

## Small Molecules

### Benztropine (Mesylate)

Acetylcholine muscarinic m1 receptor antagonist

Catalog #100-0889

1 g



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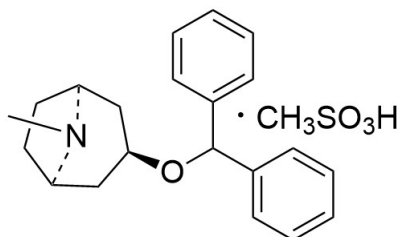
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## Product Description

Benztropine is an acetylcholine muscarinic m1 receptor antagonist ( $K_i = 0.59$  nM; Sogawa et al.) and a dopamine reuptake inhibitor (Deshmukh et al.). The pharmacological properties of benztropine can help patients manage the symptoms (e.g. tremors) of Parkinson's disease (Deshmukh et al.). Benztropine can also inhibit tumor growth, reduce the number of circulating tumor cells, and suppress metastasis of allograft tumors (Sogawa et al.).

Alternative Names:	NSC 169913
CAS Number:	132-17-2
Chemical Formula:	$C_{21}H_{25}NO \cdot CH_3SO_3H$
Molecular Weight:	403.5 g/mol
Purity:	$\geq 98\%$
Chemical Name:	(3-endo)-3-(diphenylmethoxy)-8-methyl-8-azabicyclo[3.2.1]octane, monomethanesulfonate
Structure:	



## Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at $-20^{\circ}C$ as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	<ul style="list-style-type: none"><li>· PBS (pH 7.2) <math>\leq 20</math> mM</li><li>· DMSO <math>\leq 70</math> mM</li><li>· Absolute ethanol <math>\leq 74</math> mM</li></ul> <p>For example, to prepare a 10 mM stock solution in PBS, resuspend 1 g in 250 mL of PBS.</p> <p>Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at <math>-20^{\circ}C</math>. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.</p> <p>For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.</p>

## Published Applications

### DIFFERENTIATION

- Induces oligodendrocyte precursor cell differentiation in vitro (Deshmukh et al.).

### CANCER RESEARCH

- Reduces size and number of mammospheres in human breast cancer cells (Cui et al.).

## References

Cui J et al. (2017) New use of an old drug: inhibition of breast cancer stem cells by benztropine mesylate. *Oncotarget* 8(1): 1007–22.

Deshmukh VA et al. (2013) A regenerative approach to the treatment of multiple sclerosis. *Nature* 502(7471): 327–32.

Sogawa C et al. (2020) Antiparkinson drug benztropine suppresses tumor growth, circulating tumor cells, and metastasis by acting on SLC6A3/DAT and reducing STAT3. *Cancers (Basel)* 12(2): 523.

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