# Product data sheet

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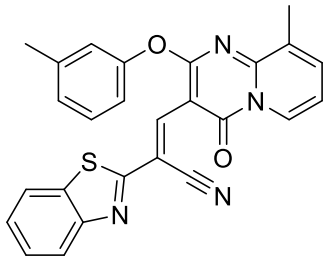
|---|---|
| MedKoo Cat#: 526715<br>Name: CCG-63802<br>CAS#: 620112-78-9<br>Chemical Formula: $C_{26}H_{18}N_4O_2S$<br>Exact Mass: 450.115<br>Molecular Weight: 450.516 |  |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. |
| | In solvent: -80°C 3 months; -20°C 2 weeks. |

**1. Product description:**

CCG-63802 is a potent and reversible inhibitor of RGS protein. CCG-63802 inhibits the interaction between RGS4 and Galpha(o) with an IC(50) value in the low micromolar range. CCG-63802 shows selectivity among RGS proteins with a potency order of RGS 4 > 19 = 16 > 8 >> 7. CCG-63802 inhibits the GTPase accelerating protein activity of RGS4, and thermal stability studies demonstrate binding to the RGS but not to Galpha(o). CCG-63802 represents a useful step toward the development of chemical tools for the study of RGS physiology.

**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 | 1.67 | 3.71 |

**4. Stock solution preparation table:**

| Concentration / Solvent Volume / Mass | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.22 mL | 11.10 mL | 22.20 mL |
| 5 mM | 0.44 mL | 2.22 mL | 4.44 mL |
| 10 mM | 0.22 mL | 1.11 mL | 2.22 mL |
| 50 mM | 0.04 mL | 0.22 mL | 0.44 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. Blazer LL, Roman DL, Chung A, Larsen MJ, Greedy BM, Husbands SM, Neubig RR. Reversible, allosteric small-molecule inhibitors of regulator of G protein signaling proteins. Mol Pharmacol. 2010 Sep;78(3):524-33. doi: 10.1124/mol.110.065128. Epub 2010 Jun 22. PMID: 20571077; PMCID: PMC2939488.

2. Dobrivojević M, Sinđić A, Edemir B, Kalweit S, Forssmann WG, Hirsch JR. Interaction between bradykinin and natriuretic peptides via RGS protein activation in HEK-293 cells. Am J Physiol Cell Physiol. 2012 Dec 15;303(12):C1260-8. doi: 10.1152/ajpcell.00033.2012. Epub 2012 Oct 10. PMID: 23054060.

In vivo study

1. Meng X, Sun X, Zhang Y, Shi H, Deng W, Liu Y, Wang G, Fang P, Yang S. PPARγ Agonist PGZ Attenuates OVA-Induced Airway Inflammation and Airway Remodeling via RGS4 Signaling in Mouse Model. Inflammation. 2018 Dec;41(6):2079-2089. doi: 10.1007/s10753-018-0851-2. PMID: 30022363.

**7. Bioactivity**

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Biological target:

CCG-63802 is a selective, reversible and allosteric RGS4 inhibitor. CCG-63802 specifically binds to RGS4 and blocks the RGS4-Gαo interaction, with an IC50 value of 1.9 μM.

In vitro activity

Two closely related compounds, typified by CCG-63802 [((2E)-2-(1,3-benzothiazol-2-yl)-3-[9-methyl-2-(3-methylphenoxy)-4-oxo-4H-pyrido[1,2-a]pyrimidin-3-yl]prop-2-enenitrile)], inhibit the interaction between RGS4 and Galpha(o) with an IC(50) value in the low micromolar range. They show selectivity among RGS proteins with a potency order of RGS 4 > 19 = 16 > 8 >> 7. The compounds inhibit the GTPase accelerating protein activity of RGS4, and thermal stability studies demonstrate binding to the RGS but not to Galpha(o). On RGS4, they depend on an interaction with one or more cysteines in a pocket that has previously been identified as an allosteric site for RGS regulation by acidic phospholipids. Unlike previous small-molecule RGS inhibitors identified to date, these compounds retain substantial activity under reducing conditions and are fully reversible on the 10-min time scale. CCG-63802 and related analogs represent a useful step toward the development of chemical tools for the study of RGS physiology.

Reference: Mol Pharmacol. 2010 Sep;78(3):524-33. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/20571077/

In vivo activity

Accompanied with OVA challenge, the mice received administration of PPARγ agonist PGZ (10 mg/kg) intragastrically or RGS4 inhibitor CCG 63802 (0.5 mg/kg) intratracheally. Invasive pulmonary function tests were performed 24 h after last challenge. Serum, bronchoalveolar lavage fluid (BALF), and lung tissues were collected for further analyses after the mice were sacrificed. It was found that PPARγ agonist PGZ administration significantly attenuated the pathophysiological features of OVA-induced asthma and increased the expression of RGS4. In addition, the attenuating effect of PGZ on airway inflammation, hyperresponsiveness (AHR), and remodeling was partially abrogated by administration of RGS4 inhibitor CCG 63802. It was also found that the downregulation of RGS4 by CCG 63802 also significantly increased inflammatory cell accumulation and AHR, and increased levels of IL-4, IL-13, eotaxin, IFN-γ, and IL-17A in BALF, and total and OV-specific IgE in serum. Furthermore, the inhibitory effects of PGZ on the activations of ERK and Akt/mTOR signaling, and MMPs were apparently reversed by CCG 63802 administration. In conclusion, the protective effect of PGZ on OVA-induced airway inflammation and remodeling might be partly regulated by RGS4 expression through ERK and Akt/mTOR signaling.

Reference: Inflammation. 2018 Dec;41(6):2079-2089. https://doi.org/10.1007/s10753-018-0851-2