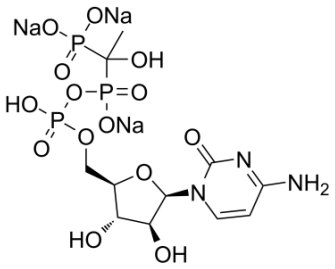
MBC-11 trisodium

Cat. No.:	HY-107093A
CAS No.:	387877-45-4
Molecular Formula:	$C_{11}H_{17}N_3Na_3O_{14}P_3$
Molecular Weight:	577.15
Target:	Others
Pathway:	Others
Storage:	Please store the product under the recommended conditions in the COA.



SOLVENT & SOLUBILITY

In Vitro

H_2O : 125 mg/mL (**216.58 mM;** Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.7327 mL	8.6633 mL	17.3265 mL
	5 mM	0.3465 mL	1.7327 mL	3.4653 mL
	10 mM	0.1733 mL	0.8663 mL	1.7327 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

MBC-11 trisodium is a first-in-class conjugate of the bone-targeting bisphosphonate HEDP covalently linked to the antimetabolite Ara-C. MBC-11 trisodium has the potential for tumor-induced bone disease (TIBD) research[1].

In Vitro

MBC-11 shows similar activity profiles and significantly inhibits growth of all three cell lines between 10^{-8} and 10^{-4} M. MBC-11 decreases KAS-6/1 cell growth from approximately 56% at 10^{-8} M to 6% at 10^{-5} M[1]

Cell Proliferation Assay[1]

Cell Line:	Human multiple myeloma cell lines (KAS-6/1, DP-6, KP-6).
Concentration:	Between 10^{-8} and 10^{-4} M.
Incubation Time:	48 hours.
Result:	Significantly inhibited multiple myeloma cell proliferation of each cell line at the majority of the tested concentrations.

In Vivo

MBC-11 (0.04 μg/day, s.c.) has a lower incidence of bone metastases of 40% compared to those treated with PBS (90%) or 0.04 μg/day zoledronate (100%). MBC-11 also significantly decreases bone tumor burden compared to PBS- or zoledronate-treated mice[1].
Weight gained in mice treated with up to 500 μg/day of MBC-11 is similar to the PBS treated group[1].
These results demonstrate that MBC-11 decreases bone tumor burden, maintains bone structure, and may increase overall survival, warranting further investigation as a treatment for tumor-induced bone disease (TIBD)[1].

Animal Model:	Approximately four-week old female Balb/c mice inoculated (s.c. injection into their mammary fatpads) with 500,000 4T1/luc cells at day 0 (breast tumor model)[1].
Dosage:	0.04, 0.4, or 4.0 μg/day.
Administration:	S.C. daily from day 7 to 21.
Result:	47% of 17 mice treated with MBC-11 had detectable bone metastases.

REFERENCES

[1]. Reinholz MM, et al. A promising approach for treatment of tumor-induced bone diseases: utilizing bisphosphonate derivatives of nucleoside antimetabolites. Bone. 2010 Jul;47(1):12-22.

[2]. Zinnen SP, et al. First-in-Human Phase I Study of MBC-11, a Novel Bone-Targeted Cytarabine-Etidronate Conjugate in Patients with Cancer-Induced Bone Disease. Oncologist. 2019 Mar;24(3):303-e102.

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