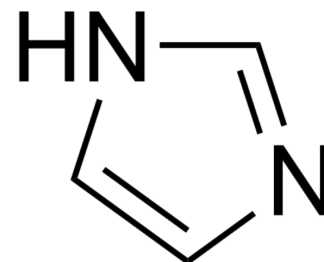


## Imidazole

Cat. No.:	HY-D0837
CAS No.:	288-32-4
Molecular Formula:	C <sub>3</sub> H <sub>4</sub> N <sub>2</sub>
Molecular Weight:	68.08
Target:	Ser/Thr Protease; Thrombopoietin Receptor
Pathway:	Metabolic Enzyme/Protease; Immunology/Inflammation
Storage:	Store at room temperature



### SOLVENT & SOLUBILITY

In Vitro	H <sub>2</sub> O : ≥ 100 mg/mL (1468.86 mM)																					
	DMSO : 100 mg/mL (1468.86 mM; Need ultrasonic)																					
	* "≥" means soluble, but saturation unknown.																					
	<table border="1"> <thead> <tr> <th rowspan="2">Preparing Stock Solutions</th> <th rowspan="2">Solvent Concentration</th> <th rowspan="2">Mass</th> <th>1 mg</th> <th>5 mg</th> <th>10 mg</th> </tr> </thead> <tbody> <tr> <td>1 mM</td> <td>14.6886 mL</td> <td>73.4430 mL</td> <td>146.8860 mL</td> </tr> <tr> <td>5 mM</td> <td>2.9377 mL</td> <td>14.6886 mL</td> <td>29.3772 mL</td> </tr> <tr> <td>10 mM</td> <td>1.4689 mL</td> <td>7.3443 mL</td> <td>14.6886 mL</td> </tr> </tbody> </table>					Preparing Stock Solutions	Solvent Concentration	Mass	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
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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																					

### 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 (AChE) 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 <sub>2</sub> and PGH <sub>2</sub> ) to thromboxane A <sub>2</sub> by platelet microsomes. Imidazole derivatives exhibits inhibition on SARS-CoV-2 3CL <sup>Pro</sup> enzyme, which is promising for research in the field of Alzheimer's disease, gout, COVID-19 and thrombo-embolic disease <sup>[1][2][3]</sup> .
IC <sub>50</sub> & Target	Human Endogenous Metabolite
In Vitro	Imidazole (0.01-100 μM, 48 h) shows no inhibitory activity, but imidazole derivatizations shows significant inhibitory effects in different tumor cell lines <sup>[1]</sup> . 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<sup>[1]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay<sup>[1]</sup>

Cell Line:	A549, HBL-100, HeLa, SW1573, T-47D, WiDr cell lines
Concentration:	0.01-100 $\mu$ M
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<sup>[3]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- Int J Mol Sci. 2018 May 7;19(5). pii: E1393.
- Mol Nutr Food Res. 2022 May 18;e2101175.

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## REFERENCES

[1]. Noriega-Irbe 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.

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

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