Data Sheet

Product Name:	γ-Oryzanol
Cat. No.:	CS-7898
CAS No.:	11042-64-1
Molecular Weight:	593.85 (average)
Target:	DNA Methyltransferase
Pathway:	Epigenetics
Solubility:	DMSO : 12.5 mg/mL (ultrasonic)

BIOLOGICAL ACTIVITY:

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:IC50: 3.2 μM (DNMT1), 22.3 μM (DNMT3a)[1] ***In Vitro:*** γ-Oryzanol significantly inhibits the activities of DNMT1 (IC_{50}=3.2 μM), DNMT 3a (IC_{50}=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]. ***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 ERRγ 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].

PROTOCOL (Extracted from published papers and Only for reference)

Animal Administration: [1]Mice[1]

Seven-week-old male C57BL/6J mice are used. To evaluate the preference for the HFD, γ-Oryzanol is administrated 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 μg/g body weight. The doses of γ-Oryzanol are determined.

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.

CAIndexNames:

γ-Oryzanol

SMILES:

[g-Oryzanol]

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

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