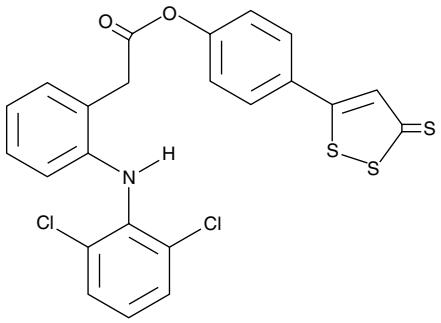
Product Information

ATB-337

Item No. 10277

CAS Registry No.: 912758-00-0
Formal Name: 4-(3-thioxo-3H-1,2-dithiol-5-yl)phenyl ester-2-[(2,6-dichlorophenyl)amino]-benzeneacetic acid
Synonyms: ACS 15, S-Diclofenac
MF: $C_{23}H_{15}NCl_2O_2S_3$
FW: 504.5
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

For long term storage, we suggest that ATB-337 be stored as supplied at -20°C. It should be stable for at least two years.

ATB-337 is supplied as a crystalline solid. A stock solution may be made by dissolving the ATB-337 in an organic solvent purged with an inert gas. ATB-337 is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of ATB-337 in these solvents is approximately 10 mg/ml.

If aqueous stock solutions are required for biological experiments, they can best be prepared by diluting the organic solvent into aqueous buffers or isotonic saline. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Hydrogen sulfide (H_2S) is a naturally occurring gasotransmitter with vasodilator and inflammatory modulating activity.[1,2] Non-steroidal anti-inflammatory drugs (NSAIDs), such as indomethacin, diclofenac, and ibuprofen, are some of the most commonly used anti-inflammatory drugs available but exhibit significant side effects, particularly gastric damage, when used chronically. ATB-337 is a hybrid molecule of an H_2S donor and the NSAID diclofenac.[3] In rats, diclofenac at 10-50 µmol/kg caused significant gastrointestinal damage, whereas no damage was observed with ATB-337 treatment at the same dose. ATB-337 at 50 µmol/kg does not promote leukocyte adherence to vascular endothelium, an effect observed with diclofenac treatment alone. COX-1 and COX-2 were inhibited with similar efficacy by diclofenac and ABT-337. An increase in expression of the pro-inflammatory mediator TNF-α, as well as, the adhesion molecules ICAM-1 and LFA-1 were not observed in rats treated with 50 µmol/kg ABT-337, effects seen with equimolar doses of diclofenac. These results indicate that H_2S-releasing derivatives of NSAIDs may prove to be more effective anti-inflammatory agents than traditional NSAIDs alone.

References

1. Li, L. and Moore, P.K. Putative biological roles of hydrogen sulfide in health and disease: A breath of not so fresh air? *Trends Pharmacol. Sci.* **29(2)**, 84-90 (2007).
2. Wallace, J.L. Hydrogen sulfide-releasing anti-inflammatory drugs. *Trends Pharmacol. Sci.* **28(10)**, 501-505 (2007).
3. Wallace, J.L., Caliendo, G., Santagada, V., *et al.* Gastrointestinal safety and anti-inflammatory effects of a hydrogen sulfide-releasing diclofenac derivative in the rat. *Gastroenterology* **132**, 261-271 (2007).

Related Products

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