

Product data sheet



MedKoo Cat#: 530395 Name: 4E1RCat CAS#: 328998-25-0 Chemical Formula: C ₂₈ H ₁₈ N ₂ O ₆ Exact Mass: 478.1165 Molecular Weight: 478.46	
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:

4E1RCat is an inhibitor of the eIF4F translation initiation complex that blocks eIF4E:eIF4G and eIF4E:4E-BP1 interactions.

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	37.06	77.46
DMF	5.0	10.45

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.09 mL	10.45 mL	20.90 mL
5 mM	0.42 mL	2.09 mL	4.18 mL
10 mM	0.21 mL	1.05 mL	2.09 mL
50 mM	0.04 mL	0.21 mL	0.42 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. Jeeva S, Cheng E, Ganaie SS, Mir MA. Crimean-Congo Hemorrhagic Fever Virus Nucleocapsid Protein Augments mRNA Translation. *J Virol.* 2017 Jul 12;91(15):e00636-17. doi: 10.1128/JVI.00636-17. PMID: 28515298; PMCID: PMC5512247.

In vivo study

1. Kardos GR, Gowda R, Dinavahi SS, Kimball S, Robertson GP. Salubrinal in Combination With 4E1RCat Synergistically Impairs Melanoma Development by Disrupting the Protein Synthetic Machinery. *Front Oncol.* 2020 Jun 19;10:834. doi: 10.3389/fonc.2020.00834. PMID: 32637352; PMCID: PMC7317660.

7. Bioactivity

Biological target:

4E1RCat is an inhibitor of cap-dependent translation, and inhibits eIF4E:eIF4GI interaction, with an IC₅₀ of ~4 μM.

In vitro activity

Twenty-six hours posttransfection cells were treated with 4E1RCat, a known chemical inhibitor of eIF4F complex. 4E1RCat binds to eIF4E, disrupts the interactions between eIF4E and eIF4G, and prevents the formation of eIF4F complex on the mRNA 5' cap. As a result, the cap-dependent translation machinery of the host cell is shut down. The microscopic examination of cells 24 h after 4E1RCat treatment revealed that translational shutdown inhibited the translation of GFP and mCherry reporter mRNAs in cells (Fig. 7ii and v).

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The treatment of 4E1RCat failed to inhibit the translation of mCherry reporter mRNA in SNV N protein-expressing cells (Fig. 7vi and viii), further confirming the previously reported observations that N protein does not require eIF4F complex to facilitate mRNA translation.

Reference: J Virol. 2017 Aug 1; 91(15): e00636-17. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5512247/>

In vivo activity

The combination of 1 mg/kg Sal and 10 mg/kg 4E1RCat was found to impair tumor growth greatest after 20 days (Figure 2A), and was thus chosen for further investigation. Similar results in the UACC 903 and 1,205 Lu cell lines confirmed that the observed results were not specific to a particular cell line and that the 1:10 mg/kg combination significantly impaired xenograft tumor growth greater than either drug alone (Figures 2B,C). Furthermore, it did not significantly alter mouse body weight, which suggested negligible toxicity (Figures 2B,C, insets). Measurement of serum parameters from mice treated with 1 mg/kg Sal and 15 mg/kg 4E1RCat identified that levels of CAL and total protein (TP) were slightly below DMSO control levels, outside of the normal range (Table 1), which was expected since protein production was targeted.

Reference: Front Oncol. 2020 Jun 19;10:834. <https://pubmed.ncbi.nlm.nih.gov/32637352/>

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.