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## Product Data Sheet

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Product Name: (+)-SK&F 10047 hydrochloride

Cat. No.: GC17301

### Chemical Properties

Cas. No. 133005-41-1

Chemical Name 3-allyl-6,11-dimethyl-1,2,3,4,5,6-hexahydro-2,6-methanobenzo[d]azocin-8-ol hydrochloride

SMILES OC1=CC2=C(C=C1)CC3N(CC=C)CCC2(C)C3C.Cl

Formula  $C_{17}H_{23}NO.HCl$  M.Wt 293.84

Solubility <29.38mg/ml in Water; <29.38mg/ml in DMSO Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure (+)-SK&F 10047 hydrochloride

### Background

IC50: N/A

SKF 10047 hydrochloride is a prototypical  $\sigma_1$  receptor agonist. Behaviorally active in animal models of memory and stress. It has been fully demonstrated that  $\sigma$  binding sites are distinct from phencyclidine binding sites on the NMDA receptor-ion channel complex, which has investigated extensively the functional role of  $\sigma$  receptors in the central nervous system [1,2].

In vitro: The effects of the stereoisomers of N-allylnormetazocine (SKF-10,047) were compared in rats on the hippocampal cholinergic functions. A putative  $\sigma_1$  receptor agonist, (+)-SKF-10,047, increased hippocampal extracellular acetylcholine level as well as anti-amnesic effect against scopolamine-induced memory dysfunctions in rats. Haloperidol, a putative  $\sigma_1$  receptor antagonist reversed these phenomena which were not produced by (-)-SKF-10,047. Such stereoselectivity and antagonism imply  $\sigma_1$  receptors involved in these (+)-SKF-10,047-stimulated hippocampal cholinergic

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

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functions [2].

In vivo: (+)-SKF-10,047 and dextromethorphan, being co-administered with phenytoin (10 mg/kg, an anticonvulsant drug), decreased conditioned fear stress with low doses (4 and 20 mg/kg, respectively). The effects were antagonized by the  $\sigma$  receptor antagonists, NE-100 and BMY-14802. Furthermore, the effects of (+)-SKF-10,047 or dextromethorphan plus phenytoin were inhibited by the dopamine D1 receptor antagonist (SCH 23390) and the dopamine D2 receptor antagonist ((-)-sulpiride), and they were also decreased by 6-hydroxydopamine-induced lesions of dopaminergic neurons. The ameliorating effects of (+)-SKF-10,047 and dextromethorphan on condition of fear stress using high doses (5 and 30 mg/kg, respectively) were also inhibited by both the dopamine receptor antagonists [3].

Clinical trial: So far, no clinical study has been conducted.

### References:

- [1] Walker JM, Bowen WD, Walker FO, Matsumoto RR, De Costa B, Rice KC. Sigma receptors: biology and function. *Pharmacol Rev.* 1990 Dec;42(4):355-402.
- [2] Matsuno K, Senda T, Kobayashi T, Mita S. Involvement of sigma 1 receptor in (+)-N-allylnormetazocine-stimulated hippocampal cholinergic functions in rats. *Brain Res.* 1995 Sep 4; 690 (2): 200-6.
- [3]. Kamei H, Kameyama T, Nabeshima T. (+)-SKF-10,047 and dextromethorphan ameliorate conditioned fear stress via dopaminergic systems linked to phenytoin-regulated sigma 1 sites. *Eur J Pharmacol.* 1996 Aug 8;309(2):149-58.

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