SunLong Biotech Co.,LTD
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Mouse Anti-Cdk4 antibody

SLM-52028M

Product Name	Cdk4
Chinese Name	周期素依赖性激酶 4 单克隆抗体
Alias	Cdk 4; CDK4 protein; Cell division kinase 4; Cell division protein kinase 4; CMM 3; CMM3; Crk3; Cyclin dependent kinase 4; Melanoma cutaneous malignant 3; MGC14458; p34 cdk4; PSK J3; CDK4_HUMAN.
Research Area	Tumour Cell biology Chromatin and nuclear signals Signal transduction Cyclin Kinases and Phosphatases
Immunogen Species	Mouse
Clonality	Monoclonal
Clone NO.	2F6
React Species	Human, Mouse, Rat,
Applications	WB=1:500-2000,IHC-P=1:200-1000,IHC-F=1:200-1000,ICC/IF=1:50-200,IF=1:200-1000（Paraffin sections need antigen repair） not yet tested in other applications. optimal dilutions/concentrations should be determined by the end user.
Theoretical molecular weight	34kDa
Cellular localization	The nucleus cytoplasmic The cell membrane
Form	Liquid
Concentration	1mg/ml
immunogen	KLH conjugated synthetic peptide derived from human Cdk4
Lsotype	IgG
Purification	affinity purified by Protein A
Buffer Solution	1M TBS(pH7.4) with 1% BSA, 3% Proclin300 and 50% Glycerol.
Storage	Shipped at 4℃. Store at -20 °C for one year. Avoid repeated freeze/thaw cycles.
Attention	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

PubMed PubMed

The protein encoded by this gene is a member of the Ser/Thr protein kinase family. This protein is highly similar to the gene products of S. cerevisiae cdc28 and S. pombe cdc2. It is a catalytic subunit of the protein kinase complex that is important for cell cycle G1 phase progression. The activity of this kinase is restricted to the G1-S phase, which is controlled by the regulatory subunits D-type cyclins and CDK inhibitor p16(INK4a). This kinase was shown to be responsible for the phosphorylation of retinoblastoma gene product (Rb). Mutations in this gene as well as in its related proteins including D-type cyclins, p16(INK4a) and Rb were all found to be associated with tumorigenesis of a variety of cancers. Multiple polyadenylation sites of this gene have been reported. [provided by RefSeq, Jul 2008]

Product Detail

Function:
Ser/Thr-kinase component of cyclin D-CDK4 (DC) complexes that phosphorylate and inhibit members of the retinoblastoma (RB) protein family including RB1 and regulate the cell-cycle during G(1)/S transition. Phosphorylation of RB1 allows dissociation of the transcription factor E2F from the RB/E2F complexes and the subsequent transcription of E2F target genes which are responsible for the progression through the G(1) phase. Hypophosphorylates RB1 in early G(1) phase. Cyclin D-CDK4 complexes are major integrators of various mitogenenic and antimitogenic signals. Also phosphorylates SMAD3 in a cell-cycle-dependent manner and represses its transcriptional activity. Component of the ternary complex, cyclin D/CDK4/CDKN1B, required for nuclear translocation and activity of the cyclin D-CDK4 complex.

Subunit:
Component of the D-CDK4 complex, composed of CDK4 and some D-type G1 cyclin (CCND1, CCND2 or CCND3). Interacts directly in the complex with CCND1, CCND2 or CCND3. Interacts with SEI1 and ZNF655. Forms a ternary complex, cyclin D-CDK4-CDKN1B, involved in modulating CDK4 enzymatic activity. Interacts directly with CDKN1B (phosphorylated on 'Tyr-88' and 'Tyr-89'); the interaction allows assembly of the cyclin D-CDK4 complex, Thr-172 phosphorylation, nuclear translocation and enhances the cyclin D-CDK4 complex activity. CDK4 activity is either inhibited or enhanced depending on stoichiometry of complex. The non-tyrosine-phosphorylated form of CDKN1B prevents T-loop phosphorylation of CDK4 producing inactive CDK4. Interacts (unphosphorylated form) with CDK2. Also forms ternary complexes with CDKN1A or CDKN2A. Interacts directly with CDKN1A (via its N-terminal); the interaction promotes the assembly of the cyclin D-CDK4 complex, its nuclear translocation and promotes the cyclin D-dependent enzyme activity of CDK4.

