

cytoglobin (G-2): sc-365247

BACKGROUND

Hemoglobin, myoglobin, neuroglobin, and cytoglobin belong to the globin family, porphyrin-containing proteins that function in oxygen transport and storage. Myoglobin contributes to intracellular oxygen storage and transcellular facilitated diffusion of oxygen in skeletal and cardiac muscle. Neuroglobin is an oxidative stress-responsive sensor for signal transduction in the brain. Hemoglobin contributes to oxygen storage and diffusion of oxygen in blood tissue. Cytoglobin (also designated histogloblin), is a ubiquitous protein that facilitates diffusion of oxygen through tissues and acts as a scavenger for nitric oxide or other reactive oxygen species. It binds O₂ via its heme and also has a protective function during oxidative stress. Cytoglobin, a hexacoordinate hemoglobin, shares less than 30% identity with other human hemoglobins and is widely expressed in a wide array of tissues including fibroblasts and nerve cell populations.

REFERENCES

1. Trent, J.T. and Hargrove, M.S. 2002. A ubiquitously expressed human hexacoordinate hemoglobin. *J. Biol. Chem.* 277: 19538-19545.
2. Kugelstadt, D., et al. 2004. Neuroglobin, cytoglobin, and a novel, eye-specific globin from chicken. *Biochem. Biophys. Res. Commun.* 325: 719-725.
3. Fago, A., et al. 2004. Allosteric regulation and temperature dependence of oxygen binding in human neuroglobin and cytoglobin. Molecular mechanisms and physiological significance. *J. Biol. Chem.* 279: 44417-44426.
4. Weiland, T.R., et al. 2004. Bis-histidyl hexacoordination in hemoglobins facilitates heme reduction kinetics. *J. Am. Chem. Soc.* 126: 11930-11935.
5. Tateaki, Y., et al. 2004. Typing of hepatic nonparenchymal cells using fibulin-2 and cytoglobin/STAP as liver fibrogenesis-related markers. *Histochem. Cell Biol.* 122: 41-49.
6. Fordel, E., et al. 2004. Cytoglobin expression is upregulated in all tissues upon hypoxia: an *in vitro* and *in vivo* study by quantitative real-time PCR. *Biochem. Biophys. Res. Commun.* 319: 342-348.
7. Sugimoto, H., et al. 2004. Structural basis of human cytoglobin for ligand binding. *J. Mol. Biol.* 339: 873-885.
8. Lang, P., et al. 2004. Antiviral activity against CMV-infected fibroblasts in pediatric patients transplanted with CD34⁺-selected allografts from alternative donors. *Hum. Immunol.* 65: 423-431.

CHROMOSOMAL LOCATION

Genetic locus: CYGB (human) mapping to 17q25.1.

SOURCE

cytoglobin (G-2) is a mouse monoclonal antibody raised against amino acids 1-190 representing full length cytoglobin of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

cytoglobin (G-2) is recommended for detection of cytoglobin of human origin by Western Blotting (starting dilution 1:100, 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).

Suitable for use as control antibody for cytoglobin siRNA (h): sc-45547, cytoglobin shRNA Plasmid (h): sc-45547-SH and cytoglobin shRNA (h) Lentiviral Particles: sc-45547-V.

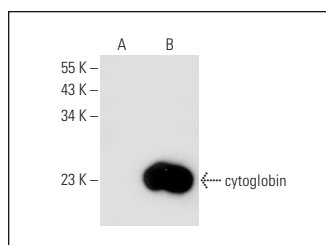
Molecular Weight of cytoglobin: 21 kDa.

Positive Controls: cytoglobin (h): 293T Lysate: sc-114314, Y79 cell lysate: sc-2240 or U-87 MG cell lysate: sc-2411.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



cytoglobin (G-2): sc-365247. Western blot analysis of cytoglobin expression in non-transfected: sc-117752 (A) and human cytoglobin transfected: sc-114314 (B) 293T whole cell lysates.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. 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.