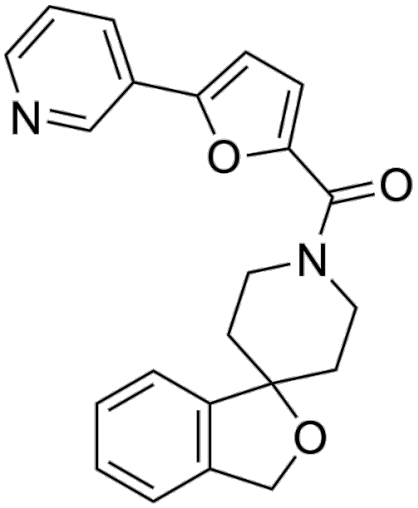
Product Data Sheet

Product Name: YRDC-IN-1
Cat. No.: GC81553

Chemical Properties

Cas. No.	3120494-74-5		
Formula	$C_{22}H_{20}N_2O_3$	M.Wt	360.41
Solubility		Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Background

YRDC-IN-1 is a blood-brain barrier-permeable YRDC inhibitor. YRDC is a key enzyme that catalyzes the formation of N 6 -threonylcarbamoyladenosine at position 37 of tRNA (t 6 A 37). YRDC-IN-1 selectively inhibits the translation of ANN codon-enriched FABP7, thereby reducing lipid droplet formation, increasing ROS, and reversing the acquired resistance of GBM to Temozolomide (TMZ). YRDC-IN-1 can be used for the research of glioblastoma [1].

In Vivo, YRDC-IN-1 (10 mg/kg; i.p.; every 3-4 days; six administrations) significantly reduces GSC147-derived glioblastoma tumor volume and extends mouse survival[1]. YRDC-IN-1 (10 mg/kg;

i.p.; every 3-4 days; six administrations) significantly reduces MES28-derived glioblastoma tumor volume and extends mouse survival[1]. YRDC-IN-1 (10 mg/kg; i.p.; twice weekly; three weeks) is well-tolerated in healthy BALB/c-nu mice with no significant toxicity[1].

In Vitro, YRDC-IN-1 potently inhibits the proliferation of human glioma stem cells (MES28) after 48 h, with an IC_{50} of 65.96 μM[1]. YRDC-IN-1 (70 μM; 48 h) reduces the expression of FABP7 protein in TMZ-resistant glioblastoma cells LN18-R and glioblastoma stem cells MES28, but does not affect the level of YRDC[1]. YRDC-IN-1 (70 μM; 48 h) preferentially inhibits the translation of ANN codon-enriched FABP7 in 293 T cells, and exerts a stronger inhibitory effect on the ANN-high-content FABP7 reporter gene compared with variants with low ANN content[1]. YRDC-IN-1 (70 μM) sensitizes TMZ-resistant glioblastoma cells LN18-R and glioblastoma stem cells MES28 to TMZ, while overexpression of ANN-low FABP7 reverses this effect; in LN18-R cells, the IC_{50} of TMZ decreases from 535.6 μM to 239.1 μM, and in MES28 cells, it decreases from 1066.0 μM to 467.8 μM[1]. YRDC-IN-1 (70 μM; 48 h) reduces lipid droplet levels in TMZ-resistant LN18-R glioblastoma cells and MES28 glioblastoma stem cells, and overexpression of ANN-low FABP7 reverses this effect[1]. YRDC-IN-1 (0-50 μM) acts synergistically with TMZ (0-600 μM) to inhibit the proliferation of TMZ-resistant LN18-R glioblastoma cells and MES28 glioblastoma stem cells, with their average ZIP synergy scores being 15.14 and 20.66, respectively[1]. YRDC-IN-1 (70 μM; 4 days) potently inhibits the proliferation of human HuH-7 hepatocellular carcinoma cells, PANC-1 pancreatic cancer cells, HCT116 colorectal cancer cells, and SGC7901 gastric cancer cells[1].

References:
[1]. Zhang Y, et al. Targeting YRDC blocks codon-biased FABP7 translation and lipid droplet formation to overcome chemoresistance in glioblastoma. Oncogene. 2026;45(22):2155-2170.