

## DESCRIPTION

|                                                                                                                                                                                                         |                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b>                                                                                                                                                                               | Human                                                                                                        |
| <b>Specificity</b>                                                                                                                                                                                      | Detects human CD42b/GPIb $\alpha$ in direct ELISAs and Western blots.                                        |
| <b>Source</b>                                                                                                                                                                                           | Polyclonal Sheep IgG                                                                                         |
| <b>Purification</b>                                                                                                                                                                                     | Antigen Affinity-purified                                                                                    |
| <b>Immunogen</b>                                                                                                                                                                                        | Mouse myeloma cell line NS0-derived recombinant human CD42b/GPIb $\alpha$ His17-Leu505<br>Accession # P07359 |
| <b>Conjugate</b>                                                                                                                                                                                        | Alexa Fluor 488<br>Excitation Wavelength: 488 nm<br>Emission Wavelength: 515-545 nm                          |
| <b>Formulation</b>                                                                                                                                                                                      | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide                                                 |
| *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |                                                                                                              |

## APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

|                       |                                                                        |
|-----------------------|------------------------------------------------------------------------|
| <b>CyTOF-ready</b>    | Optimal dilution of this antibody should be experimentally determined. |
| <b>Western Blot</b>   | Optimal dilution of this antibody should be experimentally determined. |
| <b>Flow Cytometry</b> | Optimal dilution of this antibody should be experimentally determined. |

## PREPARATION AND STORAGE

|                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Shipping</b>                | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| <b>Stability &amp; Storage</b> | Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied                          |

## BACKGROUND

Platelet glycoprotein Ib alpha chain (GPIb  $\alpha$ ), also known as CD42b  $\alpha$ , is a 145 kDa type I transmembrane protein that is a member of the leucine-rich repeat (LRR) family of ligand binding proteins (1-3). It is expressed by platelets as the ligand-binding subunit of the platelet GPIb-IX-V complex (4). Human GPIb  $\alpha$  contains a 16 amino acid (aa) signal sequence, a 489 aa extracellular domain (ECD), a 21-aa transmembrane domain, and a 100 aa cytoplasmic region. The ECD contains 8 LRRs, with # 2, 3, and 4 having been demonstrated to regulate shear-dependent adhesion to von Willebrand factor (vWF) (5, 6). The LRRs are followed by a thrombin-binding anionic region that includes three sulfated tyrosines, a sialomucin domain with N- and O-linked carbohydrates, and two cysteines near the membrane that allow dimerization with GP1b  $\alpha\beta$  (1-6). Four human isoforms with 1 to 4 repeats of aa 398-411 within the sialomucin domain of mature GPIb  $\alpha$  are known to exist but have unknown significance (7). The ECD of human GPIb  $\alpha$  shares 48-51% aa identity with mouse, rat, bovine, and canine GPIb  $\alpha$ . The metalloproteinase TACE/ADAM17 constitutively and inducibly cleaves GPIb  $\alpha$ , between Gly480 and Val481. This releases a soluble form called glyocalicin that circulates at ~2  $\mu$ g/mL (8, 9). GPIb  $\alpha$  binding to ligands such as thrombin, kininogen, and coagulation factors XI and XII helps to initiate platelet activation and coordinate the coagulation cascade (1, 10-12). Binding of GPIb  $\alpha$  to vWF or thrombospondin in the plasma or matrix, vWF or P-selectin on endothelial cells, or the integrin  $\alpha$ M $\beta$ 2 (MAC-1) on myeloid cells, controls response to vascular injury (1, 13). Bernard-Soulier syndrome and platelet-type von Willebrand disease are platelet function disorders that can be caused by mutations in GPIb  $\alpha$  (1, 14).

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