Subcellular Location:
Cytoplasm. Nucleus. Membrane. Cytoplasmic when non-complexed. Forms a cyclin D-CDK4 complex in the cytoplasm as cells progress through G(1) phase. The complex accumulates on the nuclear membrane and enters the nucleus on transition from G(1) to S phase. Also present in nucleoli and heterochromatin lumps. Colocalizes with RB1 after

release into the nucleus.

Post-translational modifications:
Phosphorylation at Thr-172 is required for enzymatic activity. Phosphorylated, in vitro, at this site by CCNH-CDK7, but, in vivo, appears to be phosphorylated by a proline-directed kinase. In the cyclin D-CDK4-CDKN1B complex, this phosphorylation and consequent CDK4 enzyme activity, is dependent on the tyrosine phosphorylation state of CDKN1B. Thus, in proliferating cells, CDK4 within the complex is phosphorylated on Thr-172 in the T-loop. In resting cells, phosphorylation on Thr-172 is prevented by the non-tyrosine-phosphorylated form of CDKN1B.

DISEASE:
Defects in CDK4 are a cause of susceptibility to cutaneous malignant melanoma type 3 (CMM3) [MIM:609048]. Malignant melanoma is a malignant neoplasm of melanocytes, arising de novo or from a pre-existing benign nevus, which occurs most often in the skin but also may involve other sites.

Similarity:
Belongs to the protein kinase superfamily. CMGC Ser/Thr protein kinase family. CDC2/CDKX subfamily. Contains 1 protein kinase domain.

SWISS:
P11802

Gene ID:
1019

Database links:

Entrez Gene: 1019 Human

Entrez Gene: 12567 Mouse

Entrez Gene: 94201 Rat

Omim: 123829 Human

SwissProt: P11802 Human

SwissProt: P30285 Mouse

SwissProt: P35426 Rat

Unigene: 95577 Human

Unigene: 6839 Mouse

Unigene: 6115 Rat

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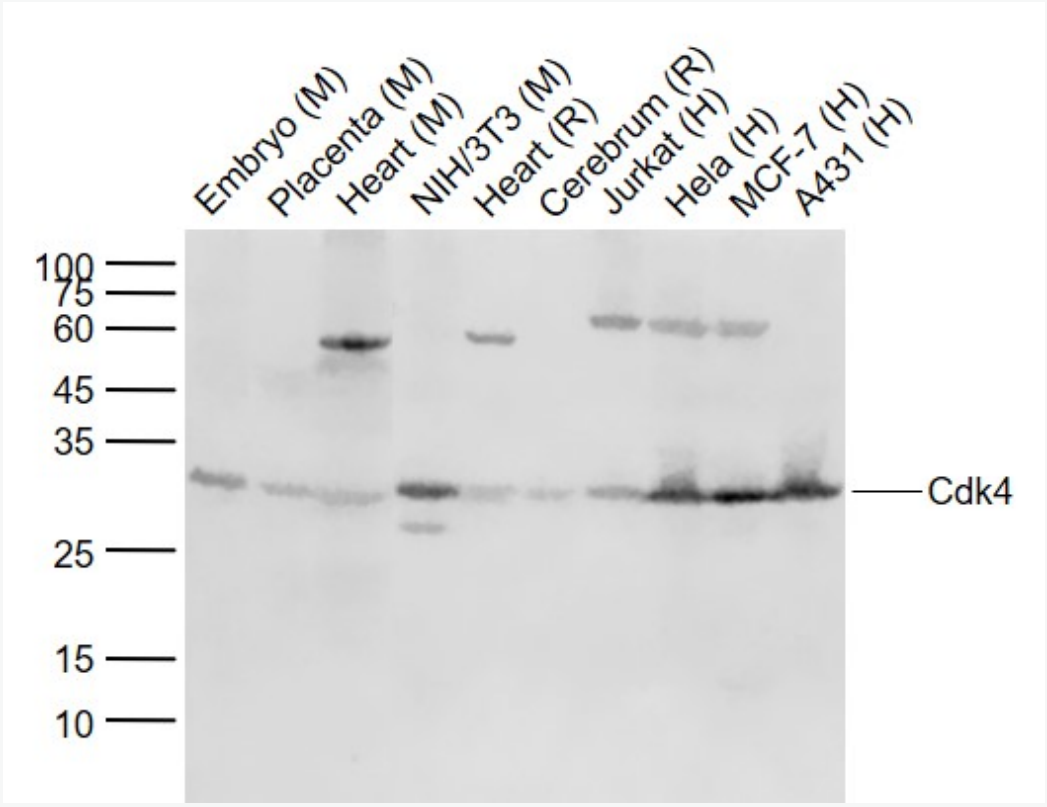
Product Picture



