# Product data sheet

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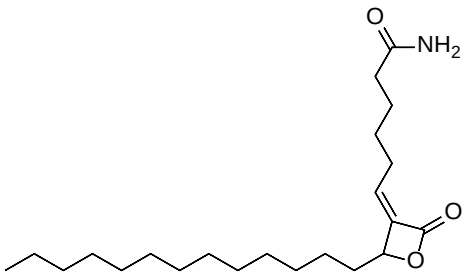
|---|---|
| MedKoo Cat#: 561252<br>Name: KC01<br>CAS#: 1646795-59-6<br>Chemical Formula: $C_{22}H_{39}NO_3$<br>Exact Mass: 365.2930<br>Molecular Weight: 365.56 | |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. |
| | In solvent: -80°C 3 months; -20°C 2 weeks. |




**1. Product description:**
KC01 is a covalent inhibitor of ABHD16A. ABHD16A is a phosphatidylserine (PS) lipase that generates lyso-PS in mammalian systems. KC01 can deplete lysoPSs from cells, including lymphoblasts derived from subjects with PHARC.

**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 | 5.0 | 13.68 |
| DMSO | 5.0 | 13.68 |
| Ethanol | 16.0 | 43.77 |
| Ethanol:PBS (pH 7.2) (1:5) | 0.50 | 1.37 |

**4. Stock solution preparation table:**

| **Concentration / Solvent Volume / Mass** | **1 mg** | **5 mg** | **10 mg** |
|---|---|---|---|
| 1 mM | 2.74 mL | 13.68 mL | 27.36 mL |
| 5 mM | 0.55 mL | 2.74 mL | 5.47 mL |
| 10 mM | 0.27 mL | 1.37 mL | 2.74 mL |
| 50 mM | 0.05 mL | 0.27 mL | 0.55 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. Kamat SS, Camara K, Parsons WH, Chen DH, Dix MM, Bird TD, Howell AR, Cravatt BF. Immunomodulatory lysophosphatidylserines are regulated by ABHD16A and ABHD12 interplay. Nat Chem Biol. 2015 Feb;11(2):164-71. doi: 10.1038/nchembio.1721. Epub 2015 Jan 12. PMID: 25580854; PMCID: PMC4301979.

In vivo study

1. Kamat SS, Camara K, Parsons WH, Chen DH, Dix MM, Bird TD, Howell AR, Cravatt BF. Immunomodulatory lysophosphatidylserines are regulated by ABHD16A and ABHD12 interplay. Nat Chem Biol. 2015 Feb;11(2):164-71. doi: 10.1038/nchembio.1721. Epub 2015 Jan 12. PMID: 25580854; PMCID: PMC4301979.

**7. Bioactivity**
Biological target: ABHD16A inhibitor.

In vitro activity

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Lysophosphatidylserines (lyso-PSs) are a class of signaling lipids that regulate immunological and neurological processes. It was determined that ABHD12 is a major brain lyso-PS lipase, implicating lyso-PSs in the neurological disease polyneuropathy, hearing loss, ataxia, retinitis pigmentosa and cataract (PHARC), which is caused by null mutations in the ABHD12 gene. Activity-based profiling was coupled with pharmacological and genetic methods to annotate the poorly characterized enzyme ABHD16A as a phosphatidylserine (PS) lipase that generates lyso-PS in mammalian systems. KC01, a small-molecule inhibitor of ABHD16A, depleted lyso-PSs from cells, including lymphoblasts derived from subjects with PHARC. Treatment with KC01 (1 μM, 4 h) blocked the PS lipase activity of membrane fractions from COLO205, K562, and MCF7 cell lines (Supplementary Fig. 9). KC01 also reversed the elevated lyso-PS production observed in ABHD12-null cells derived from a PHARC subject. These findings provide evidence for an interplay between ABHD16A and ABHD12 in the potential regulation of PHARC.

Reference: Nat Chem Biol. 2015 Feb;11(2):164-71. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4301979/

## In vivo activity

To more directly address the role of ABHD16A in vivo, an ABHD16A−/− mouse model was established (Supplementary Fig. 25). The PS lipase activity of brain membrane lysates from ABHD16A−/− mice was greatly decreased compared to ABHD16A+/+ and +/− lysates (Fig. 5c). The brain lipid profiles for ABHD16A+/+, +/−, and −/− mice were evaluated and it was found that ABHD16A−/− mice exhibited substantial reductions in most of the measured lyso-PSs (Fig. 5d). Similar reductions in lyso-PSs were found in spinal cord of ABHD16A−/− mice (Supplementary Fig. 29), which also exhibited lower PS lipase activity compared to ABHD16A+/+ mice (Supplementary Fig. 29). To gain further confidence that KC01 produced its pharmacological effects by blocking ABHD16A, macrophages from ABHD16A−/− mice were treated with this inhibitor. No changes were observed under basal conditions or LPS stimulation in cellular or secreted lyso-PS and other measured lipids, or in secreted proinflammatory cytokines (IL-6 and TNF-α), in KC01-treated ABHD16A−/− macrophages (Supplementary Fig. 32 and Supplementary Table 1).

Reference: Nat Chem Biol. 2015 Feb;11(2):164-71. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4301979/