Product Data Sheet

Product Name: Indaziflam
Cat. No.: GC81448

Chemical Properties

Cas. No.	950782-86-2		
Formula	$C_{16}H_{20}FN_5$	M.Wt	301.37
Solubility	DMSO: 50 mg/mL (165.91 mM; Need ultrasonic)	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.		

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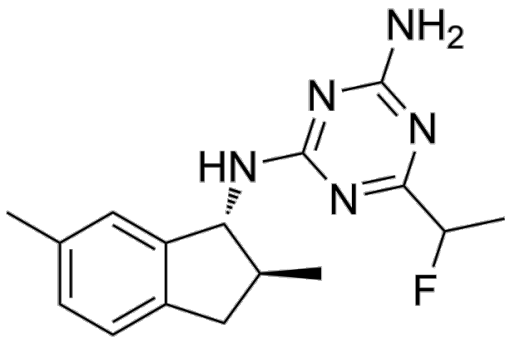
Structure



Background

Indaziflam is an alkyltriazine herbicide. Indaziflam targets the cellulose synthase complex and inhibits cellulose biosynthesis in plant cell walls. Indaziflam induces radial swelling of plants, ectopic lignification, inhibition of root and hypocotyl elongation, abnormal root and cell morphology, and also induces DNA strand breaks and micronucleus formation in HepG2 cells. Indaziflam can be used for research on monocot weed control [1] [2] [3].

In Vivo, Indaziflam (50-3200 pM; incorporated into growth medium; continuous exposure; 0.1-11.7 g·ai·ha-1; foliar spray; single application; 44-102 g·ai·ha-1; foliar spray; single application at designated timings) provides dose-dependent, selective control of invasive winter annual grasses (monocots) at lower rates than broadleaf weeds (dicots), with 97-99% control of downy brome, feral rye, and Japanese brome at 102 g·ai·ha-1 2 years after treatment, while promoting increased biomass and species richness of co-occurring native plants[2].

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In Vitro, Indaziflam (50-10000 pM; 7 d) potently inhibits growth of light-grown Poa annua (GR50 = 671 pM), light-grown Arabidopsis thaliana (GR50 = 200 pM), and dark-grown Arabidopsis thaliana (GR50 = 214 pM) seedlings, inducing cellulose biosynthesis inhibitor-like symptomologies including radial swelling and ectopic lignification[1]. Indaziflam (200-400 pM; 5 d) dose-dependently reduces crystalline cellulose content in hypocotyls of dark-grown Arabidopsis thaliana seedlings, with 200 pM causing an 18% reduction and 400 pM causing a 51% reduction relative to controls[1]. Indaziflam (50-3200 pM; 0-84 h) inhibits root elongation and growth rate in downy brome, feral rye, Arabidopsis thaliana, and kochia seedlings in a dose-dependent manner, with significantly greater potency on monocots (average GR50 = 231 pM for root length) than dicots (average GR50 = 512 pM for root length)[2]. Indaziflam (200-3200 pM; 84 h) treatment causes cellulose deficiency and distinct morphological abnormalities in the roots of downy brome, feral rye, Arabidopsis thaliana, and kochia, with more severe structural damage observed in monocot roots than dicot roots at equivalent concentrations[2]. Indaziflam (10, 40, 100 μg/mL; 4 h, 24 h) induces dose- and time-dependent DNA strand breaks in HepG2 cells[3]. Indaziflam (10, 40, 100 μg/mL; 4 h, 24 h) induces dose- and time-dependent chromosome damage in HepG2 cells[3].

References:

[1]. Brabham C, et al. Indaziflam herbicidal action: a potent cellulose biosynthesis inhibitor. Plant Physiol. 2014 Nov;166(3):1177-85.
[2]. Sebastian DJ, et al. Indaziflam: a new cellulose-biosynthesis-inhibiting herbicide provides long-term control of invasive winter annual grasses. Pest Manag Sci. 2017;73(10):2149-2162.
[3]. Könen Adıgüzel S, et al. The possible cytotoxicity and genotoxicity assessment of indaziflam on HepG2 cells. Hum Exp Toxicol. 2023;42:9603271231183145.

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