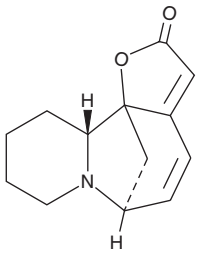
PRODUCT INFORMATION

(–)-Securinine

Item No. 24902

CAS Registry No.: 5610-40-2
Formal Name: (6S,11aR,11bS)-9,10,11,11a-tetrahydro-8H-6,11b-methanofuro[2,3-c]pyrido[1,2-a]azepin-2(6H)-one
Synonyms: NSC 107413, L-Securinine
MF: $C_{13}H_{15}NO_2$
FW: 217.3
Purity: ≥98%
UV/Vis.: λ_{max}: 254 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

(–)-Securinine is supplied as a crystalline solid. A stock solution may be made by dissolving the (–)-securinine in the solvent of choice, which should be purged with an inert gas. (–)-Securinine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of (–)-securinine in these solvents is approximately 16, 20, and 33 mg/ml, respectively.

(–)-Securinine is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (–)-securinine should first be dissolved in DMF and then diluted with the aqueous buffer of choice. (–)-Securinine has a solubility of approximately 0.20 mg/ml in a 1:4 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

(–)-Securinine is an alkaloid originally isolated from *S. suffructicosa*.[1] It reduces proliferation of SW480 colon adenocarcinoma cells in a dose- and time-dependent manner *via* increased Beclin 1 expression and induction of autophagy.[2] It decreases viability of HL-60 leukemia cells (IC_{50}s = 47.88, 23.85, and 18.87 µM at 24, 48, and 72 hours post-treatment, respectively).[3] It also induces cell cycle arrest at the G_1/S phase and decreases PI3K, Akt, and mTOR gene expression in a dose-dependent manner. (–)-Securinine inhibits GABA and GABA-activated benzodiazepine binding to rat brain membranes (IC_{50}s = 57 and 101 µM, respectively).[1] *In vivo*, (–)-securinine (5.2 mg/kg) induces clonic and tonic convulsions in mice, an effect that is reversed by administration of GABA.[4]

References

1. Beutler, J.A., Karbon, E.W., Brubaker, A.N., *et al.* Securinine alkaloids: A new class of GABA receptor antagonist. *Brain Res.* **330(1)**, 135-140 (1985).
2. Xia, Y.-H., Chang, C.-R., Yao, S.-Y., *et al.* L-securinine induced the human colon cancer SW480 cell autophagy and its molecular mechanism. *Fitoterapia* **82(8)**, 1258-1264 (2011).
3. Han, S., Zhang, G., Li, M., *et al.* L-securinine induces apoptosis in the human promyelocytic leukemia cell line HL-60 and influences the expression of genes involved in the PI3K/AKT/mTOR signaling pathway. *Oncol. Rep.* **31(5)**, 2245-2251 (2014).
4. Tao, S.-C., Peng, J.-Z., and Lu, M.-W. Central convulsive action of l-securinine. *Zhongguo Yao Li Xue Bao.* **7(1)**, 9-12 (1986).

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