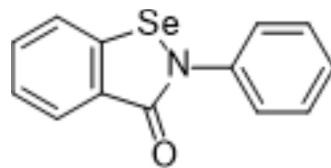


## Ebselen

<b>Cat. No.:</b>	HY-13750												
<b>CAS No.:</b>	60940-34-3												
<b>Molecular Formula:</b>	C <sub>13</sub> H <sub>9</sub> NOSe												
<b>Molecular Weight:</b>	274.18												
<b>Target:</b>	HIV; Calcium Channel; Virus Protease; Phosphatase												
<b>Pathway:</b>	Anti-infection; Membrane Transporter/Ion Channel; Neuronal Signaling; Metabolic Enzyme/Protease												
<b>Storage:</b>	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>1 year</td> </tr> <tr> <td></td> <td>-20°C</td> <td>6 months</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	1 year		-20°C	6 months
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	4°C	2 years											
In solvent	-80°C	1 year											
	-20°C	6 months											



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 50 mg/mL (182.36 mM; Need ultrasonic)				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	<b>Preparing Stock Solutions</b>	1 mM	3.6472 mL	18.2362 mL	36.4724 mL
		5 mM	0.7294 mL	3.6472 mL	7.2945 mL
		10 mM	0.3647 mL	1.8236 mL	3.6472 mL
Please refer to the solubility information to select the appropriate solvent.					
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 2.5 mg/mL (9.12 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (9.12 mM); Clear solution</li> </ol>				

### BIOLOGICAL ACTIVITY

<b>Description</b>	Ebselen (SPI-1005), a glutathione peroxidase mimetic, is a potent voltage-dependent calcium channel (VDCC) blocker <sup>[1][2]</sup> . Ebselen potently inhibits M <sup>Pr</sup> o (IC <sub>50</sub> =0.67 μM) and COVID-19 virus (EC <sub>50</sub> =4.67 μM) <sup>[3]</sup> . Ebselen is an inhibitor of HIV-1 capsid CTD dimerization. Ebselen, an organoselenium compound, can permeate the blood-brain barrier and has anti-inflammatory, antioxidant and anticancer activity <sup>[4][5]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	HIV-1
<b>In Vitro</b>	Ebselen (SPI-1005; 0.4-100 μM; 20-24 hours) shows strong antiviral effects at a concentration of 10 μM treatment in COVID-19 virus infected Vero cells. Ebselen covalently binds to C145 of the catalytic dyad in COVID-19 virus M <sup>Pr</sup> o <sup>[3]</sup> .

?Ebselen inhibits early viral postentry events of the HIV-1 life cycle by impairing the incoming capsid uncoating process<sup>[4]</sup>.  
?Ebselen permeates the blood-brain barrier and inhibits endogenous inositol monophosphatase in mouse brain. Ebselen inhibits inositol monophosphatase (IMPase)<sup>[5]</sup>.  
?Ebselen inhibits QSOX1 enzymatic activity and suppresses invasion of pancreatic, renal cancer cell lines<sup>[6]</sup>.  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.  
RT-PCR<sup>[3]</sup>

Cell Line:	COVID-19 virus infected Vero cells
Concentration:	0.4, 1.2, 3.7, 11.1, 33.3, 100 $\mu$ M
Incubation Time:	20-24 hours
Result:	Showed strong antiviral effects at a concentration of 10 $\mu$ M treatment.

#### In Vivo

Ebselen (5, 10 mg/kg; IP) decreases 5-HT<sub>2</sub> agonist-induced head twitches in a dose-dependent manner<sup>[5]</sup>.  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	20-25 g 10-12 week old male C57Bl6 mice <sup>[5]</sup>
Dosage:	5, 10 mg/kg
Administration:	IP
Result:	Decreased 5-HT <sub>2</sub> agonist-induced head twitches in a dose-dependent manner.

## CUSTOMER VALIDATION

- Biomaterials. 24 August 2022, 121757.
- Environ Int. 2022 Jun 1;165:107327.
- Int J Antimicrob Agents. 2019 Dec;54(6):814-819.
- Antiviral Res. 2023 Apr 17;105606.
- Antiviral Res. 2019 Jun 27;169:104544.

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## REFERENCES

- [1]. Thenin-Houssier S, et al. Ebselen, a Small-Molecule Capsid Inhibitor of HIV-1 Replication. *Antimicrob Agents Chemother*. 2016 Mar 25;60(4):2195-208.
- [2]. Singh N, et al. A safe lithium mimetic for bipolar disorder. *Nat Commun*. 2013;4:1332. doi: 10.1038/ncomms2320.
- [3]. Hanavan PD, et al. Ebselen inhibits QSOX1 enzymatic activity and suppresses invasion of pancreatic and renal cancer cell lines. *Oncotarget*. 2015 Jul 30;6(21):18418-28.
- [4]. Liang Q, et al. Electrical Stimulation Degenerated Cochlear Synapses Through Oxidative Stress in Neonatal Cochlear Explants. *Front Neurosci*. 2019 Oct 14;13:1073.
- [5]. H Sies, et al. Ebselen, a Selenoorganic Compound as Glutathione Peroxidase Mimic
- [6]. Jin Z, et al. Structure of M<sup>PRO</sup> from COVID-19 virus and discovery of its inhibitors. *Nature*. 2020 Apr 9.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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