

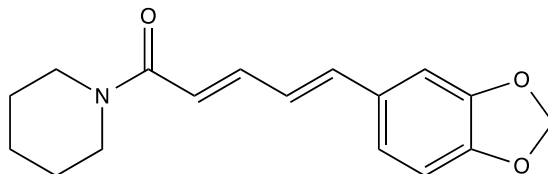
**Catalog #10-4607**

**Piperine**

CAS# 94-62-2

1-Piperoylpiperidine; 1-[5-(1,3-Benzodioxol-5-yl)-1-oxo-2,4-pentadienyl]piperidine

Lot # FBA4123



Piperine is a natural product isolated from black pepper that has myriad biological effects. Piperine has recently been shown to increase the metabolic rate of resting muscle (fast twitch skeletal fibers) without effecting slow twitch or cardiac fibers via destabilization of the super-relaxed state of myosin heads.<sup>1</sup> This is proposed as a mechanism for the mitigation of obesity and type 2 diabetes by piperine. Piperine is an agonist at the TRPV1 receptor ( $EC_{50} = 38 \mu\text{M}$ ).<sup>2</sup> Piperine has various effects on drug metabolism<sup>3</sup>, inhibits human P-glycoprotein and CYP3A4<sup>4</sup> as well as UDP-glucose dehydrogenase and glucuronidation<sup>5</sup>.

- 1) Nogara *et al.* (2016), *Piperine's mitigation of obesity and diabetes can be explained by its up-regulation of the metabolic rate of resting muscle*; Proc.Natl.Acad.Sci.USA **113** 13009
- 2) McNamara *et al.* (2005), *Effects of piperine, the pungent component of black pepper, at the human vanilloid receptor (TRPV1)*; Br.J.Pharmacol. **144** 781
- 3) Atal *et al.* (1985), *Biochemical basis of enhanced drug bioavailability by piperine: evidence that piperine is a potent inhibitor of drug metabolism*; J.Pharmacol.Exp.Ther. **232** 258
- 4) Bhardwaj *et al.* (2002), *Piperine, a major constituent of black pepper, inhibits human P-glycoprotein and CYP3A4*; J.Pharmacol.Exp.Ther. **302** 645
- 5) Reen *et al.* (1993), *Impairment of UDP-glucose dehydrogenase and glucuronidation activities in liver and small intestine of rat and guinea pig in vitro by piperine*; Biochem.Pharmacol. **46** 229

**PHYSICAL DATA**

Molecular Weight:	285.34
Molecular Formula:	C <sub>17</sub> H <sub>19</sub> NO <sub>3</sub>
Purity:	>98% (HPLC)
	NMR: (Conforms)
Solubility:	DMSO (>25 mg/mL)
Physical Description:	Off-white solid
Storage and Stability:	Store as supplied at -20°C for up to 1 year from the date of purchase. Solutions in DMSO may be stored at -20°C for up to 3 months.

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