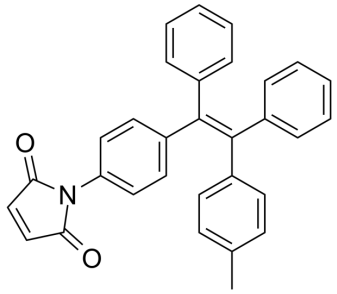
TPE-MI

Cat. No.: HY-143218
CAS No.: 1245606-71-6
Molecular Formula: $C_{31}H_{23}NO_2$
Molecular Weight: 441.52
Target: Others
Pathway: Others
Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (113.25 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2649 mL	11.3245 mL	22.6490 mL
	5 mM	0.4530 mL	2.2649 mL	4.5298 mL
	10 mM	0.2265 mL	1.1325 mL	2.2649 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (5.66 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

TPE-MI (Tetraphenylethene maleimide) is a thiol probe for measuring unfolded protein load and proteostasis in cells. TPE-MI can report imbalances in proteostasis in induced pluripotent stem cell models of Huntington disease, as well as cells transfected with mutant Huntington exon 1 before the formation of visible aggregates. TPE-MI also detects protein damage following dihydroartemisinin treatment of the malaria parasitesPlasmodium falciparum [1][2].

In Vitro

TPE-MI is inherently non-fluorescent until it is conjugated to a thiol via the maleimide. TPE-MI fluorescence is activated upon labelling free cysteine thiols, normally buried in the core of globular proteins that are exposed upon unfolding[1].
TPE-MI (50 μM; 0-60 min) exhibits a homogeneous cytoplasmic labelling pattern in live HeLa cells, with a lower level of labelling in the nucleus and apparent concentration in the region of the ER, which was anticipated as a major location for protein synthesis and folding[1].
At the high expression level, the mutant 97Q form of Httex1 was associated with an elevated TPE-MI fluorescence signal relative to a non-disease-causing 25Q form of Httex1[1].

TPE-MI consists of the aggregation-induced emission (AIE) fluorogen tetraphenylethane (TPE) and the thiol-reactive group maleimide (MI), thereby possessing both AIE phenomenon and selective thiol reactivity[2].

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

REFERENCES

[1]. Chen MZ, et al. A thiol probe for measuring unfolded protein load and proteostasis in cells. Nat Commun. 2017;8(1):474. Published 2017 Sep 7.

[2]. Hu Q, et al. In Situ Monitored Vortex Fluidic-Mediated Protein Refolding/Unfolding Using an Aggregation-Induced Emission Bioprobe. Molecules. 2021;26(14):4273. Published 2021 Jul 14.

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