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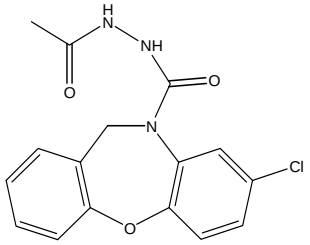
ProductInformation

SC 19220

Product Number **S 3065**
Storage Temperature RT

Cas #: 19395-87-0
Synonyms: 8–Chloro–dibenz[b,f][1,4]oxazepine-10(11H)–carboxylic acid 2–acetylhydrazide



Product Description
Molecular Formula: $C_{16}H_{14}O_3N_3Cl$
Molecular Weight: 331.76 (anhydrous)
Appearance: white solid
Purity: 99% (HPLC)
Melting Point: 190-191 °C

Prostanoids comprise prostaglandins and thromboxanes and are metabolites of arachidonic acid. The receptors for prostanoids are classified on the basis of sensitivity toward the five naturally–occurring prostanoids: PDG_2, PGE_2, PGF_2, PGI_2 and TXA_2. They are named DP, EP, FP IP and TP, respectively. EP receptors have been subdivided into four subgroups, EP_1, EP_2, EP_3 and EP_4. Prostaglandin E_2 (PGE_2) is involved in a number of physiologic and pathophysiologic events in many tissues of the body. The biologic effects of PGE_2 are mediated through interaction with specific membrane-bound G protein-coupled prostanoid EP receptors.[1]

The human EP_1 receptor subtype modulates an increase in intracellular Ca^{2+}. SC 19220 is a stable synthetic antagonist of prostaglandin E_2 (PGE_2), which blocks the activity of EP_1 receptor in a species-selective manner. In *in vitro* studies of chondrocyte differentiation, activation of PKC by the vitamin D metabolite 24,25-(OH)(2)D(3) was inhibited in a dose-dependent manner by $PTPGE_2$ and by SC-19220.[2,3]

Experiments involving osteoclasts have shown that 24,25-(OH)(2)D(3), prostaglandin PGE_2 and parathyroid hormone (PTH) induced osteoclast formation in cell culture. SC 19220 inhibited this activation. In addition, SC-19220 also inhibited osteoclast formation induced by IL –11 and IL–6 as well as by PTH.[4]

In a mouse model of burn sepsis, PGE_2 is responsible for shift in bone marrow progenitors proliferation toward monocytopoiesis. These shift can be eliminated by blocking the cellular interactions of PGE_2 with SC 19220.[5] In the rat model SC 19220 suppresses the rhIL-1β-induced fever, suggesting that fever in rats is mediated, at least partialy, by activation of PGE_2 receptor subtype EP_1.[6] Similar results were obtained with mouse brain cells, in which the EP_1 receptor expressed in the hypothalamus, mediates the fever response evoked by prostaglandin E_2.[6] Finally, in rat model of hyperalgesia resulting from nerve injury, subcutaneous injection of SC-19220 produced significant relief of mechanical and thermal hyperalgesia. This represents further evidence that inflammatory mediators contribute to neuropathic pain.[7]

For your research needs, Sigma supplies a number of prostaglandins, selective agonists and antagonists. For a complete list of products visit our website at www.Sigma-Aldrich.com.

Preparation Instructions
SC19220 is soluble in DMSO at >10 mg/ml. It is insoluble in water.

Storage/Stability
Store at room temperature tightly sealed and protected from light.

References

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2. Del Toro, F Jr., et al., Characterization of prostaglandin E_2 receptors and their role in 24, 25–(OH)(2)D(3)–mediated effects on resting zone chondrocytes. , J. Cell. Physiol., **182**, 196-208 (2000).
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4. Inoue, H., et al., SC-19220, a prostaglandin E_2 antagonist, inhibits osteoclast formation by 1,25-dihydroxyvitamin D3 in cell cultures., J. Endocrinol., **161**, 231-236 (1999).
5. Santangelo, S., et al., Prostaglandin E_2 receptor antagonist (SC-19220) treatment restores the balance to bone marrow myelopoiesis after burn sepsis., J.Trauma, **48**, 826-830 (2000).
6. Oka, K., et al., PGE_2 receptor subtype EP_1 antagonist may inhibit central interleukin-1β–induced fever in rats., Am. J. Physiol., **275**, R1762-1765 (1998).
7. Syriatowicz, J.P., et al., Hyperalgesia due to nerve injury: role of prostaglandins., Neuroscience, **94**, 587-594 (1999)

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