

**Hemoglobin  $\beta$  (D4W4I) Rabbit mAb**

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

<b>Applications:</b> W	<b>Reactivity:</b> H	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 12	<b>Source/Isotype:</b> Rabbit IgG	<b>UniProt ID:</b> #P68871	<b>Entrez-Gene Id:</b> 3043
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**Product Usage Information****Application**

Western Blotting

**Dilution**

1:1000

**Storage**

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100  $\mu$ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at  $-20^{\circ}\text{C}$ . Do not aliquot the antibody.

**Specificity/Sensitivity**

Hemoglobin  $\beta$  (D4W4I) Rabbit mAb recognizes endogenous levels of the hemoglobin  $\beta$  subunit. This antibody may also detect the hemoglobin  $\delta$  subunit, but is not predicted to cross-react with hemoglobin  $\alpha$ ,  $\gamma$ ,  $\epsilon$  or  $\zeta$  subunits.

**Source / Purification**

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of the human hemoglobin  $\beta$  subunit.

**Background**

Hemoglobin (Hb, Hbg) is a heme-containing transport protein found primarily in the red blood cells of humans and most other vertebrates. The primary function of hemoglobin is to transport oxygen from the external environment to body tissues. Hemoglobin also facilitates metabolic waste removal by assisting in the transport of carbon dioxide from tissues back to the respiratory organs (1). Mature hemoglobin is a tetrameric protein complex, with each subunit containing an oxygen-binding heme group (2). Multiple isoforms of hemoglobin exist, which vary in relative abundance depending on developmental stage. Adult hemoglobin (HbA) is composed of two  $\alpha$  subunits and two  $\beta$  subunits and is the predominant hemoglobin found in red blood cells of children and adults. Fetal hemoglobin (HbF) contains two  $\alpha$  subunits and two  $\gamma$  subunits and is the predominant isoform found during fetal and early postnatal development (2,3). Mutations that alter the structure or abundance of specific globin subunits can result in pathological conditions known as hemoglobinopathies (4). One such disorder is sickle cell disease, which is characterized by structural abnormalities that limit the oxygen carrying capacity of red blood cells. By contrast, thalassemia disorders are characterized by deficiencies in the abundance of specific hemoglobin subunits (4). Clinical treatments that are designed to alter the expression of specific hemoglobin subunits can be used to treat hemoglobinopathies (5).

**Background References**

1. Hardison, R. (1998) *J Exp Biol* 201, 1099-117.
2. Sankaran, V.G. et al. (2010) *Br J Haematol* 149, 181-94.
3. Bank, A. (2006) *Blood* 107, 435-43.
4. Thein, S.L. (2013) *Cold Spring Harb Perspect Med* 3, a011700.
5. Fucharoen, S. et al. (1996) *Blood* 87, 887-92.

**Species Reactivity**

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

**Western Blot Buffer**

**IMPORTANT:** For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at  $4^{\circ}\text{C}$  with gentle shaking, overnight.

**Applications Key**

**W:** Western Blotting

**Cross-Reactivity Key**

**H:** Human

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