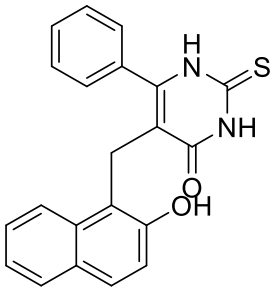
Product data sheet

MedKoo Cat#: 540055 Name: Cambinol CAS#: 14513-15-6 Chemical Formula: $C_{21}H_{16}N_2O_2S$ Exact Mass: 360.0932 Molecular Weight: 360.43	
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:
Cambinol is a SIRT inhibitor. It inhibits expression of pro-inflammatory cytokines, improves survival in models of endotoxic shock and septic shock, and prevents proliferation and increases differentiation and senescence in hepatocellular carcinoma cells.

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	21	58.26

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.77 mL	13.87 mL	27.74 mL
5 mM	0.55 mL	2.77 mL	5.55 mL
10 mM	0.28 mL	1.39 mL	2.77 mL
50 mM	0.06 mL	0.28 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. Dykes SS, Friday E, Pruitt K, Cardelli JA. The histone deacetylase inhibitor cambinol prevents acidic pHe-induced anterograde lysosome trafficking independently of sirtuin activity. Biochem Biophys Rep. 2015 Jul 26;3:83-93. doi: 10.1016/j.bbrep.2015.07.015. PMID: 29124170; PMCID: PMC5668693.

2. Figuera-Losada M, Stathis M, Dorskind JM, Thomas AG, Bandaru VV, Yoo SW, Westwood NJ, Rogers GW, McArthur JC, Haughey NJ, Slusher BS, Rojas C. Cambinol, a novel inhibitor of neutral sphingomyelinase 2 shows neuroprotective properties. PLoS One. 2015 May 26;10(5):e0124481. doi: 10.1371/journal.pone.0124481. PMID: 26010541; PMCID: PMC4444023.

In vivo study

1. Heltweg B, Gatbonton T, Schuler AD, Posakony J, Li H, Goehle S, Kollipara R, Depinho RA, Gu Y, Simon JA, Bedalov A. Antitumor activity of a small-molecule inhibitor of human silent information regulator 2 enzymes. Cancer Res. 2006 Apr 15;66(8):4368-77. doi: 10.1158/0008-5472.CAN-05-3617. PMID: 16618762.

7. Bioactivity
Biological target:

Cambinol is a SIRT1 and SIRT2 inhibitor with IC50 values of 56 μM and 59 μM, respectively. Cambinol is a potent brain penetrant neutral sphingomyelinase (N-SMase) inhibitor (exosome inhibitor).

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In vitro activity

In the present study we identify cambinol, a sirtuin inhibitor, as a potent regulator of lysosome trafficking and inducer of JLA. Cambinol stimulates JLA independently from Rab7, NHE inhibition or gene expression changes, indicating that cambinol acts to aggregate lysosomes by a mechanism that is highly distinct from that of Tro. Additionally, cambinol does not activate autophagy as a means to drive JLA and sirtuin inhibition alone is not sufficient to drive JLA. It was found that cambinol treatment, similar to Tro, does activate ERK, which is required for JLA.

Reference: Biochem Biophys Rep. 2015 Jul 26;3:83-93. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/29124170/

In vivo activity

As Daudi cells are tumorigenic in immunodeficient mice, these cells provided the opportunity to determine if cambinol might be active in xenografts after systemic administration to mice. Initial studies in Balb-c mice suggested that i.v. doses of 100 mg/kg cambinol are well tolerated. For xenograft studies, 20 × 106 Daudi cells were administered s.c. to the flank region of nonobese diabetic/severe combined immunodeficient mice. After palpable tumors were formed, cambinol, at the dose of 100 mg/kg, or vehicle alone, were administered i.v. into the tail vein or i.p. daily for 2 weeks (five injections weekly). No significant weight loss occurred in cambinol-treated animals relative to controls. Animals were euthanized on day 21 because of the large tumor size in the control group. Treatment with cambinol reduced tumor growth (Fig. 6E) relative to mice treated with vehicle alone. These findings suggest that cambinol is active in the xenograft model and that concentrations of cambinol in vivo are high enough to obtain the antitumor effect without inducing obvious toxicity to animals.

Reference: Cancer Res. 2006 Apr 15;66(8):4368-77. http://cancerres.aacrjournals.org/cgi/pmidlookup?view=long&pmid=16618762

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.