Small Molecules

Tamoxifen

Selective estrogen receptor modulator

Catalog # 72662

500 mg

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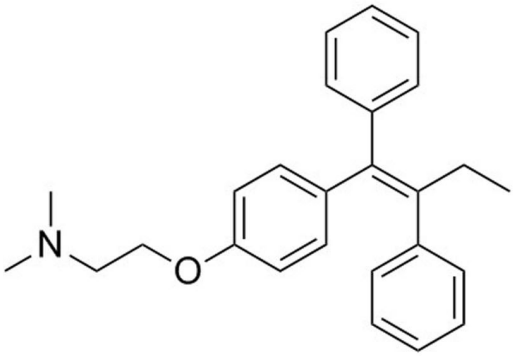
Product Description

Tamoxifen is a selective estrogen receptor modulator, with tissue-specific antagonistic or agonistic effects. There are two homologous nuclear receptors for the hormone estrogen (estradiol), commonly called ERα and ERβ. Receptor activation leads to the formation of homo- and hetero-dimers, which in turn interact with accessory proteins to regulate gene transcription. Tamoxifen is commonly used to activate Cre-ER in transgenic conditional models.

Molecular Name:	Tamoxifen
Alternative Names:	Not applicable
CAS Number:	10540-29-1
Chemical Formula:	$C_{26}H_{29}NO$
Molecular Weight:	371.5 g/mol
Purity:	≥ 95%
Chemical Name:	2-[4-[(1Z)-1,2-diphenyl-1-buten-1-yl]phenoxy]-N,N-dimethyl-ethanamine
Structure:	

Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· Absolute ethanol ≤ 50 mM · DMSO ≤ 5.3 mM For example, to prepare a 1 mM stock solution in DMSO, resuspend 1 mg in 2.69 mL of fresh DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

CELL LINE DEVELOPMENT
· Used in transgenic models to induce Cre-mediated recombination in conjunction with Cre-ER, a fusion protein consisting of Cre recombinase and a mutant form of the estrogen receptor hormone-binding domain that specifically binds tamoxifen but not estrogen (Zhang et al.; Feil et al.).
CANCER RESEARCH
· Inhibits growth in the human breast cancer cell line, MCF-7 (Katzenellenbogen et al.).
· Antagonist of estrogen receptor action in breast tissue and breast cancer cells (Abe et al.; Horwitz et al.).

References

Abe O et al. (1998) Tamoxifen for early breast cancer: an overview of the randomised trials. Lancet 351(9114): 1451–67.
Feil R et al. (1997) Regulation of Cre recombinase activity by mutated estrogen receptor ligand-binding domains. Biochem Biophys Res Commun 237(3): 752–7.
Horwitz KB & McGuire WL. (1978) Nuclear mechanisms of estrogen action. Effects of estradiol and anti-estrogens on estrogen receptors and nuclear receptor processing. J Biol Chem 253(22): 8185–91.
Katzenellenbogen BS et al. (1984) Bioactivities, estrogen receptor interactions, and plasminogen activator-inducing activities of tamoxifen and hydroxy-tamoxifen isomers in MCF-7 human breast cancer cells. Cancer Res 44(1): 112–9.
Zhang Y et al. (1996) Inducible site-directed recombination in mouse embryonic stem cells. Nucleic Acids Res 24(4): 543–8.

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).