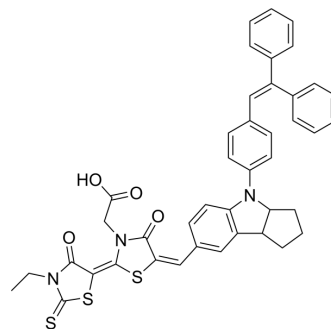


## D149 Dye

Cat. No.:	HY-50938
CAS No.:	786643-20-7
Molecular Formula:	C <sub>42</sub> H <sub>35</sub> N <sub>3</sub> O <sub>4</sub> S <sub>3</sub>
Molecular Weight:	741.94
Target:	Fluorescent Dye
Pathway:	Others
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 1 mg/mL (1.35 mM; Need ultrasonic)  
H<sub>2</sub>O : < 0.1 mg/mL (insoluble)

Solvent	Mass	Concentration		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	1.3478 mL	6.7391 mL	13.4782 mL
	5 mM	---	---	---
	10 mM	---	---	---
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Please refer to the solubility information to select the appropriate solvent.

### BIOLOGICAL ACTIVITY

#### Description

D149 Dye is an indoline-based dye, which is a high-extinction-coefficient metal-free organic sensitizer.

#### In Vitro

D149 is a metal-free organic dye, which is promising all-organic alternatives. D149 displays power conversion efficiency of up to 9%. Furthermore, D149 has a peak extinction co-efficient of 68700 M<sup>-1</sup> cm<sup>-1</sup> at 540 nm, significantly higher than 13900 M<sup>-1</sup>cm<sup>-1</sup> at 535 nm for N719<sup>[1]</sup>. D149, a metal-free indoline dye, is one of the most promising sensitizers for dye-sensitized solar cells (DSSCs) and has shown very high solar energy conversion efficiencies of 9%. D149 shows a large number of unresolved aromatic and olefinic signals between 7 and 7.5 ppm<sup>[2]</sup>

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

### PROTOCOL

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

The porous TiO<sub>2</sub> films are immersed in a 0.5 mM D149 (1-material) dye solution in a 1:1 (v/v) mixture of acetonitrile (HPLC) and tert-butanol (LR) overnight once their temperature decreased to approximately 110°C. The samples are then taken out of the dye bath, washed with acetonitrile, and dried. The working electrode and Pt counter electrode [produced using a pre-

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drilled piece of 2.3 mm FTO glass, coated with one drop of 10 mM platinum acid solution [ $\text{H}_2\text{PtCl}_6$ ] and heated to 400°C for 20 min] are assembled into a sandwich type cell and sealed with a spacer of 25  $\mu\text{m}$  Surlyn. An  $\text{I}^-/\text{I}_3^-$  organic solvent based electrolyte solution [50 mM iodine, 0.6 M 1,2-dimethyl-3-propylimidazolium iodide, 0.1 M lithium iodide in methoxypropionitrile] is introduced via vacuum back-filling. The hole is sealed with a piece of aluminium foil-backed Surlyn [1].

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

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## REFERENCES

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- [1]. Lin J, et al. 3D hierarchical rutile  $\text{TiO}_2$  and metal-free organic sensitizer producing dye-sensitized solar cells 8.6% conversion efficiency. *Sci Rep.* 2014 Aug 29;4:5769.
- [2]. El-Zohry A, et al. Isomerization and Aggregation of the Solar Cell Dye D149. *J Phys Chem C Nanomater Interfaces.* 2012 Dec 20;116(50):26144-26153.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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