

# ATP7A (H-180): sc-32900

## BACKGROUND

The copper efflux transporters ATP7A and ATP7B sequester intracellular copper into the vesicular secretory pathway for export from the cell. ATP7A (also known as copper-transporting ATPase 1) functions as a transmembrane copper-translocating P-type ATPase and plays a vital role in systemic copper absorption in the gut and copper reabsorption in the kidney. Polarized epithelial cells such as Madin-Darby canine kidney cells are a physiologically relevant model for systemic copper absorption and reabsorption *in vivo*. Although ATP7A is not detectable in most normal tissues it is expressed in a considerable fraction of many common tumor types. Increased expression of ATP7A renders cells resistant to cisplatin and carboplatin. Mutations in the ATP7A gene result in Menkes disease, which is fatal in early childhood. Mutations in the ATP7B gene lead to the autosomal recessive disorder, Wilson disease, characterized by neurological symptoms and hepatic damage.

## REFERENCES

- Samimi, G., et al. 2003. Increase in expression of the copper transporter ATP7A during platinum drug-based treatment is associated with poor survival in ovarian cancer patients. *Clin. Cancer Res.* 9: 5853-5859.
- Samimi, G., et al. 2004. Modulation of the cellular pharmacology of cisplatin and its analogs by the copper exporters ATP7A and ATP7B. *Mol. Pharmacol.* 66: 25-32.
- Greenough, M., et al. 2004. Signals regulating trafficking of Menkes (MNK; ATP7A) copper-translocating P-type ATPase in polarized MDCK cells. *Am. J. Physiol., Cell Physiol.* 287: C1463-C1471.
- Song, I.S., et al. 2004. Role of human copper transporter Ctr1 in the transport of platinum-based antitumor agents in cisplatin-sensitive and cisplatin-resistant cells. *Mol. Cancer Ther.* 3: 1543-1549.
- van Dongen, E.M., et al. 2004. Copper-dependent protein-protein interactions studied by yeast two-hybrid analysis. *Biochem. Biophys. Res. Commun.* 323: 789-795.

## CHROMOSOMAL LOCATION

Genetic locus: ATP7A (human) mapping to Xq21.1; Atp7a (mouse) mapping to X D.

## SOURCE

ATP7A (H-180) is a rabbit polyclonal antibody raised against amino acids 1-180 mapping within an N-terminal cytoplasmic domain of ATP7A of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-30856 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

ATP7A (H-180) is recommended for detection of ATP7A (also known as Copper-transporting ATPase 1) isoforms 1, 2, 4, 5 and, to a lesser extent, isoforms 3 and 6 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

ATP7A (H-180) is also recommended for detection of ATP7A (also known as Copper-transporting ATPase 1) isoforms 1, 2, 4, 5 and, to a lesser extent, isoforms 3 and 6 in additional species, including equine and bovine.

Suitable for use as control antibody for ATP7A siRNA (h): sc-105107, ATP7A siRNA (m): sc-141362, ATP7A shRNA Plasmid (h): sc-105107-SH, ATP7A shRNA Plasmid (m): sc-141362-SH, ATP7A shRNA (h) Lentiviral Particles: sc-105107-V and ATP7A shRNA (m) Lentiviral Particles: sc-141362-V.

Molecular Weight of ATP7A: 178 kDa.

Positive Controls: HCT-8 cell lysate: sc-24675.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

- Métézeau, P., et al. 1991. Improvement of flow cytometry analysis and sorting of bull spermatozoa by optical monitoring of cell orientation as evaluated by DNA specific probing. *Mol. Reprod. Dev.* 30: 250-257.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

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Try **ATP7A (D-9): sc-376467**, our highly recommended monoclonal alternative to ATP7A (H-180).