

## BACKGROUND

AMPK is a serine/threonine protein kinase, which serves as an energy sensor in all eukaryotic cell types. Mammalian AMPK is a trimeric enzyme comprising a catalytic  $\alpha$  subunit (63 kDa) and non-catalytic  $\beta$  and  $\gamma$  subunits. Multiple isoforms of each mammalian enzyme exist ( $\alpha$ 1,  $\alpha$ 2,  $\beta$ 1,  $\beta$ 2,  $\gamma$ 1-  $\gamma$ 3), each encoded by a different gene.<sup>1</sup> AMPK activation strongly suppresses cell proliferation in non-malignant cells as well as in tumour cells. These actions of AMPK appear to be mediated through multiple mechanisms including regulation of the cell cycle and inhibition of protein synthesis, de novo fatty acid synthesis, specifically the generation of mevalonate as well as other products downstream of mevalonate in the cholesterol synthesis pathway.<sup>2</sup> Cell cycle regulation by AMPK is mediated by up-regulation of the p53-p21 axis as well as regulation of TSC2-mTOR (mammalian target of rapamycin) pathway.<sup>3</sup> The AMPK signalling network contains a number of tumour suppressor genes including LKB1, p53, TSC1 and TSC2, and overcomes growth factor signalling from a variety of stimuli (via growth factors and by abnormal regulation of cellular proto-oncogenes including PI3K, Akt and ERK). These observations suggest that AMPK activation is a logical therapeutic target for diseases rooted in cellular proliferation, including atherosclerosis and cancer.

### References:

1. Kemp BE et al.: Structure, 15:1161-1163, 2007.
2. Zhang BB et al.: Cell Metabol. 9:407-416, 2009.
3. Thoreen C & Sabatini D: Cell Metabol. 1: 287-288, 2005.

## TECHNICAL INFORMATION

### Source:

AMPK  $\beta$ 1/2 antibody is a rabbit polyclonal antibody raised against an epitope near the human AMPK  $\beta$ 1 carboxyl terminal sequence.

### Specificity and Sensitivity:

This affinity purified antibody detects endogenous levels of AMPK  $\beta$ 1/2 proteins in various cell lysates.

**Storage Buffer:** PBS and 30% glycerol

### Storage:

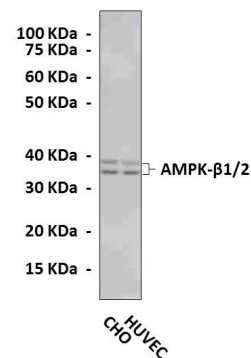
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC (Paraffin)	n/d
ICC	n/d
FACS	n/d

\*Optimal dilutions must be determined by end user.

## QUALITY CONTROL DATA



HUVEC (Cat# 200-05n) & CHO cell lysates were subjected to Western Blot analysis using AMPK- $\beta$ 1/2 Antibody.

