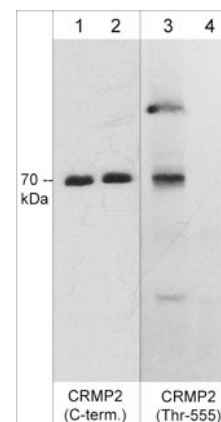


Background

CRMP2 (CRMP-62, TOAD-64, DRP-2) is a microtubule associated protein involved in neuron development and axon pathfinding. CRMP2 binds to tubulin heterodimers and promotes microtubule assembly. The overexpression of CRMP2 facilitates the rate of axonal growth, whereas the mutated form that lacks activity toward the microtubule assembly inhibits axonal growth in a dominant negative manner. Phosphorylation of CRMP2 regulates its activity and this type of regulation has been implicated in axon growth cone collapse induced by several repulsive cues. Cdk5 and GSK3 phosphorylation occurs downstream of the repulsive cue, Sema-3A. Several residues in CRMP2 are phosphorylated by GSK3 (Ser-518, Thr-514, and Thr-509), and a priming site (Ser-522). These sites are conserved in human CRMP1 and CRMP4, but not in CRMP3 or CRMP5. The priming site is also phosphorylated by Cdk5. In contrast, ROCK phosphorylates Thr-555 leading to LPA, MAG, or Ephrin-A5 mediated growth cone collapse. Thus, CRMP2 phosphorylation status may be a critical element of pathways that control axon pathfinding.

Background References

Arimura, N. et al. (2000) J. Biol. Chem. 275(31):23973.
Arimura, N. et al. (2005) Mol. Cell. Biol. 25(22):9973.
Uchida, Y. et al. (2005) Genes to Cells 10:165.



Western blot of rat PC12 cells stimulated with calyculin A (100 nM) for 30 min (lanes 1-4). Then the blot was treated with lambda phosphatase to dephosphorylate CRMP2 (lanes 2 & 4). The blot was probed with rabbit polyclonal anti-CRMP2 (C-terminal Region) antibody (lanes 1 & 2) or mouse monoclonal anti-CRMP2 (Thr-555) antibody (lanes 3 & 4).

Applications

WB 1:500
ELISA 1:1000

Species Reactivity

Hu, Rt, Ms

Isotype: IgG1

Specificity

This antibody was affinity purified using phospho-CRMP2 (Thr-555) peptide (without carrier). The antibody detects a 70 kDa* protein corresponding to CRMP2 on immunoblots of rat PC12 or mouse C2C12 cells treated with calyculin A. This reactivity is not observed after lambda phosphatase dephosphorylation of Thr-555.

*All molecular weights (MW) are confirmed by comparison to Bio-Rad Rainbow Markers and to western blot mobilities of known proteins with similar MW.

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, PBS, 0.04% Tween20 for 1 hour at room temperature.

Immunogen

Uniprot ID: Q16555

Clone M539 was generated from a phospho-CRMP2 (Thr-555) synthetic peptide (coupled to carrier protein) corresponding to amino acids surrounding Thr-555 in human CRMP2. This sequence is conserved in rat and mouse CRMP2 and the phospho-site is not conserved in other CRMP family members.

Buffer and Storage

Mouse monoclonal, affinity 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.

Related Products

CP2161 CRMP2 (C-terminal region) Rabbit Polyclonal
CP2191 CRMP2 (Ser-522), phospho-specific Rabbit Polyclonal
CP2251 CRMP2 (Thr-555), phospho-specific Rabbit Polyclonal
CK6200 CRMP2 Phospho-Regulation Antibody Sampler Kit
CX2255 phospho-CRMP2 (Thr-555) Blocking Peptide

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