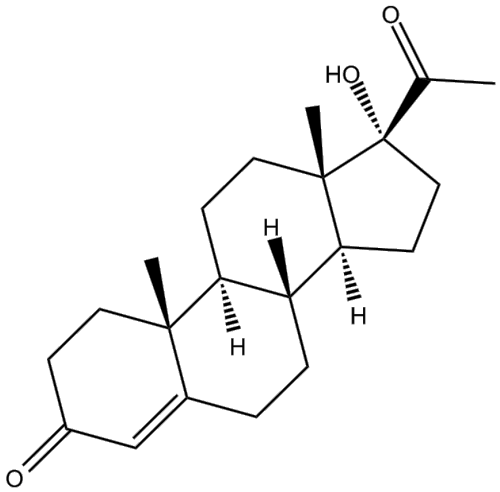
Product Data Sheet

Product Name: 17-Hydroxyprogesterone
Cat. No.: GC17475

Chemical Properties

Cas. No.	68-96-2		
Chemical Name	(8R,9S,10R,13S,14S,17R)-17-acetyl-17-hydroxy-10,13-dimethyl-6,7,8,9,10,11,12,13,14,15,16,17-dodecahydro-1H-cyclopenta[a]phenanthren-3(2H)-one		
SMILES	CC([C@@]1(O)CC[C@@]2([H])[C@]([C@]3([H])CC[C@@]21C)([H])CCC4=CC(CC[C@@]43C)=O)=O		
Formula	$C_{21}H_{30}O_3$	M.Wt	330.46
Solubility	≥ 31.6 mg/mL in DMSO, ≥ 16 mg/mL in EtOH with gentle warming	Storage	Store at 4°C, protect from light
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Background

17-Hydroxyprogesterone, an endogenous progestogen and chemical intermediate in the biosynthesis of other steroid hormones, is also the parent compound of various progestins derivatives.

Caution: Product has not been fully validated for medical applications. For research use only.
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In vitro: 17-Hydroxyprogesterone was found to be an agonist of the progesterone receptor (PR), which was similarly to progesterone. In addition, 17-hydroxyprogesterone was also an antagonist of the mineralocorticoid receptor (MR) as well as a partial agonist of the glucocorticoid receptor (GR), with very low potency (EC50>100-fold less relative to cortisol), which was also similarly to progesterone [1].

In vivo: Findings from a previous rat in vivo study demonstrated that even if modest, lowering blood pressure with 17-hydroxyprogesterone could be a viable treatment selection for blocking inflammation and uterine artery vasoconstriction, whereas improving litter size [2].

Clinical trial: Clinically, 17-hydroxyprogesterone has been evaluated in newborn screening programs as the biomarker to detect the rare but potentially fatal inherited disease, such as congenital adrenal hyperplasia. Results showed that the respiratory distress syndrome was related with higher 17-hydroxyprogesterone level. In addition, higher 17-hydroxyprogesterone and false positives were found to be significantly related with lower gestational age and birth weight, which was the same as that previously reported [3].

References:
[1] Barbara J. Attardi, et al. Comparison of progesterone and glucocorticoid receptor binding and stimulation of gene expression by progesterone, 17-alpha hydroxyprogesterone caproate (17-OHPC), and related progestins. Am J Obstet Gynecol. 2007 Dec; 197(6): 599.e1–599.e7.
[2] Lorena M. Amaral, et al. 17- hydroxyprogesterone caproate significantly improves clinical characteristics of preeclampsia in the Rupp rat model. Hypertension. 2015 Jan; 65(1): 225–231.
[3] Ryckman KK,Cook DE,Berberich SL,Shchelochkov OA,Berends SK,Busch T,Dagle JM,Murray JC. Replication of clinical associations with 17-hydroxyprogesterone in preterm newborns. J Pediatr Endocrinol Metab. 2012;25(3-4):301-5.

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