SANTA CRUZ BIOTECHNOLOGY, INC.

Hemoglobin α (D-16): sc-31110

BACKGROUND

Hemoglobin (Hgb) is coupled to four iron-binding, methene-linked tetrapyrrole rings (heme). The α (16p13.3; 5'-ω-pseudoz-pseudo α2-pseudo α1-α2-α1-α1-3') and β (11p15.5) globin loci determine the basic hemoglobin structure. The globin portion of hemoglobin 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 two α chains plus two δ chains, and fetal hemoglobin (Hb F), which consists of two α chains together with two 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: HBA1 (human) mapping to 16p13.3.

SOURCE

Hemoglobin α (D-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Hemoglobin α of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31110 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

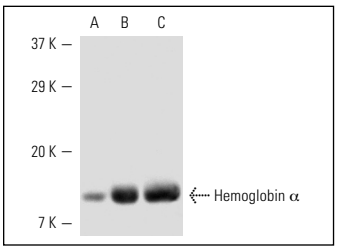
Hemoglobin α (D-16) is recommended for detection of Hemoglobin α of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Hemoglobin α siRNA (h): sc-41230, Hemoglobin α shRNA Plasmid (h): sc-41230-SH and Hemoglobin α shRNA (h) Lentiviral Particles: sc-41230-V.

Molecular Weight of Hemoglobin α: 10 kDa.

Positive Controls: TF-1 cell lysate: sc-2412, Hel 92.1.7 cell lysate: sc-2270 or K-562 whole cell lysate: sc-2203.

DATA



Hemoglobin α (D-16): sc-31110. Western blot analysis of Hemoglobin α expression in TF-1 (**A**), HEL 92.1.7 (**B**) and K-562 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Suzuki, Y., et al. 2008. Immunoblotting conditions for human Hemoglobin chains. Anal. Biochem. 378: 218-220.
2. Richter, F., et al. 2009. Neurons express hemoglobin α- and β-chains in rat and human brains. J. Comp. Neurol. 515: 538-547.
3. Marini, M.G., et al. 2010. Regulation of the human HBA genes by KLF4 in erythroid cell lines. Br. J. Haematol. 149: 748-758.

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.