Sample:

Lane 1: Embryo (Mouse) Lysate at 40 ug

Lane 2: Placenta (Mouse) Lysate at 40 ug

Lane 3: Heart (Mouse) Lysate at 40 ug

Lane 4: NIH/3T3 (Mouse) Cell Lysate at 30 ug

Lane 5: Heart (Rat) Lysate at 40 ug

Lane 6: Cerebrum (Rat) Lysate at 40 ug

Lane 7: Jurkat (Human) Cell Lysate at 30 ug

Lane 8: Hela (Human) Cell Lysate at 30 ug

Lane 9: MCF-7 (Human) Cell Lysate at 30 ug

Lane 10: A431 (Human) Cell Lysate at 30 ug

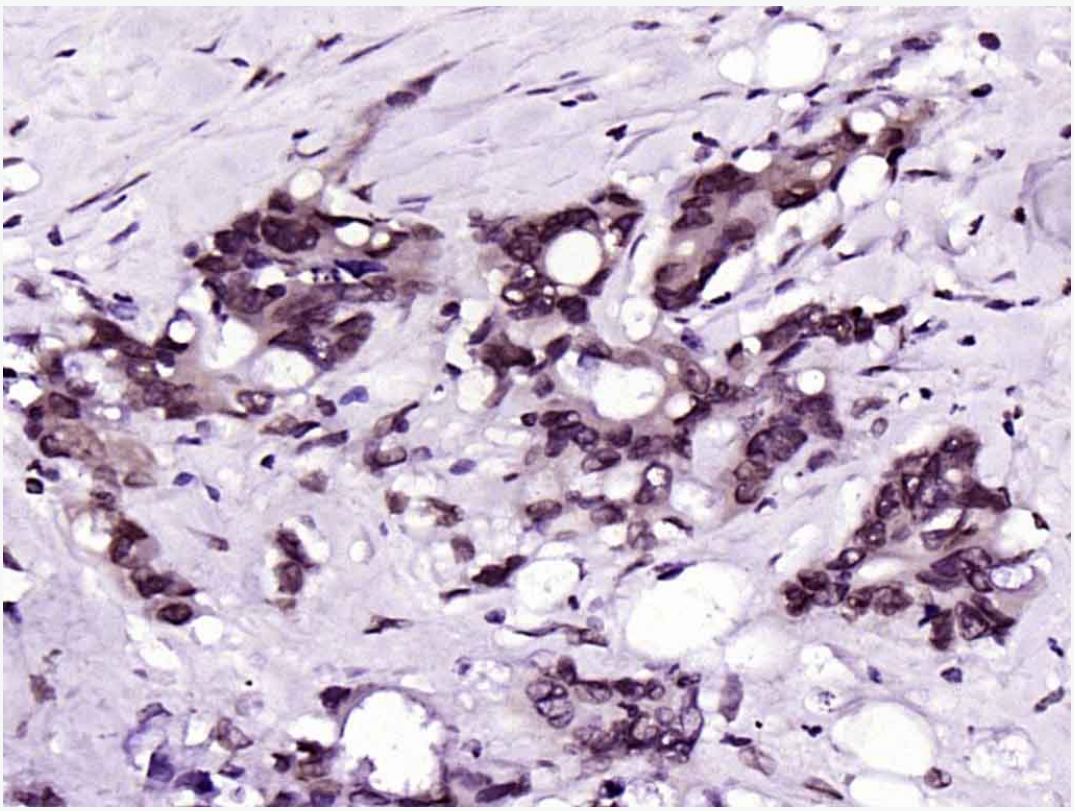
Primary:

