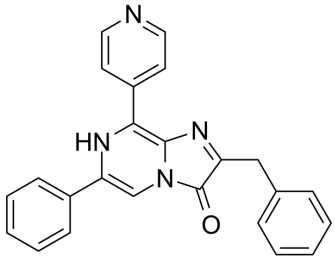
8pyDTZ

Cat. No.:	HY-135368
CAS No.:	2351898-91-2
Molecular Formula:	$C_{24}H_{18}N_4O$
Molecular Weight:	378.43
Target:	Fluorescent Dye
Pathway:	Others
Storage:	Powder -20°C 3 years 4°C 2 years * The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

EtOH+HCl : 2 mg/mL (5.28 mM; ultrasonic and adjust pH to 2 with 1M HCl; DMSO can inactivate 8pyDTZ's activity)

H_2O : < 0.1 mg/mL (insoluble; DMSO can inactivate 8pyDTZ's activity)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.6425 mL	13.2125 mL	26.4250 mL
5 mM	0.5285 mL	2.6425 mL	5.2850 mL
10 mM	---	---	---

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

BIOLOGICAL ACTIVITY

Description

8pyDTZ is a pyridyl diphenylterazine (DTZ) analog and an ATP-independent pyridyl substrate of LumiLuc luciferase. 8pyDTZ exhibits spectrally shifted emission. 8pyDTZ has excellent biocompatibility and superior in vivo sensitivity. 8pyDTZ can be used for in vivo luminescence imaging[1].

In Vitro

Compared to DTZ, 8pyDTZ (compounds 3c) is able to emit red-shifted chemiluminescence or bioluminescence. 8pyDTZ shows the most red-shifted emission and red-shifted photons can penetrate through tissue better[1].

LumiLuc-8pyDTZ in human embryonic kidney (HEK) 293T cells transiently expressing the luciferase is evaluated. The LumiLuc-8pyDTZ pair produces -3-5-fold more bioluminescence than teLuc-8pyDTZ. To compare far-red emission intensities of bioluminescent reporters, HEK 293T cells in the presence of a 600-700 nm band pass filter are imaged. At substrate concentrations from 6.25 to 100 μM, LumiLuc-8pyDTZ consistently produces 1.6-3.9-fold higher photon flux than teLuc-DTZ. No ATP perturbation is observed from 8pyDTZ-treated, LumiLucexpressing cells[1].

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

In Vivo

LumiLuc-8pyDTZ pair is compared with several benchmark reporters in a tumor xenograft mouse model. LumiLuc-8pyDTZ shows high sensitivity and does not need organic cosolvents for in vivo administration. LumiScarlet-8pyDTZ is comparable

to Akaluc-AkaLumine, the brightest ATP-dependent luciferase-luciferin pair, for detecting cells in deep tissues of mice[1].

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

CUSTOMER VALIDATION

- Nature. 2023 Feb;614(7949):774-780.
- Proc Natl Acad Sci U S A. 2023 Sep 19;120(38):e2300366120.
- University of California. 2023 Nov.

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REFERENCES

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

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