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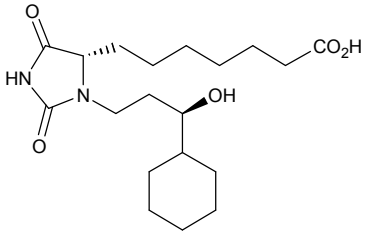
Product Information

BW 245C

Catalog Number **B9305**
Storage Temperature –20 °C

CAS RN 72814-32-5
Synonyms: (R*,S*)-(±)-3-(3-cyclohexyl-3-hydroxypropyl)-2,5-dioxo-4-imidazolidineheptanoic acid



Product Description
Molecular Formula: $C_{19}H_{32}N_2O_5$
Molecular Weight: 368.47

Prostanoids, including prostaglandins (PG) such as PGD_2, PGE_2, PGF_2, and PGI_2, are endogenous derivatives of arachidonic acid. PGD_2, produced in brain, lung, skin, and mast cells, is implicated in the mediation of body temperature, sleep, hormone secretion, ion transport, and pain. PGD_2 inhibits platelet aggregation, induces bronchoconstriction and allergic rhinitis, and lowers intraocular pressure. The effects of PGD_2 are mediated by specific DP prostanoid receptors, which are coupled via a G_s protein to adenylyl cyclase, whose activation results in the production of cAMP.[1,2]

BW 245C is a potent prostanoid receptor agonist, with a true selectivity for a DP prostanoid receptor. In embryonic bovine tracheal cells, BW 245C stimulates cAMP production with a potency of EC_{50} = 59 nM and the rank of potency BW 245C > PGD_2 > PGE_2 > PGF_{2a} > Iloprost.[1,2] BW 245C is significantly more efficacious than PGD_2 (Emax = 121±3%; P <0.001). This effect is fully blocked by the potent and specific DP prostanoid receptor antagonist BW A868C.[2]

In glycerol-lysed human platelets, PGD_2 and BW 245C both activate adenylate cyclase in a biphasic manner. The selective DP prostanoid receptor antagonist BW A868C shifts the first phase of the PGD_2 and BW 245C curves, but has no effect on the second phase. These results indicate that PGD_2 and BW 245C are capable of activating adenylate cyclase in human platelets through the DP prostanoid receptor and by another mechanism as yet uncharacterized.[3]

PGD_2 is the major prostanoid released by mast cells during an allergic response followed by the accumulation of eosinophils. PGD_2 binds with high affinity to two receptors: DP and chemoattractant receptor-homologous molecule expressed on TH2 cells (CRTH2) both of which are detectable on circulating eosinophils. PGD_2 induces an increase in chemokinesis and promotes eosinophil degranulation. These effects are induced by the CRTH2-selective agonist DK- PGD_2 but not by the DP agonist BW 245C. BW 245C**,** but not DK-PGD_2, can delay the onset of apoptosis in cultured eosinophils, presumably through interaction with the DP prostanoid receptor.[4]

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
BW 245C is soluble in DMSO at 10 mg/mL.

Storage/Stability
Store the product at –20 °C.

References

1. Sharif, N.A., et al., Affinities, selectivities, potencies, and intrinsic activities of natural and synthetic prostanoids using endogenous receptors: Focus on DP class prostanoids. J. Pharmacol. Exp. Ther., **293**, 321-328 (2000).
2. Crider, J.Y., et al., Prostaglandin DP receptors positively coupled to adenylyl cyclase in embryonic bovine tracheal (EBTr) cells: pharmacological characterization using agonists and antagonists. Br. J. Pharmacol., **127**, 204-210 (1999).
3. Trist, D. G., et al., The antagonism by BW A868C of PGD2 and BW245C activation of human platelet adenylate cyclase. Br .J. Pharmacol., **96,** 301-306 (1989).
4. Gervais, F. G., et al., Selective modulation of chemokinesis, degranulation, and apoptosis in eosinophils through the PGD2 receptors CRTH2 and DP. J. Allergy Clin. Immunol. **108,** 982-988 (2001).

DXP,KAA,AH,MAM 04/08-1