

Background

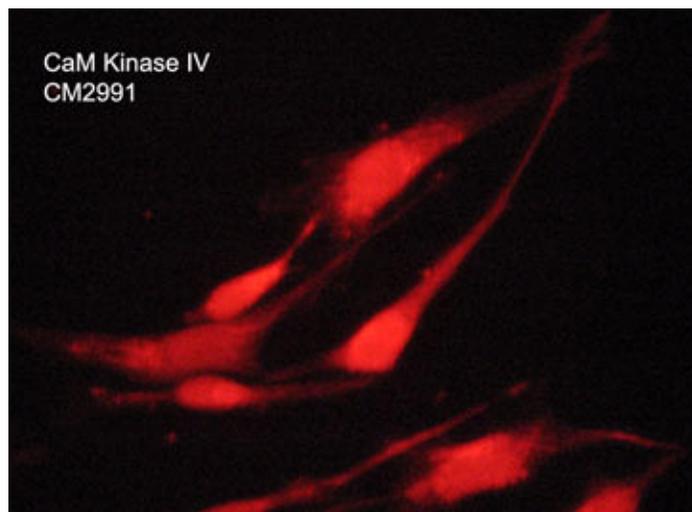
Hormones, growth factors and other cell signals cause increases in cytosolic Ca²⁺, which leads to cellular responses mediated by various Ca²⁺-binding proteins. Calmodulin (CaM) is a primary receptor for Ca²⁺ in cells. CaM functions as an allosteric activator of many enzymatic proteins including CaM kinases. CaM kinase IV is an important member of the CaM kinase family that has roles in neuronal long-term potentiation and memory, as well as T-cell receptor signaling. The Ca²⁺/calmodulin-dependent CaMKK phosphorylates CaM kinase IV, releasing the autoinhibitory effect and thus activating the kinase. The activated CaMKIV further autophosphorylates itself at Thr-200 to render the kinase constitutively active. The threonine phosphorylation state of CaMKIV can be downregulated by PP2A dephosphorylation.

Background References

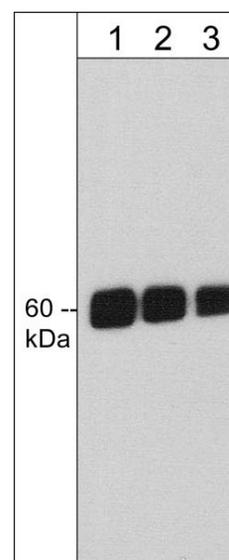
Kang, H. et al. (2001) Cell 106:771.

Kasahara, J. et al. (2001) J. Biol. Chem. 276:24044.

Racioppi, L. & Means, A.R. (2008) Trends Immunol. 29(12):600.



Immunocytochemical labeling of CaM Kinase IV in aldehyde fixed and NP-40 permeabilized human NCI-H446 lung carcinoma cells. The cells were labeled with mouse monoclonal anti-CaM Kinase IV (CM2991). The antibody was detected using goat anti-mouse DyLight® 594.



Western blot of human Jurkat cell lysate. The blot was probed with mouse monoclonal anti-CaM Kinase IV (N-terminal region) antibody at 1:250 (lane 1), 1:500 (lane 2), or 1:1000 (lane 3).

FOR RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE.

Immunogen**Uniprot ID: Q16566**

Clone (M299) was generated from a recombinant sequence that included amino acids in the N-terminal region of human CaM Kinase IV. This sequence has high homology to rat and mouse CaM Kinase IV.

Buffer and Storage

Mouse monoclonal, protein A purified antibody is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at -20°C. Stable for 1 year.

Applications

WB	1:1000
ELISA	1:2000
ICC	1:100

Species Reactivity

Hu, Rt, Ms

Isotype: IgG1

End user should determine optimal dilution for their particular applications and experiments.

Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.

Abbreviations: E = ELISA, ICC = immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot

Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

Specificity

This antibody detects a 60 kDa* protein corresponding to the molecular mass of CaM Kinase IV on SDS-PAGE immunoblots of human Jurkat cells.

*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.

"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

Related Products

PM1561 PLCγ1 (N-terminal region) Mouse Monoclonal

PP1491 PLCγ1 (Tyr-775), phospho-specific Rabbit Polyclonal

PM2531 PI3 Kinase, p85 (C-terminal region) Mouse Monoclonal

JL9401 Jurkat Pervanadate Control Lysate

JL9501 Jurkat + Pervanadate Lysate

FOR RESEARCH USE ONLY. NOT FOR DIAGNOSTIC OR THERAPEUTIC USE.