Anti-Cdk4 (SLM-52028M) at 1/1000 dilution

Secondary: IRDye800CW Goat Anti-Mouse IgG at 1/20000 dilution

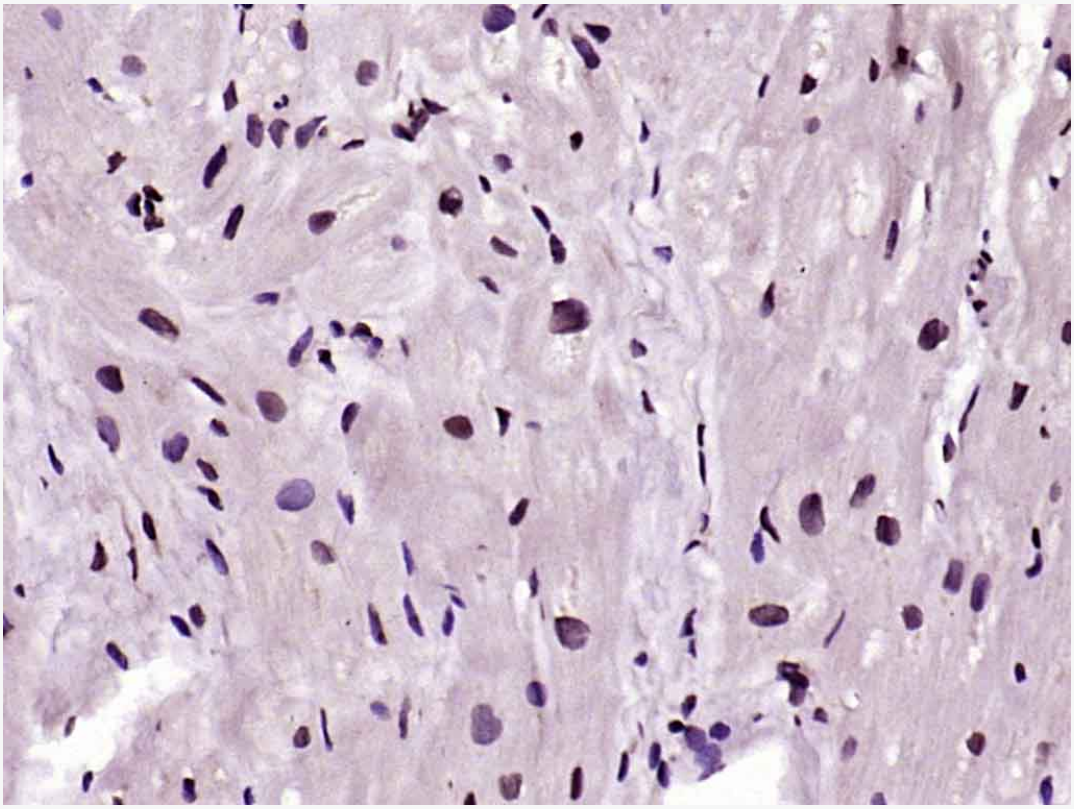
Predicted band size: 34 kD

Observed band size: 32 kD



Paraformaldehyde-fixed, paraffin embedded (human rectal carcinoma); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat

serum) at 37°C for 30min; Antibody incubation with (Cdk4) Monoclonal Antibody, Unconjugated (SLM-52028M) at 1:200 overnight at 4°C, followed by operating according to SP Kit(Mouse)(sp-0024) instructionsand DAB staining.



