

Product Data Sheet

Product Name: Ancyimidol

Cat. No.: GC48874

Chemical Properties

Cas. No. 12771-68-5

SMILES OC(C1=CC=C(C=C1)OC)(C2CC2)C3=CN=CN=C3

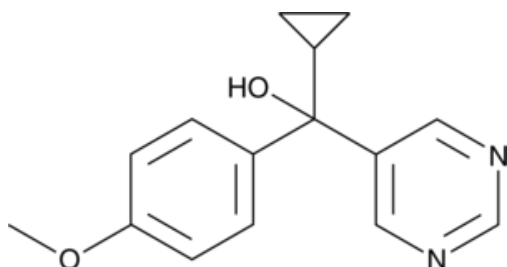
Formula C₁₅H₁₆N₂O₂ M.Wt 256.3

Solubility DMF: 30 mg/ml, DMSO: 30 mg/ml, DMSO:PBS (pH 7.2) (1:7): 0.12 mg/ml, Ethanol: 1 mg/ml
Storage -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



Protocol

Cell experiment [1]:

Cell lines Maize (*Zea mays* L. Black Mexican sweet corn) suspension-cultured cells

Caution: Product has not been fully validated for medical applications. For research use only.

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Maize cells were maintained in Murashige and Skoog (MS) medium supplemented with 10µM 2,4-D and 20g/L sucrose (pH=5.6), at 25°C under photoperiodic conditions (16:8 light/dark cycle; 41µmol/m²/s) with rotary shaking Preparation Method (110rpm), and routinely subcultured fortnightly. Ancymidol (dissolved in ethanol) was applied at varying concentrations immediately after subculturing. In reversal experiments, 500µM Ancymidol-treated cultures were supplemented with 100µM GA₃.

Reaction
Conditions 12.5µM to 2mM; 8 days

Ancymidol concentrations ≤500µM progressively reduced cell growth and induced a globular cell shape without affecting cell viability; the I₅₀ value for the inhibitory effect on fresh weight gain was 658µM, and this growth inhibition was reversed by supplementation with 100µM GA₃. Ancymidol impaired cellulose accumulation in cell walls, as 500µM Ancymidol caused reduction in cellulose content and reduced the incorporation of [¹⁴C]glucose into α-cellulose, which was not reversed by the simultaneous application of GA₃. Ancymidol increased the incorporation of [³H]arabinose into a hemicellulose-enriched (4M KOH) fraction and up-regulated *ZmIRX9* and *ZmIRX10L* gene expression, indicating an enhancement in arabinoxylan biosynthesis as a compensatory response to cellulose reduction.

References:

[1] Hernández-Altamirano JM, Largo-Gosens A, Martínez-Rubio R, et al. Effect of ancymidol on cell wall metabolism in growing maize cells. *Planta*. 2018 Apr;247(4):987-999.

Background

Ancymidol is a biologically active pyrimidine-class plant growth regulator. Ancymidol can block the abnormal elongation of plant cells by inhibiting the oxidation of gibberellin biosynthetic intermediates,

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while also suppressing plant growth by interfering with cellulose biosynthesis. Ancymidol can be used in related research in plant pathology and mycology^[1-4].

In vitro, maize suspension-cultured cells were treated with Ancymidol (12.5µM–2mM) for 8 days. Ancymidol significantly inhibited cell growth and induced a globular cell shape, while reducing cellulose deposition in the cell wall and promoting xylan synthesis as a compensatory response^[5]. *Phaseolus vulgaris* seedlings and *Gibberella fujikuroi* cultures were treated with Ancymidol (10–100µg/ml). Ancymidol significantly inhibited the endogenous gibberellin biosynthesis and the gibberellin-like activity in the extracts; *Phaseolus vulgaris* seedlings cultured in the dark were treated with Ancymidol (10µg/ml) for 0 to 4 days. Ancymidol significantly induced or enhanced the production of compounds that inhibited the leaf sheath elongation of *Oryza sativa*^[6].

References:

- [1] Coolbaugh RC, Hirano SS, West CA. Studies on the Specificity and Site of Action of alpha-Cyclopropyl-alpha-[p-methoxyphenyl]-5-pyrimidine Methyl Alcohol (Ancymidol), a Plant Growth Regulator. *Plant Physiol.* 1978 Oct;62(4):571-6.
- [2] Chen J, Ziv M. The effect of ancymidol on hyperhydricity, regeneration, starch and antioxidant enzymatic activities in liquid-cultured Narcissus. *Plant Cell Rep.* 2001 Jan;20(1):22-27.
- [3] Feng XR, Wolyn DJ. Development of haploid asparagus embryos from liquid cultures of anther-derived calli is enhanced by ancymidol. *Plant Cell Rep.* 1993 Mar;12(5):281-5.
- [4] Li B, Wolyn DJ. The effects of ancymidol, abscisic acid, uniconazole and paclobutrazol on somatic embryogenesis of asparagus. *Plant Cell Rep.* 1995 May;14(8):529-33.
- [5] Hernández-Altamirano JM, Largo-Gosens A, Martínez-Rubio R, et al. Effect of ancymidol on cell wall metabolism in growing maize cells. *Planta.* 2018 Apr;247(4):987-999.
- [6] Shive JB, Sisler HD. Effects of Ancymidol (a Growth Retardant) and Triarimol (a Fungicide) on the Growth, Sterols, and Gibberellins of *Phaseolus vulgaris* (L.). *Plant Physiol.* 1976 Apr;57(4):640-4.

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