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# DATASHEET

## (Z)-4-Hydroxytamoxifen (Z-4-OHT)

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### Product overview

<b>Name</b>	(Z)-4-Hydroxytamoxifen (Z-4-OHT)
<b>Cat No</b>	HB2508
<b>Alternative names</b>	4-OHT, Afimoxifene, H6278, 4-HT, 4-OH-TAM, OHT, TAM, 4-Hydroxytamoxifen, tamoxifen, z-4oht
<b>Biological action</b>	Activator
<b>Purity</b>	>98%
<b>Description</b>	Synthetic estrogen receptor ligand. Widely used in genome engineering (e.g. CreER/ CRISPR-Cas9).

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### Biological Data

**Biological description** Cell permeable, synthetic estrogen receptor ligand. Widely used in genome engineering.

CreER system:

De facto standard compound in drug-inducible manipulation of CreER recombinase. Allows external temporal control of Cre activity *in vivo*.

May also be used for TRAPing / in the TRAP / TRAP2 system (Targeted recombination in active populations).

CRISPR/Cas9 gene editing:

Activates an inactivated Cas9 nuclease (rendered inactive by insertion of a 4-OHT dependent-intein) to reduce off-target CRISPR-mediated gene editing (once bound with 4-OHT, conditionally active Cas9s modify target genomic sites with ~25-fold higher specificity than wild-type Cas9).

Also allows tight, repeated on-off control of the nuclease activity of the 'iCas' Cas9 variant which shows high editing efficiency at multiple loci once bound with 4-OHT.

**4-Hydroxytamoxifen** (70:30 mixture of (Z):(E) isomers) also available.

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### Solubility & Handling

<b>Storage instructions</b>	-20 °C
<b>Solubility overview</b>	Soluble in DMSO (100 mM) and in ethanol (50 mM)
<b>Handling</b>	<u>Storage of solid</u>

- This compound is light sensitive; exposure to light may affect compound performance. You should therefore store the material in the dark and protect from light.

Storage of solutions

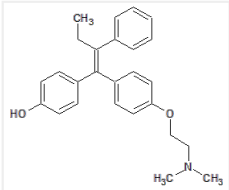
- Do not store the material in solution; make up solutions and use immediately:

- The compound has been shown to isomerise rapidly in solution in most solvents (particularly solvents with a low dielectric constant). You should therefore make up and use solutions immediately.
- The isomerisation process can be precluded by storage of the compound at -25°C in the dark as a THF solution containing ca. 0.025% BHT. (Katzenellenbogen et al (1982) J. Org. Chem. 47 2387.)

#### Important

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

## Chemical Data

<b>Chemical name</b>	4-[(1Z)-1-[4-[2-(Dimethylamino)ethoxy]phenyl]-2-phenyl-1-buten-1-yl]phenol
<b>Molecular Weight</b>	387.51
<b>Chemical structure</b>	
<b>Molecular Formula</b>	C <sub>26</sub> H <sub>29</sub> NO <sub>2</sub>
<b>CAS Number</b>	68047-06-3
<b>PubChem identifier</b>	449459
<b>SMILES</b>	CC/C(=C(\C1=CC=C(C=C1)O)/C2=CC=C(C=C2)OCCN(C)C)/C3=CC=CC=C3
<b>Source</b>	Synthetic
<b>InChi</b>	InChI=1S/C26H29NO2/c1-4-25(20-8-6-5-7-9-20)26(21-10-14-23(28)15-11-21)22-12-16-24(17-13-22)29-19-18-27(2)3/h5-17,28H,4,18-19H2,1-3H3/b26-25-
<b>InChiKey</b>	TXUZVZSFRXZGTL-QPLCGJKRSA-N
<b>MDL number</b>	MFCD00278780
<b>Appearance</b>	White solid

## References

### A chemical-inducible CRISPR-Cas9 system for rapid control of genome editing.

Liu et al (2016) Nat Chem Biol 12(11)

**PubMedID** [27618190](#)

### Small molecule-triggered Cas9 protein with improved genome-editing specificity.

Davis et al (2015) Nat Chem Biol 11(5)

**PubMedID** [25848930](#)

### Simple and efficient production of (Z)-4-hydroxytamoxifen, a potent estrogen receptor modulator.

Yu and Forman (2003) J Org Chem 68(24)

**PubMedID** [14629178](#)

### A monohydroxylated metabolite of tamoxifen with potent antioestrogenic activity.

Jordan et al (1977) J Endocrinol 75(2)

**PubMedID** [591813](#)