

# Hemoglobin $\theta$ (N-13): sc-22720

## BACKGROUND

Hemoglobin (Hgb) is coupled to four iron-binding, methene-linked tetrapyrrole rings (heme). The  $\alpha$  (16p13.3; 5'- $\zeta$ -pseudoz-pseudo  $\alpha$ 2-pseudo  $\alpha$ 1- $\alpha$ 2- $\alpha$ 1- $\theta$ 1-3') and  $\beta$  (11p15.5) globin loci determine the basic hemoglobin structure. The globin portion of hemoglobin consists of two  $\alpha$  chains and two  $\beta$  chains arranged in pairs forming a tetramer. Each of the four globin chains covalently associates with a heme group. The bonds between  $\alpha$  and  $\beta$  chains are weaker than between similar globin chains, thereby forming a cleavage plane that is important for oxygen binding and release. High affinity for oxygen occurs upon relaxation of the  $\alpha$ 1- $\beta$ 2 cleavage plane. When the two  $\alpha$ 1- $\beta$ 2 interfaces are closely bound, hemoglobin has a low affinity for oxygen. Hb A, which contains two  $\alpha$  chains plus two  $\beta$  chains, comprises 97% of total circulating hemoglobin. The remaining 3% of total circulating hemoglobin is comprised of Hb A-2, which consists of two  $\alpha$  chains plus two  $\delta$  chains, and fetal hemoglobin (Hb F), which consists of two  $\alpha$  chains together with two  $\gamma$  chains.

## REFERENCES

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- Giardina, B., et al. 1995. The multiple functions of hemoglobin. *Crit. Rev. Biochem. Mol. Biol.* 30: 165-196.
- Adachi, K., et al. 2002. Assembly of human hemoglobin (Hb)  $\beta$ - and  $\gamma$ -globin chains expressed in a cell-free system with  $\alpha$ -globin chains to form Hb A and Hb F. *J. Biol. Chem.* 277: 13415-13420.
- Feng, L., et al. 2004. Molecular mechanism of AHSP-mediated stabilization of  $\alpha$ -hemoglobin. *Cell* 119: 629-640.
- Sudha, R., et al. 2004. Linkage of interactions in sickle hemoglobin fiber assembly: inhibitory effect emanating from mutations in the AB region of the  $\alpha$ -chain is annulled by a mutation at its EF corner. *J. Biol. Chem.* 279: 20018-20027.
- Baudin-Creuz, V., et al. 2004. Transfer of human  $\alpha$ - to  $\beta$ -hemoglobin via its chaperone protein: evidence for a new state. *J. Biol. Chem.* 279: 36530-36533.

## CHROMOSOMAL LOCATION

Genetic locus: HBQ1 (human) mapping to 16p13.3.

## SOURCE

Hemoglobin  $\theta$  (N-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Hemoglobin  $\theta$  of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-22720 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Hemoglobin  $\theta$  (N-13) is recommended for detection of Hemoglobin  $\theta$  of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

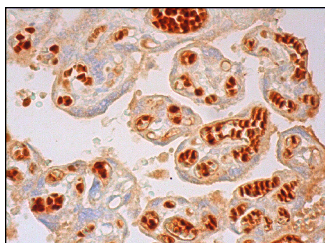
Suitable for use as control antibody for Hemoglobin  $\theta$  siRNA (h): sc-105451, Hemoglobin  $\theta$  shRNA Plasmid (h): sc-105451-SH and Hemoglobin  $\theta$  shRNA (h) Lentiviral Particles: sc-105451-V.

Molecular Weight of Hemoglobin  $\theta$ : 15 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



Hemoglobin  $\theta$  (N-13): sc-22720. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic staining of erythrocytes.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.