

# p38 MAP Kinase Control Cell Extracts

✓ Controls for 10 mini-blot

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This product is for *in vitro* research use only and is not intended for use in humans or animals. This product is not intended for use as a therapeutic or in diagnostic procedures.

**Background:** p38 MAP kinase (MAPK), also called RK (1) or CSBP (2), is the mammalian orthologue of the yeast HOG kinase which participates in a signaling cascade controlling cellular responses to cytokines and stress (1-4). Four isoforms of p38 MAP kinase, p38 $\alpha$ ,  $\beta$ ,  $\gamma$  (also known as ERK6 or SAPK3) and  $\delta$  (also known as SAPK4) have been identified. Similar to the SAPK/JNK pathway, p38 MAP kinase is activated by a variety of cellular stresses including osmotic shock, inflammatory cytokines, lipopolysaccharides (LPS), UV light and growth factors (1-5). MKK3, MKK6 and SEK activate p38 MAP kinase by phosphorylation at Thr180 and Tyr182. Activated p38 MAP kinase has been shown to phosphorylate and activate MAPKAP kinase 2 (3) and to phosphorylate the transcription factors ATF-2 (5), Max (6) and MEF2 (5-8).

**Description:**  
*Nonphosphorylated p38 MAP Kinase Control Cell Extracts:* Total extracts from C-6 glioma cells prepared without anisomycin treatment to serve as a negative control. Supplied in SDS Sample Buffer.  
*Phosphorylated p38 MAP Kinase Control Cell Extracts:* Total extracts from C-6 glioma cells prepared with anisomycin treatment to serve as a positive control. Supplied in SDS Sample Buffer.

**Western Blots:** For controls, CST recommends using 15  $\mu$ l of phosphorylated and nonphosphorylated p38 MAP Kinase Control Cell Extracts. Boil for 2 minutes prior to use.

**Storage:** Supplied in SDS Sample Buffer: 62.5 mM Tris-HCL (pH 6.8 at 25°C), 2% w/v SDS, 10% glycerol, 50 mM DTT, 0.01% w/v bromophenol blue or phenol red. Store at -20°C.

Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

**Background References:**

- (1) Rouse, J. et al. (1994) *Cell* 78, 1027-1037.
- (2) Han, J. et al. (1994) *Science* 265, 808-811.
- (3) Lee, J.C. et al. (1994) *Nature* 372, 739-746.
- (4) Freshney, N.W. et al. (1994) *Cell* 78, 1039-1049.
- (5) Raingeaud, J. et al. (1995) *J. Biol. Chem.* 270, 7420-7426.
- (6) Zervos, A.S. et al. (1995) *Proc. Natl. Acad. Sci. USA* 92, 10531-10534.
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