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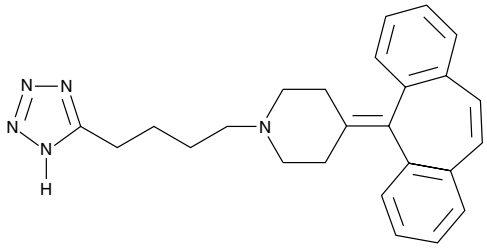
Product Information

AT-56

Item No. 13160

CAS Registry No.: 162640-98-4
Formal Name: 4-(5H-dibenzo[a,d]cyclohepten-5-ylidene)-1-[4-(2H-tetrazol-5-yl)butyl]-piperidine
MF: $C_{25}H_{27}N_5$
FW: 397.5
Purity: ≥95%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

For long term storage, we suggest that AT-56 be stored as supplied at -20°C. It should be stable for at least two years.

AT-56 is supplied as a crystalline solid. A stock solution may be made by dissolving the AT-56 in the solvent of choice. AT-56 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of AT-56 in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. AT-56 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, AT-56 should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. AT-56 has a solubility of approximately 0.5 mg/ml in a 1:1 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Prostaglandin D synthase (PGDS) catalyzes the isomerization of PGH_2 to produce PGD_2. PGD_2 induces sleep, regulates nociception, inhibits platelet aggregation, and acts as an allergic mediator. Two distinct types of PGDS have been identified, namely the lipocalin-type enzyme (β-trace, L-PGDS) and the hematopoietic-type enzyme (H-PGDS).[1-3] L-PGDS is localized in the central nervous system, male genital organs of various mammals, and the human heart and is a major protein in human cerebrospinal fluid (CSF).[1] AT-56 is a selective, competitive, and highly bioavailable inhibitor of L-PGDS with a K_i value of 75 µM.[4] It inhibits the production of PGD_2 by L-PGDS purified from human CSF and recombinant mouse cells with an IC_{50} value of 95 µM.[4] At concentrations as high as 100 µM *in vitro* or 30 mg/kg *in vivo*, AT-56 does not affect the production of PGE_2, $PGF_{2\alpha}$, or H-PGDS-catalyzed PGD_2.[4] At 10 mg/kg AT-56, the numbers of total cells, infiltrating eosinophils, and monocytes in bronchoalveolar lavage fluid of L-PGDS transgenic mice were decreased to 23, 6, and 41% of controls, respectively.[4]

References

1. Urade, Y., Watanabe, K., and Hayaishi, O. *J. Lipid Mediat. Cell Signal.* **12**, 257-273 (1995).
2. Akassaka, K., Ohta, H., Hanada, Y., *et al. Biosci. Biotechnol. Biochem.* **63(8)**, 1506-1508 (1999).
3. Urade, Y. and Eguchi, N. *Prostaglandins Other Lipid Mediat.* **68-69**, 375-382 (2002).
4. Irikura, D., Aritake, K., Nagata, N., *et al. J. Biol. Chem.* **284(12)**, 7623-7630 (2009).

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