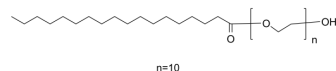


## Polyoxyethylene stearate

<b>Cat. No.:</b>	HY-101530												
<b>CAS No.:</b>	9004-99-3												
<b>Molecular Formula:</b>	C <sub>20</sub> H <sub>40</sub> O <sub>3</sub> (monomer)												
<b>Target:</b>	P-glycoprotein; Bacterial												
<b>Pathway:</b>	Membrane Transporter/Ion Channel; Anti-infection												
<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>2 years</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 year</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	2 years		-20°C	1 year
Powder	-20°C	3 years											
	4°C	2 years											
In solvent	-80°C	2 years											
	-20°C	1 year											



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 100 mg/mL (Need ultrasonic)
<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 (Infinity mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: 2.5 mg/mL (Infinity mM); Suspended solution; Need ultrasonic</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (Infinity mM); Clear solution</li> </ol>

### BIOLOGICAL ACTIVITY

<b>Description</b>	Polyoxyethylene stearate (POES) is a non-ionic emulsifying agent.
<b>In Vitro</b>	<p>Polyoxyethylene stearate has been recommended as an additive to the radiolabelled 7H12 Middlebrook TB media and as such has been shown to enhance growth of mycobacteria in the radiometric BACTEC rapid culture system. Polyoxyethylene (50) stearate produces the greatest enhancement in growth and reduction in the time taken to detect growth for M. tuberculosis and polyoxyethylene (30) stearate and polyoxyethylene (JL) stearate for species of mycobacteria other than M. tuberculosis<sup>[1]</sup>. Polyoxyethylene stearate inhibits P-gp mediated efflux in a concentration dependent manner mainly by modulating substrate-stimulated P-gp ATPase activity<sup>[2]</sup>. Polyoxyethylene 40 stearate reduces vinblastine sulfate efflux. The cytotoxicity of vinblastine to K562/ADR cells is significantly enhanced when the cells are cotreated with 100 or 150 µg/mL polyoxyethylene 40 stearate<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>In Vivo</b>	<p>Polyoxyethylene stearate is potentially useful as a pharmaceutical ingredient to improve the oral bioavailability of coadministered P-gp substrates and substrates for certain CYP isoforms<sup>[2]</sup>. The average tumor volume and average tumor weight are significantly less in the polyoxyethylene 40 stearate+vinblastine group. The inhibition rate for tumor growth is increased from 0.06 (vinblastine group) to 0.84 (vinblastine+polyoxyethylene 40 stearate group)<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## PROTOCOL

### Cell Assay <sup>[3]</sup>

Polyoxyethylene 40 stearate is added to the test vinblastine solution. The cytotoxicity of vinblastine to K562/ADR cells is then assessed. The final concentrations of polyoxyethylene 40 stearate are 0, 50, 100, and 150 µg/mL. After 8 hours of treatment, cells are incubated for 4 hours in the presence of MTT reagent and then lysed with DMSO. Absorbance is measured at 490 nm<sup>[3]</sup>.

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### Animal Administration <sup>[3]</sup>

Mice: Polyoxyethylene 40 stearate and vinblastine are dissolved in 0.9% sodium chloride solution, yielding a solution of 200 µg/mL VBL and 150 µg/mL PS40. The drug is injected subcutaneously in a volume of 0.1 mL per 10 g of body weight at a dosage of 2 mg/kg vinblastine and 1.5 mg/kg polyoxyethylene 40 stearate around the tumor every other day for 8 days. The volume of tumors and the weight of mice are measured every day from the day the tumors are formed<sup>[3]</sup>.

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

## REFERENCES

- [1]. Cutler RR, et al. The effect of polyoxyethylene stearate (POES) on the growth of mycobacteria in radiometric 7H12 Middlebrook TB medium. *Tubercle*. 1987 Sep;68(3):209-20.
- [2]. Zhu S, et al. Effects of polyoxyethylene (40) stearate on the activity of P-glycoprotein and cytochrome P450. *Eur J Pharm Sci*. 2009 Jul 12;37(5):573-80.
- [3]. Luo L, et al. Polyoxyethylene 40 stearate modulates multidrug resistance and enhances antitumor activity of vinblastine sulfate. *AAPS J*. 2007 Oct 5;9(3):E329-35.

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

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