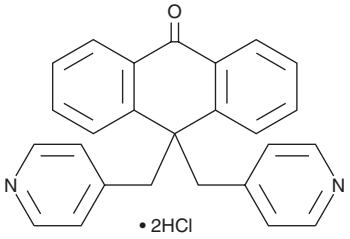
PRODUCT INFORMATION

XE 991 (hydrochloride)

Item No. 14582

CAS Registry No.: 122955-13-9
Formal Name: 10,10-*bis*(4-pyridinylmethyl)-9(10H)-anthracenone, dihydrochloride
MF: $C_{26}H_{20}N_2O \bullet 2HCl$
FW: 449.4
Purity: ≥99%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid
UV/Vis.: λ_{max}: 258 nm



Laboratory Procedures

For long term storage, we suggest that XE 991 (hydrochloride) be stored as supplied at -20°C. It should be stable for at least two years.

XE 991 (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the XE 991 (hydrochloride) in the solvent of choice. XE 991 (hydrochloride) is soluble in DMSO, which should be purged with an inert gas. The solubility of XE 991 (hydrochloride) in DMSO is approximately 2 mg/ml.

XE 991 (hydrochloride) is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, XE 991 (hydrochloride) should first be dissolved in dimethyl formamide (DMF) and then diluted with the aqueous buffer of choice. XE 991 (hydrochloride) has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

The KCNQ potassium channels are neuronal modulators which combine with other KQT or KCNE channels to form heteromultimers. XE 991 is a blocker of KCNQ channels that potently inhibits KCNQ1 and 2 homomeric channels (IC_{50} = 0.75 and 0.71 µM, respectively) as well as KCNQ2+3 heteromultimers (IC_{50} = 0.6 µM).[1] It much less effectively blocks eag, erg, and elk channels. The effectiveness of XE 991 against KCNQ channels depends on partners or accessory proteins.[2] Through these actions, XE 991 enhances acetylcholine release from rat brain slices (EC_{50} = 490 nM) and shows good *in vivo* potency and duration of action, suggesting utility in Alzheimer's disease therapeutics.[3] While early studies focused on actions in the central nervous system, XE 991 can be used to explore the roles of KCNQ channels in neuronal regulation throughout the body.[4]

References

1. Wang, H.-S., Pan, Z., Shi, W., *et al*. KCNQ2 and KCNQ3 potassium channel subunits: Molecular correlates of the M-channel. *Science* **282(5395)**, 1890-1893 (1998).
2. Wang, H.-S., Brown, B.S., McKinnon, D., *et al*. Molecular basis for differential sensitivity of KCNQ and IKs channels to the cognitive enhancer XE991. *Mol. Pharmacol.* **57(6)**, 1218-1223 (2000).
3. Zaczek, R., Chorvat, R.J., Saye, J.A., *et al*. Two new potent neurotransmitter release enhancers, 10,10-bis(4-pyridinylmethyl)-9(10H)-anthracenone and 10,10-bis(2-fluoro-4-pyridinylmethyl)-9(10H)-anthracenone: Comparison to linopirdine. *J. Pharmacol. Exp. Ther.* **285(2)**, 724-730 (1998).
4. Hawryluk, J.M., Moreira, T.S., Takakura, A.C., *et al*. KCNQ channels determine serotonergic modulation of ventral surface chemoreceptors and respiratory drive. *J. Neurosci.* **32(47)**, 16943-16952 (2012).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

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