

# Anti-Cdk7/CAK Antibody (Monoclonal, MO-1.1)

Catalog # ABO10417

## Product Information

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| <b>Application</b>       | WB, IHC-F, ICC                                                                                                                                                        |
| <b>Primary Accession</b> | <a href="#">P51952</a>                                                                                                                                                |
| <b>Host</b>              | Mouse                                                                                                                                                                 |
| <b>Isotype</b>           | Mouse IgG2b                                                                                                                                                           |
| <b>Reactivity</b>        | Human                                                                                                                                                                 |
| <b>Clonality</b>         | Monoclonal                                                                                                                                                            |
| <b>Format</b>            | Lyophilized                                                                                                                                                           |
| <b>Description</b>       | Mouse IgG monoclonal antibody for Cdk7/CAK, cyclin-dependent kinase 7 (CDK7) detection. Tested with WB, IHC-F, ICC in Human. No cross reactivity with other proteins. |
| <b>Reconstitution</b>    | Add 1ml of PBS buffer will yield a concentration of 100ug/ml.                                                                                                         |

## Additional Information

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| <b>Other Names</b>              | Cyclin-dependent kinase 7, 2.7.11.22, 2.7.11.23, 39 protein kinase, P39 Mo15, CDK-activating kinase 1, Cell division protein kinase 7, TFIIH basal transcription factor complex kinase subunit, Cdk7, Cak, Cak1, Mo15             |
| <b>Calculated MW</b>            | 37141                                                                                                                                                                                                                             |
| <b>Application Details</b>      | Immunocytochemistry , 1 $\mu$ g/ml, Human, -<br>Immunohistochemistry(Frozen Section), 0.5 $\mu$ g/ml, Human, -<br>Western blot, 0.25 $\mu$ g/ml, Human                                                                            |
| <b>Subcellular Localization</b> | Nucleus . Cytoplasm . Cytoplasm, perinuclear region . Colocalizes with PRKCI in the cytoplasm and nucleus. Translocates from the nucleus to cytoplasm and perinuclear region in response to DNA-bound peptides (By similarity). . |
| <b>Tissue Specificity</b>       | CDK7: Ubiquitous.                                                                                                                                                                                                                 |
| <b>Source</b>                   | Eukaryota                                                                                                                                                                                                                         |
| <b>Protein Name</b>             | Cyclin-dependent kinase 7                                                                                                                                                                                                         |
| <b>Contents</b>                 | Mouse ascites fluid, 1.2% sodium acetate, 2mg BSA, with 0.01mg NaN3 as preservative.                                                                                                                                              |
| <b>Clone Names</b>              | MO-1.1                                                                                                                                                                                                                            |
| <b>Immunogen</b>                | Recombinant human Cdk7 protein.                                                                                                                                                                                                   |
| <b>Purification</b>             | Ascites                                                                                                                                                                                                                           |

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|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cross Reactivity</b>      | No cross reactivity with other proteins                                                                                                                                               |
| <b>Storage</b>               | At -20 °C for one year. After r ° Constitution, at 4 °C for one month. It ° Can also be aliquotted and stored frozen at -20 °C for a longer time.Avoid repeated freezing and thawing. |
| <b>Sequence Similarities</b> | Belongs to the protein kinase superfamily. CMGC Ser/Thr protein kinase family. CDC2/CDKX subfamily.                                                                                   |

## Protein Information

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| <b>Name</b>              | Cdk7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Synonyms</b>          | Cak, Cak1, Mo15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Function</b>          | Serine/threonine kinase involved in cell cycle control and in RNA polymerase II-mediated RNA transcription (By similarity). As a cyclin-dependent kinase, CDK7 is activated by the binding to cyclin- H/CCNH and the CDK-activating kinase assembly factor MAT1 (By similarity). Catalytic subunit of the CDK-activating kinase (CAK) complex, a master regulator of CDK activity by catalyzing the activating threonine phosphorylation of CDKs (By similarity). CAK activates major mediators of cell cycle control, including CDK1, CDK2, CDK4 and CDK6, and plays a key role in regulating cell cycle progression (By similarity). CAK complexed to the core-TFIIF basal transcription factor activates RNA polymerase II by serine phosphorylation of the CTD of POLR2A, allowing its escape from the promoter and elongation of the transcripts (By similarity). Initiates transcription by RNA polymerase II by mediating phosphorylation of POLR2A at 'Ser-5' of the repetitive C-terminal domain (CTD) when POLR2A is in complex with DNA, promoting dissociation from DNA and initiation (By similarity). Phosphorylates SPT5/SUPT5H, SF1/NR5A1, POLR2A, p53/TP53, CDK1, CDK2, CDK4, CDK6 and CDK11B/CDK11 (By similarity). Its expression and activity are constant throughout the cell cycle. Upon DNA damage, triggers p53/TP53 activation by phosphorylation, but is inactivated in turn by p53/TP53; this feedback loop may lead to an arrest of the cell cycle and of the transcription, helping in cell recovery, or to apoptosis. Required for DNA-bound peptides-mediated transcription and cellular growth inhibition. |
| <b>Cellular Location</b> | Nucleus {ECO:0000250 UniProtKB:P50613}. Cytoplasm {ECO:0000250 UniProtKB:P50613}. Cytoplasm, perinuclear region {ECO:0000250 UniProtKB:P50613}. Note=Colocalizes with PRKCI in the cytoplasm and nucleus. Translocates from the nucleus to cytoplasm and perinuclear region in response to DNA-bound peptides (By similarity) {ECO:0000250 UniProtKB:P50613}                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Background

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CDK-activating kinases(CAKs) are multisubunit proteins that phosphorylate and thus activate certain cyclin-dependent protein kinases in the regulation of cell cycle progression. Cyclin dependent kinase7(CDK7) gene is mapped to chromosome 2p15-cen. CDK7 functions in both cyclin binding and T-loop phosphorylation and that these 2 steps of CDK1 activation are mutually dependent.

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