



# Hemoglobin $\mu$ (N-13): sc-160431

## BACKGROUND

Hemoglobin (Hgb) is coupled to four iron-binding, methene-linked tetrapyrrole rings (heme). The  $\alpha$  and  $\beta$  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. Hemoglobin 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 Hemoglobin 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. Hemoglobin  $\mu$  is a 141 amino acid Hemoglobin chain expressed in erythroid tissues with its highest expression during erythroblast terminal differentiation.

## REFERENCES

- Liebhaber, S.A., Goossens, M. and Kan, Y.W. 1981. Homology and concerted evolution at the  $\alpha$ 1 and  $\alpha$ 2 loci of human  $\alpha$ -globin. *Nature* 290: 26-29.
- Goodbourn, S.E., Higgs, D.R., Clegg, J.B. and Weatherall, D.J. 1983. Molecular basis of length polymorphism in the human  $\zeta$ -globin gene complex. *Proc. Natl. Acad. Sci. USA* 80: 5022-5026.
- Giardina, B., Messana, I., Scatena, R. and Castagnola, M. 1995. The multiple functions of hemoglobin. *Crit. Rev. Biochem. Mol. Biol.* 30: 165-196.
- Adachi, K., Zhao, Y. and Surrey, S. 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.
- Sudha, R., Anantharaman, L., Sivaram, M.V., Mirsamadi, N., Choudhury, D., Lohiya, N.K., Gupta, R.B. and Roy, R.P. 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.
- Feng, L., Gell, D.A., Zhou, S., Gu, L., Kong, Y., Li, J., Hu, M., Yan, N., Lee, C., Rich, A.M., Armstrong, R.S., Lay, P.A., Gow, A.J., Weiss, M.J., Mackay, J.P. and Shi, Y. 2004. Molecular mechanism of AHSP-mediated stabilization of  $\alpha$ -hemoglobin. *Cell* 119: 629-640.
- Baudin-Creuzat, V., Vasseur-Godbillon, C., Pato, C., Prehu, C., Wajcman, H. and Marden, M.C. 2004. Transfer of human  $\alpha$ - to  $\beta$ -hemoglobin via its chaperone protein: evidence for a new state. *J. Biol. Chem.* 279: 36530-36533.
- Goh, S.H., Lee, Y.T., Bhanu, N.V., Cam, M.C., Desper, R., Martin, B.M., Moharram, R., Gherman, R.B. and Miller, J.L. 2005. A newly discovered human alpha-globin gene. *Blood* 106: 1466-1472.

## STORAGE

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

## CHROMOSOMAL LOCATION

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

## SOURCE

Hemoglobin  $\mu$  (N-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Hemoglobin  $\mu$  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-160431 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Hemoglobin  $\mu$  (N-13) is recommended for detection of Hemoglobin  $\mu$  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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other Hemoglobin family members.

Suitable for use as control antibody for Hemoglobin  $\mu$  siRNA (h): sc-93246, Hemoglobin  $\mu$  shRNA Plasmid (h): sc-93246-SH and Hemoglobin  $\mu$  shRNA (h) Lentiviral Particles: sc-93246-V.

Molecular Weight of Hemoglobin  $\mu$ : 16 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.

## 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.