

## PPM1A Protein, Mouse, Recombinant (His)

### General Information

Synonyms:	AU017636;AI427932;MMPa-2;MPPa-1;protein phosphatase, Mg <sup>2+</sup> /Mn <sup>2+</sup> dependent, 1A; 2310003C21Rik;2900017D14Rik
Protein Construction:	A DNA sequence encoding the mouse PPM1A (NP_032936.1) (Met 1-Trp 382) was expressed, with a polyhistidine tag at the C-terminus. Predicted N terminal: Met 1
Species:	Mouse
Expression Host:	E. coli
Accession:	P49443
Molecular Weight:	43.3 kDa (predicted); 43.3 kDa (reducing conditions)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 98 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing 10 mM HEPES, 500 NaCl, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

#### Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

#### Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Protein phosphatase 1A (PPM1A / PP2CA) is an enzyme belonging to the PP2C family of Ser / Thr protein phosphatases. Members of PP2C family are negative regulators of cell stress response pathways and the MAP kinases and MAP kinase kinases. It has also been demonstrated to inhibit the activation of p38 and JNK kinase cascades. PPM1A dephosphorylates and promotes nuclear export of TGFβ-activated Smad2/3. Ectopic expression

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of PPM1A abolishes TGF $\beta$ -induced antiproliferative and transcriptional responses, whereas depletion of PPM1A enhances TGF $\beta$  signaling in mammalian cells. It has been demonstrated that PPM1A / PP2CA, through dephosphorylation of Smad2/3, plays a critical role in terminating TGF $\beta$  signaling. Overexpression of PPM1A is reported to activate the expression of the tumor suppressor gene TP53 / p53, which leads to cell apoptosis.

### Reference

Lin X, et al. (2006) PPM1A functions as a Smad phosphatase to terminate TGFbeta signaling. Cell. 125(5): 915-28.

Marc F, et al. (2003) Protein phosphatase 2C binds selectively to and dephosphorylates metabotropic glutamate receptor 3. Proc Natl Acad. 100 (26): 16006-11.

Mann DJ, et al. (1992) Mammalian protein serine/threonine phosphatase 2C: cDNA cloning and comparative analysis of amino acid sequences. Biochim Biophys Acta. 1130 (1): 100-4.

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