

# PRODUCT INFORMATION



## Osteocalcin (1-49) (human) (trifluoroacetate salt)

Item No. 24723

**Formal Name:** L-tyrosyl-L-leucyl-L-tyrosyl-L-glutamyl-L-tryptophyl-L-leucylglycyl-L-alanyl-L-prolyl-L-valyl-L-prolyl-L-tyrosyl-L-prolyl-L- $\alpha$ -aspartyl-L-prolyl-L-leucyl-4-carboxy-L- $\alpha$ -glutamyl-L-prolyl-L-arginyl-L-arginyl-4-carboxy-L- $\alpha$ -glutamyl-L-valyl-L-cysteinyl-4-carboxy-L- $\alpha$ -glutamyl-L-leucyl-L-asparaginyl-L-prolyl-L- $\alpha$ -aspartyl-L-cysteinyl-L- $\alpha$ -aspartyl-L- $\alpha$ -glutamyl-L-leucyl-L-alanyl-L- $\alpha$ -aspartyl-L-histidyl-L-isoleucylglycyl-L-phenylalanyl-L-glutamyl-L- $\alpha$ -glutamyl-L-alanyl-L-tyrosyl-L-arginyl-L-arginyl-L-phenylalanyl-L-tyrosylglycyl-L-prolyl-L-valine cyclic (23→29)-disulfide, trifluoroacetate salt

**MF:**  $C_{269}H_{381}N_{67}O_{82}S_2 \cdot XCF_3COOH$

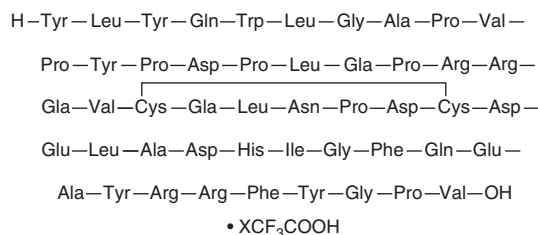
**FW:** 5,929.4

**Purity:**  $\geq 95\%$

**Supplied as:** A lyophilized powder

**Storage:**  $-20^\circ C$

**Stability:**  $\geq 4$  years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Osteocalcin (1-49) (human) (trifluoroacetate salt) is supplied as a lyophilized powder. A stock solution may be made by dissolving the osteocalcin (1-49) (human) (trifluoroacetate salt) in the solvent of choice. Osteocalcin (1-49) (human) (trifluoroacetate salt) is soluble in the organic solvent formic acid, which should be purged with an inert gas, at a concentration of approximately 1 mg/ml.

### Description

Osteocalcin (1-49) is a non-collagenous peptide that is secreted by osteoblasts and odontoblasts and comprises 1-2% of the total protein in bone.<sup>1</sup> Secretion of osteocalcin (1-49) is stimulated by 1,25-dihydroxy vitamin D and plasma levels increase in diseases that induce dysregulated bone turnover such as osteoporosis, Paget's disease, and primary hyperparathyroidism.<sup>1,2</sup> Osteocalcin (1-49) is positively correlated with insulin sensitivity and negatively correlated with high blood glucose levels in women.<sup>3</sup> *In vitro*, osteocalcin induces chemotaxis of MDA-MB-231 breast cancer cells, human peripheral blood monocytes, and rat osteosarcoma cells with osteoblast-like characteristics.<sup>2</sup> It is also expressed by vascular smooth muscle cells (VSMCs) displaying an osteoblast-like phenotype and has been positively associated with calcification of aortic tissue and heart valves in humans.<sup>4</sup>

### References

1. Colford, J.W., Lueddecke, B.A., Salvati, M., *et al.* Immunoradiometric assay for intact human osteocalcin(1-49) without cross-reactivity to breakdown products. *Clin. Chem.* **45**(4), 526-531 (1999).
2. Mundy, G.R., and Poser, J.W. Chemotactic activity of the  $\gamma$ -carboxyglutamic acid containing protein in bone. *Calcif. Tissue Int.* **35**(2), 164-168 (1983).
3. Levinger, I., Seeman, E., Jerums, G., *et al.* Glucose-loading reduces bone remodeling in women and osteoblast function *in vitro*. *Physiol. Rep.* **4**(3), e12700 (2016).
4. Millar, S.A., Patel, H., Anderson, S.I., *et al.* Osteocalcin, vascular calcification, and atherosclerosis: A systematic review and meta-analysis. *Front. Endocrinol. (Lausanne)* **8**(183), (2017).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

**PHONE:** [800] 364-9897  
[734] 971-3335

**FAX:** [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM