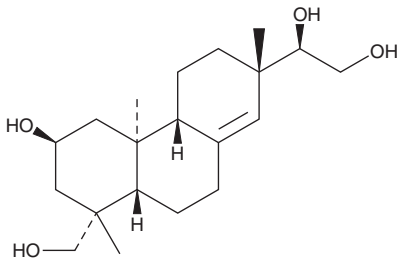
PRODUCT INFORMATION

Kirenol

Item No. 26212

CAS Registry No.: 52659-56-0
Formal Name: (α^7R,1R,3S,4aS,4bR,7S,10aS)-1,2,3,4,4a,4b,5,6,7,9,10,10a-dodecahydro-3-hydroxy-α^7-(hydroxymethyl)-1,4a,7-trimethyl-1,7-phenanthrenedimethanol
MF: $C_{20}H_{34}O_4$
FW: 338.5
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

Kirenol is supplied as a crystalline solid. A stock solution may be made by dissolving the kirenol in the solvent of choice, which should be purged with an inert gas. Kirenol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of kirenol in these solvents is approximately 5, 10, and 14.3 mg/ml, respectively.

Description

Kirenol is a diterpenoid that has been found in *S. orientalis* and has diverse biological activities, including anti-arthritic and anti-inflammatory properties.[1,2] It inhibits Gram-positive and Gram-negative bacterial growth in disc diffusion assays with MICs ranging from 39 to 156 and 312.5 to 625 µg/ml, respectively.[3] Kirenol also reduces K652 chronic myeloid leukemia cell viability with a 48 hour IC_{50} value of 18.19 µg/ml and induces apoptosis.[4] *In vivo*, kirenol (2 mg/kg, p.o.) reduces motor deficit, delays disease onset by approximately five days, and downregulates inflammatory $CD4^+IFN\text{-}\gamma^+$ Th1 cells and $CD4^+IL\text{-}17A^+$ Th17 cells in a mouse model of experimental autoimmune encephalomyelitis (EAE).[5] Intragastric administration of kirenol (1-4 mg/kg) reduces the arthritis index, NF-kB activity, and paw swelling and increases annexin-1 expression without affecting glucocorticoid receptor α (GRα) expression in the synovium in a rat model of collagen-induced arthritis.[1] Topical administration of kirenol (0.3-0.5% w/w) reduces edema induced by carrageenan, complete Freund's adjuvant (CFA), and formalin in rats up to 44, 67, and 65%, respectively.[2]

References

1. Wang, Z.-M., Zhu, S.-G., Wu, Z.-W., *et al.* Kirenol upregulates nuclear annexin-1 which interacts with NF-κB to attenuate synovial inflammation of collagen-induced arthritis in rats. *J. Ethnopharmacol.* **137(1)**, 774-782 (2011).
2. Wang, J.P., Zhou, Y.-m., Ye, Y.-j., *et al.* Topical anti-inflammatory and analgesic activity of kirenol isolated from Siegesbeckia orientali. *J. Ethnopharmacol.* **137(3)**, 1089-1094 (2011).
3. Wang, J.-P., Zhou, Y.-M., and Zhang, Y.-H. Kirenol production in hairy root culture of *Siegesbeckea orientalis* and its antimicrobial activity. *Pharmacogn. Mag.* **8(30)**, 149-155 (2012).
4. Lu, Y., Qian, R., Xiao, J., *et al.* Kirenol, a compound from *Herba Siegesbeckiae*, induces apoptosis in human chronic myeloid leukemia K562 cells. *Pharmazie* **69(2)**, 148-153 (2014).
5. Xiao, J., Yang, R., Yang, L., *et al.* Kirenol attenuates experimental autoimmune encephalomyelitis by inhibiting differentiation of Th1 and Th17 cells and inducing apoptosis of effector T cells. *Sci. Rep.* **5:9022**, (2015).

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