

AP4A Hydrolase (h2): 293T Lysate: sc-173542

BACKGROUND

Asymmetric diadenosine 5',5'''-P₁,P₄-tetraphosphate (AP4A) hydrolase is a Nudix enzyme that maintains homeostasis by using water to cleave the metabolite AP4A symmetrically back into its original ATP and AMP molecules. AP4A resides in pancreatic β cells where it targets ATP-sensitive K⁺ channels and depolarizes the cell membrane causing the excretion of Insulin. AP4A may be involved in the development of diabetes mellitus by raising blood glucose and lowering plasma Insulin. AP4A Hydrolase is also active towards other adenosine and diadenosine polyphosphates with four or more phosphate groups, but not towards diadenosine triphosphate. AP4A Hydrolase is involved in heat shock and metabolic stress by regulating intracellular dinucleoside polyphosphate concentrations.

REFERENCES

1. Abdelghany, H.M., et al. 2001. Cloning, characterisation and crystallisation of a diadenosine 5',5'''-P₁,P₄-tetraphosphate pyrophosphohydrolase from *Caenorhabditis elegans*. *Biochim. Biophys. Acta* 1550: 27-36.
2. Fletcher, J.I., et al. 2002. The structure of AP4A Hydrolase complexed with ATP-MgF_x reveals the basis of substrate binding. *Structure* 10: 205-213.
3. Bailey, S., et al. 2002. The crystal structure of diadenosine tetraphosphate hydrolase from *Caenorhabditis elegans* in free and binary complex forms. *Structure* 10: 589-600.
4. Stavrou, B.M. 2004. Diadenosine polyphosphates: postulated mechanisms mediating the cardiac effects. *Curr. Med. Chem. Cardiovasc. Hematol. Agents* 1: 151-169.
5. Rüsing, D. and Verspohl, E.J. 2004. Influence of diadenosine tetraphosphate (AP4A) on lipid metabolism. *Cell Biochem. Funct.* 22: 333-338.
6. Swarbrick, J.D., et al. 2005. ¹H, ¹³C, and ¹⁵N resonance assignments of the 17 kDa AP4A Hydrolase from *Homo sapiens* in the presence and absence of ATP. *J. Biomol. NMR* 31: 181-182.
7. Swarbrick, J.D., et al. 2005. Structure and substrate-binding mechanism of human AP4A Hydrolase. *J. Biol. Chem.* 280: 8471-8481.
8. Soto, D., et al. 2005. Effects of dinucleoside polyphosphates on trabecular meshwork cells and aqueous humor outflow facility. *J. Pharmacol. Exp. Ther.* 314: 1042-1051.
9. Steinmetz, M., et al. 2005. Prior vasorelaxation enhances diadenosine polyphosphate-induced contractility of rat mesenteric resistance arteries. *Naunyn Schmiedeberg's Arch. Pharmacol.* 371: 359-363.

CHROMOSOMAL LOCATION

Genetic locus: NUDT2 (human) mapping to 9p13.3.

PRODUCT

AP4A Hydrolase (h2): 293T Lysate represents a lysate of human AP4A Hydrolase transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

AP4A Hydrolase (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive AP4A Hydrolase antibodies. Recommended use: 10-20 μ l per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.