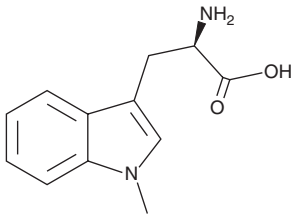
PRODUCT INFORMATION

1-methyl-D-Tryptophan

Item No. 16456

CAS Registry No.:	110117-83-4
Formal Name:	1-methyl-D-tryptophan
Synonyms:	D-1MT, Indoximod
MF:	$C_{12}H_{14}N_2O_2$
FW:	218.3
Purity:	≥95%
UV/Vis.:	λ_{max}: 223, 286 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 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, which should be purged with an inert gas. 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.

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 (IC_{50} = 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).

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