13,14-dihydro-15-keto Prostaglandin E₂
Item No. 14650

CAS Registry No.: 363-23-5
Formal Name: 9,15-dioxo-11α-hydroxy-prost-5Z-en-1-oic acid
Synonym: 13,14-dihydro-15-keto PGE₂
MF: C₂₀H₃₂O₅
FW: 352.5
Purity: ≥95%
Supplied as: A solution in methyl acetate
Storage: -20°C
Stability: As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly

Laboratory Procedures

13,14-dihydro-15-keto Prostaglandin E₂ (13,14-dihydro-15-keto PGE₂) 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 DMSO, ethanol, and dimethyl formamide purged with an inert gas can be used. The solubility of 13,14-dihydro-15-keto PGE₂ in these solvents is approximately 100 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. If an organic solvent-free solution of 13,14-dihydro-15-keto PGE₂ is needed, it can be prepared by evaporating the methyl acetate and directly dissolving the neat oil in aqueous buffers. The solubility of 13,14-dihydro-15-keto PGE₂ in PBS (pH 7.2) is approximately 5 mg/ml. Avoid adding 13,14-dihydro-15-keto PGE₂ to basic solutions (pH > 7.4), since base treatment will degrade the 13,14-dihydro-15-keto PGE₂ to the corresponding PGA compound and to bicyclo PGE₂. This cyclization also occurs at neutral pH in the presence of albumin.¹ ² Aqueous solutions of 13,14-dihydro-15-keto PGE₂ will be stable for at least seven days if stored at 4°C.

Description

13,14-dihydro-15-keto PGE₂ is the primary metabolite of PGE₂ (Item No. 14010) in plasma.¹ Endogenous or infused PGE₂ is rapidly metabolized by the enzymes 15-hydroxy PGDH and 15-oxo-PG Δ¹³-reductase to form 13,14-dihydro-15-keto PGE₂. 13,14-dihydro-15-keto PGE₂ accumulates to detectable levels; plasma levels in humans are between 10-100 pg/ml.² It undergoes further metabolism and chemical decomposition, giving it a relatively short half-life. In dogs, the plasma half-life of 13,14-dihydro-15-keto PGE₂ is about 9 minutes.³ In humans the metabolite has a similar short half-life, making it a poor choice of analytes for assays designed to measure total PGE₂ biosynthesis.⁴ ⁵

References