Human Casein Kinase 2α Antibody

Monoclonal Mouse IgG_1 Clone # 844720

Catalog Number: MAB7957

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Casein Kinase 2α in ELISAs and Western blots. Detects mouse and rat Casein Kinase 2α in Western blots
Source	Monoclonal Mouse IgG_1 Clone # 844720
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	*E. coli*-derived recombinant human Casein Kinase 2α Asp253-Gln391 Accession # P68400
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS.

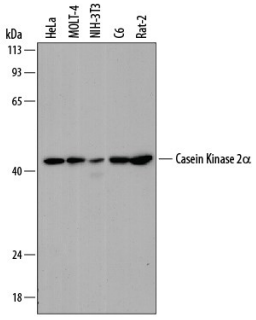
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	1 µg/mL	See Below
Immunocytochemistry	8-25 µg/mL	See Below
Immunohistochemistry	5-25 µg/mL	See Below
Simple Western	10 µg/mL	See Below
Knockout Validated	Casein Kinase 2 alpha is specifically detected in HAP1 human colorectal cell line and parental HAP1 cell line, but is not detectable in Casein Kinase 2 alpha knockout HAP1 cell line and knockout HAP1 cell line.	

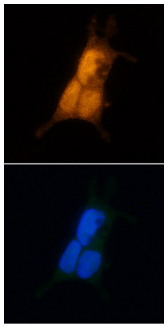
DATA

Western Blot



Detection of Human, Mouse, and Rat Casein Kinase 2α by Western Blot. Western blot shows lysates of HeLa human cervical epithelial carcinoma cell line, MOLT-4 human acute lymphoblastic leukemia cell line, NIH-3T3 mouse embryonic fibroblast cell line, C6 rat glioma cell line, and Rat-2 rat embryonic fibroblast cell line. PVDF membrane was probed with 1 µg/mL of Mouse Anti-Human Casein Kinase 2a Monoclonal Antibody (Catalog # MAB7957) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # HAF018). A specific band was detected for Casein Kinase 2a at approximately 42 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Immunocytochemistry



Casein Kinase 2α in HEK293 Human Cell Line. Casein Kinase 2a was detected in immersion fixed HEK293 human embryonic kidney cell line using Mouse Anti-Human Casein Kinase 2a Monoclonal Antibody (Catalog # MAB7957) at 25 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (yellow, upper panel; Catalog # NL007) and counterstained with DAPI (blue, lower panel). Specific staining was localized to nuclei. View our protocol for Fluorescent ICC Staining of Cells on Coverslips.

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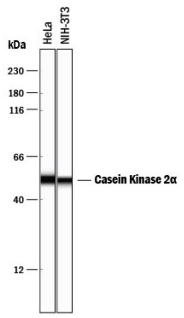
Human Casein Kinase 2α Antibody

Monoclonal Mouse IgG_1 Clone # 844720

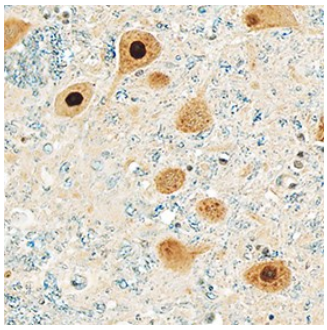
Catalog Number: MAB7957

Simple Western



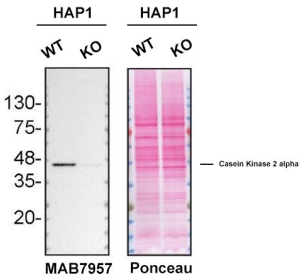
Detection of Human and Mouse Casein Kinase 2α by Simple Western™. Simple Western lane view shows lysates of HeLa human cervical epithelial carcinoma cell line and NIH-3T3 mouse embryonic fibroblast cell line, loaded at 0.5 mg/mL. A specific band was detected for Casein Kinase 2α at approximately 50-52 kDa (as indicated) using 10 µg/mL of Mouse Anti-Human Casein Kinase 2α Monoclonal Antibody (Catalog # MAB7957) . This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.

