

Hemoglobin $\beta/\gamma/\delta/\epsilon$ (N-19): sc-22718

BACKGROUND

Hemoglobin (Hgb) is coupled to four iron-binding, methene-linked tetrapyrrole rings (heme). The α (16p13.3; 5'- ζ -pseudo ζ -pseudo $\alpha 2$ -pseudo $\alpha 1$ - $\alpha 2$ - $\alpha 1$ - $\theta 1$ -3') and β (11p15.4) globin loci determine the basic Hgb 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 associate 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 $\alpha 1$ - $\beta 2$ cleavage plane. When the two $\alpha 1$ - $\beta 2$ interfaces are closely bound, Hgb 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

- Liebhaber, S.A., et al. 1981. Homology and concerted evolution at the $\alpha 1$ and $\alpha 2$ loci of human α -globin. *Nature* 290: 26-29.
- 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.
- 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) 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.
- 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.

CHROMOSOMAL LOCATION

Genetic locus: HBB/HBG1/HBG2/HBD/HBE1 (human) mapping to 11p15.4; β -s/Hbb-b2/Hbb- γ (mouse) mapping to 7 E3.

SOURCE

Hemoglobin $\beta/\gamma/\delta/\epsilon$ (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of Hemoglobin β of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-22718 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

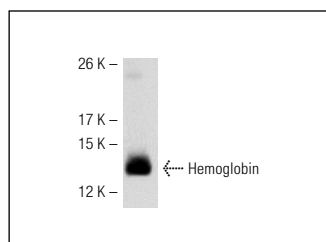
APPLICATIONS

Hemoglobin $\beta/\gamma/\delta/\epsilon$ (N-19) is recommended for detection of Hemoglobin β , γ , δ and ϵ of human origin, β -s, Hbb-b2, and Hbb- γ of mouse origin and the corresponding rat homologs by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], 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).

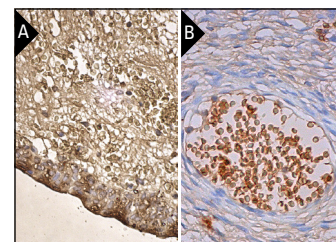
Hemoglobin $\beta/\gamma/\delta/\epsilon$ (N-19) is also recommended for detection of Hemoglobin β , γ , δ and ϵ in additional species, including equine, canine, bovine, porcine and feline.

Positive Controls: mouse heart extract: sc-2254 or rat heart extract: sc-2393.

DATA



Hemoglobin $\beta/\gamma/\delta/\epsilon$ (N-19): sc-22718. Western blot analysis of Hemoglobin expression in mouse heart tissue extract.



Hemoglobin $\beta/\gamma/\delta/\epsilon$ (N-19): sc-22718. Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing cytoplasmic staining of squamous epithelial cells (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human blood vessel showing staining of erythrocytes (B).

SELECT PRODUCT CITATIONS

- Dumitriu, B., et al. 2010. Sox6 is necessary for efficient erythropoiesis in adult mice under physiological and anemia-induced stress conditions. *PLoS ONE* 5: e12088.
- Li, D., et al. 2013. Hemoglobin subunit β interacts with the capsid protein and antagonizes the growth of classical swine fever virus. *J. Virol.* 87: 5707-5717.

STORAGE

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



Try **Hemoglobin $\beta/\gamma/\delta/\epsilon$ (A-8): sc-390668** our highly recommended monoclonal alternatives to Hemoglobin $\beta/\gamma/\delta/\epsilon$ (N-19). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **Hemoglobin $\beta/\gamma/\delta/\epsilon$ (A-8): sc-390668**.