

Product data sheet



MedKoo Cat#: 555839 Name: Diphenylterazine CAS#: 344940-63-2 Chemical Formula: C ₂₅ H ₁₉ N ₃ O Exact Mass: 377.1528 Molecular Weight: 377.447	
Product supplied as: Powder	
Purity (by HPLC): ≥ 98%	
Shipping conditions: Ambient temperature	
Storage conditions: Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

Diphenylterazine is a bioluminescence agent. Diphenylterazine alone yields very little background, leading to excellent signal-to-background ratios.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	75.0	198.71
DMF	11.11	29.44

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.65 mL	13.25 mL	26.49 mL
5 mM	0.53 mL	2.65 mL	5.30 mL
10 mM	0.26 mL	1.32 mL	2.65 mL
50 mM	0.05 mL	0.26 mL	0.53 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Yeh HW, Karmach O, Ji A, Carter D, Martins-Green MM, Ai HW. Red-shifted luciferase-luciferin pairs for enhanced bioluminescence imaging. *Nat Methods*. 2017 Oct;14(10):971-974. doi: 10.1038/nmeth.4400. Epub 2017 Sep 4. PMID: 28869756; PMCID: PMC5678970.
2. O'Sullivan JJ, Medici V, Heffern MC. A caged imidazopyrazinone for selective bioluminescence detection of labile extracellular copper(II). *Chem Sci*. 2022 Mar 23;13(15):4352-4363. doi: 10.1039/d1sc07177g. PMID: 35509459; PMCID: PMC9006956.

In vivo study

1. Yeh HW, Karmach O, Ji A, Carter D, Martins-Green MM, Ai HW. Red-shifted luciferase-luciferin pairs for enhanced bioluminescence imaging. *Nat Methods*. 2017 Oct;14(10):971-974. doi: 10.1038/nmeth.4400. Epub 2017 Sep 4. PMID: 28869756; PMCID: PMC5678970.
2. Yeh HW, Xiong Y, Wu T, Chen M, Ji A, Li X, Ai HW. ATP-Independent Bioluminescent Reporter Variants To Improve in Vivo Imaging. *ACS Chem Biol*. 2019 May 17;14(5):959-965. doi: 10.1021/acscchembio.9b00150. Epub 2019 Apr 17. PMID: 30969754; PMCID: PMC6528180.

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7. Bioactivity

Biological target:

Diphenylterazine (DTZ) is a bioluminescence agent.

In vitro activity

The bioluminescence of the new reporters was further evaluated using transiently transfected Human Embryonic Kidney (HEK) 293T cells. Under all conditions, the brightness of DTZ with teLuc or Antares2 was two to three orders of magnitude higher than that of FLuc/d-luciferin. Moreover, DTZ alone yielded very little background, leading to excellent signal-to-background ratios. Furthermore, DTZ elicited minimal cell toxicity at millimolar concentrations.

Reference: Nat Methods. 2017 Oct;14(10):971-974. <https://pubmed.ncbi.nlm.nih.gov/28869756/>

In vivo activity

To further evaluate the reporters for imaging deep-tissue targets, hydrodynamic transfection was utilized to express luciferase genes within the internal organs of mice. After intraperitoneal injections of 0.3 μmol individual luciferin substrates, teLuc/DTZ generated ~52-fold higher emission than FLuc/d-luciferin. With 3.3 μmol of each substrate (a dose recommended for AkaLumine-HCl9), teLuc/DTZ was ~32-fold brighter than FLuc/d-luciferin and ~15-fold brighter than FLuc/AkaLumine-HCl. Moreover, teLuc with 3.3 μmol DTZ was still ~12-fold brighter than FLuc with 10 μmol d-luciferin (equivalent to the standard ~150 mg/kg FLuc imaging condition). DTZ injections into untransfected BALB/c mice did not yield any background emission. Furthermore, the bioluminescence resulting from intraperitoneally injected DTZ displayed extended kinetics, suggesting that both teLuc and Antares2 are suitable for time-lapse BLI.

Reference: Nat Methods. 2017 Oct;14(10):971-974. <https://pubmed.ncbi.nlm.nih.gov/28869756/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.