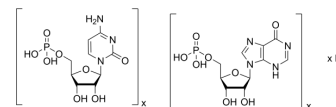


Polyinosinic-polycytidylic acid potassium

Cat. No.:	HY-134958
CAS No.:	31852-29-6
Molecular Formula:	$(C_{10}H_{13}N_4O_8P)_x \cdot (C_9H_{14}N_3O_8P)_x \cdot xK$
Target:	Apoptosis; Toll-like Receptor (TLR)
Pathway:	Apoptosis; Immunology/Inflammation
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	<p>Polyinosinic-polycytidylic acid potassium (Poly(I:C) potassium) is a synthetic analog of double-stranded RNA and an agonist of toll-like receptor 3 (TLR3) and retinoic acid inducible gene I (RIG-I)-like receptors (RIG-I and MDA5). Polyinosinic-polycytidylic acid sodium can be used as a vaccine adjuvant to enhance innate and adaptive immune responses, and to alter the tumor microenvironment. Polyinosinic-polycytidylic acid potassium can directly trigger cancer cells to undergo Apoptosis^{[1][2][3]}.</p>													
IC₅₀ & Target	TLR3	TLR3												
In Vitro	<p>Polyinosinic-polycytidylic acid potassium (20 ng/mL; 24 hours; WM793, WM278, WM239A, WM9 and 1205Lu cells) inhibits cell growth^[1].</p> <p>Polyinosinic-polycytidylic acid potassium (200 ng/mL; 24 hours; 1205Lu cells) induces apoptosis in 1205Lu cells^[1].</p> <p>Polyinosinic-polycytidylic acid potassium (3 ng/mL; 24 hours; 1205Lu cells) induces IFN-β expression in melanoma cells. Silencing of RIG-I and MDA-5 confirmed that induction of IFN-β by Polyinosinic-polycytidylic acid required RIG-I and MDA-5, respectively, and that required IPS-1^[1].</p> <p>Polyinosinic-polycytidylic acid potassium is prepared for injection by resuspending in sterile saline, heating to 50 °C at a concentration of 2 mg/ml to ensure complete solubilisation and then allowing to cool naturally to room temperature to ensure proper annealing of double-stranded RNA. Poly I:C is stored at -20 °C until use^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay^[1]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cell Line:</td> <td>WM793, WM278, WM239A, WM9 and 1205Lu cells</td> </tr> <tr> <td>Concentration:</td> <td>20 ng/mL</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours</td> </tr> <tr> <td>Result:</td> <td>Strongly reduced viability from 100% in controls to 20%–50% within 24 hours.</td> </tr> </table> <p>Apoptosis Analysis^[1]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cell Line:</td> <td>1205Lu cells</td> </tr> <tr> <td>Concentration:</td> <td>200 ng/mL</td> </tr> </table>		Cell Line:	WM793, WM278, WM239A, WM9 and 1205Lu cells	Concentration:	20 ng/mL	Incubation Time:	24 hours	Result:	Strongly reduced viability from 100% in controls to 20%–50% within 24 hours.	Cell Line:	1205Lu cells	Concentration:	200 ng/mL
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Incubation Time:	24 hours
Result:	Induced apoptosis in 1205Lu cells.
RT-PCR ^[1]	
Cell Line:	WM793, WM278, WM239A, WM9 and 1205Lu cells
Concentration:	3 ng/mL
Incubation Time:	24 hours
Result:	Induced IFN- β expression in melanoma cells.
Western Blot Analysis ^[1]	
Cell Line:	1205Lu cells
Concentration:	5 ng/mL
Incubation Time:	24 hours
Result:	Revealed active subunits of caspase-9 and caspase-8 in melanoma cells.

In Vivo

Polyinosinic-polycytidylic acid potassium (50 μ g; i.v.; on days 3, 6, and 9 after tumor inoculation) shows antitumor activity in NOD/SCID immunodeficient mice^[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	NOD/SCID immunodeficient mice (1205Lu cells) ^[1]
Dosage:	50 μ g
Administration:	I.v.; on days 3, 6, and 9 after tumor inoculation
Result:	Reduced the size of metastases and the total amount of tumor tissue, and the level of human DNA was 50% lower in mice.

CUSTOMER VALIDATION

- Adv Funct Mater. 29 August 2022.
- Chem Eng J. 2021, 129392.
- Liver Int. 2022 Oct 17.
- Phytomedicine. 2021, 153495.
- Mol Ther Oncolytics. 25 August 2022.

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REFERENCES

[1]. Besch R, et al. Proapoptotic signaling induced by RIG-I and MDA-5 results in type I interferon-independent apoptosis in human melanoma cells. J Clin Invest. 2009 Aug;119(8):2399-411.

[2]. Cheng YS, et al. Anticancer function of polyinosinic-polycytidylic acid. *Cancer Biol Ther*. 2010 Dec 15;10(12):1219-23.

[3]. Robert Field, et al. Systemic challenge with the TLR3 agonist poly I:C induces amplified IFN α /beta and IL-1beta responses in the diseased brain and exacerbates chronic neurodegeneration. *Brain Behav Immun*. 2010 Aug;24(6):996-1007.

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

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