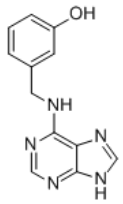
Product Data Sheet

Product Name: Meta-Topolin (m-Topolin)
Cat. No.: GC30138

Chemical Properties

Cas. No.	75737-38-1		
SMILES	OC1=CC=CC(CNC2=C3N=CNC3=NC=N2)=C1		
Formula	$C_{12}H_{11}N_5O$	M.Wt	241.25
Solubility	DMSO : ≥ 60 mg/mL (248.70 mM)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			



Background

Meta-Topolin (m-Topolin) is a potent aromatic cytokinin from poplar leaves with wide applications in micropropagation[1]. As an important class of plant growth regulators, cytokinins influence almost every stage of plant development[2].Meta-Topolin promotes cell division, enhances shoot proliferation, and delays leaf senescence, making it particularly valuable in applications such as plant tissue culture, crop genetic improvement, and research on cytokinin signaling pathways[3,4].

Caution: Product has not been fully validated for medical applications. For research use only.
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In vitro, treating Ferdor rootstock shoots with 2.1μM Meta-Topolin for three subculture cycles significantly improved shoot growth and quality (including shoot fresh weight, number of internodes, shoot length, and leaf area)[5]. When cotyledonary node explants of *Pterocarpus marsupium* were treated with a combination of 7.5μM Meta-Topolin and 1.0μM α-naphthalene acetic acid (NAA) for 12 weeks, 85% of the explants responded, producing an average of 17.44 ± 0.25 shoots per explant with an average shoot length of 5.72 ± 0.18cm. This regeneration efficiency was notably superior to that achieved using 6-benzyladenine (BA) in combination with NAA[6]. Furthermore, treatment of wheat leaves with Meta-Topolin (0.25, 0.5, and 1.0mM) for 10 days resulted in a concentration-dependent increase in fresh weight and a respective increase of 14%, 23%, and 41% in chlorophyll a content, along with a similar protective effect on chlorophyll b, effectively delaying leaf senescence[7].

References:

[1] STRNAD M, HANUŠ J, VANĚK T, et al. Meta-topolin, a highly active aromatic cytokinin from poplar leaves (Populus×canadensis Moench., cv. Robusta)[J]. Phytochemistry, 1997, 45(2): 213-218.
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[4] MANOKARI M, MEHTA S R, PRIYADHARSHINI S, et al. Meta-Topolin mediated improved micropropagation, foliar micro-morphological traits, biochemical profiling, and assessment of genetic fidelity in Santalum album L.[J]. Industrial Crops and Products, 2021, 171: 113931.
[5] GENTILE A, JÀQUEZ GUTIÉRREZ M, MARTINEZ J, et al. Effect of meta-Topolin on micropropagation and adventitious shoot regeneration in Prunus rootstocks[J]. Plant Cell, Tissue and Organ Culture, 2014, 118(3): 373-381.
[6] AHMAD A, ANIS M. Meta-topolin improves in vitro morphogenesis, rhizogenesis and biochemical analysis in Pterocarpus marsupium Roxb.: a potential drug-yielding tree[J]. Journal of Plant Growth Regulation, 2019, 38(3): 1007-1016.
[7] PALAVAN-ÜNSAL N, ÇAĞ S, ÇETIN E, et al. Retardation of senescence by meta-topolin in wheat leaves[J]. Journal of Cellular and Molecular Biology, 2002, 1: 101-108.

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