APA957Hu61 10μg
Active Procollagen I N-Terminal Propeptide (PINP)
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: Gln23~Pro161
Tags: N-terminal His-tag
Purity: >95%
Endotoxin Level: <1.0EU per 1μg (determined by the LAL method).
Buffer Formulation: PBS, pH7.4, containing 5% Trehalose .
Original Concentration: 250μg/mL
Applications: Activity Assays.
(May be suitable for use in other assays to be determined by the end user.)
Predicted isoelectric point: 3.9
Predicted Molecular Mass: 15.9kDa
Accurate Molecular Mass: 32kDa 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]

QEEGQVEG QDEDIPPITC VQNGLRYHDR DVWKPEPCRI CVCDNGKVLC DDVICDETKN
CPGAEVPEGE CCPVCPDGSE SPTDQETTGV EGPKGDTGPR GPRGPAGPPG RDGIPGQPGL
PGPPGPPGPP GPPGLGGNFA P

[ACTIVITY]

Procollagen I N- Terminal Propeptide (PINP) is a specific proteolytic fragment released during the synthesis of type I collagen, the most abundant collagen in the human body, mainly distributed in bone, skin, tendons, and blood vessels. As type I procollagen is processed by proteinases into mature collagen, PINP is cleaved and released into the circulation in a 1:1 stoichiometric ratio, making it a highly sensitive and specific serum biomarker for osteoblast activity and bone formation rate. Clinically, PINP measurement is widely used to evaluate bone turnover, monitor osteoporosis treatment efficacy, assess fracture risk, and diagnose metabolic bone diseases. Unlike bone resorption markers, PINP directly reflects active bone synthesis and is less affected by diurnal variation. BMP2 promotes osteoblastic differentiation and upregulates collagen synthesis, thereby increasing the production and release of PINP during type I collagen maturation. To detect the activity of recombinant PINP , a functional ELISA assay was performed to evaluate the interaction between recombinant human PINP and recombinant human BMP2.

Briefly, BMP2 was diluted serially in PBS with 0.01% BSA (pH 7.4). Duplicate samples of 100 μl were then transferred to PINP-coated microtiter wells and incubated for 1h at 37℃. Wells were washed with PBST and incubated for 1h with anti-BMP2 pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody for 1h at 37℃, wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37℃. Finally, add 50 μL stop solution to the wells and read at 450/630nm immediately. Measured by its binding ability in a functional ELISA. When Recombinant PINP is Immobilized at 2 μg/mL(100 μLwell), the concentration of BMP2 that produces 50% optimal bindingresponse is found to be approximately 0.415 μg/mL.

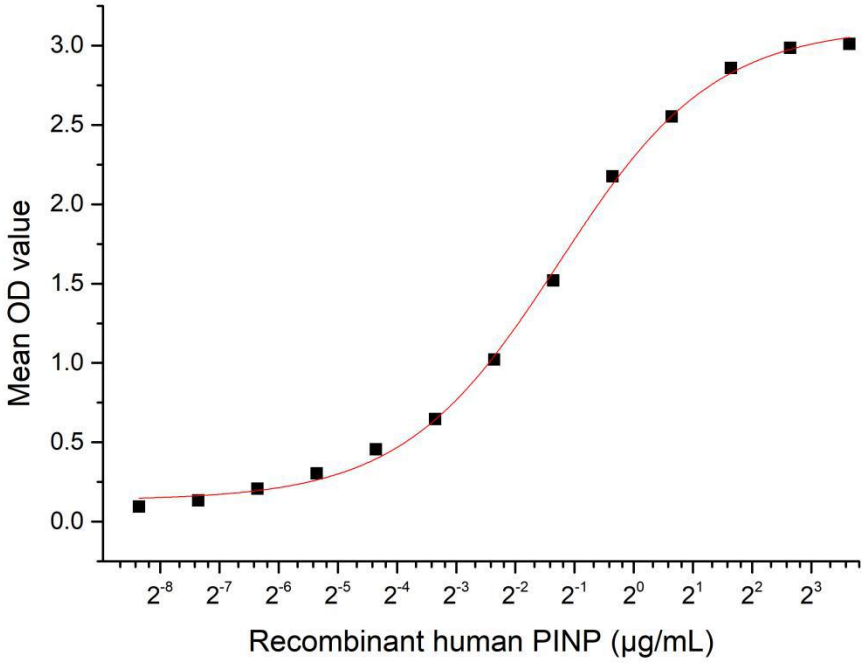

Figure 1. The binding activity of recombinant human PINP and recombinant human BMP2

[IDENTIFICATION]

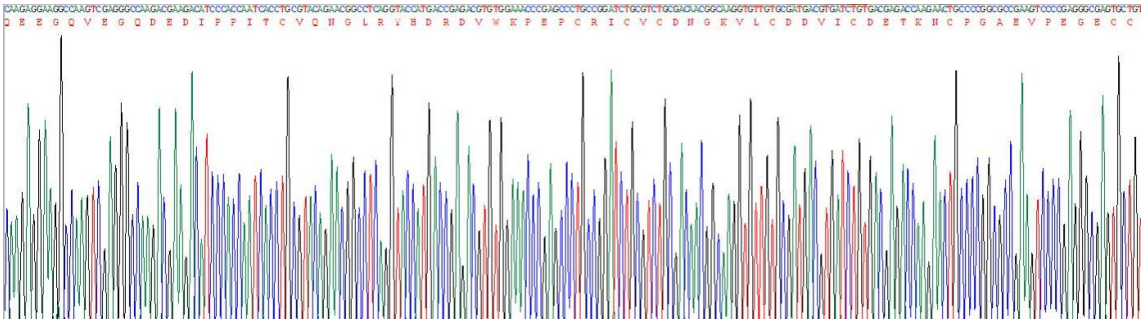

Figure 2. Gene Sequencing (extract)

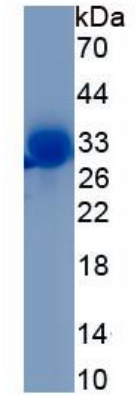

Figure 3. SDS-PAGE

Sample: Active recombinant PINP, 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.