VcMMAE

Cat. No.: HY-15575

CAS No.: 646502-53-6

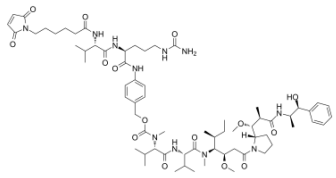
Molecular Formula: $C_{68}H_{105}N_{11}O_{15}$

Molecular Weight: 1316.63

Target: Drug-Linker Conjugates for ADC; Microtubule/Tubulin

Pathway: Antibody-drug Conjugate/ADC Related; Cell Cycle/DNA Damage; Cytoskeleton

Storage: 4°C, stored under nitrogen
* The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 54 mg/mL (41.01 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	0.7595 mL	3.7976 mL	7.5951 mL
5 mM	0.1519 mL	0.7595 mL	1.5190 mL
10 mM	0.0760 mL	0.3798 mL	0.7595 mL

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

In Vivo

1. VcMMAE is dissolved in DMSO and then diluted with 0.9% NaCl[3].

BIOLOGICAL ACTIVITY

Description

VcMMAE (mc-vc-PAB-MMAE) is a drug-linker conjugate for ADC with potent antitumor activity by using the anti-mitotic agent, monomethyl auristatin E (MMAE, a tubulin inhibitor), linked via the lysosomally cleavable dipeptide, valine-citrulline (vc).

IC_{50} & Target

Auristatin

In Vitro

Monomethyl auristatin E (MMAE) is efficiently released from SGN-35 within $CD30^+$ cancer cells and, due to its membrane permeability, is able to exert cytotoxic activity on bystander cells[1]. MMAE sensitized colorectal and pancreatic cancer cells to IR in a schedule and dose dependent manner correlating with mitotic arrest. Radiosensitization is evidenced by decreased clonogenic survival and increased DNA double strand breaks in irradiated cells[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Monomethyl auristatin E (MMAE) in combination with IR results in tumor growth delay, tumor-targeted ACPP-cRGD-MMAE with IR produces a more robust and significantly prolonged tumor regression in xenograft models[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	Monomethyl auristatin E (MMAE, 5 nM) and ionizing radiation (IR) treated cells are harvested and lysed in RIPA buffer with protease and phosphatase inhibitors. 30μg of lysate undergo electrophoresis using 4-12% Bis-Tris gels, transferred to PVDF membranes and incubated with indicated primary antibodies. Blots are developed by ECL. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	6-8 week old female athymic nu/nu mice are injected subcutaneously into thighs with 5×10^6 HCT-116 or PANC-1 cells in a 1:1 Matrigel and PBS solution. Mice are treated with IR or intravenous (IV) injection of ACPP-cRGD-MMAE (6 nmoles/day, 18 nmoles total, i.v.), tumor tissue is harvested, formalin fixed and paraffin embedded followed by staining with indicated antibodies. The primary antibody is used at a 1:250 dilution and is visualized using DAB as a chromagen with the UltraMap system. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Clin Cancer Res. 2021 Jun 1;27(11):3224-3233.
- Biomater Sci. 2020 Jul 21;8(14):3935-3943.
- Cancers (Basel). 2020 Oct 15;12(10):2992.
- MAbs. 2020 Jan-Dec;12(1):1702262.
- MAbs. 2019 Jan;11(1):153-165.

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REFERENCES

[1]. Okeley, et al. Intracellular Activation of SGN-35, a Potent Anti-CD30 Antibody-Drug Conjugate. Clinical Cancer Research (2010), 16(3), 888-897.

[2]. Lisa Buckel, et al. Tumor radiosensitization by monomethyl auristatin E: mechanism of action and targeted delivery. Cancer Res. 2015 Apr 1;75(7):1376-87.

[3]. Jianmin Fang, et al. Anti-her2 antibody and conjugate thereof. US 20160304621 A1.

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