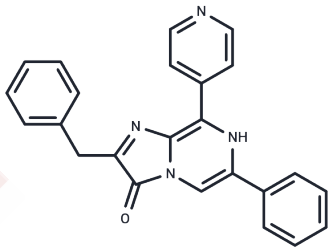
Data Sheet (Cat.No.T19167)

TargetMol

8pyDTZ

Chemical Properties



CAS No. :	2351898-91-2
Formula:	C24H18N4O
Molecular Weight:	378.43
Storage:	Powder: -20°C for 3 years Actual storage temperature shall be subject to the COA.

Biological Description

Description	8pyDTZ is a pyridyl diphenylterazine (DTZ) analog and an ATP-independent pyridyl substrate of LumiLuc luciferase, exhibiting spectrally shifted emission and improved water solubility, suitable for in vivo luminescence imaging.
Targets(IC50)	Others
In vitro	8pyDTZ, with a solubility of 1711 μM, significantly increases water solubility by 13-fold over DTZ (131 μM). This compound not only shows a capability for red-shifted chemiluminescence and bioluminescence emission compared to DTZ but also produces the most red-shifted emission, allowing for improved tissue penetration. In evaluations using human embryonic kidney 293T cells expressing luciferase (HEK 293T cells), the LumiLuc-8pyDTZ combination yields approximately 3-5 times more bioluminescence than the teLuc-8pyDTZ pair. Additionally, when comparing far-red emission intensities with a 600-700 nm bandpass filter, LumiLuc-8pyDTZ consistently achieves 1.6-3.9 times higher photon flux than teLuc-DTZ across substrate concentrations ranging from 6.25 to 100 μM, without affecting ATP levels in LumiLuc-expressing cells treated with 8pyDTZ.
In vivo	The LumiLuc-8pyDTZ pair was evaluated alongside various standard reporters within a tumor xenograft mouse model, exhibiting high sensitivity and eliminating the need for organic cosolvents for in vivo administration. Additionally, LumiScarlet-8pyDTZ demonstrated equivalence to Akaluc-AkaLumine, the most luminous ATP-dependent luciferase-luciferin pair, in detecting cells within deep mouse tissues.

Solubility Information

Solubility	EtOH+HCl: 2 mg/mL (5.28 mM),when pH is adjusted to 2. Sonication is recommended. (DMSO inactivates the activity of 8pyDTZ.) (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6425 mL	13.2125 mL	26.425 mL
5 mM	0.5285 mL	2.6425 mL	5.285 mL
10 mM	0.2642 mL	1.3212 mL	2.6425 mL
50 mM	0.0528 mL	0.2642 mL	0.5285 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Yeh HW, et al. ATP-Independent Bioluminescent Reporter Variants To Improve in Vivo Imaging. ACS Chem Biol. 2019 May 17;14(5):959-965.