

APB042Hu61 100µg

Active Integrin Beta 1 (ITGb1)

Organism Species: *Homo sapiens* (Human)

Instruction manual

FOR RESEARCH USE ONLY

NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

[PROPERTIES]

Source: Eukaryotic expression.

Host: 293F cell

Residues: Gln467~Thr635

Tags: N-terminal His-tag

Purity: >90%

Endotoxin Level: <1.0EU per 1µg (determined by the LAL method).

Buffer Formulation: PBS, pH7.4, containing 5% Trehalose .

Original Concentration: 200µg/mL

Applications: Activity Assays.

(May be suitable for use in other assays to be determined by the end user.)

Predicted isoelectric point: 4.4

Predicted Molecular Mass: 19.8kDa

Accurate Molecular Mass: 40kDa as determined by SDS-PAGE reducing conditions.

Phenomenon explanation:

The possible reasons that the actual band size differs from the predicted are as follows:

1. Splice variants: Alternative splicing may create different sized proteins from the same gene.
2. Relative charge: The composition of amino acids may affects the charge of the protein.
3. Post-translational modification: Phosphorylation, glycosylation, methylation etc.
4. Post-translation cleavage: Many proteins are synthesized as pro-proteins, and then cleaved to give the active form.
5. Polymerization of the target protein: Dimerization, multimerization etc.

[USAGE]

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

[STORAGE AND STABILITY]

Storage: Avoid repeated freeze/thaw cycles.

Store at 2-8°C for one month.

Aliquot and store at -80°C for 12 months.

Stability Test: The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

[SEQUENCE]

QSEGIPESPKCHEGNGTFCGACRCNEGRVGRHCECSTDEVNSEMDAYCRKENSSEICSNNGECVCGQCVCRKRDNTNEIYSGKFCECDNFNCDRSNGLICGGNGVCKCRVCECNPNYTGSDACDCSLDTSTCEASNGQICNNGRGICECGVCKCTDPKFQGGQTCEMCQT

[ACTIVITY]

Integrin Beta 1 (ITGb1) is a fundamental transmembrane receptor that mediates bidirectional signaling between cells and the extracellular matrix (ECM). As the most ubiquitously expressed β integrin subunit, ITGb1 partners with different α subunits to form functional heterodimers that regulate critical cellular processes including adhesion, migration, proliferation, and differentiation. This versatile receptor plays indispensable roles in embryogenesis, wound healing, and immune cell trafficking through its ability to transmit both mechanical and biochemical signals across the plasma membrane. The dysregulation of ITGb1 function has been implicated in various pathological conditions, particularly tumor metastasis, tissue fibrosis, and chronic inflammatory disorders. ITGb1 specifically combines with ITGa3 through non-covalent interactions to form the $\alpha 3 \beta 1$ integrin heterodimer, a key laminin receptor that mediates cell-ECM adhesion and

subsequent intracellular signaling cascades. Thus a functional binding ELISA assay was conducted to detect the interaction of recombinant human ITGb1 and recombinant mouse ITGa3. Briefly, biotin-linked ITGb1 were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100 μ l were then transferred to ITGa3-coated microtiter wells and incubated for 1h at 37°C. Wells were washed with PBST 3 times and incubation with Streptavidin-HRP for 30min, then wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37°C. Finally, add 50 μ l stop solution to the wells and read at 450nm immediately. The binding activity of recombinant human ITGb1 and recombinant mouse ITGa3 was shown in Figure 1, the EC₅₀ for this effect is 4.33 μ g/mL.

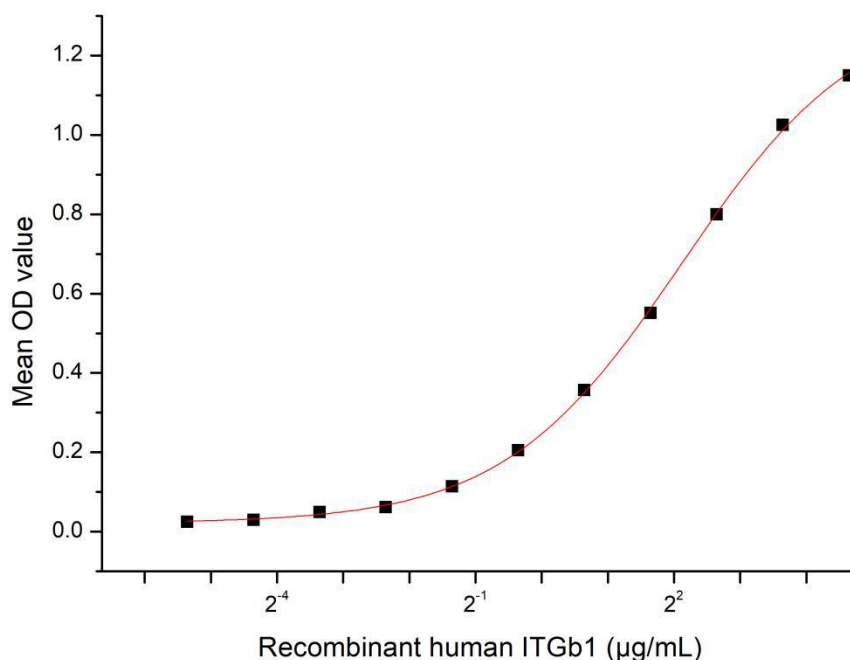


Figure 1. The binding activity of recombinant human ITGb1 and recombinant mouse ITGa3

[IDENTIFICATION]

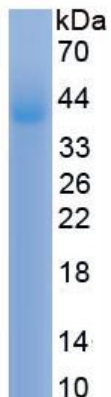


Figure 2. SDS-PAGE

Sample: Active recombinant ITGb1, Human

[IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.