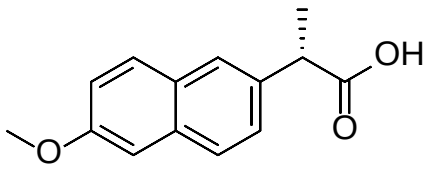
Product data sheet

MedKoo Cat#: 318350 Name: Naproxen CAS: 22204-53-1 Chemical Formula: $C_{14}H_{14}O_3$ Exact Mass: 230.0943 Molecular Weight: 230.2592	
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:
Naproxen is a nonsteroidal anti-inflammatory drug (NSAID) of the propionic acid class (the same class as ibuprofen) that relieves pain, fever, swelling, and stiffness:665,673 It is a nonselective COX inhibitor.

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
DMSO	73.0	317.03
PBS (pH 7.2)	1.0	4.34
Water	75.0	325.72

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	4.34 mL	21.71 mL	43.43 mL
5 mM	0.87 mL	4.34 mL	8.69 mL
10 mM	0.43 mL	2.17 mL	4.34 mL
50 mM	0.09 mL	0.43 mL	0.87 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. Wu Y, Hao R, Lan B, Mu Y, Dang F, Wang R. The protective effects of naproxen against interleukin-1β (IL-1β)- induced damage in human umbilical vein endothelial cells (HUVECs). Bioengineered. 2021 Dec;12(1):5361-5372. doi: 10.1080/21655979.2021.1955560. PMID: 34427537; PMCID: PMC8806478.
2. Terrier O, Dilly S, Pizzorno A, Chalupska D, Humpolickova J, Bouřa E, Berenbaum F, Quideau S, Lina B, Fève B, Adnet F, Sabbah M, Rosa-Calatrava M, Maréchal V, Henri J, Slama-Schwok A. Antiviral Properties of the NSAID Drug Naproxen Targeting the Nucleoprotein of SARS-CoV-2 Coronavirus. Molecules. 2021 Apr 29;26(9):2593. doi: 10.3390/molecules26092593. PMID: 33946802; PMCID: PMC8124269.

In vivo study

1. Paglia DN, Kanjilal D, Kadkoy Y, Moskonas S, Wetterstrand C, Lin A, Galloway J, Tompson J, Culbertson MD, O'Connor JP. Naproxen treatment inhibits articular cartilage loss in a rat model of osteoarthritis. J Orthop Res. 2021 Oct;39(10):2252-2259. doi: 10.1002/jor.24937. Epub 2020 Dec 15. PMID: 33274763; PMCID: PMC8175455.
2. Kumar G, Madka V, Singh A, Farooqui M, Stratton N, Lightfoot S, Mohammed A, Rao CV. Naproxen inhibits spontaneous lung adenocarcinoma formation in KrasG12V mice. Neoplasia. 2021 Jun;23(6):574-583. doi: 10.1016/j.neo.2021.05.010. Epub 2021 Jun 3. PMID: 34091121; PMCID: PMC8187931.

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7. Bioactivity

Biological target:

Naproxen is a COX-1 and COX-2 inhibitor with IC_{50}s of 8.72 and 5.15 μM.

In vitro activity

These findings indicate that naproxen could protect against IL-1β-induced damage by improving cell viability and preventing cell death. Additionally, naproxen suppressed the expression of the cytokines IL-6, IL-12, and tumor necrosis factor-α (TNF-α), and downregulated the expression of vascular endothelial growth factor (VEGF) and tissue factor (TF) induced by IL-1β. Importantly, naproxen also inhibited the attachment of monocytes to endothelial cells, which was achieved through Krüppel-like factor 6 (KLF6)-mediated reduced expression of intracellular adhesion molecule-1 (ICAM-1) and E-selectin.

Reference: Bioengineered. 2021 Dec;12(1):5361-5372. https://pubmed.ncbi.nlm.nih.gov/34427537/

In vivo activity

Six-week-old transgenic $Kras^{G12V}$ mice (n = 20; male + female) were fed modified AIN-76A diets containing naproxen (0/400 ppm) for 30 wk and euthanized at 36 wk of age. Administration of naproxen (400 ppm) inhibited lung tumor multiplicity by ~52% (9.4 ± 0.85; P < 0001) and adenocarcinoma by ~64% (6.1 ± 0.6; P < 0001), compared with control-diet-fed mice. Biomarker analysis showed significantly reduced inflammation (COX-2, IL-10), reduced tumor cell proliferation (PCNA, cyclin D1), and increased apoptosis (p21, caspase-3) in the lung tumors exposed to naproxen. Decreased serum levels of PGE_2 and CXCR4 were observed in naproxen diet fed $Kras^{G12V}$ mice.

Reference: Neoplasia. 2021 Jun;23(6):574-583. https://pubmed.ncbi.nlm.nih.gov/34091121/

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.