Paraformaldehyde-fixed, paraffin embedded (human myocardium); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (Cdk4) Monoclonal Antibody, Unconjugated (SLM-52028M) at 1:200 overnight at 4°C, followed by operating according to SP Kit(Mouse)(sp-0024) instructionsand DAB staining.

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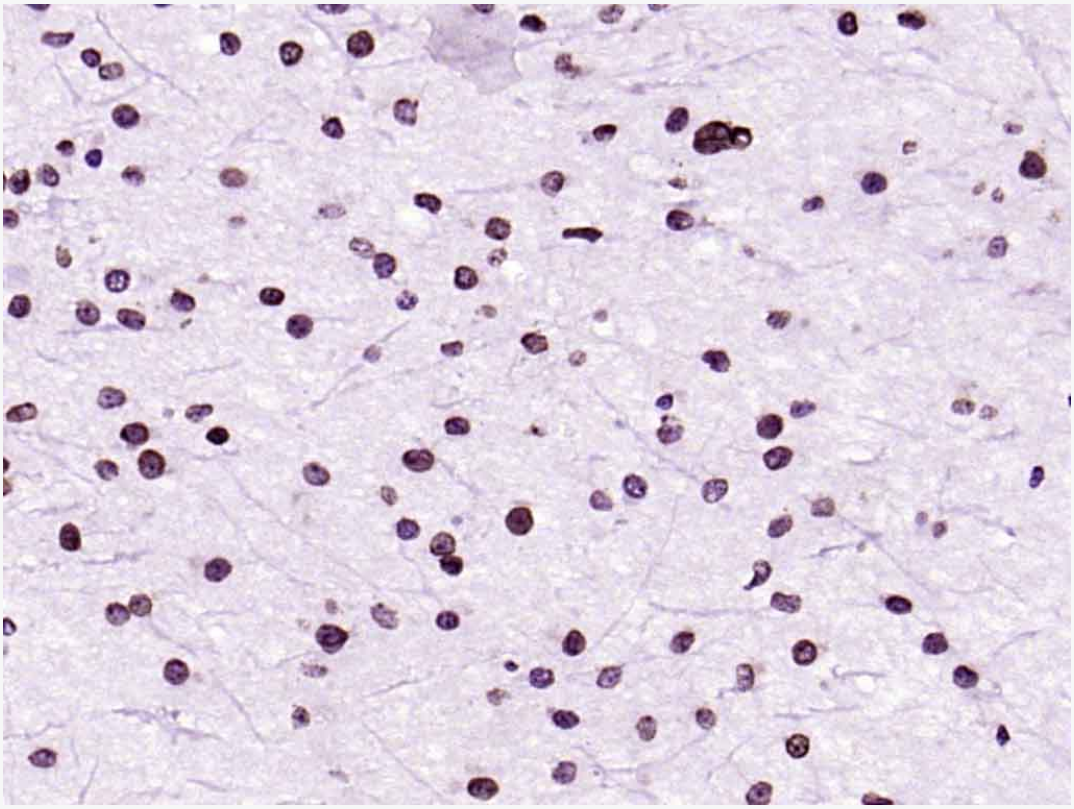

Paraformaldehyde-fixed, paraffin embedded (human brain); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (Cdk4) Monoclonal Antibody, Unconjugated (SLM-52028M) at 1:200 overnight at 4°C, followed by operating according to SP Kit(Mouse)(sp-0024) instructionsand DAB staining.