

# casein kinase II $\alpha$ (E-7): sc-373894

## BACKGROUND

Casein kinase I (also designated CKI) and casein kinase II (also designated CKII) compose a family of serine/threonine protein kinases which are present in all eukaryotes examined to date. CKI family members, which include CKI $\alpha$ ,  $\gamma$ ,  $\epsilon$  and  $\delta$ , have been implicated in the control of cytoplasmic and nuclear processes, including DNA replication and repair. CKII is usually expressed as a tetrameric complex consisting of either an  $\alpha$ 2 $\beta$ 2 or an  $\alpha\alpha$ ' $\beta$ 2 structure. The  $\alpha$  catalytic subunit is stimulated by the  $\beta$  regulatory subunit, which undergoes autophosphorylation. CKII activity is high in the cytosol and nucleus of proliferating and differentiating cells. casein kinase II is known to phosphorylate more than 100 different substrates including nuclear oncoproteins, transcription factors and enzymes involved in DNA metabolism.

## REFERENCES

- Lozeman, F.J., et al. 1990. Isolation and characterization of human cDNA clones encoding the  $\alpha$  and the  $\alpha'$  subunits of casein kinase II. *Biochemistry* 29: 8436-8447.
- Tuazon, P.T. and Traugh, J.A. 1991. Casein kinase I and II—multipotential serine protein kinases: structure, function and regulation. *Adv. Second Messenger Phosphoprotein Res.* 23: 123-164.

## CHROMOSOMAL LOCATION

Genetic locus: CSNK2A1 (human) mapping to 20p13; Csnk2a1 (mouse) mapping to 2 G3.

## SOURCE

casein kinase II $\alpha$  (E-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-27 at the N-terminus of casein kinase II $\alpha$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

casein kinase II $\alpha$  (E-7) is available conjugated to agarose (sc-373894 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-373894 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373894 PE), fluorescein (sc-373894 FITC), Alexa Fluor<sup>®</sup> 488 (sc-373894 AF488), Alexa Fluor<sup>®</sup> 546 (sc-373894 AF546), Alexa Fluor<sup>®</sup> 594 (sc-373894 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-373894 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-373894 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-373894 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-373894 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

casein kinase II $\alpha$  (E-7) is recommended for detection of casein kinase II $\alpha$  of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

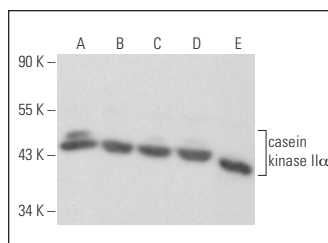
casein kinase II $\alpha$  (E-7) is also recommended for detection of casein kinase II $\alpha$  in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for casein kinase II $\alpha$  siRNA (h): sc-29918, casein kinase II $\alpha$  siRNA (m): sc-29919, casein kinase II $\alpha$  shRNA Plasmid (h): sc-29918-SH, casein kinase II $\alpha$  shRNA Plasmid (m): sc-29919-SH, casein kinase II $\alpha$  shRNA (h) Lentiviral Particles: sc-29918-V and casein kinase II $\alpha$  shRNA (m) Lentiviral Particles: sc-29919-V.

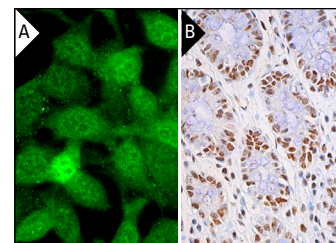
Molecular Weight of casein kinase II $\alpha$ : 42 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or Jurkat whole cell lysate: sc-2204.

## DATA



casein kinase II $\alpha$  (E-7): sc-373894. Western blot analysis of casein kinase II $\alpha$  expression in HeLa (A), Jurkat (B), K-562 (C) and MOLT-4 (D) whole cell lysates and mouse brain tissue extract (E).



casein kinase II $\alpha$  (E-7): sc-373894. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing nuclear and cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing nuclear staining of glandular cells. Blocked with 0.25X UltraCruz<sup>®</sup> Blocking Reagent: sc-516214. Detection reagents used: m-IgG $\kappa$  BP-B: sc-516142 and ImmunoCruz<sup>®</sup> ABC Kit: sc-516216 (B).

## SELECT PRODUCT CITATIONS

- Zhou, B., et al. 2016. Protein kinase CK2 $\alpha$  maintains extracellular signal-regulated kinase (ERK) activity in a CK2 $\alpha$  kinase-independent manner to promote resistance to inhibitors of RAF and MEK but not ERK in BRAF mutant melanoma. *J. Biol. Chem.* 291: 17804-17815.
- Dovat, E., et al. 2021. Transcriptional regulation of PIK3CD and PIKFYVE in T-cell acute lymphoblastic leukemia by IKAROS and protein kinase CK2. *Int. J. Mol. Sci.* 22: 819.
- Razpotnik, R., et al. 2022. Circular RNA hsa\_circ\_0062682 binds to YBX1 and promotes oncogenesis in hepatocellular carcinoma. *Cancers* 14: 4524.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.