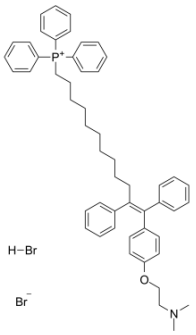
MitoTam bromide, hydrobromide

Cat. No.:	HY-126222
CAS No.:	1634624-73-9
Molecular Formula:	$C_{52}H_{60}Br_2NOP$
Molecular Weight:	905.82
Target:	Apoptosis; Mitochondrial Metabolism
Pathway:	Apoptosis; Metabolic Enzyme/Protease
Storage:	Please store the product under the recommended conditions in the COA.



BIOLOGICAL ACTIVITY

Description

MitoTam bromide, hydrobromide is a tamoxifen derivative[1], an electron transport chain (**ETC**) inhibitor, spreduces mitochondrial membrane potential in senescent cells and affects mitochondrial morphology[2].MitoTam bromide, hydrobromide is an effective anticancer agent, suppresses respiratory complexes (CI-respiration) and disrupts respiratory supercomplexes (SCs) formation in breast cancer cells[1][2]. MitoTam bromide, hydrobromide causes **apoptosis**[2].

In Vitro

MitoTam (0.5 μM-56 μM; 24 hours) kills breast cancer cell Lines and nonmalignant cells with an IC_{50} range from 0.65 μM to 55.9 μM[1].

MitoTam (2.5 μM; 2-24 hours) results in stronger activation of the apoptotic pathway in MCF7 Her2high cells compared with mock MCF7 cells[1].MitoTam (0.05 μM-1 μM; 3 days) causes a concentration-dependent induction of apoptosis in breast cancer cells, while there was no effect for non-malignant breast epithelial cells[2]

Cell Viability Assay[1]

Cell Line:	Breast Cancer Cell Lines: BT474, MCF7, MCF7 $Her2^{high}$, MCF7 $Her2^{low}$, MDA-MB-231, MDA-MB-436, MDA-MB-453, SK-BR-3, T47D; NeuTL cells; Nonmalignant Cells: A014578, H9c2 cells
Concentration:	0.5 μM-56 μM
Incubation Time:	24 hours
Result:	Killed breast cancer cells MCF7, MCF7 $Her2^{high}$, MCF7 $Her2^{low}$ with IC_{50} values of 1.25 μM, 0.65 μM and 1.45 μM respectively.

Western Blot Analysis[1]

Cell Line:	MCF7 mock cells, MCF7 $Her2^{high}$ cells
Concentration:	2.5 μM
Incubation Time:	2 hours, 4 hours, 8 hours, 16 hours, 24 hours
Result:	Revealed accelerated cleavage of procaspase-9, Parp1/2 and proapoptotic Bax, decreased the antiapoptotic Bcl-2 protein in Her2high cells.

Apoptosis Analysis[2]

Cell Line:	MCF-7 cells, 4T1 cells and MCF-10a cells
Concentration:	0.05 μM-1 μM
Incubation Time:	3 days
Result:	Resulted in apoptosis in MCF7 and 4T1 cells.

In Vivo

MitoTam (intraperitoneal injection; 2 μg/g; once a week; 4 weeks) decreases β-gal staining of lungs from MitoTam-treated mice, accompaning by a inhibition in the expression of senescence markers p16Ink4a, p21waf1 and PAI comparing control mice sup>[2].

MitoTam (intraperitoneal injection; 0.54 μmol/mouse; twice a week; 2 weeks) inhibits growth of syngeneic tumors by 80%[1].

MitoTam (intraperitoneal injection; 0.25 μmol/mouse; twice a week; 2 weeks) slows down the growth of MCF7 mock tumors and stops tumor progression after two doses; suppresses $Her2^{high}$ carcinomas decreased threefold from the original size with complete disappearance[1].

Animal Model:	18-month-old or 2-month-old FVB/N mice[2]
Dosage:	2 μg/g
Administration:	Intraperitoneal injection; 2 μg/g; once a week; 4 weeks
Result:	Eliminated senescent cells also in vivo.

Animal Model:	FVB/N c-neu mouse[1]
Dosage:	0.54 μmol/mouse
Administration:	Intraperitoneal injection; 0.54 μmol/mouse; twice a week; 2 weeks
Result:	Suppressed $Her2^{high}$ breast carcinomas.

Animal Model:	Balb/c nude mice with MCF7 mock or MCF7 $Her2^{high}$ cells[1]
Dosage:	0.25 μmol/mouse/dose
Administration:	Intraperitoneal injection; 0.25 μmol/mouse/dose; twice a week; 2 weeks
Result:	Prevented reaching the ethical endpoint in all situations, slowed down the growth of MCF7 mock tumors and suppressed $Her2^{high}$ carcinomas decreased.

REFERENCES

[1]. Rohlenova K, et al. Selective Disruption of Respiratory Supercomplexes as a New Strategy to Suppress Her2highBreast Cancer. Antioxid Redox Signal. 2017 Jan 10;26(2):84-103.

[2]. Hubackova S, et al. Selective elimination of senescent cells by mitochondrial targeting is regulated by ANT2. Cell Death Differ. 2019 Jan;26(2):276-290.

Caution: Product has not been fully validated for medical applications. For research use only.

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