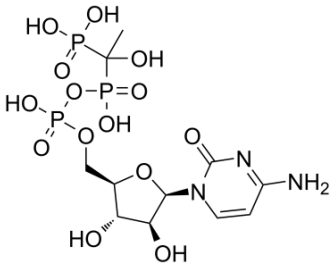
MBC-11

Cat. No.:	HY-107093
CAS No.:	332863-86-2
Molecular Formula:	$C_{11}H_{20}N_3O_{14}P_3$
Molecular Weight:	511.21
Target:	Others
Pathway:	Others
Storage:	Please store the product under the recommended conditions in the COA.



BIOLOGICAL ACTIVITY

Description

MBC-11 is a first-in-class conjugate of the bone-targeting bisphosphonate etidronate covalently linked to the antimetabolite cytarabine (araC). Has potential to treat tumor-induced bone disease (TIBD)[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:	The dose of 0.04 μg/day had a lower incidence of bone metastases compared to those treated with PBS or 0.04 μg/day zoledronate.

Animal Model:	Female Balb/c and SCID mice (four-six weeks old)[1].
Dosage:	500, 100, 1, or 0.01 μg/100 μL.
Administration:	S.C. daily for 24 or 49 days.
Result:	Weight gained in MBC-11 treated mice with different doses was similar to the PBS treated group.

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.

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