BACKGROUND

CREB is a member of the leucine zipper family of DNA binding proteins. This protein binds as a homodimer to the cAMP-responsive element (CRE), an octameric palindrome. CREB activates transcription of target genes in response to a diverse array of stimuli, including peptide hormones, growth factors, and neuronal activity, that activate a variety of protein kinases including protein kinase A (PKA), pp90 ribosomal S6 kinase (pp90RSK), and Ca^{2+}/calmodulin-dependent protein kinases (CaMKs). These kinases all phosphorylate CREB at a particular residue, serine 133 (Ser133), and phosphorylation of Ser133 is required for CREB-mediated transcription.[1] The transactivation domain of CREB consists of two major domains. The glutamine-rich Q2 domain, which interacts with the general transcription factor TAFII130/135, is sufficient for the recruitment of a functional RNA polymerase II complex and allows basal transcriptional activity. The kinase-inducible domain, however, mediates signal-induced activation of CREB-mediated transcription. It is generally believed that recruitment of the coactivators CREB-binding protein (CBP) and p300 after signal-induced phosphorylation of this domain at serine-133 strongly enhances CREB-dependent transcription. Transcriptional activity of CREB can also be potentiated by phosphoserine-133-independent mechanisms, and not all stimuli that provoke phosphorylation of serine-133 stimulate CREB-dependent transcription.[2] Thus, the mechanism by which CREB activates transcription varies depending on the stimulus. In some cases, signaling pathways target additional sites on CREB or proteins associated with CREB, permitting CREB to regulate distinct programs of gene expression under different conditions of stimulation. Transcription activation is enhanced by the TORC coactivators which act independently of Ser-133 phosphorylation.[3] In addition; CREB is implicated in synchronization of circadian rhythmicity.[4]

References:
1. Montminy, M.: Ann. Rev. Biochem. 66:807-22, 1997
2. Johannessen, M. et al: Cell. Signal. 16:1211-27, 2004
3. Conkright, M. D. et al: Mol. Cell12:413-23, 2003
4. Obrietan, K. et al: Nature Neurosci. 1:693-700,1998

TECHNICAL INFORMATION

Source:
CREB Antibody is a mouse monoclonal antibody raised against purified recombinant fragments of human CREB expressed in *E. Coli*.

Specificity and Sensitivity:
This antibody detects CREB proteins without cross-reactivity with other family members.

Storage Buffer: PBS and 30% glycerol

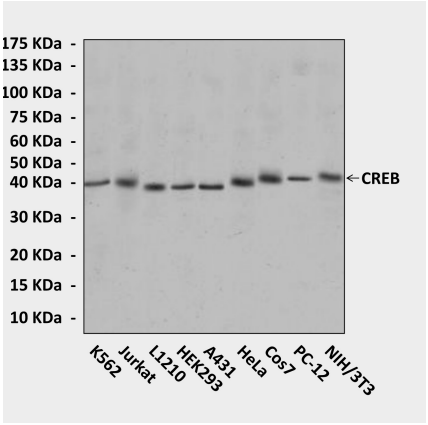
Storage:
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

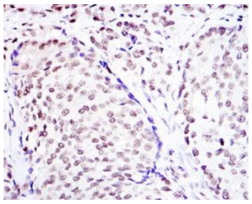
APPLICATIONS

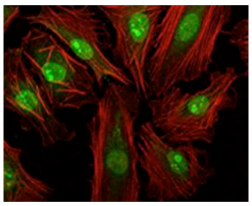
Application:	*Dilution:
WB	1:1000
IP	n/d
IHC	1:50-200
ICC	1:50-200
FACS	n/d

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA







Top: Western Blot detection of CREB proteins in various cell lysates using CREB Antibody. **Middle:** This antibody stains paraffin-embedded human prostate cancer tissue in immunohistochemical analysis. **Bottom:** It also stains HeLa cells in confocal immunofluorescent studies (CREB Antibody: Green; Actin filaments: Red; DRAQ5 DNA Dye: Blue**).**