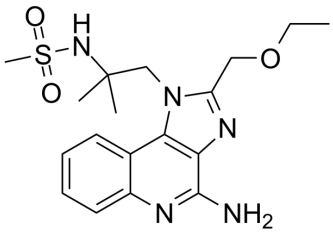
3M-011

Cat. No.:	HY-121496
CAS No.:	642473-62-9
Molecular Formula:	$C_{18}H_{25}N_5O_3S$
Molecular Weight:	391.49
Target:	Toll-like Receptor (TLR); Influenza Virus
Pathway:	Immunology/Inflammation; Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

3M-011 is a potent dual toll-like receptor TLR7/8 agonist and a cytokine inducer. 3M-011 significantly inhibits H3N2 influenza viral replication in the nasal cavity. 3M-011 is also a potent adjuvant to radiotherapy that induces local and profound systemic immune responses during radiotherapy. 3M-011 strongly has antitumor action[1][2][3].

IC_{50} & Target	TLR7	TLR8	H3N2 influenza viral

In Vitro

3M-011 (0-100 μg/mL; 24 hours; B16-F10 melanoma cells) treatment can decrease B16-F10 melanoma cell counts[1].
3M-011 potentiates natural killer (NK) cells cytotoxicity[1].
The NF-κB reporter is stably integrated into HEK-293 cells that are subsequently transiently transfected with human or mouse TLR7 or TLR8. With all the TLRs tested, except mouse TLR8, stimulation with 3M-011 results in a dose-dependent induction of NF-κB-controlled luciferase activity. 3M-011 in humans activates both TLR7 and TLR8, whereas in mice, 3M011 activates only TLR7 and not TLR8[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cytotoxicity Assay[1]

Cell Line:	B16-F10 melanoma cells
Concentration:	0 μg/mL, 1 μg/mL, 10 μg/mL, 33 μg/mL, 67 μg/mL, 100 μg/mL
Incubation Time:	24 hours
Result:	Decreased B16-F10 melanoma cell counts.

In Vivo

3M-011 (1 mg/kg; intravenous injection; every other day with six doses; female scid/NOD mice) treatment shows antitumor effects in scid/NOD mice bearing B16-F10 cells[1].
Wild-type C57BL/6 mice are injected subcutaneously with different doses of 3M-011 (0.01 mg/kg, 0.1 mg/kg, 1 mg/kg, or 10 mg/kg). 3M-011 induces a dose-dependent increase in serum concentrations of both TNF-α and IFN-α/β[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female scid/NOD mice (8-12-week-old) injected with B16-F10 cells[1]
Dosage:	1 mg/kg

Administration:	Intravenous injection; every other day with six doses
Result:	Had antitumor effects in scid/NOD mice bearing B16-F10 cells.

REFERENCES

[1]. Dumitru CD, et al. NK1.1+ cells mediate the antitumor effects of a dual Toll-like receptor 7/8 agonist in the disseminated B16-F10 melanoma model. Cancer Immunol Immunother. 2009 Apr;58(4):575-87.

[2]. Hammerbeck DM, et al. Administration of a dual toll-like receptor 7 and toll-like receptor 8 agonist protects against influenza in rats. Antiviral Res. 2007 Jan;73(1):1-11.

[3]. Schölch S, et al. Radiotherapy combined with TLR7/8 activation induces strong immune responses against gastrointestinal tumors. Oncotarget. 2015 Mar 10;6(7):4663-76.

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