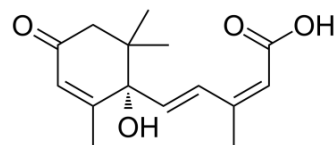


Abscisic acid

Cat. No.:	HY-100560
CAS No.:	21293-29-8
Molecular Formula:	C ₁₅ H ₂₀ O ₄
Molecular Weight:	264.32
Target:	Endogenous Metabolite; Proton Pump
Pathway:	Metabolic Enzyme/Protease; Membrane Transporter/Ion Channel
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro	DMSO : 250 mg/mL (945.82 mM; Need ultrasonic)					
		Solvent Concentration	Mass			
	Preparing Stock Solutions			1 mg	5 mg	10 mg
		1 mM		3.7833 mL	18.9165 mL	37.8329 mL
		5 mM		0.7567 mL	3.7833 mL	7.5666 mL
	10 mM		0.3783 mL	1.8916 mL	3.7833 mL	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 6.25 mg/mL (23.65 mM); Clear solution					
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 6.25 mg/mL (23.65 mM); Clear solution					
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 6.25 mg/mL (23.65 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Abscisic acid ((S)-(-)-Abscisic acid), an orally active phytohormone in fruits and vegetables, is an endogenously produced mammalian hormone. Abscisic acid is a growth inhibitor and can regulate many aspects of plant growth and development. Abscisic acid inhibits proton pump (H ⁺ -ATPase) and leads to the plasma membrane depolarization in a Ca ²⁺ -dependent manner. Abscisic acid, a LANCL2 natural ligand, is a potent insulin-sensitizing compound and has the potential for pre-diabetes, type 2 diabetes and metabolic syndrome ^{[1][2]} .
IC₅₀ & Target	Human Endogenous Metabolite

<p>In Vitro</p>	<p>In Arabidopsis cell cultures, Abscisic acid ((S)-(+)-Abscisic acid; 10 μM) simultaneously induces rapid alkalization of the medium and plasma membrane depolarization^[1]. Abscisic acid (10 μM) increases Ca^{2+} in cytosol of Arabidopsis cell suspension. Abscisic acid does not inhibit proton pumping directly but through an increase in cytosolic Ca^{2+}^[1]. Lanthionine synthetase C-like 2 (LANCL2) is the natural receptor for Abscisic acid. Abscisic acid, both at the organism levels and in specific muscle cells ex vivo, increases both glucose and fatty acid metabolism in the mitochondria, increases glycogen synthesis, activates PI3K independently of insulin and promotes GLUT4 translocation to the cell membrane^[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								
<p>In Vivo</p>	<p>Abscisic acid (orally; 0.125 μg/kg/day; for 12 weeks) improves glycemic control^[2]. Abscisic acid (orally; 0.125 μg/kg/day; for 12 weeks) results in significantly lower levels of TNF, MCP-1 and IL-6 in the DIO model. Abscisic acid increases metabolic activity in skeletal muscle^[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1" data-bbox="342 583 1513 821"> <tr> <td data-bbox="342 583 618 646">Animal Model:</td> <td data-bbox="618 583 1513 646">Diet-induced obesity (DIO) mice at 4 weeks of age^[2]</td> </tr> <tr> <td data-bbox="342 646 618 709">Dosage:</td> <td data-bbox="618 646 1513 709">0.125 μg/kg</td> </tr> <tr> <td data-bbox="342 709 618 772">Administration:</td> <td data-bbox="618 709 1513 772">Orally; daily; for 12 weeks</td> </tr> <tr> <td data-bbox="342 772 618 821">Result:</td> <td data-bbox="618 772 1513 821">Improved glycemic control in a diet-induced model of obesity</td> </tr> </table>	Animal Model:	Diet-induced obesity (DIO) mice at 4 weeks of age ^[2]	Dosage:	0.125 μ g/kg	Administration:	Orally; daily; for 12 weeks	Result:	Improved glycemic control in a diet-induced model of obesity
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Dosage:	0.125 μ g/kg								
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Result:	Improved glycemic control in a diet-induced model of obesity								

REFERENCES

- [1]. Mathias Brault, et al. Plasma membrane depolarization induced by abscisic acid in Arabidopsis suspension cells involves reduction of proton pumping in addition to anion channel activation, which are both Ca^{2+} dependent. *Plant Physiol.* 2004 May;135(1):231-43.
- [2]. Andrew Leber, et al. Abscisic acid enriched fig extract promotes insulin sensitivity by decreasing systemic inflammation and activating LANCL2 in skeletal muscle. *Sci Rep.* 2020 Jun 26;10(1):10463.

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

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