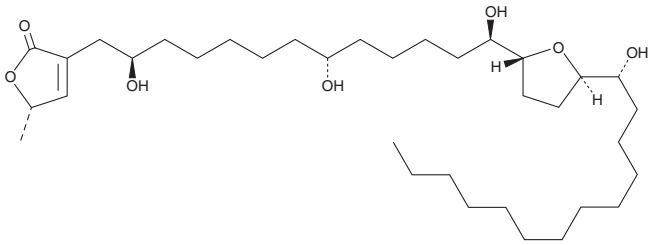
PRODUCT INFORMATION

Annonacin

Item No. 22415

CAS Registry No.: 111035-65-5
Formal Name: 5S-5-methyl-3-[(2R,8R,13R)-2,8,13-trihydroxy-13-[(2R,5R)-tetrahydro-5-[(1R)-1-hydroxytridecyl]-2-furanyl]tridecyl]-2(5H)-furanone
MF: $C_{35}H_{64}O_7$
FW: 596.9
Purity: ≥98%
UV/Vis.: λ_{max}: 286 nm
Supplied as: A powder
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Annonacin is supplied as a powder. A stock solution may be made by dissolving the annonacin in the solvent of choice, which should be purged with an inert gas. Annonacin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of annonacin in these solvents is approximately 1, 20, and 10 mg/ml, respectively.

Annonacin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, annonacin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Annonacin has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Annonacin is a potent and lipophilic acetogenin from *A. muricata* that inhibits mitochondrial complex I (IC_{50} = 54.8 nM).[1,2] Annonacin induces ATP depletion, tau pathologies, and dopaminergic cell death in rats (EC_{50}s = 134, 44.1, and 60.8 nM, respectively). Quantities of annonacin in the fruit and teas made from leaves of *A. muricata* are such that a cumulative dose sufficient to induce murine neurodegeneration can be attained in humans by regular consumption within one year. This implicates annonacin in the etiology of taupathologies identified in regions of *A. muricata* consumption. Annonacin also reduces cell survival (ED_{50} = 0.31 µM in MCF-7 cells) and decreases MCF-7 xenograft tumor size in nude mice at a dose of 50 mg/kg per day.[3]

References

1. Höllerhage, M., Matusch, A., Champy, P., *et al.* Natural lipophilic inhibitors of mitochondrial complex I are candidate toxins for sporadic neurodegenerative tau pathologies. *Exp. Neurol.* **220(1)**, 133-142 (2009).
2. Lannuzel, A., Michel, P.P., Höglinger, G.U., *et al.* The mitochondrial complex I inhibitor annonacin is toxic to mesencephalic dopaminergic neurons by impairment of energy metabolism. *Neuroscience* **121(2)**, 287-296 (2003).
3. Ko, Y.-M., Wu, T.-Y., Wu, Y.-C., *et al.* Annonacin induces cell cycle-dependent growth arrest and apoptosis in estrogen receptor-α-related pathways in MCF-7 cells. *J. Ethnopharmacol.* **137(3)**, 1283-1290 (2001).

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