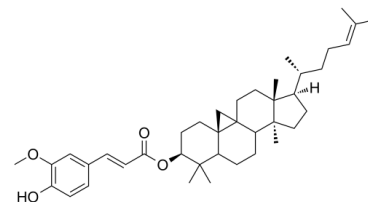


## Data Sheet

<b>Product Name:</b>	$\gamma$ -Oryzanol
<b>Cat. No.:</b>	CS-7898
<b>CAS No.:</b>	11042-64-1
<b>Molecular Formula:</b>	C <sub>40</sub> H <sub>58</sub> O <sub>4</sub>
<b>Molecular Weight:</b>	602.89
<b>Target:</b>	DNA Methyltransferase
<b>Pathway:</b>	Epigenetics
<b>Solubility:</b>	DMSO : 62.5 mg/mL (103.67 mM; Need ultrasonic)



### BIOLOGICAL ACTIVITY:

$\gamma$ -Oryzanol is a potent **DNA methyltransferases (DNMTs)** inhibitor in the striatum of mice.  $\gamma$ -Oryzanol significantly inhibits the activities of **DNMT1** (IC<sub>50</sub>=3.2  $\mu$ M), **DNMT3a** (IC<sub>50</sub>=22.3  $\mu$ M). IC<sub>50</sub> & Target: IC<sub>50</sub>: 3.2  $\mu$ M (DNMT1), 22.3  $\mu$ M (DNMT3a)<sup>[1]</sup> **In Vitro:**  $\gamma$ -Oryzanol significantly inhibits the activities of DNMT1 (IC<sub>50</sub>=3.2  $\mu$ M), DNMT 3a (IC<sub>50</sub>=22.3  $\mu$ M) and DNMT 3b (maximum inhibition 57%). In contrast, the inhibitory activity of Ferulic acid, a metabolite of  $\gamma$ -Oryzanol, is much lower than that of  $\gamma$ -Oryzanol. Furthermore,  $\gamma$ -Oryzanol acts as a partial antagonist against ERR $\gamma$ , which primarily serves as a positive regulator for DNMT1 production, and consequently decreased the activity of DNMT1<sup>[1]</sup>. **In Vivo:** The brown rice-specific bioactive component  $\gamma$ -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.  $\gamma$ -Oryzanol ameliorates HFD-induced DNA hypermethylation of the promoter region of D2R in the striatum of mice.  $\gamma$ -Oryzanol might regulate levels of DNMTs in a striatum-specific manner.  $\gamma$ -Oryzanol partially decreases ERR $\gamma$  activity (an approximately 40% reduction of the innate value). Oral administration of  $\gamma$ -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<sup>[1]</sup>.

### PROTOCOL (Extracted from published papers and Only for reference)

#### Animal Administration: <sup>[1]</sup>Mice<sup>[1]</sup>

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

### References:

[1]. Kozuka C, et al. Impact of brown rice-specific  $\gamma$ -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:

$\gamma$ -Oryzanol

**SMILES:**

C[C@@H]([C@@]1([H])CC[C@]2(C)[C@]1(C)CCC34C2CCC5[C@@]3(CC[C@H](OC(/C=C/C6=CC(OC)=C(O)C=C6)=O)C5(C)C)C4)CC/C=C(C)\C

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

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