DUSP4/MKP2 (D9A5) Rabbit mAb

Applications | Species Cross-Reactivity | Molecular Wt. | Isotype | Rabbit IgG**
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W | H, Mk | 42 kDa | | **

**Applications Key:**
- **W**: Western
- **IP**: Immunoprecipitation
- **IF**: Immunofluorescence
- **CIP**: 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
- **M**: mouse
- **C**: chicken
- **Dm**: D. melanogaster
- **X**: Xenopus
- **Z**: zebrafish
- **B**: bovine

**Background:**
MAP kinases are inactivated by dual-specificity protein phosphatases (DUSPs) that differ in their substrate specificity, tissue distribution, inducibility by extracellular stimuli, and cellular localization. DUSPs, also known as MAPK phosphatases (MKPs), specifically dephosphorylate both threonine and tyrosine residues in MAPK P-loops and have been shown to play important roles in regulating the function of the MAPK family (1,2). At least 13 members of the family (DUSP1-10, DUSP14, DUSP16, and DUSP22) display unique substrate specificities for various MAP kinases (3). MAPK phosphatases typically contain an amino-terminal rhodanese-fold responsible for DUSP docking to MAPK family members and a carboxyterminal catalytic domain (4). These phosphatases can play important roles in development, immune system function, stress responses, and metabolic homeostasis (5). In addition, research studies have implicated DUSPs in the development of cancer and the response of cancer cells to chemotherapy (6).

DUSP4 (MKP2, HVH2) is a nuclear dual-specificity phosphatase that is a negative regulator of Erk1/2 signaling by dephosphorylating and inactivating Erk1/2 in response to growth factors (7,8). Treatment with mitogen or expression of activating mutations of Ras (G12V) or Raf (V600E) promote increased expression of DUSP4 and a coincident decrease in phospho-Erk in the nucleus (9). In contrast, numerous studies have detected decreased expression of DUSP4 in a variety of tumor types, resulting in increased signaling via the Ras/Erk pathway, enhanced tumor growth, and development of cancer and the response of cancer cells to chemotherapy (6).

**Specificity/Sensitivity:**
DUSP4/MKP2 (D9A5) Rabbit mAb recognizes endogenous levels of total DUSP4 protein.

**Source/Purification:**
Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro168 of human DUSP4 protein.

**Recommended Antibody Dilutions:**
Western blotting 1:1000

**Background References:**

**Western blot analysis of extracts from various cell lines using DUSP4/MKP2 (D9A5) Rabbit mAb (upper) or GAPDH (D16H11) XP® Rabbit mAb #5174 (lower).**