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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

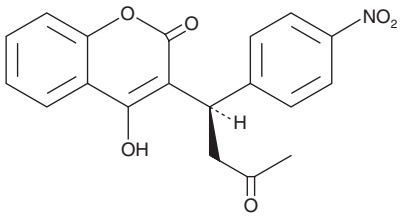
linkedin.com/company/szaboscandic

PRODUCT INFORMATION

(R)-Acenocoumarol

Item No. 9000337

CAS Registry No.: 66556-77-2
Formal Name: 4-hydroxy-3-[(1R)-1-(4-nitrophenyl)-3-oxobutyl]-2H-1-benzopyran-2-one
Synonyms: (R)-Acenocoumarin, (R)-Nicoumalone
MF: $C_{19}H_{15}NO_6$
FW: 353.3
Purity: ≥98%
UV/Vis.: λ_{max}: 291 nm
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

(R)-Acenocoumarol is supplied as a crystalline solid. A stock solution may be made by dissolving the (R)-acenocoumarol in the solvent of choice, which should be purged with an inert gas. (R)-Acenocoumarol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of (R)-acenocoumarol in these solvents is approximately 0.2, 10, and 20 mg/ml, respectively.

(R)-Acenocoumarol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, (R)-acenocoumarol should first be dissolved in DMF and then diluted with the aqueous buffer of choice. (R)-Acenocoumarol has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Acenocoumarol is a short-lived oral anti-coagulant, which, like warfarin, functions by inhibiting vitamin K epoxide reductase. It has higher intrinsic anticoagulant potency than warfarin and phenprocoumon, when evaluated *in vitro*. Acenocoumarol has a single chiral center that gives rise to two different enantiomeric forms. (R)-Acenocoumarol has a longer plasma elimination half-life (6.6 hours) and slower plasma clearance (1.9 L/hour), compared to the (S)-enantiomer (1.8 hours, 28.5 L/hour).[1] The R-enantiomer is rapidly absorbed from the gastrointestinal tract with essentially complete oral bioavailability, whereas (S)-acenocoumarol undergoes extensive first-pass metabolism.[1] Perhaps related to these pharmacokinetic characteristics, (R)-acenocoumarol is more potent *in vivo* as an anti-coagulant than the (S)-enantiomer. As the clearance of acenocoumarol is ~20-fold faster than that for warfarin, the plasma concentrations of acenocoumarol are substantially lower than those for warfarin in patients receiving long-term treatment.

Reference

1. Ufer, M. Comparative pharmacokinetics of vitamin K antagonists warfarin, phenprocoumon and acenocoumarol. *Clin. Pharmacokinet.* **44(12)**, 1227-1246 (2005).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM