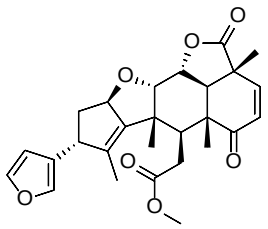
Product data sheet

MedKoo Cat#: 564554 Name: Nimbolide CAS: 25990-37-8 Chemical Formula: $C_{27}H_{30}O_7$ Exact Mass: 466.1992 Molecular Weight: 466.53	
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:
Nimbolide is a natural inhibitor of pancreatic cancer growth and metastasis through ROS-mediated apoptosis. It inhibits epithelial-to-mesenchymal transition.

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	12.0	25.72
DMF:PBS (pH 7.2) (1:1)	0.5	1.07
DMSO	35.88	76.92

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.14 mL	10.72 mL	21.44 mL
5 mM	0.43 mL	2.14 mL	4.29 mL
10 mM	0.21 mL	1.07 mL	2.14 mL
50 mM	0.04 mL	0.21 mL	0.43 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. Tong B, Spradlin JN, Novaes LFT, Zhang E, Hu X, Moeller M, Brittain SM, McGregor LM, McKenna JM, Tallarico JA, Schirle M, Maimone TJ, Nomura DK. A Nimbolide-Based Kinase Degrader Preferentially Degrades Oncogenic BCR-ABL. ACS Chem Biol. 2020 Jul 17;15(7):1788-1794. doi: 10.1021/acschembio.0c00348. Epub 2020 Jun 25. PMID: 32568522; PMCID: PMC7891886.
2. Spradlin JN, Hu X, Ward CC, Brittain SM, Jones MD, Ou L, To M, Proudfoot A, Ornelas E, Woldegiorgis M, Olzmann JA, Bussiere DE, Thomas JR, Tallarico JA, McKenna JM, Schirle M, Maimone TJ, Nomura DK. Harnessing the anti-cancer natural product nimbolide for targeted protein degradation. Nat Chem Biol. 2019 Jul;15(7):747-755. doi: 10.1038/s41589-019-0304-8. Epub 2019 Jun 17. PMID: 31209351; PMCID: PMC6592714.

In vivo study

1. Israr M, Naseem N, Akhtar T, Aftab U, Zafar MS, Faheem MA, Shahzad M. Nimbolide attenuates complete Freund's adjuvant induced arthritis through expression regulation of toll-like receptors signaling pathway. Phytother Res. 2023 Mar;37(3):903-912. doi: 10.1002/ptr.7672. Epub 2022 Nov 27. PMID: 36437579.

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2. Chitta K, Paulus A, Caulfield TR, Akhtar S, Blake MK, Ailawadhi S, Knight J, Heckman MG, Pinkerton A, Chanan-Khan A. Nimbolide targets BCL2 and induces apoptosis in preclinical models of Waldenströms macroglobulinemia. Blood Cancer J. 2014 Nov 7;4(11):e260. doi: 10.1038/bcj.2014.74. PMID: 25382610; PMCID: PMC5424099.

7. Bioactivity

Biological target:

Nimbolide induces apoptosis through inactivation of NF-κB. Nimbolide inhibits CDK4/CDK6 kinase activity. Nimbolide suppresses the NF-κB, Wnt, PI3K-Akt, MAPK and JAK-STAT signaling pathways.

In vitro activity

Nimbolide impairs breast cancer cell proliferation in-part by disrupting RNF114-substrate recognition, leading to inhibition of ubiquitination and degradation of tumor suppressors such as p21, resulting in their rapid stabilization. This study further demonstrates that nimbolide can be harnessed to recruit RNF114 as an E3 ligase in targeted protein degradation applications and show that synthetically simpler scaffolds are also capable of accessing this unique reactive site.

Reference: Nat Chem Biol. 2019 Jul;15(7):747-755. https://pubmed.ncbi.nlm.nih.gov/31209351/

In vivo activity

Lastly, intraperitoneal administration of nimbolide in WM tumor xenografted mice, significantly reduced tumor growth and IgM secretion in vivo, while modulating the expression of several proteins as seen on immunohistochemistry.

Reference: Blood Cancer J. 2014 Nov 7;4(11):e260. https://pubmed.ncbi.nlm.nih.gov/25382610/

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.