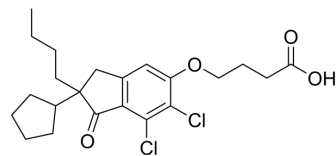


## DCPIB

<b>Cat. No.:</b>	HY-103371		
<b>CAS No.:</b>	82749-70-0		
<b>Molecular Formula:</b>	C <sub>22</sub> H <sub>28</sub> Cl <sub>2</sub> O <sub>4</sub>		
<b>Molecular Weight:</b>	427		
<b>Target:</b>	Chloride Channel; Potassium Channel		
<b>Pathway:</b>	Membrane Transporter/Ion Channel		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



## SOLVENT & SOLUBILITY

### In Vitro

DMSO : 100 mg/mL (234.19 mM; Need ultrasonic)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.3419 mL	11.7096 mL	23.4192 mL
	5 mM	0.4684 mL	2.3419 mL	4.6838 mL
	10 mM	0.2342 mL	1.1710 mL	2.3419 mL

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

### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.08 mg/mL (4.87 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: 2.08 mg/mL (4.87 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.08 mg/mL (4.87 mM); Clear solution

## BIOLOGICAL ACTIVITY

### Description

DCPIB is a selective, reversible and potent inhibitor of volume-regulated anion channels (VRAC). DCPIB voltage-dependently activates potassium channels TREK1 and TRAAK, and inhibits TRESK, TASK1 and TASK3 (IC<sub>50</sub>s: 0.14, 0.95, 50.72 μM, respectively). DCPIB is also a selective blocker of swelling-induced chloride current (I<sub>Cl,swell</sub>), with an IC<sub>50</sub> of 4.1 μM. DCPIB is a useful tool for investigating structure-function studies of K2P channels<sup>[1][2]</sup>.

### IC<sub>50</sub> & Target

IC<sub>50</sub> 0.14 μM (TRESK), 0.95 μM (TASK1), 50.72 μM (TASK3)<sup>[1]</sup>, 4.1 μM (I<sub>Cl,swell</sub>, CPAE cells)<sup>[2]</sup>

## In Vitro

DCPIB (10  $\mu\text{M}$ ) activates TREK1 and enhances TRAAK currents in COS-7 cells<sup>[1]</sup>.

?DCPIB (10  $\mu\text{M}$ ) prominently and reversibly suppresses TRESK currents in COS-7 cells, with an  $\text{IC}_{50}$  of 0.14  $\mu\text{M}$ <sup>[1]</sup>.

?DCPIB (10?  $\mu\text{M}$ ) displays selectivity for  $I_{\text{Cl,swell}}$  and has no significant inhibitory effects on  $I_{\text{Cl,Ca}}$  in CPAE cells<sup>[2]</sup>.

?DCPIB (10?  $\mu\text{M}$ , 5 min) has no effect on attenuate subsequent swelling in cardiomyocytes<sup>[2]</sup>.

?DCPIB (10  $\mu\text{M}$ , 3 h) inhibits LPS-induced MAPK activation in BV2 cells<sup>[3]</sup>.

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

Immunofluorescence<sup>[3]</sup>

Cell Line:	BV2 cells
Concentration:	10 $\mu\text{M}$
Incubation Time:	3 h
Result:	Significantly decreased Ki67 positive staining microglia and pro-inflammatory cytokine (TNF- $\alpha$ , IL-1 $\beta$ ) secretion.

Western Blot Analysis<sup>[3]</sup>

Cell Line:	BV2 cells
Concentration:	10 $\mu\text{M}$
Incubation Time:	3 h
Result:	Inhibited migratory potential of transient OGD (Oxygen-glucose deprivation) exposed BV2 cells.

## In Vivo

LDN-212854 (intracerebroventricular infusion, 1 mM, 10  $\mu\text{L}$ ) suppresses microglial activation and ameliorates neuronal damage in rMCAO rats<sup>[3]</sup>.

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

Animal Model:	Reversible middle cerebral artery occlusion (rMCAO) model <sup>[3]</sup>
Dosage:	1 mM, 10 $\mu\text{L}$
Administration:	Administered manually for 20s by intracerebroventricular infusion
Result:	Diminished Pyramidal neurons injury induced by rMCAO in the CA1 region.

## CUSTOMER VALIDATION

- Oncol Rep. 2023 Jun;49(6):115.
- Biochem J. 2023 May 2;BCJ20220614.
- Cell Calcium. 2023 Mar 11;111:102715.
- bioRxiv. 2023 Sep 3.

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## REFERENCES

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[1]. Qingdong Han, et al. DCPIB, a potent volume-regulated anion channel antagonist, attenuates microglia-mediated inflammatory response and neuronal injury following focal cerebral ischemia. *Brain Res.* 2014 Jan 13;1542:176-85.

[2]. Lv J, et al. DCPIB, an Inhibitor of Volume-Regulated Anion Channels, Distinctly Modulates K2P Channels. *ACS Chem Neurosci.* 2019 Apr 17.

[3]. Decher N, et al. DCPIB is a novel selective blocker of I(Cl,swell) and prevents swelling-induced shortening of guinea-pig atrial action potential duration. *Br J Pharmacol.* 2001 Dec;134(7):1467-79.

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

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