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#8103

SignalSlide® Phospho-p44/42 MAPK (Thr202/Tyr204) IHC Controls

1 Pack
(5 slides)

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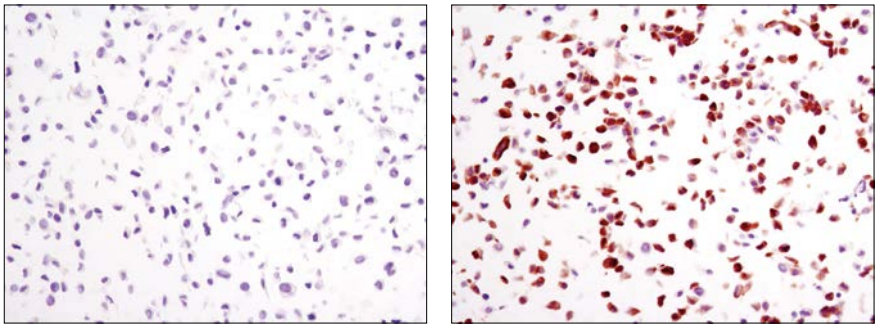

Immunohistochemical analysis of paraffin-embedded NIH/3T3 cells, treated with U0126 #9903 (left) or TPA (12-O-Tetradecanoylphorbol-13-Acetate) #4174 (right), using Phospho-p44/42MAPK (Erk1/2) (Thr202/Tyr204) (D13.14.4E) XP™ Rabbit mAb #4370.

Description: Each control slide contains formalin fixed, paraffin-embedded NIH/3T3 cells, treated with either U0126 (1,4-diamino-2,3-dicyano-1,4-bis[2-aminophenylthio] butadiene) #9903 or TPA (12-O-Tetradecanoylphorbol-13-Acetate) #4174 , that serve as a control for phospho-p44/42 MAPK (Thr202/Tyr204) immunostaining. U0126 has been shown to be a highly selective inhibitor of MEK1 and MEK2. TPA induces phosphorylation of p44/42 MAPK. Western blot analysis was performed on extracts derived from the same cells to verify the efficacy of the U0126 and TPA treatments.

Background: Mitogen-activated protein kinases (MAPKs) are a widely conserved family of serine/threonine protein kinases involved in many cellular programs such as cell proliferation, differentiation, motility, and death. The p44/42 MAPK (Erk1/2) signaling pathway can be activated in response to a diverse range of extracellular stimuli including mitogens, growth factors, and cytokines (1-3) and is an important target in the diagnosis and treatment of cancer (4). Upon stimulation, a sequential three-part protein kinase cascade is initiated, consisting of a MAP kinase kinase kinase (MAPKKK or MAP3K), a MAP kinase kinase (MAPKK or MAP2K), and a MAP kinase (MAPK). Multiple p44/42 MAP3Ks have been identified, including members of the Raf family as well as Mos and Tpl2/Cot. MEK1 and MEK2 are the primary MAPKKs in this pathway (5,6). MEK1 and MEK2 activate p44 and p42 through phosphorylation of activation loop residues Thr202/Tyr204 and Thr185/Tyr187, respectively. Several downstream targets of p44/42 have been identified, including p90RSK (7) and the transcription factor Elk-1 (8,9). p44/42 are negatively regulated by a family of dual-specificity (Thr/Tyr) MAPK phosphatases, known as DUSPs or MKPs (10), along with MEK inhibitors such as U0126 and PD98059.

Applications: These slides are intended for use in immunohistochemical assays.

Background References:

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(3) Meloche, S. and Pouysségur, J. (2007) *Oncogene* 26, 3227-39.

(4) Roberts, P.J. and Der, C.J. (2007) *Oncogene* 26, 3291-310.

(5) Rubinfeld, H. and Seger, R. (2005) *Mol Biotechnol* 31, 151-74.

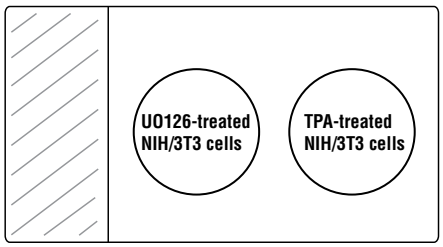
(6) Murphy, L.O. and Blenis, J. (2006) *Trends Biochem Sci* 31, 268-75.

(7) Dalby, K.N. et al. (1998) *J Biol Chem* 273, 1496-505.

(8) Marais, R. et al. (1993) *Cell* 73, 381-93.

(9) Kortenjann, M. et al. (1994) *Mol Cell Biol* 14, 4815-24.

(10) Owens, D.M. and Keyse, S.M. (2007) *Oncogene* 26, 3203-13.



Entrez-Gene ID # 5595, 5594
Swiss-Prot Acc. # P27361, P28482

Storage: Store at 4° C.
Optimal staining is achieved if slides are stained following CST's standard IHC protocols and are used within 8 weeks of assay date; however, signals may persist beyond two months.

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide

Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.