



**Orders:** 877-616-CELL (2355)  
orders@cellsignal.com

**Support:** 877-678-TECH (8324)

**Web:** info@cellsignal.com  
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

Store at -20C

#3679

## MSK2 (D41A4) XP<sup>®</sup> Rabbit mAb

**For Research Use Only. Not for Use in Diagnostic Procedures.**

<b>Applications:</b> W, IP, IF-IC	<b>Reactivity:</b> H	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 85, 90	<b>Source/Isotype:</b> Rabbit IgG	<b>UniProt ID:</b> #O75676	<b>Entrez-Gene Id:</b> 8986
--------------------------------------	-------------------------	-----------------------------------	----------------------------	--------------------------------------	-------------------------------	--------------------------------

### Product Usage Information

#### Application

Western Blotting  
Immunoprecipitation  
Immunofluorescence (Immunocytochemistry)

#### Dilution

1:1000  
1:50  
1:200

### Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

### Specificity/Sensitivity

MSK2 (D41A4) XP<sup>®</sup> Rabbit mAb detects endogenous levels of total MSK2 protein.

### Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to the region surrounding Pro751 of human MSK2.

### Background

Mitogen- and stress-activated protein kinase 1 (MSK1) and MSK2 are serine/threonine kinases that promote immediate early gene transcription in stress- or mitogen-induced cells (1-4,7, 8) and LPS-stimulated macrophages (9). MSK2, also known as RSKB, contains two catalytic domains and has been shown to interact directly with p38 MAP kinase (10). MSK2 is phosphorylated and activated in response to tumor necrosis factor, epidermal growth factor or phorbol ester in HeLa cells or murine embryonic fibroblasts (MEFs) in a p38- and ERK-dependent manner (8,11). Phosphorylation on residues Ser196 and Thr568 within the activation loop of both catalytic domains is required for full kinase activation (11). Both MSK1 and MSK2 contain a functional nuclear localization sequence that is sufficient and required for nuclear targeting (10). Consistent with their nuclear localization, these kinases play an important role in regulating transcriptional responses to stress and mitogens. Activation of MSK2 in HeLa cells or MEFs results in rapid phosphorylation of histone H3, HMG-14, CREB and ATF1 and acetylation of histone H3 associated with immediate early gene transcription (3,4,6,7).

### Background References

1. Ananieva, O. et al. (2008) *Nat Immunol* 9, 1028-36.
2. Sury, M.D. et al. (2006) *Free Radic Biol Med* 41, 1372-83.
3. Duncan, E.A. et al. (2006) *J Biol Chem* 281, 12521-5.
4. Darragh, J. et al. (2005) *Biochem J* 390, 749-59.
5. Doehn, U. et al. (2004) *Biochem J* 382, 425-31.
6. Davie, J.R. (2003) *Sci STKE* 2003, PE33.
7. Soloaga, A. et al. (2003) *EMBO J* 22, 2788-97.
8. Wiggin, G.R. et al. (2002) *Mol Cell Biol* 22, 2871-81.
9. Caivano, M. and Cohen, P. (2000) *J Immunol* 164, 3018-25.
10. Tomás-Zuber, M. et al. (2001) *J Biol Chem* 276, 5892-9.
11. Tomás-Zuber, M. et al. (2000) *J Biol Chem* 275, 23549-58.

### Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

### Western Blot Buffer

**IMPORTANT:** For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

### Applications Key

**W:** Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

### Cross-Reactivity Key

**H:** Human

### Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

XP is a registered trademark of Cell Signaling Technology, Inc.

All other trademarks are the property of their respective owners. Visit [cellsignal.com/trademarks](http://cellsignal.com/trademarks) for more information.

## Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.