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Product Information

SILu™Prot COL1A1, N-terminal propeptide, human recombinant, expressed in HEK cells
SIL MS Protein Standard, ^{13}C- and ^{15}N-labeled

Catalog Number **MSST0033**
Storage Temperature –20 °C

Synonyms: P1NP, Collagen alpha-1(I) chain

Product Description
SILu™Prot COL1A1 is a recombinant, stable isotope-labeled human COL1A1 which incorporates [$^{13}C_6$, $^{15}N_4$]-Arginine and [$^{13}C_6$, $^{15}N_2$]-Lysine. Expressed in human 293 cells, it is designed to be used as an internal standard for bioanalysis of COL1A1 in mass spectrometry. SILu™Prot COL1A1 is a protein of 159 amino acids (Q23-P161 and including C-terminal polyhistidine and FLAG® tags) with a calculated molecular mass of 16.7 kDa.

Collagen type I is present in soft connective tissues and bone, where it constitutes more than 90% of the organic matrix.[1] During bone formation collagen type I is synthesized from procollagen type I, which is secreted from fibroblasts and osteoblasts.[2] Procollagen type I contains N- and C-terminal extensions, which are removed by specific proteases during the conversion of procollagen to collagen.[3] Measurements of N-terminal propeptides of procollagen type I (PINP) can be of value in assessing bone formation. Recent evidence indicates PINP can serve as a serum biomarker of bone formation, as it accurately identifies those patients who are responding to anabolic or antiresorptive therapy within 3 months of the start of treatment.[4] The use of this biomarker in patients being treated for osteoporosis may significantly improve therapy adherence and clinical outcomes.[4]

Each vial contains 10–13 μg of SILu™Prot COL1A1 standard, lyophilized from a solution of phosphate buffered saline. Vial content was determined by the Bradford method using BSA as a calibrator. The correction factor from the Bradford method to Amino Acid Analysis is 140% for this protein.

Identity: Confirmed by peptide mapping

Purity: ≥95% (SDS-PAGE)

Heavy amino acid incorporation efficiency: ≥98% (MS)

UniProt: P02452

Sequence Information
The C-terminal polyhistidine and FLAG tags are italicized.

QEEGQVEGQDEDIPPITCVQNGLRYHDRDVWKPEPC
RICVCDNGKVLCDDVICDETKNCPGAEVPEGECCPV
CPDGSESPTDQETTGVEGPKGDTGPRGPRGPAGPP
GRDGIPGQPGLPGPPGPPGPPGPPGLGGNFAP*DYK
DDDDKGHHHHHHHHGGQ*

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
Briefly centrifuge the vial before opening. It is recommended to reconstitute the protein in sterile ultrapure water to a final concentration of 100 μg/mL.

Storage/Stability
Store the lyophilized product at –20 °C. The product is stable for at least 2 years as supplied. After reconstitution, it is recommended to store the protein in working aliquots at –20 °C.

References

1. Stagi, S. et al., Bone metabolism in children and adolescents: main characteristics of the determinants of peak bone mass. *Clin. Cases Miner. Bone Metab.,* **10**, 172–179 (2013).
2. Leblond, C.P. et al., Synthesis and Secretion of Collagen by Cells of Connective Tissue, Bone, and Dentin. *The Anatomical Record,* **224**, 123-138 (1989).
3. Canty, E.G. et al., Procollagen trafficking, processing and fibrillogenesis. *J. Cell Sci.,* **118**, 1341-1353 (2005).
4. Samoszuk, M. et al., Role of serum P1NP measurement for monitoring treatment response in osteoporosis. *Biomark. Med.,* **2**, 495-508 (2008).

Legal Information

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