performed on a Leica BondTM system. The cells were fixed in 4% formaldehyde, permeabilized using 0.2% Triton X-100 and blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4°C overnight. The primary is detected by a biotinylated secondary antibody and visualized using an HRP conjugated SP system.<br>3. Immunoprecipitating Phospho-CDK2 in Hela whole cell lysate treated with Pervanadate<br>-Lane 1: Rabbit control IgG(1μg)instead of TMAH-00887 in Hela whole cell lysate treated with Pervanadate.For western blotting,a HRP-conjugated Protein G antibody was used as the secondary antibody (1/2000)<br>-Lane 2: TMAH-00887(3μg)+ Hela whole cell lysate treated with Pervanadate(1mg)<br>-Lane 3: Hela whole cell lysate treated with Pervanadate(20μg) |
| Application: | ELISA,IHC,IP,WB |
| Recommended | WB:1:500-1:5000; IHC:1:50-1:200; IP:1:200-1:1000. |

### Properties

| | |
|---|---|
| Stability & Storage: | Store at -20°C or -80°C for 12 months. Avoid repeated freeze-thaw cycles. |
| Shipping: | Shipping with blue ice. |

## Antigen Details

| | |
|---|---|
| Immunogen: | A synthetic peptide: Human Phospho-CDK2 (Y15) |
| Antigen Species: | Human |
| Gene ID: | 1017 |
| Uniprot ID: | P24941 |
| Synonyms: | p-CDK2 (Tyr15);CDK2 (p-Y15);Phospho-CDK2 (Y15);CDK2 (p-Tyr15);p-CDK2 (Y15);CDKN2;cyclin-dependent kinase 2;p33(CDK2) |
| Biology Area: | Cell Biology |

## Research Background

Serine/threonine-protein kinase involved in the control of the cell cycle; essential for meiosis, but dispensable for mitosis. Phosphorylates CTNNB1, USP37, p53/TP53, NPM1, CDK7, RB1, BRCA2, MYC, NPAT, EZH2. Triggers duplication of centrosomes and DNA. Acts at the G1-S transition to promote the E2F transcriptional program and the initiation of DNA synthesis, and modulates G2 progression; controls the timing of entry into mitosis/meiosis by controlling the subsequent activation of cyclin B/CDK1 by phosphorylation, and coordinates the activation of cyclin B/CDK1 at the centrosome and in the nucleus. Crucial role in orchestrating a fine balance between cellular proliferation, cell death, and DNA repair in human embryonic stem cells (hESCs). Activity of CDK2 is maximal during S phase and G2; activated by interaction with cyclin E during the early stages of DNA synthesis to permit G1-S transition, and subsequently activated by cyclin A2 (cyclin A1 in germ cells) during the late stages of DNA replication to drive the transition from S phase to mitosis, the G2 phase. EZH2 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing. Phosphorylates CABLES1. Cyclin E/CDK2 prevents oxidative stress-mediated Ras-induced senescence by phosphorylating MYC. Involved in G1-S phase DNA damage checkpoint that prevents cells with damaged DNA from initiating mitosis; regulates homologous recombination-dependent repair by phosphorylating BRCA2, this phosphorylation is low in S phase when recombination is active, but increases as cells progress towards mitosis. In response to DNA damage, double-strand break repair by homologous recombination a reduction of CDK2-mediated BRCA2 phosphorylation. Phosphorylation of RB1 disturbs its interaction with E2F1. NPM1 phosphorylation by cyclin E/CDK2 promotes its dissociates from unduplicated centrosomes, thus initiating centrosome duplication. Cyclin E/CDK2-mediated phosphorylation of NPAT at G1-S transition and until prophase stimulates the NPAT-mediated activation of histone gene transcription during S phase. Required for vitamin D-mediated growth inhibition by being itself inactivated. Involved in the nitric oxide- (NO) mediated signaling in a nitrosylation/activation-dependent manner. USP37 is activated by phosphorylation and thus triggers G1-S transition. CTNNB1 phosphorylation regulates insulin internalization. Phosphorylates FOXP3 and negatively regulates its transcriptional activity and protein stability. Phosphorylates CDK2AP2. Phosphorylates ERCC6 which is essential for its chromatin remodeling activity at DNA double-strand breaks.



Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481