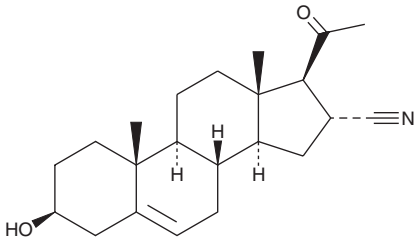
PRODUCT INFORMATION

Pregnenolone Carbonitrile

Item No. 16343

CAS Registry No.:	1434-54-4
Formal Name:	3β-hydroxy-20-oxo-pregn-5-ene-16α-carbonitrile
Synonyms:	PCN, Pregnenolone 16α-carbonitrile, SC-4674
MF:	$C_{22}H_{31}NO_2$
FW:	341.5
Purity:	≥98%
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

Pregnenolone carbonitrile (PCN) is supplied as a crystalline solid. A stock solution may be made by dissolving the PCN in the solvent of choice, which should be purged with an inert gas. PCN is soluble in organic solvents such as ethanol, acetonitrile, and methanol. The solubility of PCN in these solvents is approximately 1 mg/ml.

Description

PCN is a catatoxic steroid that acts as an agonist of the rodent pregnane X receptor (PXR) at µM concentrations.[1-3] It has been shown to mediate induction of hepatic cytochrome P450 3A, organic anion transporting peptide-2, and cholesterol 7α-hydroxylase, regulating both xenobiotic and bile acid homeostasis by enhancing hepatic uptake and biliary excretion.[2-4] Activation of PXR by 50 mg/kg PCN administered to obesity-prone AKR/J mice has been reported to attenuate the development of high-fat diet-induced obesity and insulin resistance.[5]

References

1. Kliewer, S.A., Moore, J.T., Wade, L., *et al.* An orphan nuclear receptor activated by pregnanes defines a novel steroid signaling pathway. *Cell* **92(1)**, 73-82 (1998).
2. Staudinger, J., Liu, Y., Madan, A., *et al.* Coordinate regulation of xenobiotic and bile acid homeostasis by pregnane X receptor. *Drug Metab. Dispos.* **29(11)**, 1467-1472 (2001).
3. Lehmann, J.M., McKee, D.D., Watson, M.A., *et al.* The human orphan nuclear receptor PXR is activated by compounds that regulate CYP3A4 gene expression and cause drug interactions. *J. Clin. Invest.* **102(5)**, 1016-1123 (1998).
4. Elshourbagy, N.A., Barwick, J.L., and Guzelian, P.S. Induction of cytochrome P-450 by pregnenolone-16α-carbonitrile in primary monolayer cultures of adult rat hepatocytes and in a cell-free translation system. *J. Biol. Chem.* **256(12)**, 6060-6068 (1981).
5. Ma, Y. and Liu, D. Activation of pregnane X receptor by pregnenolone 16 α-carbonitrile prevents high-fat diet-induced obesity in AKR/J mice. *PLoS One* **7(6)**, e38734 (2012).

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