

# Forskolin

Catalog Number: C665752



**OrganRegen, INC.**  
Creating Solutions for Organoid Cultures

## DESCRIPTION

**Background** Forskolin (Coleonol) is a potent adenylate cyclase activator with an IC<sub>50</sub> of 41 nM and an EC<sub>50</sub> of 0.5 μM for type I adenylyl cyclase<sup>[1]</sup>. Forskolin is also an inducer of intracellular cAMP formation<sup>[2]</sup>. Forskolin induces differentiation of various cell types and activates pregnane X receptor (PXR) and FXR<sup>[3]</sup>. Forskolin exerts a inotropic effect on the heart, and has platelet antiaggregatory and antihypertensive actions. Forskolin also induces autophagy<sup>[1][2][3]</sup>.

**Alias** 毛喉素; Coleonol; Colforsin

**M. W t** 410.50

**Formula** C<sub>22</sub>H<sub>34</sub>O<sub>7</sub>

**CAS No** 66575-29-9

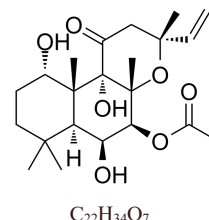
**Storage**

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month

**Solubility** DMSO 100 mg/mL(243.61 mM; Need ultrasonic)

Ethanol 82 mg/mL(199.76 mM)

H<sub>2</sub>O < 0.1 mg/mL(insoluble)



## BIOLOGICAL ACTIVITY

### In Vitro

Forskolin (Fsk) is a naturally occurring diterpene isolated from *Coleus forskholii*, directly activates adenylyl cyclase (AC) through its catalytic subunit to increase intracellular levels of cyclic adenosine monophosphate (cAMP)<sup>[1]</sup>.

Forskolin (Fsk) affects the proliferation of the human T-cell lines such as Kit 225 and MT-2. Forskolin treatment inhibits the proliferation of both Kit 225 and MT-2 cells in a dose-dependent manner with an IC<sub>50</sub> equal to ~5 μM Fsk. Forskolin treatment (10-100 μM) increases cAMPi levels ~5- to 20-fold above basal levels, which reach maximum levels between 50-100 μM Forskolin<sup>[4]</sup>.

### In Vivo

The Forskolin (Coleonol)-treated Mrp4<sup>-/-</sup> mice shows an increased number of Ki67-positive and cleaved caspase 3-positive ECs, a significant decrease in the amount of pericyte coverage, and a reduced number of empty sleeves. In pups exposed to hyperoxia (75% oxygen) from P7 to P12, the Mrp4<sup>-/-</sup> mice shows a significant increase in the unvascularized retinal area<sup>[2]</sup>.

## REFERENCES

[1]. Robbins JD, et al. Forskolin carbamates: binding and activation studies with type I adenylyl cyclase. *J Med Chem.* 1996 Jul 5;39(14):2745-52.

[2]. Matsumiya W, et al. Forskolin modifies retinal vascular development in Mrp4-knockout mice. *Invest Ophthalmol Vis Sci.* 2012 Dec 7;53(13):8029-35.

[3]. Mayati A, et al. Functional polarization of human hepatoma HepaRG cells in response to forskolin. *Sci Rep.* 2018 Oct 31;8(1):16115.

[4]. Rios-Silva M, et al. Effect of chronic administration of forskolin on glycemia and oxidative stress in rats with and without experimental diabetes. *Int J Med Sci.* 2014 Mar 11;11(5):448-52.