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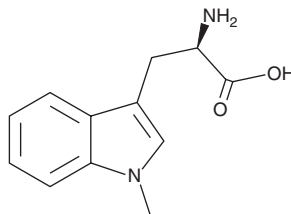


PRODUCT INFORMATION

1-methyl-D-Tryptophan

Item No. 16456

CAS Registry No.: 110117-83-4
Formal Name: 1-methyl-D-tryptophan
Synonyms: D-1MT, Indoximod
MF: C₁₂H₁₄N₂O₂
FW: 218.3
Purity: ≥95%
UV/Vis.: λ_{max}: 223, 286 nm
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

1-methyl-D-Tryptophan is supplied as a crystalline solid. A stock solution may be made by dissolving the 1-methyl-D-Tryptophan in the solvent of choice. 1-methyl-D-Tryptophan is soluble in organic solvents such as methanol and acetic acid (2%). The solubility of 1-methyl-D-tryptophan in these solvents is approximately 0.1 and 1 mg/ml, respectively.

1-methyl-D-Tryptophan is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

Indoleamine 2,3-dioxygenase (IDO) metabolizes tryptophan to kynurenine, leading to the production of NAD⁺ via the kynurenine pathway. The overexpression of IDO in tumors and tumor-draining lymph nodes induces immune tolerance and enhances tumor growth *in vivo*.^{1,2} 1-methyl-D-Tryptophan is an inhibitor of IDO (IC₅₀ = 7 μM) that is effective *in vivo*.^{3,4} In mice, 1-methyl-D-tryptophan prevents T-cell anergy triggered by dendritic cells overexpressing IDO.⁴ It augments the antitumor and antiviral immunoresponse of CD8⁺ T-cells and reduces tumor volume in mice with xenografts overexpressing IDO.^{1,2} 1-methyl-D-Tryptophan, in combination with chemotherapy, causes regression of tumors and prolongs survival.^{1,5} Surprisingly, 1-methyl-D-tryptophan induces the expression of IDO in human ovarian carcinoma SKOV3 cells in culture.⁵

References

1. Yoshida, N., Ino, K., Ishida, Y., *et al.* Overexpression of indoleamine 2,3-dioxygenase in human endometrial carcinoma cells induces rapid tumor growth in a mouse xenograft model. *Clin. Cancer Res.* **14**(22), 7251-7259 (2008).
2. Rytelewski, M., Meilleur, C.E., Yekta, M.A., *et al.* Suppression of immunodominant antitumor and antiviral CD8⁺ T cell responses by indoleamine 2,3-dioxygenase. *PLoS One* **9**(2), 1-15 (2014).
3. Dolusic, E., Larrieu, P., Blanc, S., *et al.* Discovery and preliminary SARs of keto-indoles as novel indoleamine 2,3-dioxygenase (IDO) inhibitors. *Eur. J. Med. Chem.* **46**(7), 3058-3065 (2011).
4. Munn, D.H., Sharma, M.D., Hou, D., *et al.* Expression of indoleamine 2,3-dioxygenase by plasmacytoid dendritic cells in tumor-draining lymph nodes. *J. Clin. Invest.* **114**(2), 280-290 (2004).
5. Opitz, C.A., Litzenburger, U.M., Opitz, U., *et al.* The indoleamine-2,3-dioxygenase (IDO) inhibitor 1-methyl-D-tryptophan upregulates IDO1 in human cancer cells. *PLoS One* **6**(5), 1-11 (2011).

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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