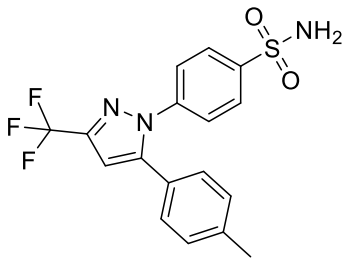
Product data sheet

MedKoo Cat#: 200700 Name: Celecoxib CAS#: 169590-42-5 Chemical Formula: $C_{17}H_{14}F_3N_3O_2S$ Exact Mass: 381.07588 Molecular Weight: 381.37	
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:
Celecoxib, also known as SC-58635 and YM-177, is a COX-2 selective nonsteroidal anti-inflammatory drug (NSAID). It is used to treat the pain and inflammation of osteoarthritis, rheumatoid arthritis, ankylosing spondylitis, acute pain in adults, painful menstruation, and juvenile rheumatoid arthritis in people two years or older.

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	63.0	165.19
DMF	25.0	65.55
Ethanol	29.0	76.04
Ethanol:PBS (pH 7.2) (1:4)	0.2	0.52

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.62 mL	13.11 mL	26.22 mL
5 mM	0.52 mL	2.62 mL	5.24 mL
10 mM	0.26 mL	1.31 mL	2.62 mL
50 mM	0.05 mL	0.26 mL	0.52 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. Yoshida H, Yoshimura H, Matsuda S, Yamamoto S, Ohmori M, Ohta K, Ryoke T, Itoi H, Kiyoshima T, Kobayashi M, Sano K. Celecoxib suppresses lipopolysaccharide-stimulated oral squamous cell carcinoma proliferation in vitro and in vivo. Oncol Lett. 2019 Dec;18(6):5793-5800. doi: 10.3892/ol.2019.10975. Epub 2019 Oct 10. PMID: 31788052; PMCID: PMC6865759.
2. Costela-Ruiz VJ, Melguizo-Rodríguez L, Illescas-Montes R, Ramos-Torrecillas J, Manzano-Moreno FJ, Ruiz C, Bertos EL. Effects of Therapeutic Doses of Celecoxib on Several Physiological Parameters of Cultured Human Osteoblasts. Int J Med Sci. 2019 Sep 20;16(11):1466-1472. doi: 10.7150/ijms.37857. PMID: 31673238; PMCID: PMC6818209.

In vivo study

1. Yeh CC, Liao PY, Pandey S, Yung SY, Lai HC, Jeng LB, Chang WC, Ma WL. Metronomic Celecoxib Therapy in Clinically Available Dosage Ablates Hepatocellular Carcinoma via Suppressing Cell Invasion, Growth, and Stemness in Pre-Clinical Models. Front Oncol. 2020 Oct 21;10:572861. doi: 10.3389/fonc.2020.572861. PMID: 33194674; PMCID: PMC7609882.

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2. Ouyang N, Zhao Y, Chen Q, Chen L, Fang B, Dai J, Shen G. The effect of celecoxib in traumatic heterotopic ossification around temporomandibular joint in mice. Osteoarthritis Cartilage. 2020 Apr;28(4):502-515. doi: 10.1016/j.joca.2020.01.014. Epub 2020 Feb 14. PMID: 32061965.

7. Bioactivity

Biological target:

Celecoxib is a selective COX-2 inhibitor with an IC50 of 40 nM.

In vitro activity

LPS (lipopolysaccharide) treatment for 24 and 48 h increased the viability of HSC-3 cells ($P<0.01$; Fig. 1A); whereas, celecoxib decreased cell viability in a dose- and time-dependent manner ($P<0.01$; Fig. 1B), indicating that the cells were sensitive to celecoxib. The proliferation of LPS-treated HSC-3 cells was significantly inhibited by treatment with celecoxib (100 μM for 48 h) ($P<0.01$; Fig. 1C). The protein expression levels of COX-2 and p53 with/without celecoxib treatment were also examined in HSC-3 cells via western blotting. Compared with untreated cells, treatment of HSC-3 cells with 100 μM celecoxib downregulated the protein expression levels of COX-2 after 12 h, but there was little change in p53 expression levels (Fig. 1D). The COX-2/β-actin ratios in the HSC-3 cells were significantly decreased by the celecoxib treatment (Fig. 1E).

Reference: Oncol Lett. 2019 Dec; 18(6): 5793–5800. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6865759/

In vivo activity

To test the in vivo chemopreventive effect of metronomic Celecoxib on seeded cancer, this study implanted syngeneic HCC cells into bilateral flanks of C57BL/6 mice that were fed by either metronomic Celecoxib (n = 18 sites) or placebo (n = 16 sites) as protocol (Figure 1A). The bodyweight of both groups was comparable that may imply metronomic Celecoxib therapy did not impair the general physiologic status of mice (e.g., growth and intake) (Figure 1B). However, tumor size of implanted syngeneic HCC was significantly reduced in the “metronomic Celecoxib” group compared to the placebo group (tumor volume on post-implant day 37 [mean ± SEM] = 539.8 ± 135.8 mm3 vs. 1138.0 ± 175.0 mm3, $P < 0.05$) (Figures 1C, D). H&E stating at comparable-sized HCCs showed a significant central necrosis in the “metronomic Celecoxib” group compared to the placebo group (Figure 1E).

Reference: Front Oncol. 2020; 10: 572861. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7609882/

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.