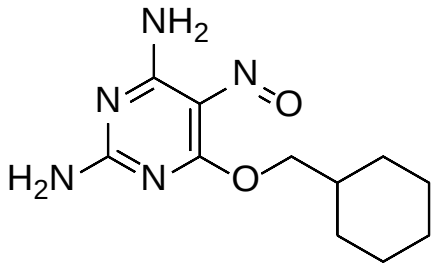
Product data sheet

MedKoo Cat#: 406385 Name: NU6027 CAS: 220036-08-8 Chemical Formula: $C_{11}H_{17}N_5O_2$ Exact Mass: 251.1382 Molecular Weight: 251.29	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

NU6027 is a potent inhibitor of cellular ATR activity (IC(50)=6.7 μM) and enhanced hydroxyurea and cisplatin cytotoxicity in an ATR-dependent manner. NU6027 attenuated G2/M arrest following DNA damage, inhibited RAD51 focus formation and increased the cytotoxicity of the major classes of DNA-damaging anticancer cytotoxic therapy but not the antimitotic, paclitaxel. In A2780 cells sensitisation to cisplatin was greatest in cells with functional p53 and mismatch repair (MMR) and sensitisation to temozolomide was greatest in p53 mutant cells with functional MMR. Importantly, NU6027 was synthetically lethal when DNA single-strand break repair is impaired either through poly(ADP-ribose) polymerase (PARP) inhibition or defects in XRCC1. NU6027 inhibits ATR, impairing G2/M arrest and homologous recombination thus increasing sensitivity to DNA-damaging agents and PARP inhibitors. It provides proof of concept data for clinical development of ATR inhibitors.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	5.0	19.90
DMSO	24.17	96.17
DMSO:PBS (pH 7.2) (1:2)	0.3	1.19
Ethanol	2.0	7.96

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	3.98 mL	19.90 mL	39.80 mL
5 mM	0.80 mL	3.98 mL	7.96 mL
10 mM	0.40 mL	1.99 mL	3.98 mL
50 mM	0.08 mL	0.40 mL	0.80 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Peasland A, Wang LZ, Rowling E, Kyle S, Chen T, Hopkins A, Cliby WA, Sarkaria J, Beale G, Edmondson RJ, Curtin NJ. Identification and evaluation of a potent novel ATR inhibitor, NU6027, in breast and ovarian cancer cell lines. Br J Cancer. 2011 Jul 26;105(3):372-81. doi: 10.1038/bjc.2011.243. Epub 2011 Jul 5. PMID: 21730979; PMCID: PMC3172902.

2. Arris CE, Boyle FT, Calvert AH, Curtin NJ, Endicott JA, Garman EF, Gibson AE, Golding BT, Grant S, Griffin RJ, Jewsbury P, Johnson LN, Lawrie AM, Newell DR, Noble ME, Sausville EA, Schultz R, Yu W. Identification of novel purine and pyrimidine cyclin-dependent kinase inhibitors with distinct molecular interactions and tumor cell growth inhibition profiles. J Med Chem. 2000 Jul 27;43(15):2797-804. doi: 10.1021/jm990628o. PMID: 10956187.

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In vivo study

1. Park MK, Choi BY, Kho AR, Lee SH, Hong DK, Jeong JH, Kang DH, Kang BS, Suh SW. Effects of Transient Receptor Potential Cation 5 (TRPC5) Inhibitor, NU6027, on Hippocampal Neuronal Death after Traumatic Brain Injury. Int J Mol Sci. 2020 Nov 4;21(21):8256. doi: 10.3390/ijms21218256. PMID: 33158109; PMCID: PMC7662546.

7. Bioactivity

Biological target:

NU6027 is a potent and ATP-competitive inhibitor of both CDK1 and CDK2, with K_is of 2.5 μM and 1.3 μM.

In vitro activity

NU6027 is a potent inhibitor of cellular ATR activity (IC(50)=6.7 μM) and enhanced hydroxyurea and cisplatin cytotoxicity in an ATR-dependent manner. NU6027 attenuated G2/M arrest following DNA damage, inhibited RAD51 focus formation and increased the cytotoxicity of the major classes of DNA-damaging anticancer cytotoxic therapy but not the antimitotic, paclitaxel. Importantly, NU6027 was synthetically lethal when DNA single-strand break repair is impaired either through poly(ADP-ribose) polymerase (PARP) inhibition or defects in XRCC1.

Reference: Br J Cancer. 2011 Jul 26;105(3):372-81. https://pubmed.ncbi.nlm.nih.gov/21730979/

In vivo activity

After the TBI, this study immediately injected NU6027 (1 mg/kg, intraperitoneal), TRPC5 inhibitor, and then sacrificed rats 24 h later. This study conducted Fluoro-Jade B (FJB) staining to confirm the presence of degenerating neurons in the hippocampal cornus ammonis 3 (CA3). After the TBI, the degenerating neuronal cell count was decreased in the NU6027-treated group compared with the vehicle-treated group.

Reference: Int J Mol Sci. 2020 Nov 4;21(21):8256. https://pubmed.ncbi.nlm.nih.gov/33158109/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.