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## Technical Data Sheet

### For research use only

Not intended or approved for  
diagnostic or therapeutic use.

## INPP4A, active

**Catalog Number:** E-8000

**Size:** 2.5 µg

**Molecular Weight:** 107 kDa

**Description:** Human INPP4A with N-terminal 6-His tag was expressed in Sf9 cells and purified using metal chelating chromatography.

INPP4A is a magnesium-independent phosphatase involved in the phosphatidylinositol 3-kinase (PI3K) pathway. INPP4A and its isoenzyme INPP4B hydrolyze the 4 phosphate from the lipid second messenger phosphatidylinositol-3,4-bisphosphate (PI(3,4)P<sub>2</sub>) to form phosphatidylinositol-3-phosphate (PI(3)P). While little evidence supports its role as a tumor suppressor, INPP4A does suppress glutamate excitotoxicity in the central nervous system and is responsible for the *Weeble* mouse phenotype<sup>1,2</sup>. A spontaneous frame shift mutation in the *Inpp4a* gene is present in the *Weeble* mouse resulting in selective neuronal loss in the cerebellum resulting, severe ataxia and early death<sup>3,4</sup>.

**Enzyme Aliases:** INPP4A; inositol polyphosphate phosphatase 4A; inositol polyphosphate 4-phosphatase type I; type I inositol-3,4-bisphosphate 4-phosphatase

**Storage** Store at < -70 °C.

**Formulation:** Enzyme is supplied as lyophilized powder containing dextrose, Hepes, trehalose and Tween 20. Some components may interfere with enzyme activity if reactions are run at INPP4A concentrations exceeding 10 nM. While optimal enzyme concentrations will be determined by the user, suitable reactions might contain between 0.1 and 10 nM INPP4A.

**Enzyme Purity and Activity:** See Certificate of Analysis for lot specific enzyme information.

### Related Products:

#### Assays

INPP4 Activity Kit: K-5200  
PI(3,4)P<sub>2</sub> Mass ELISA: K-3800  
Malachite Green Assay kit: K-1500  
PI(3)P Mass ELISA: K-3300  
Class III PI3K ELISA Kit: K-3000

#### PI(3,4)P<sub>2</sub> Products

PI(3,4)P<sub>2</sub> diC8: P-3408  
PI(3,4)P<sub>2</sub> diC16: P-3416  
BODIPY® FL-Hy- PI(3,4)P<sub>2</sub> : H-34FL  
BODIPY®-TMR Hy- PI(3,4)P<sub>2</sub> : H-34TMR  
BODIPY® FL-PI(3,4)P<sub>2</sub>: C-34F6a  
PI(3,4)P<sub>2</sub> PIP Beads: P-B034a  
PI(3,4)P<sub>2</sub> PolyPIPosome: Y-P034

#### PI(3)P Products

PI(3)P diC4: P-3004  
PI(3)P diC8: P-3008  
PI(3)P diC8 ammonium salt: P-3008a  
PI(3)P diC16: P-3016  
PI(3)P Mass strip kit: K-3600

### References:

- (1) Sasaki, J., Kofuji, S., Itoh, R., Momiyama, T., Takayama, K., Murakami, H., Chida, S., Tsuya, Y., Takasuga, S., Eguchi, S., Asanuma, K., Horie, Y., Miura, K., Davies, E.M., Mitchell, C., Yamazaki, M., Hirai, H., Takenawa, T., Suzuki, A., & Sasaki, T., The PtdIns(3,4)P(2) phosphatase INPP4A is a suppressor of excitotoxic neuronal death. *Nature* 465 (7297), 497-501 (2010).
- (2) Fedele, C.G., Ooms, L.M., Ho, M., Vieuxseux, J., O'Toole, S.A., Millar, E.K., Lopez-Knowles, E., Sriratana, A., Gurung, R., Baglietto, L., Giles, G.G., Bailey, C.G., Rasko, J.E., Shields, B.J., Price, J.T., Majerus, P.W., Sutherland, R.L., Tiganis, T., McLean, C.A., & Mitchell, C.A., Inositol polyphosphate 4-phosphatase II regulates PI3K/Akt signaling and is lost in human basal-like breast cancers. *Proc Natl Acad Sci U S A* 107 (51), 22231-22236 (2010).
- (3) Nystuen, A., Legare, M.E., Shultz, L.D., & Frankel, W.N., A null mutation in inositol polyphosphate 4-phosphatase type I causes selective neuronal loss in weeble mutant mice. *Neuron* 32 (2), 203-212 (2001).
- (4) Sachs, A.J., David, S.A., Haider, N.B., & Nystuen, A.M., Patterned neuroprotection in the *Inpp4a*(wbl) mutant mouse cerebellum correlates with the expression of *Eaat4*. *PLoS ONE* 4 (12), e8270 (2009).

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