Imidazole

Cat. No.: HY-D0837

CAS No.: 288-32-4

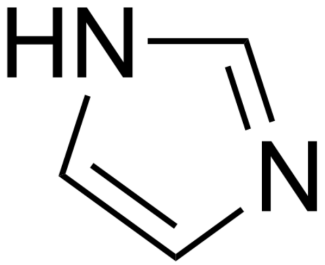
Molecular Formula: $C_3H_4N_2$

Molecular Weight: 68.08

Target: Ser/Thr Protease; Thrombopoietin Receptor

Pathway: Metabolic Enzyme/Protease; Immunology/Inflammation

Storage: Store at room temperature 3 years
In solvent -80°C 2 years
-20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (1468.86 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	14.6886 mL	73.4430 mL	146.8860 mL
	5 mM	2.9377 mL	14.6886 mL	29.3772 mL
	10 mM	1.4689 mL	7.3443 mL	14.6886 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (1468.86 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (36.72 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (36.72 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (36.72 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Imidazole (Glyoxaline; 1,3-Diaza-2,4-cyclopentadiene) is a heterocyclic aromatic compound. Imidazole bearing molecules have been used as corrosion, acetylcholinesterase (AChEI) and xanthine oxidase (XO) inhibitors, performing biological activities such as antifungal, antituberculosis, anti-inflammatory, antioxidant, and analgesic, amongst many others. Imidazole inhibits the enzymatic conversion of the endoperoxides (PGG_2 and PGH_2) to thromboxane A2 by platelet microsomes. Imidazole derivatives exhibits inhibition on SARS-CoV-2 $3CL^{Pro}$ enzyme, which is promising for research in the field of Alzheimer's disease, gout, COVID-19 and thrombo-embolic disease[1][2][3].

IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Imidazole (0.01-100 μM, 48 h) shows no inhibitory activityis, but imidazole derivatizations shows significant inhibitory effects in different tumor cell lines[1]. Imidazole (0.01-100 μM, 48 h) has a weak affinity for both EGFR and HER2, whereas the derivatization improves their affinity for these receptors in tumor cells[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. Cell Proliferation Assay[1] Cell Line: A549, HBL-100, HeLa, SW1573, T-47D, WiDr cell lines Concentration: 0.01-100 μM Incubation Time: 48 h Result: Had no inhibitory activity in the compounds employed as control in different tumor cell lines.
In Vivo	Imidazole (50 pg/ml, infusion) and similar compounds are selective inhibitors of the conversion of endoperoxides into thromboxanes[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Mol Nutr Food Res. 2022 Jul;66(14):e2101175.

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REFERENCES

[1]. Noriega-Iribe E, et al. In vitro and in silico screening of 2, 4, 5-trisubstituted imidazole derivatives as potential xanthine oxidase and acetylcholinesterase inhibitors, antioxidant, and antiproliferative agents[J]. Applied Sciences, 2020, 10(8): 2889.

[2]. Moncada S, et al. Imidazole: a selective inhibitor of thromboxane synthetase[J]. Prostaglandins. 1977 Apr;13(4):611-8.

[3]. Ashish M. Kanhed, et al. Design and synthesis of diphenyl-1H-imidazole analogs targeting Mpro/3CLpro enzyme of SARS-CoV-2. Medicinal Chemistry Research, 2024 June 26, 1554-8120.

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