MNK [pT197/pT202] ABfinity™ Recombinant Rabbit Monoclonal Antibody - Purified

REF Catalog no. 700242

(See product label for lot information)

Clone/PAD: 18H4L11
Isotype: IgG
Gene ID: 17346
Protein Acc. no.: O08605
Qty: 100 µg
Volume: 200 µl
Concentration: 0.5 mg/ml

Formulation
PBS + 0.09% azide

Immunogen
A peptide corresponding to amino acids 195-204 of O08605.

Immunogen sequence
IT[pT]PELT[pT]PS

Reactivity
This antibody reacts with human MNK [pT197/pT202]. Based on sequence identity and similarity, reactivity to primates, mouse, rat, swine, bovine, canine, chicken, equine, zebrafish, and Xenopus is expected.

Specificity
This antibody is specific for MNK [pT197/pT202] and does not recognize non-phosphorylated MNK.

Storage
2-8°C for up to 1 mo, -20°C for long term storage. Avoid repeated freezing and thawing.

Expiration Date
Expires one year from date of receipt when stored as instructed.

Validated Applications:

	Species	Test Material	Concentration
Immunohistochemistry	human	prostate and thyroid carcinoma, normal thyroid	2-4 µg/ml
Immunofluorescence	human	HeLa	4-6 µg/ml
Flow Cytometry	human	Jurkat	0.5-1 µg/test

Background
MAP kinase-interacting serine/threonine kinases (Mnk) function in signal transduction pathways through phosphorylation of eIF4E and are directly phosphorylated by ERK or p38 MAP kinases (1,2). In human and mouse there are two Mnk genes (Mnk1 and Mnk2). Alternative splicing gives rise to at least two protein products for each gene in human, but not mouse, which differ in their C-termini which affects their subcellular localization and binding affinities (6,7). Mnk1 is activated by phosphorylation at Thr197 and Thr202 (8). Mnk1 and Mnk2 are essential for the phosphorylation of eIF4E at Ser209 however they differ markedly in their activity and regulatory patterns (2). Mnk1 is responsible for inducible phosphorylation of eIF4E while Mnk2 is responsible for basal levels of phosphorylation. Additionally, Mnk2 binds phosphorylated ERK while Mnk2 cannot (3). Mnk1 has been implicated in signaling in response to oxidative stress by increasing eIF4E phosphorylation upon H_2O2 treatment in mice (4). Oxidative stress induced Mnk1 activity has also been linked to hyperproliferative diseases through the over-activation of eIF4E (5). Reactivity with Mnk2 has not been tested.

References

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2. Ueda, T., et al. (2004) Mnk2 and Mnk1 are essential for constitutive and inducible phosphorylation of eukaryotic initiation factor 4E but not essential for cell growth or development. Mol. Cell Biol. 24:6539-6549.
3. Parra, J.L., et al. (2005) Features of the catalytic domains and C termini of the MAPK signal-integrating kinases Mnk1 and Mnk2 determine their differing activities and regulatory properties. J. Biol. Chem. 280:37623-37633.
4. Shenberger, J.S., et al. (2007) Roles of mitogen-activated protein kinase signal-integrating kinases 1 and 2 in oxidant-mediated eIF4E phosphorylation. Int. J. Biochem. Cell Biol. 39:1828-1842.
5. Duncan, R.F., et al. (2005) Signal transduction pathways leading to increased eIF4E phosphorylation caused by oxidative stress. Free Rad. Biol. Med. 38:631-643.
6. O'Loghlen, A., et al. (2004) Identification and molecular characterization of Mnk1b, a splice variant of human MAP kinase-interacting kinase Mnk1. Exp. Cell Res. 299:343-355.
7. Scheper, G.C., et al. (2003) The N and C termini of the splice variants of the human mitogen-activated protein kinase-interacting kinase Mnk2 determine activity and localization. Mol. Cell. Biol. 23:5692-5705.
8. Waskiewicz, A.J., et al (1999) Phosphorylation of the cap-binding protein eukaryotic translation initiation factor 4E by protein kinase Mnk1 in vivo. Mol. Cell. Biol. 19:1871-1880.

