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PRODUCT INFORMATION



(±)-Jasmonic Acid-Isoleucine

Item No. 10740

Formal Name: N-[2-[(1R,2R)-3-oxo-2-(2Z)-2-penten-1-ylcyclopentyl]acetyl]-L-isoleucine, N-[2-[(1S,2S)-3-oxo-2-(2Z)-2-penten-1-ylcyclopentyl]acetyl]-L-isoleucine

Synonym: (±)-JA-Ile

MF: C₁₈H₂₉NO₄

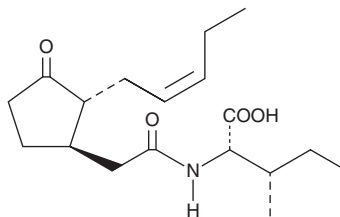
FW: 323.4

Purity: ≥98% (mixture of isomers)

Supplied as: A crystalline solid

Storage: -20°C

Stability: ≥2 years



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

Laboratory Procedures

(±)-Jasmonic acid-isoleucine ((±)-JA-Ile) is supplied as a crystalline solid. A stock solution may be made by dissolving the (±)-JA-Ile in the solvent of choice. (±)-JA-Ile is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of (±)-JA-Ile in these solvents is approximately 30, 16, and 25 mg/ml, respectively.

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 (±)-JA-Ile can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (±)-JA-Ile in PBS, pH 7.2, is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

(±)-Jasmonic acid-isoleucine (JA-Ile) is a mixture that contains two of the four possible stereoisomers of JA-Ile: (1R,2R)- and (1S,2S)-JA-Ile. JA-Ile is a plant hormone formed by the conjugation of jasmonic acid (Item No. 88300) and the amino acid isoleucine.¹ JA-Ile signals through a co-receptor complex composed of the jasmonate ZIM-domain (JAZ) repressor proteins and an E1 ubiquitin ligase complex containing the F-box Coronatine Insensitive 1 (COI1).^{1,2} Activation of the COI1-JAZ complex directs the degradation of the JAZ protein, resulting in the release of transcription factors bound and inhibited by JAZ.^{1,2} JA-Ile contributes to several aspects of plant growth and development and levels increase under stress conditions leading to the production of defense compounds and inhibition of growth.²⁻⁴ The (-)-JA-Ile isomer is more active than the (+)-JA-Ile isomer at inducing gene expression of jasmonate-induced protein of 23 kDa (JIP-23) in barley.⁵

References

1. Katsir, L., Chung, H.S., Koo, A.J.K., *et al.* *Curr. Opin. Plant Biol.* **11**(4), 428-435 (2008).
2. Goossens, J.F., Fernández-Calvo, P., Schwizer, F., *et al.* *Plant. Mol. Biol.* **91**(6), 673-689 (2016).
3. Kang, J.-H., Wang, L., Giri, A., *et al.* *Plant Cell* **18**(11), 3303-3320 (2006).
4. Koo, A.J. *Phytochem. Rev.* **17**, 51-80 (2018).
5. Kramell, R., Miersch, O., Hause, B., *et al.* *FEBS Lett.* **414**(2), 197-202 (1997).

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.

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