

<b>Product Name:</b>	2'-C-Methylcytidine
<b>Product Number:</b>	C213
<b>CAS Number:</b>	20724-73-6
<b>Molecular Formula:</b>	$C_{10}H_{15}N_3O_5$
<b>Molecular Weight:</b>	257.24
<b>Form:</b>	Powder
<b>Appearance:</b>	off-white powder
<b>Solubility:</b>	sparingly soluble in water.
<b>Description:</b>	2'-C-Methylcytidine (2CMC) is a viral replication inhibitor, shown to be active against multiple viruses including hepatitis C virus (HCV), inhibiting the HCV NS5B RNA polymerase. It is also used against other viruses including Norwalk, West Nile, dengue, foot-and-mouth, and yellow fever. It is sparingly soluble in water.
<b>Mechanism of Action:</b>	<p>2'-C-Methylcytidine has been shown to be a small-molecule inhibitor of viral nucleoside polymerase. In hepatitis C virus, it inhibits HCV NS5B RNA polymerase.</p> <p>In studies with foot-and-mouth disease, experiments suggest that the compound interacts with the viral replication that coincides with the onset of intracellular viral RNA synthesis.</p>
<b>Spectrum:</b>	Antiviral spectra includes Hepatitis C virus (HCV), Norwalk virus, pestivirus bovine viral diarrhea virus. It is also effective for three flaviviruses including yellow fever virus, West Nile virus, and Dengue-2 virus. It has <i>in vitro</i> activity against foot-and-mouth disease virus and yellow fever virus.
<b>Microbiology Applications</b>	<p>NM 283 is an efficient prodrug of 2'-C-methylcytidine. It is an 3'-O-L-valinyl ester derivative. It is a promising antiviral for HCV infection (Pierra et al, 2011).</p> <p>Studies in a cell-based replicon assay indicated that several of the phosphoramidates including NM283 demonstrated a 10- to 200-fold potency due to higher levels of 2'-C-methylcytidine triphosphate in the cells. These prodrugs are converted to the triphosphate in hepatocytes (Gardelli et al, 2009).</p>

**References:**

- Gardelli et al (2009) Phosphoramidate prodrugs of 2'-C-methylcytidine for therapy of Hepatitis C virus infection. *J. Med. Chem.* 52(17):5394-5407 PMID 19725579
- Julander JG et al (2010) Efficacy of 2'-C-methylcytidine against yellow fever virus in cell culture and in a hamster model. *Antivir. Res.* 86(3):261-267 PMID 20227442
- Nesya G et al (2007) 2'-C-Methylcytidine as a potent and selective inhibitor of the replication of foot-and-mouth disease virus. *Antiviral Res.* 73(3):161-168 PMID 17055073
- Lee J et al (2015) Characterization of the activity of 2'-C-methylcytidine against dengue virus replication. *Antiviral Res.* 116:1-9 PMID 25614455
- Pierra et al (2006) Synthesis and pharmacokinetics of Valopicitabine (NM283), an efficient prodrug of the potent anti-HCV agent 2'-C-methylcytidine. *J. Med. Chem.* 49(22):6614-6620 PMID 17064080
- Pierra C et al (2011) NM 283, An efficient prodrug of the potent anti-HCV agent 2'-C-Methylcytidine. *Nucleosides, Nucleotides and Nucl. Acids* 24(5-7):767-770
- Rocha-Pereira JD et al (2013) The viral polymerase inhibitor 2'-C-Methylcytidine inhibits Norwalk virus replication and protects against Norovirus-induced diarrhea and mortality in a mouse model. *J. Virol.* 87(21):11798-1805 PMID 23986582

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