

γ-Oryzanol

Cat. No.:	HY-B2194		
CAS No.:	11042-64-1		
Target:	DNA Methyltransferase		
Pathway:	Epigenetics		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year

γ-Oryzanol

SOLVENT & SOLUBILITY

In Vitro	DMSO : 12.5 mg/mL (Need ultrasonic)
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% PEG400 >> 10% Tween80 >> 80% saline Solubility: 10 mg/mL (Infinity mM); Suspended solution; Need ultrasonic Add each solvent one by one: 50% PEG300 >> 50% saline Solubility: 2.5 mg/mL (Infinity mM); Suspended solution; Need ultrasonic Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.08 mg/mL (Infinity mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: 2.08 mg/mL (Infinity mM); Suspended solution; Need ultrasonic and warming Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (Infinity mM); Clear solution

BIOLOGICAL ACTIVITY

Description	γ-Oryzanol is a potent DNA methyltransferases (DNMTs) inhibitor in the striatum of mice. γ-Oryzanol significantly inhibits the activities of DNMT1 (IC ₅₀ =3.2 μM), DNMT3a (IC ₅₀ =22.3 μM).	
IC₅₀ & Target	DNMT1 3.2 μM (IC ₅₀)	DNMT3A 22.3 μM (IC ₅₀)
In Vitro	<p>γ-Oryzanol significantly inhibits the activities of DNMT1 (IC₅₀=3.2 μM), DNMT 3a (IC₅₀=22.3 μM) and DNMT 3b (maximum inhibition 57%). In contrast, the inhibitory activity of Ferulic acid, a metabolite of γ-Oryzanol, is much lower than that of γ-Oryzanol. Furthermore, γ-Oryzanol acts as a partial antagonist against ERRγ, which primarily serves as a positive regulator for DNMT1 production, and consequently decreased the activity of DNMT1^[1].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>	
In Vivo	The brown rice-specific bioactive component γ-Oryzanol, a mixture of ferulic acid ester and several phytosterols, attenuates the preference for dietary fat via a decrease in hypothalamic endoplasmic reticulum (ER) stress. γ-Oryzanol ameliorates HFD-induced DNA hypermethylation of the promoter region of D2R in the striatum of mice. γ-Oryzanol might regulate levels	

of DNMTs in a striatum-specific manner. γ -Oryzanol partially decreases ERR γ activity (an approximately 40% reduction of the innate value). Oral administration of γ -Oryzanol to male mice by gavage significantly attenuates the preference for an HFD (93% of the values for vehicle-treated mice), resulting in an apparent attenuation of body weight gain^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration ^[1]

Mice^[1]

Seven-week-old male C57BL/6J mice are used. To evaluate the preference for the HFD, γ -Oryzanol is administered to 8-week-old mice by gavage during the food choice test. For the other experiments, an HFD containing 0.4% γ -Oryzanol is manufactured as pellets. After 12 weeks of feeding, tissue is collected from the striatum and hypothalamus. The daily intake of γ -Oryzanol, estimated from the mean food intake of the mice, is approximately 320 μ g/g body weight. The doses of γ -Oryzanol are determined.

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

CUSTOMER VALIDATION

- Adv Funct Mater. 2021 Mar 6.
- Nat Commun. 2023 Jun 10;14(1):3445.
- Adv Sci (Weinh). 2021 Oct 31;e2100808.
- Phytomedicine. 20 July 2022, 154176.
- Int Immunopharmacol. 2024 Jan 10;128:111469.

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REFERENCES

[1]. Kozuka C, et al. Impact of brown rice-specific γ -oryzanol on epigenetic modulation of dopamine D2 receptors in brain striatum in high-fat-diet-induced obesity in mice. Diabetologia. 2017 Aug;60(8):1502-1511.

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

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