Immunohistochemistry



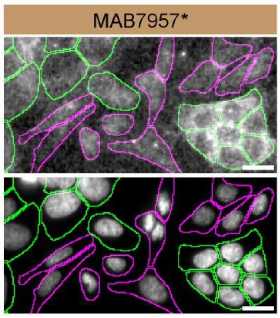
Casein Kinase 2α in Human Brain. Casein Kinase 2a was detected in immersion fixed paraffin-embedded sections of human brain (substantia nigra) using Mouse Anti-Human Casein Kinase 2a Monoclonal Antibody (Catalog # MAB7957) at 5 µg/mL overnight at 4 °C. Tissue was stained using the Anti-Mouse HRP-DAB Cell & Tissue Staining Kit (brown; Catalog # CTS002) and counterstained with hematoxylin (blue). Specific staining was localized to nuclei in neurons. View our protocol for Chromogenic IHC Staining of Paraffin-embedded Tissue Sections.

Knockout Validated



Western Blot Shows Human Casein Kinase 2 alpha Specificity Using Knockout Cell Line. Western blot shows lysates of HAP1 human colorectal carcinoma cell line and Casein Kinase 2 alpha knockout HAP1 cell line (KO). Nitrocellulose membrane was probed with 0.5 µg/mL of Mouse Anti-Human Casein Kinase 2a Monoclonal Antibody (Catalog # MAB7957) followed by HRP-conjugated goat anti-mouse IgG Secondary Antibody. A specific band was detected for Casein Kinase 2 alpha at approximately 47 kDa (as indicated) in the parental HAP1 cell line, but is not detectable in knockout HAP1 cell line. The Ponceau stained transfer of the blot is shown. This experiment was conducted under reducing conditions. Image, protocol, and testing courtesy of YCharOS Inc. See ycharos.com for additional details.

Knockout Validated



Casein Kinase 2 alpha Specificity is Shown by Immunocytochemistry in Knockout Cell Line. HAP1 WT and Casein Kinase 2 alpha KO cells were labelled with a green or a far-red fluorescent dye, respectively. Cells were stained with Mouse Anti-Human Casein Kinase 2 alpha Monoclonal Antibody (Catalog # MAB7957) followed by incubation with a goat anti-mouse Alexa-fluor 555 coupled secondary antibody (upper panel). DAPI-only counterstained cells shown on a lower panel. Acquisition of the blue (nucleus-DAPI), green (identification of WT cells), red (antibody staining) and far-red (identification of KO cells) channels was performed. Representative images of the blue and red (grayscale) channels are shown. WT and KO cells are outlined with green and magenta dashed line, respectively. Primary antibody concentration used: 1 µg/mL. Image, protocol and testing courtesy of YCharOS Inc. (ycharos.com).

PREPARATION AND STORAGE

Reconstitution	Sterile PBS to a final concentration of 0.5 mg/mL. For liquid material, refer to CoA for concentration.
Shipping	Lyophilized product is shipped at ambient temperature. Liquid small pack size (-SP) is shipped with polar packs. Upon receipt, store immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Casein kinase 2 (CK2) is a ubiquitous and constitutively active tetrameric serine/threonine kinase that is comprised of two catalytic subunits (CK2α and/or CK2α') and two identical regulatory subunits (CK2β). CK2 has been implicated in numerous cellular processes, including signal transduction, transcription, translation, replication, and metabolic pathways. CK2 is known to phosphorylate more than 300 different substrates. Phosphorylation of cell-cycle proteins such as p53, p34cdc2, p27KIP1, and MDM-2 account for the ability of CK2 to induce proliferation, while the phosphorylation of HS1, Bid, and Max account for its antiapoptotic role. The human CK2α and CK2α' subunits are the products of two different genes. They have highly conserved catyalytic domains but divergent C-terminal regions. Within aa 253-391 (including the region of divergence between CK2α and CK2α'), the 35-45 kDa human CK2α shares 96% aa sequence identity with mouse and rat CK2α. An alternatively spliced isoform of human CK2α lacks the N-terminal 136 amino acids including a portion of the kinase domain. CK2β plays dual roles in the regulation of CK2 acivity. Its C-terminal domain is responsible for stable interactions with the catalytic subunit and increased catalytic activity following tetramer formation, while the N-terminal domain exerts negative regulation on the catalytic activity of CK2.

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