Phospho-specific Antibody for Cam Kinase II

Tech ID: 20301 / UC Case 2003-450-0

BACKGROUND

Calcium/calmodulin-dependent protein kinases (CaM kinases) are a family of proteins involved in many biological processes throughout the human body. These processes include metabolism, electrolyte regulation, gene expression, and many brain functions critical to learning and memory. Calmodulin is a protein that, when bound to calcium, causes activation of CaM kinase. However, when the calcium/calmodulin complex falls off an already activated CaM kinase, a phenomenon known as inhibitory phosphorylation occurs. Phosphates become attached to specific amino acids on CaM kinase, leading to decreased sensitivity to the calcium/calmodulin signal and an overall inhibition of the kinase. This inhibition has been shown to play an important role in the regulation of CaM Kinase II, a protein found in the brain which is essential to learning and memory.

INNOVATION

UCLA researchers have developed a polyclonal antibody that recognizes the phosphorylated amino acid sequence involved in the inhibition of CaM kinase II. This is distinct from previous antibodies specific only for the phosphorylated sequence involved in the activation process. Research into inhibitory phosphorylation has yielded potential therapeutic targets in certain forms of mental retardation.

APPLICATIONS

- Can be used in a wide variety of immunological approaches to quantitate the level of phosphorylation and inhibition in

ADVANTAGES

- This is the only known antibody specific for this particular inhibitory site
- This antibody is tested and ready to be used as a research reagent

RELATED MATERIALS

- Derangements of hippocampal calcium/calmodulin-dependent protein kinase II in a mouse model for Angelman mental retardation syndrome. *J Neurosci.* (2003)
- Inhibitory autophosphorylation of CaMKII controls PSD association, plasticity, and learning.*Neuron.* (2002)

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Inducible Dominant Negative Disc1 Transgenic Mice as a Model for Schizophrenia
- B-raf/loxp-flanked Mutant Mouse
- Statins as Treatment for Cognitive Dysfunction Associated with RASopathies

CONTACT

UCLA Technology Development Group
ncd@tdg.ucla.edu
tel: 310.794.0558.

INVENTORS

- Silva, Alcino J.

OTHER INFORMATION

KEYWORDS

antibodies, CaM Kinase II, learning and memory

CATEGORIZED AS

- **Research Tools**
  - Antibodies

RELATED CASES

2003-450-0

UCLA Technology Development Group
10889 Wilshire Blvd., Suite 920,Los Angeles,CA 90095
https://tdg.ucla.edu
Tel: 310.794.0558 | Fax: 310.794.0638 | ncd@tdg.ucla.edu