

PGD (S-14): sc-138521

BACKGROUND

PGD (phosphogluconate dehydrogenase), also referred to as 6PGD, is a 483 amino acid enzyme that is involved in the pentose phosphate shunt. Pentose is required for nucleic acid biosynthesis and the pentose phosphate cycle is a major source of NADPH. As the second dehydrogenase in the pentose phosphate cycle, PGD catalyzes the oxidative decarboxylation of PGD to ribulose 5-phosphate, following the release of CO₂ and the reduction of NADP. PGD deficiency increases the level of erythrocyte pyruvate kinase (PK) activity and reduces glutathione synthetase (GSH), resulting in hemolysis. Defects in PGD are generally asymptomatic and are inherited in an autosomal dominant fashion. Catalytic active regions of PGD, such as those forming the substrate and coenzyme binding sites, are highly conserved in most species.

REFERENCES

- Weitkamp, L.R., et al. 1970. Genetic linkage relations of the loci for 6-phosphogluconate dehydrogenase and adenosine deaminase in man. *Am. J. Hum. Genet.* 22: 216-220.
- Niehaus, W.G., et al. 1996. Slow-binding inhibition of 6-phosphogluconate dehydrogenase by zinc ion. *Arch. Biochem. Biophys.* 333: 333-337.
- Rippa, M., et al. 1998. 6-Phosphogluconate dehydrogenase: the mechanism of action investigated by a comparison of the enzyme from different species. *Biochim. Biophys. Acta* 1429: 83-92.
- Caprari, P., et al. 2001. 6-Phosphogluconate dehydrogenase deficiency in an Italian family. *Ann. Hematol.* 80: 41-44.
- Hanau, S., et al. 2004. 6-phosphogluconate dehydrogenase: a target for drugs in African trypanosomes. *Curr. Med. Chem.* 11: 2639-2650.
- Goulielmos, G.N., et al. 2004. Functional constraints of 6-phosphogluconate dehydrogenase (6-PGD) based on sequence and structural information. *J. Mol. Evol.* 59: 358-371.
- Ceyhan, D., et al. 2005. Purification and kinetic properties of 6-phosphogluconate dehydrogenase from rat small intestine. *Protein J.* 24: 293-301.

CHROMOSOMAL LOCATION

Genetic locus: PGD (human) mapping to 1p36.22; Pgd (mouse) mapping to 4 E2.

SOURCE

PGD (S-14) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping near the C-terminus of PGD of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-138521 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

PGD (S-14) is recommended for detection of PGD of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

PGD (S-14) is also recommended for detection of PGD in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for PGD siRNA (h): sc-78779, PGD siRNA (m): sc-152188, PGD shRNA Plasmid (h): sc-78779-SH, PGD shRNA Plasmid (m): sc-152188-SH, PGD shRNA (h) Lentiviral Particles: sc-78779-V and PGD shRNA (m) Lentiviral Particles: sc-152188-V.

Molecular Weight of PGD: 52 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201.

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) 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.

RESEARCH USE

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

PROTOCOLS

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



Try **PGD (G-2): sc-398977**, our highly recommended monoclonal alternative to PGD (S-14).