SANTA CRUZ BIOTECHNOLOGY, INC.

Hemoglobin α (B-9): sc-514906

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-pseudoz-pseudo α2-pseudo α1-α2-α1-θ1-3') 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. 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.
6. 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 (B-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 3-17 within an internal region of Hemoglobin α of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514906 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Hemoglobin α (B-9) is recommended for detection of Hemoglobin α 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 Hemoglobin α siRNA (h): sc-41230, Hemoglobin α shRNA Plasmid (h): sc-41230-SH and Hemoglobin α shRNA (h) Lentiviral Particles: sc-41230-V.

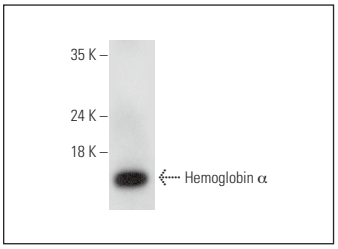
Molecular Weight of Hemoglobin α: 16 kDa.

Positive Controls: human PBL whole cell lysate or human spleen extract: sc-363779.

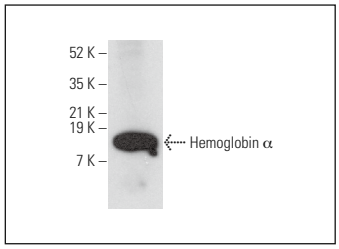
RECOMMENDED SUPPORT REAGENTS

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



Hemoglobin α (B-9): sc-514906. Western blot analysis of Hemoglobin α expression in human PBL whole cell lysate.



Hemoglobin α (B-9): sc-514906. Western blot analysis of Hemoglobin α expression in human spleen tissue extract.

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.

CONJUGATES

See **Hemoglobin α (D-4): sc-514378** for Hemoglobin α antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.