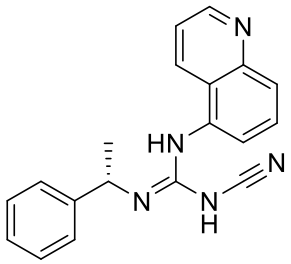
Product data sheet

MedKoo Cat#: 530351 Name: A-804598 CAS#: 1125758-85-1 Chemical Formula: $C_{19}H_{17}N_5$ Exact Mass: 315.1484 Molecular Weight: 315.38	
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:
A-804598 is a P2X7 selective, competitive antagonist.

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	39.14	124.10
DMSO:PBS (pH 7.2) (1:20)	0.05	0.16
DMF	30.0	95.12
Ethanol	6.0	19.02

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	3.17 mL	15.85 mL	31.71 mL
5 mM	0.63 mL	3.17 mL	6.34 mL
10 mM	0.32 mL	1.59 mL	3.17 mL
50 mM	0.06 mL	0.32 mL	0.63 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. Liu Y, Wu Y, Gu S, Yin Q, Li H, Wang J, Geng D, Xu Y. The P2X7 receptor (P2X7R)-specific antagonist A804598 inhibits inflammatory reaction in human fibroblast-like synoviocytes. Am J Transl Res. 2020 Jan 15;12(1):45-53. PMID: 32051736; PMCID: PMC7013224.
2. Donnelly-Roberts DL, Namovic MT, Surber B, Vaidyanathan SX, Perez-Medrano A, Wang Y, Carroll WA, Jarvis MF. [3H]A-804598 ([3H]2-cyano-1-[(1S)-1-phenylethyl]-3-quinolin-5-ylguanidine) is a novel, potent, and selective antagonist radioligand for P2X7 receptors. Neuropharmacology. 2009 Jan;56(1):223-9. doi: 10.1016/j.neuropharm.2008.06.012. Epub 2008 Jun 17. PMID: 18602931.

In vivo study

1. Freire D, Reyes RE, Baghram A, Davies DL, Asatryan L. P2X7 Receptor Antagonist A804598 Inhibits Inflammation in Brain and Liver in C57BL/6J Mice Exposed to Chronic Ethanol and High Fat Diet. J Neuroimmune Pharmacol. 2019 Jun;14(2):263-277. doi: 10.1007/s11481-018-9816-3. Epub 2018 Oct 23. PMID: 30353422; PMCID: PMC6494709.

2. Catanzaro JM, Hueston CM, Deak MM, Deak T. The impact of the P2X7 receptor antagonist A-804598 on neuroimmune and behavioral consequences of stress. Behav Pharmacol. 2014 Sep;25(5-6):582-98. doi: 10.1097/FBP.0000000000000072. PMID: 25083574.

7. Bioactivity

Biological target:

A-804598 is a CNS penetrant, competitive and selective P2X7 receptor antagonist with IC50s of 9 nM, 10 nM and 11 nM for mouse, rat and human P2X7 receptors, respectively.

In vitro activity

To determine the involvement of P2X7R in activation of JAK1/STAT3 signaling, this study exposed FLSs to 10 ng/mL TNF-α in the presence or absence of 10 and 20 μM A804598 for 2 h. Using β-actin as a control, the results of western blot analysis in Figure 8 show that TNF-α induced significant phosphorylation of both JAK1 and STAT3 protein by approximately 5-fold basal levels, while total JAK1 and STAT3 remained constant. However, treatment with A804598 could ameliorate TNF-α-induced phosphorylation of JAK1/STAT3 in a dose-dependent manner, with the higher dose reducing p-JAK1/STAT3 to roughly 2-fold basal levels. These findings suggest a novel role of A804598 in ameliorating inflammation via modulation of the JAK1/STAT3 signaling pathway.

Reference: Am J Transl Res. 2020; 12(1): 45–53. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7013224/

In vivo activity

H&E staining showed significant liver steatosis after Hybrid exposure (Fig. 7a). There was a large increase in fat deposits calculated as the ratio of white areas versus background color with the adjusted threshold. A804598 treatment did not affect the extent of the steatosis (Fig. 7a). Hybrid exposure caused increases in pro-inflammatory markers in liver. There were significant increases in mRNA for Tnfα, Ccl2 and Nos2. These increases were abolished by administration of A804598 (Fig. 7b).

Reference: J Neuroimmune Pharmacol. 2019 Jun; 14(2): 263–277. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6494709/

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.