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Datasheet for 200-301-GS4S

Hemoglobin A (beta chain) Antibody

Overview

Description:	Anti-HbA (MOUSE) Monoclonal Antibody - 200-301-GS4S
Item No.:	200-301-GS4S
Size:	25 µL
Applications:	ELISA, WB, FC, LFA
Reactivity:	Human
Host Species:	Mouse

Product Details

Background:	HbA antibodies detect the hemoglobin beta subunit wild type variant A isoform. Functional adult hemoglobin (Hb) is a hetero tetramer composed of 2 alpha and 2 beta subunits (α2β2). Common isoform variants of hemoglobin include HbA, HbS, HbC, HbF, and HbA-2. Sickle cell disease (SCD), thalassemias and hemoglobinopathies occur when aberrant forms of hemoglobin are expressed in children and adults. Globin gene mutations affect the structure and expression levels of Hb. Sickle cell disease and the more benign sickle cell trait are observed in more than 100 million people globally. Perhaps the most significant mutation is the E6V in the beta subunit and the cause of SCD, but other relevant isoforms of Hb are observed. HbA antibody cross reacts with HbA-2 but does not react other forms Hb. This antibody is ideal for investigators involved in Cardiovascular and developmental biology research.
Synonyms:	mouse anti-HbA antibody, mouse anti-hemoglobin antibody, Hemoglobin beta subunit, Hemoglobin subunit beta, Hemoglobin beta chain, HBB, HBA, Hbβ Antibody, LVV-hemorphin-7, Spinorphin, Sickle Cell Disease (SCD)
Host Species:	Mouse
Clonality:	Monoclonal
Clone ID:	14G2.G11.F11
Format:	IgG2a

Target Details

Gene Name:	HBB

Reactivity:	Human
Immunogen Type:	Conjugated Peptide
Immunogen:	Anti-Hemoglobin A (beta chain) Monoclonal Antibody was produced in mice by repeated immunizations with synthetic peptide corresponding to amino acid residues near the N-terminus of Hb β-subunit conjugated to KLH.
Purity/Specificity:	This protein A purified mouse monoclonal antibody reacts specifically with human HbA beta chain isoform. Anti-Hemoglobin beta β is purified from tissue culture supernatant by protein A purification. Blast analysis shows 100% homology to Human, Pan troglodytes, Pan paniscus, Gorilla gorilla gorilla, and Hylobates lar. This antibody does not react with the HbS, HbF (gamma), or HbC forms. HbA antibody cross reacts with HbA-2.
Relevant Links:	• 200-301-GS4 SDS • UniProtKB - P68871 • NCBI - NP_000509.1 • GeneID - 3043

Application Details

Tested Applications:	ELISA, WB
Suggested Applications:	FC, LFA (Based on references)
Application Note:	Anti-Hemoglobin A (beta chain) (MOUSE) antibody has been tested by ELISA and western blot. This antibody is designed for use in lateral flow. Specific conditions of reactivity should be optimized by the end user. Expect a band of approximately 16 kDa.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	1:20,000
WB:	1ug/mL

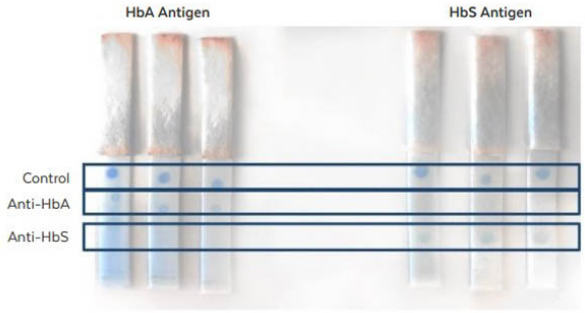
Formulation

Physical State:	Liquid (sterile filtered)
Concentration:	1.00 mg/ml by UV absorbance at 280 nm
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Preservative:	0.01% (w/v) Sodium Azide
Stabilizer:	None

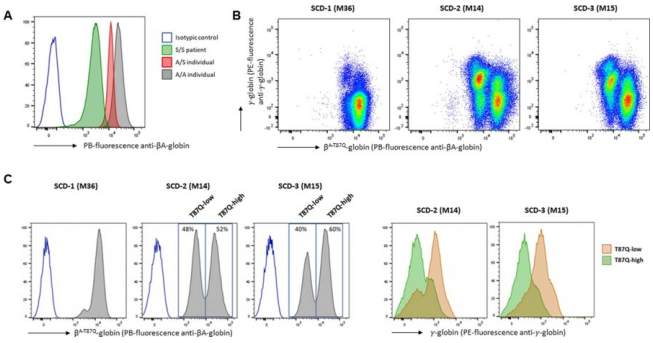
Shipping & Handling

Shipping Condition:	Dry Ice
Storage Condition:	Store vial at -20° C or below prior to opening. This vial contains a relatively low volume of reagent (25 µL). To minimize loss of volume dilute 1:10 by adding 225 µL of the buffer stated above directly to the vial. Recap, mix thoroughly and briefly centrifuge to collect the volume at the bottom of the vial. Use this intermediate dilution when calculating final dilutions as recommended below. Store the vial at -20°C or below after dilution. Avoid cycles of freezing and thawing.
Expiration:	Expiration date is one (1) year from date of receipt.

