SANTA CRUZ BIOTECHNOLOGY, INC.

Hemoglobin α/β/γ (901): sc-58266

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Hemoglobin (Hgb) is coupled to four iron-binding, methene-linked tetrapyrrole rings (heme). The α (16p13.3; 5'-ζ-pseudoζ-pseudoα2-pseudoα1-α2-α1-θ1-3') and β (11p15.4) globin loci determine the basic hemoglobin structure. The globin portion of Hgb consists of two α chains and two β chains arranged in pairs forming a tetramer. Each of the four globin chains covalently associates with a heme group. The bonds between α and β 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 α1-β2 cleavage plane. When the two α1-β2 interfaces are closely bound, hemoglobin has a low affinity for oxygen. Hb A, which contains two α chains plus two β chains, comprises 97% of total circulating hemoglobin. The remaining 3% of total circulating hemoglobin is comprised of Hb A-2, which consists of 2 α chains plus 2 δ chains, and fetal hemoglobin (Hb F), which consists of 2 α chains together with 2 γ chains.

REFERENCES

1. Liebhaber, S.A., et al. 1981. Homology and concerted evolution at the α1 and α2 loci of human α-globin. Nature 290: 26-29.
2. Goodbourn, S.E., et al. 1983. Molecular basis of length polymorphism in the human ζ-globin gene complex. Proc. Natl. Acad. Sci. USA 80: 5022-5026.
3. Giardina, B., et al. 1995. The multiple functions of hemoglobin. Crit. Rev. Biochem. Mol. Biol. 30: 165-196.
4. Adachi, K., et al. 2002. Assembly of human hemoglobin (Hb) β- and γ-globin chains expressed in a cell-free system with α-globin chains to form Hb A and Hb F. J. Biol. Chem. 277: 13415-13420.
5. Feng, L., et al. 2004. Molecular mechanism of AHSP-mediated stabilization of α-hemoglobin. Cell 119: 629-640.
6. Sudha, R., et al. 2004. Linkage of interactions in sickle hemoglobin fiber assembly: inhibitory effect emanating from mutations in the AB region of the α-chain is annulled by a mutation at its EF corner. J. Biol. Chem. 279: 20018-20027.
7. Baudin-Creuza, V., et al. 2004. Transfer of human α- to β-hemoglobin via its chaperone protein: evidence for a new state. J. Biol. Chem. 279: 36530-36533.

CHROMOSOMAL LOCATION

Genetic locus: HBG1 (human) mapping to 11p15.4.

SOURCE

Hemoglobin α/β/γ (901) is a mouse monoclonal antibody raised against purified full-length native hemoglobin of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

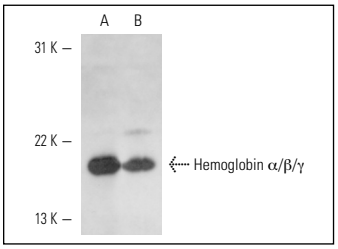
APPLICATIONS

Hemoglobin α/β/γ (901) is recommended for detection of full-length adult hemoglobin of 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Hemoglobin α/β/γ: 16 kDa.

Positive Controls: HEL 92.1.7 cell lysate: sc-2270 or TF-1 cell lysate: sc-2412.

DATA



Hemoglobin α/β/γ (901): sc-58266. Western blot analysis of Hemoglobin α/β/γ expression in HEL 92.1.7 (**A**) and TF-1 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhou, H.C., et al. 2009. Dynamin like protein 1 participated in the hemoglobin uptake pathway of *Plasmodium falciparum.* Chin. Med. J. 122: 1686-1691.

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 for detailed protocols and support products.

CONJUGATES

See **Hemoglobin β (37-8): sc-21757** for Hemoglobin β antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.