

## BACKGROUND

C/EBPalpha is the prototypical basic-region leucine zipper (bZIP) transcription factor. This family is characterized by the presence of a basic region that mediates DNA binding and a leucine zipper that allows dimer formation. In addition to forming homodimers, C/EBPalpha dimerizes with other members of the C/EBP family (C/EBPbeta, -gamma, -delta, epsilon, and CHOP) and interacts with other proteins such as TFIIB, TBP, Rb, p300/CBP, p21, and members of the SWI/SNF complex.<sup>1</sup> C/EBPalpha mRNA can be translated from the first AUG encoding the 42-kDa normal isoform and also from the second AUG (nt 508-510) encoding the 30-kDa normal isoform. The functions of C/EBPalpha 30-kDa protein are not well known. It was suggested that this shorter C/EBPalpha protein had lost normal C/EBPalpha functions and had dominant negative effect on 42-kDa wild-type (wt) C/EBPalpha. Recently, it has been shown that C/EBPalpha is regulated by phosphorylation and sumoylation.<sup>2</sup>

A key role of C/EBPalpha is to regulate differentiation of a select set of cell types. It acts as a transcription factor with a crucial role during differentiation of various cell types including hepatocytes, adipocytes, enterocytes, keratinocytes, lung, mammary gland cells and hematopoietic cells.<sup>3</sup> Several recent studies highlight the crucial antimitotic role of C/EBPalpha, which inhibits cell growth through a variety of mechanisms. First, C/EBPalpha induces expression and stability of the cyclin-dependent kinase inhibitor, p21/WAF1. Second, C/EBPalpha interacts directly with the cyclin-dependent kinases Cdk2 and Cdk4 and blocks their ability to interact with cyclins, thereby impeding cell cycle progression. Finally, C/EBPalpha directly represses the activity of E2F, a key transcriptional regulator of cell cycle genes.<sup>4</sup>

### References:

1. Darlington, G.J. et al: J. Biol. Chem. 273:30057-60, 1998
2. Ross, S.E. et al: Mol. Cell. Biol. 24:675-86, 2004
3. Lekstrom-Himes, J & Xanthopoulos, K.G.: J. Biol. Chem. 273:28545-48, 1998
4. Timchenko, N.A. et al: Gene Dev. 10:804-15, 1996

## TECHNICAL INFORMATION

### Source:

C/EBP-alpha Antibody is a rabbit antibody raised against a short peptide from the N-terminal sequence of short form of human C/EBP-alpha.

### Specificity and Sensitivity:

This antibody detects endogenous C/EBP-alpha proteins in normal cell lysates without cross-reactivity with other family members.

**Storage Buffer:** Rabbit IgG in phosphate buffered saline (without Mg<sup>2+</sup> and Ca<sup>2+</sup>), pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.

### Storage:

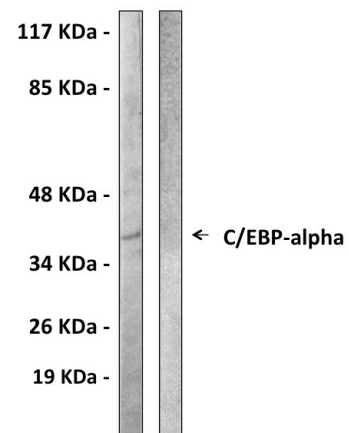
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:500-1:1,000
IP	n/d
IHC	n/d
ICC	n/d
FACS	n/d
ELISA	1:1,000

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

## QUALITY CONTROL DATA



Immunoblotting analysis of extracts from COS7 cells, treated with EGF 200ng/ml 30', using Anti-C/EBP- $\alpha$  antibody. The lane on the left was treated with the Anti-C/EBP- $\alpha$  antibody. The lane on the right (negative control) was treated with both Anti-C/EBP- $\alpha$  antibody and the synthesized immunogen peptide.