Images

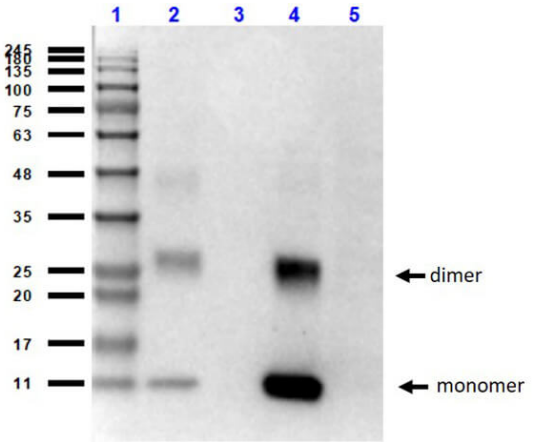


Lateral Flow
Lateral Flow Results of Anti-HbA (Hemoglobin A) and Anti-HbS (Hemoglobin beta S) Antibodies. Triplicate test strips are spotted with a control, Anti-HbA antibody (p/n 200-301-GS4) 0.5µL at 250ug/mL, and Anti-HbS antibody (p/n 200-301-GN5) 0.5µL at 1mg/mL. Recombinant HbA (left group) or recombinant HbS (right group) are observed to react with the corresponding antibodies specifically, leading to blue dots. Image courtesy of team SicklED advised by Professors Xuanhong Cheng and Khanjan Mehta of Lehigh University, Bethlehem, Pennsylvania, USA.



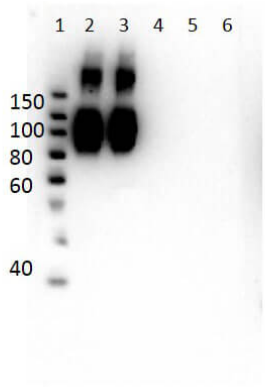
Flow Cytometry

Flow cytometry analyses of RBCs in SCD patients.
(A) Controls showing that the Pacific Blue (PB) labeled anti-HbA monoclonal antibody (Rockland) does not cross react with HbS in individualized RBCs by flow cytometry analysis. S/S RBC exhibit low level of fluorescence because the anti-HbA antibody also reacts with HbA2 (data from Rockland). However, the anti-HbA antibody does not cross react with HbF (data from Rockland). Because the epitope recognized by the anti-HbA antibody is also present on HbAT87Q, the latter is equally well recognized (data not shown). (b) Distribution of γ-globin and βA-T87Q-globin expressing RBCs in SCD patients' blood by flow cytometry using antibodies that recognize either βA-T87Q-globin (anti-HbA PB-labeled) or γ-globin (anti-HbF PE-labeled). Co-stainings performed at M36, M14 and M15 for SCD-1, SCD-2 and SCD-3, respectively, showing reduced levels of HbF in high containing HbAT87Q RBCs, and inversely, for SCD-2 and SCD-3. (c) Distribution of βA-T87Q-globin vs. γ-globin expressing RBCs in SCD patients' blood by flow cytometry using antibodies that recognize either βA-T87Q-globin (left) or γ-globin (right). M, months after GT; PB, Pacific Blue; PE, phycoerythrin. Corresponding datasets are represented in Tables 2a and b. Antibodies used anti-HbA monoclonal antibody (p/n 200-301-GS4) and anti-HbS monoclonal antibody (p/n 200-301-GS5).
Extended Data Fig. 4
PMID: 35075288



Western Blot

Western Blot of Mouse Anti-human hemoglobin (HbA) Antibody. Lane 1: Opal Prestained Molecular Weight Marker (p/n MB-210-0500). Lane 2: Human HbA (0.1µg) [+]. Lane 3: Human HbS (0.1µg) [-]. Lane 4: Human Heart Whole Cell Lysate (2.0µg) [+]. Lane 5: Human HeLa Whole Cell Lysate (10.0µg) [-]. Primary Antibody: Anti-HbA at 1.0µg/mL overnight at 2-8°C. Secondary Antibody: Rabbit Anti-Mouse IgG (gamma 1, 2a, 2b and 3 chain) Antibody Peroxidase Conjugated (p/n 610-403-C46) at 1:40,000 at RT for 30 mins. Block: BlockOut Buffer (p/n MB-073). Predicted MW: ~16kDa. Observed MW: ~11kDa monomer, ~25kDa dimer. Exposure: 30 sec.



Western Blot
Western Blot of Mouse Anti-Hemoglobin A (beta chain) Antibody. Lane 1: Molecular Weight Ladder. Lane 2: HbA peptide conjugated to BSA. Lane 3: HbA-2 peptide conjugated to BSA. Lane 4: HbC peptide conjugated to BSA. Lane 5: HbF peptide conjugated to BSA. Lane 6: HbS peptide conjugated to BSA. Load: 50ng per lane. Primary antibody: Anti-HbA antibody at 1µg/mL overnight at 4°C. Secondary antibody: Rabbit Anti-Mouse secondary antibody at 1:40,000 for 30 min at RT. Block: MB-073 for 30 min RT. Predicted/Observed: Reactivity seen in Lane 2 specific to HbA and cross reactivity to HbA-2 seen in Lane 3.

References

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