CELL APPLICATIONS, INC.

p42/44 MAP Kinase Antibody

Cat. No. CP10249

Applications:	**WB, IP, FACS**
Detected MW:	**42/44 kDa**
Species & Reactivity:	**Human, Mouse, rat**
Isotype:	**Mouse IgG2b**

BACKGROUND

Mitogen-activated protein kinases (MAPKs) are serine/threonine kinases that play an instrumental role in signal transduction from the cell surface to the nucleus. MAPKs are major components of pathways controlling embryogenesis, cell differentiation, cell proliferation, and cell death. Mammalian members of this family are extracellular signal-regulated kinases 1/2 (ERK 1/2), c-Jun amino-terminal kinases or stress-activated protein kinases (JNK/SAPKs) and p38 kinases (p38(MAPK)). MAPKs are regulated by phosphorylation cascades. Two upstream protein kinases activated in series lead to activation of a MAPK, and additional kinases may also be required upstream of this three-kinase module. In all currently known MAPK cascades, the kinase immediately upstream of the MAPK is a member of the MAPK/ERK kinase (MAPKK, MAP2K, MEK or MKK) family. These are dual specificity enzymes that can phosphorylate hydroxyl side chains of serine/threonine and tyrosine residues in their MAPK substrates. In spite of their ability to phosphorylate proteins on both aliphatic and aromatic side chains in the appropriate context, the substrate specificity of the known MEKs is very narrow: each MEK phosphorylates only one or a few of the MAPKs. The MAPK kinases (MEK or MKK) are activated by upstream kinases called MAP kinase kinase kinase (MAPKKK or MAP3K) such as Raf family. The Raf>MEK>MAPK is a well studied signaling pathway up to date.[1]

ERK1 and ERK2 are proteins of 44 and 42 kDa that are nearly 85% identical overall, with much greater identity in the core regions involved in binding substrates. ERK1 and ERK2 are activated by a pair of closely related MEKs, MEK1 and MEK2. The two phosphoacceptor sites, tyrosine and threonine, which are phosphorylated to activate the kinases, are separated by a glutamate residue in both ERK1 and ERK2 to give the motif TEY(Thr202/Tyr204 and Thr185/Tyr187 for p44 and p42 respective) in the activation loop. Once activated, Erk1/2 rapidly translocated into the nucleus, where Erk1/2 activates downstream signaling components including Elk-1, although activated Erk1/2 also phosphorylated numerous substrates on (S/T)P sites in all cellular compartments.[2] The Erk1/2 was inactivated by dephosphorylation through action of MAPK phosphotase 1 and 2 in nucleus.[3]

References:

1. Pearson G et al.: Endocrin. Rev. 22:153-183, 2001.
2. Farooq A & Zhou MM: Cell. Signal. 16:769-779, 2004.
3. Pouyssegur J et al.: Biochem. Pharm. 64:755-763, 2002.

TECHNICAL INFORMATION

Source:
P42/44 MAP kinase Antibody is a mouse monoclonal antibody raised against purified recombinant human p44 MAP kinase protein expressed in *E. coli*.

Specificity and Sensitivity:
This antibody detects endogenous p42/44 MAP kinase proteins without cross-reactivity with other family members.

Storage Buffer: PBS and 30% glycerol

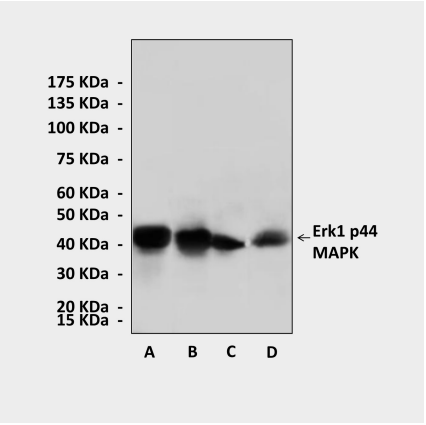
Storage:
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

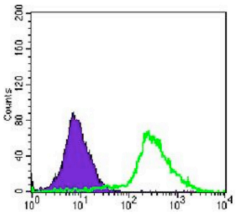
APPLICATIONS

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

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

QUALITY CONTROL DATA





Top: Western Blot detection of p42/44 MAP kinase proteins in various cell lysates using p42/44 MAP kinase Antibody. **Bottom:** This antibody specifically reacts with p42/44 MAP kinase in Jurkat cells (Green) vs. normal mouse IgG control (Blue) in FACS analysis.