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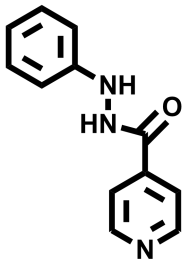
Pluripotent Cell-specific Inhibitor – PluriSIn#1

Chemical Name: N'-phenylisonicotinohydrazide



Molecular Weight:	213.24
Formula:	$C_{12}H_{11}N_3O$
Purity:	≥ 98%
CAS#:	91396-88-2
Solubility:	DMSO up to 100 mM
Storage	Powder: 4°C 1 year DMSO: 4°C 3 month -20°C 1 year

Biological Activity:

PluriSIn#1 is a potent small molecule to selectively eliminate human pluripotent stem cells/hPSCs while sparing a large array of tissue-specific stem/progenitor and differentiated cells. It was identified by a high-throughput screening against undifferentiated human ESCs. PluriSIn#1 induces ER stress, protein synthesis attenuation, and apoptosis in hPSCs specifically. Mechanistic characterizations uncovered that PluriSIn#1 is a specific inhibitor of stearoyl-coA desaturase (SCD1), the key enzyme in oleic acid biosynthesis, revealing a unique role for lipid metabolism in hPSCs. PluriSIn#1 is also cytotoxic to mouse blastocysts, indicating that the dependence on oleate is inherent to the pluripotent cells. Application of PluriSIn#1 prevented teratoma formation from tumorigenic undifferentiated cells. It can serve as a very useful reagent to enhance the safety of hPSC-based treatments and facilitate safe transplantation of larger cell numbers.

How to Use:

In vitro: PluriSIn#1 was used at 10 μM final concentration in culture media for 4 days to eliminate ESCs or iPSCs.

In vivo: n/a

Reference:

1. Ben-David U, et al. Selective Elimination of Human Pluripotent Stem Cells by an Oleate Synthesis Inhibitor Discovered in a High-Throughput Screen. (2013) Cell Stem Cell. In press.