# **PRODUCT** INFORMATION



## H-lle-Pro-Pro-OH (trifluoroacetate salt)

Item No. 28899

Formal Name:	L-isoleucyl-L-prolyl-L-proline	
Synonym:	IPP	0=
MF:	C <sub>16</sub> H <sub>27</sub> N <sub>3</sub> O <sub>4</sub> • XCF <sub>3</sub> COOH	
FW:	325.4	0
Purity:	≥95%	o Y
Supplied as:	A crystalline solid	N N
Storage:	-20°C	NH <sub>2</sub>
Stability:	≥4 years	$\rightarrow$
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Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

#### Laboratory Procedures

H-Ile-Pro-Pro-OH (trifluoroacetate salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the H-IIe-Pro-Pro-OH (trifluoroacetate salt) in the solvent of choice, which should be purged with an inert gas. H-lle-Pro-Pro-OH (trifluoroacetate salt) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of H-IIe-Pro-Pro-OH (trifluoroacetate salt) in ethanol is approximately 10 mg/ml and approximately 25 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of H-IIe-Pro-Pro-OH (trifluoroacetate salt) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of H-Ile-Pro-Pro-OH (trifluoroacetate salt) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

#### Description

H-IIe-Pro-Pro-OH (IPP) is a peptide inhibitor of angiotensin converting enzyme (ACE;  $IC_{50} = 5 \mu M$ ).<sup>1</sup> It inhibits acetylcholine-induced nitric oxide (NO) production in human umbilical vein endothelial cells (HUVECs) when used at a concentration of 1  $\mu$ M and induces vasorelaxation in precontracted isolated rat aortic rings.<sup>2</sup> IPP (0.3 mg/kg) decreases systolic blood pressure in spontaneously hypertensive, but not normotensive, rats.<sup>3</sup> Dietary administration of IPP reduces plasma levels of total cholesterol, HDL-cholesterol, and triglycerides, mRNA expression of IL-6 and IL-1 $\beta$ , and aortic arch intimal thickening and atherosclerotic plaque formation in ApoE<sup>-/-</sup> mice.<sup>4</sup>

#### References

- 1. Y., N. Yamamoto, N., Sakai, K., et al. Purification and characterization of angiotensin I-converting enzyme inhibitors from sour milk. J. Dairy Sci. 78(4), 777-783 (1995).
- 2. Hirota, T., Nonaka, A., Matsushita, A., et al. Milk casein-derived tripeptides, VPP and IPP induced NO production in cultured endothelial cells and endothelium-dependent relaxation of isolated aortic rings. Heart Vessels 26(5), 549-556 (2011).
- 3. Nakamura, Y., Yamamoto, N., Sakai, K., et al. Antihypertensive effect of sour milk and peptides isolated from it that are inhibitors to angiotensin I-converting enzyme. J. Dairy Sci. 78(6), 1253-1257 (1995).
- Nakamura, T., Hirota, T., Mizushima, K., et al. Milk-derived peptides, Val-Pro-Pro and Ile-Pro-Pro, 4. attenuate atherosclerosis development in apolipoprotein e-deficient mice: A preliminary study. J. Med. Food. 16(5), 396-403 (2013).

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

#### SAFFTY 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.

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XCF<sub>2</sub>COOH

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