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- Trockeneiszuschlag
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- Expressversand

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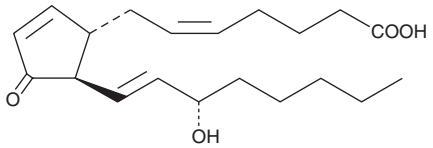
PRODUCT INFORMATION

Prostaglandin J_2

Item No. 18500

CAS Registry No.: 60203-57-8
Formal Name: 11-oxo-15S-hydroxy-prosta-5Z,9,13E-trien-1-oic acid
Synonym: PGJ_2
MF: $C_{20}H_{30}O_4$
FW: 334.5
Purity: ≥95%
UV/Vis.: λ_{max}: 216 nm
Supplied as: A solution in methyl acetate
Storage: -80°C
Stability: ≥1 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Prostaglandin J_2 (PGJ_2) is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, methanol, acetone, acetonitrile, or DMSO purged with an inert gas or nitrogen can be used. The solubility of PGJ_2 in these solvents is approximately 10 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. PGJ_2 is stable for several hours in neutral phosphate buffer. The half-life of PGJ_2 is about 10 minutes in PBS (pH 7.4 with 1% BSA) and is reduced to about 30 seconds in plasma.[1] All aqueous solutions of PGJ_2 should be maintained near pH 7.0, since both acid and base will accelerate decomposition to form Δ^{12}-PGJ_2 and other by-products. Also, 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.

Description

PGJ_2 is a metabolite of PGD_2 (Item No. 12010) and an agonist of the prostaglandin D_2 (PGD_2) receptor subtypes DP_1 and DP_2/CRTH.[1,2] It is formed from PGD_2 by spontaneous dehydration.[3] PGJ_2 binds to DP_1 and DP_2/CRTH receptors (K_is = 0.9 and 6.6 nM, respectively) and either increases or inhibits the production of cAMP (EC_{50}s = 1.2 and 13.1 nM, respectively, in HEK293 cells expressing the human receptors).[1,2] PGJ_2 is neurotoxic and induces apoptosis, oxidative stress, and the accumulation of ubiquitinated proteins in the brain.[4] It promotes the cleavage of amyloid precursor protein (APP) by α- and β-secretase in primary rat cerebral cortical neurons when used at a concentration of 10 µM.[3] The levels of PGJ_2 increase in the brain after stroke or traumatic brain injury (TBI) in rodents and it accumulates in the spinal cord of patients with sporadic amyotrophic lateral sclerosis (ALS).

References

1. Wright, D.H., Metters, K.M., Abramovitz, M., *et al. Brit. J. Pharmacol.* **123**, 1317-1324 (1998).
2. Sawyer, N., Cauchon, E., Chateauneuf, A., *et al. Brit. J. Pharmacol.* **137**, 1163-1172 (2002).
3. Jean-Louis, T., Rockwell, P., and Figueiredo-Pereira, M.E. *Neurobiol. Aging* **62**, 130-145 (2018).
4. Figueiredo-Pereira, M.E., Corwin, C., and Babich, J. *Ann. N. Y. Acad. Sci.* **1363(1)**, 125-137 (2016).

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