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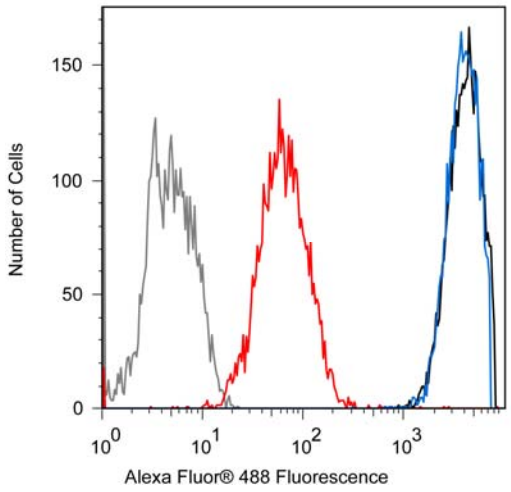
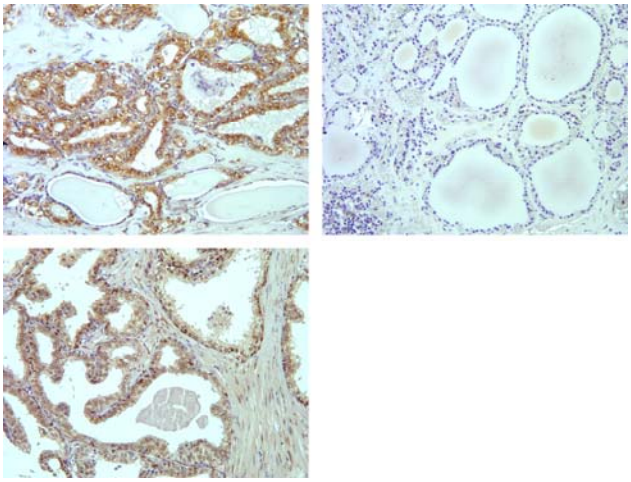


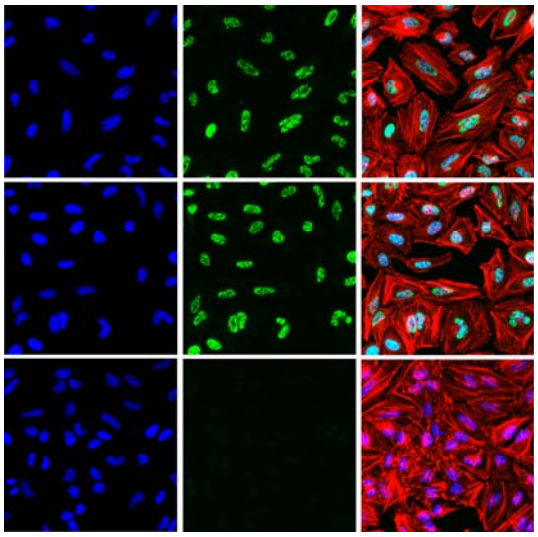
Flow cytometry of Jurkat cells labeled with rabbit anti-MNK [pT197/pT202] (Cat. No. 700242).

Jurkat cells were fixed and permeabilized using FIX & PERM® (Cat. No. GAS004) reagents. Cells were then stained with (black trace) or without (gray trace) 0.5 µg anti-MNK followed by Alexa Fluor® 488 goat anti-rabbit Ig (Cat. No. A11008). Pre-incubation with the immunogenic phosphopeptide decreased the signal (red trace), whereas incubation with the non-phosphopeptide did not (blue trace).



Immunohistochemistry of human tissues labeled with rabbit anti-MNK [pT197/pT202] (Cat. No. 700242).

FFPE human thyroid carcinoma (top left), normal thyroid (top right) and prostate carcinoma (bottom) tissues were labeled with rabbit anti-MNK [pT197/pT202] (2 µg/ml). Signal was detected with SuperPicTure™ Polymer DAB (Cat. No.87-8963). Images were taken at 20x magnification. Note nuclear and cytoplasmic staining in tumor cells and no staining in normal tissue



Immunocytochemistry of HeLa cells labeled with rabbit anti-MNK [pT197/pT202] (Cat. No. 700242).

HeLa cells labeled with rabbit anti-MNK [pT197/pT202] (5 µg/ml) in the absence of peptides (top panels), and presence of phosphopeptide used as immunogen (bottom panels) or non-phosphopeptide (middle panels). Alexa Fluor® 488 goat anti-rabbit (Cat. No. A11008) at 1:1000 was used as secondary antibody. Actin was stained with Alexa Fluor® 568 Phalloidin (Cat. No. A12380). Hoechst only (left), MNK [pT197/pT202] (AF488) signal only (center), and composite image with Phalloidin (right).

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