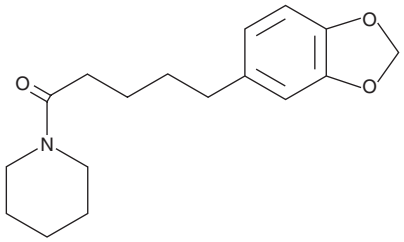
PRODUCT INFORMATION

Tetrahydropiperine

Item No. 11758

CAS Registry No.:	23434-88-0
Formal Name:	5-(1,3-benzodioxol-5-yl)-1-(1-piperidinyl)-1-pentanone
Synonym:	THP
MF:	$C_{17}H_{23}NO_3$
FW:	289.4
Purity:	≥95%
UV/Vis.:	λ_{max}: 234, 288 nm
Supplied as:	A solution in ethanol
Storage:	-20°C
Stability:	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Tetrahydropiperine is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of tetrahydropiperine in these solvents is approximately 10 mg/ml.

Tetrahydropiperine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the ethanolic solution of tetrahydropiperine should be diluted with the aqueous buffer of choice. Tetrahydropiperine has a solubility of approximately 0.1 mg/ml in a 1:7 solution of DMSO:PBS (pH 7.2) using this method.

Description

Tetrahydropiperine is a derivative of piperine (Item No. 11750) and an arylpentanamide originally isolated from *P. longum* that has diverse biological activities.[1,2] It is an agonist of transient receptor potential vanilloid type 1 (TRPV1; EC_{50} = 6.3 µM).[2] It inhibits the cytochrome P450 (CYP) isoform CYP1A1/ arylhydrocarbon hydroxylase (AHH; IC_{50} = 23 µM) and 7-methoxycoumarin O-demethylase (MOCD) activity (IC_{50} = 25 µM) in rat liver microsomes.[3] Tetrahydropiperine increases skin pigmentation in a mouse model of vitiligo when 100 µl of a 175 mM solution is administered topically, an effect that can be enhanced by subsequent suberythemal ultraviolet radiation (UVR).[4] Formulations containing tetrahydropiperine have been used to increase bioavailability of compounds applied to the skin.

References

1. Madhusudhan, P. and Vandana, K.L. Tetrahydropiperine, the first natural aryl pentanamide from Piper longum. *Biochem. Syst. Ecol.* **29(5),** 537-538 (2001).
2. Correa, E.A., Högestätt, E.D., Sterner, O., *et al.* In vitro TRPV1 activity of piperine derived amides. *Bioorg. Med. Chem.* **18(9)**, 3299-3306 (2010).
3. Koul, S., Koul, J.L., Taneja, S.C., *et al.* Structure-activity relationship of piperine and its synthetic analogues for their inhibitory potentials of rat hepatic microsomal constitutive and inducible cytochrome P450 activities. *Bioorg. Med. Chem.* **8(1),** 251-268 (2000).
4. Faas, L., Venkatasamy, R., Hider, R.C., *et al.* In vivo evaluation of piperine and synthetic analogues as potential treatments for vitiligo using a sparsely pigmented mouse model. *Br. J. Dermatol.* **158(5),** 941-950 (2008).

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