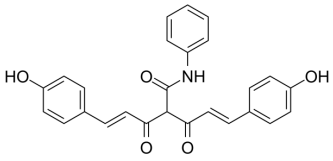
CMC2.24

Cat. No.:	HY-120793
CAS No.:	1255639-43-0
Molecular Formula:	$C_{26}H_{21}NO_5$
Molecular Weight:	427.45
Target:	Ras; Apoptosis; MMP
Pathway:	GPCR/G Protein; Apoptosis; Metabolic Enzyme/Protease
Storage:	-20°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro	DMSO : < 1 mg/mL (insoluble or slightly soluble)

BIOLOGICAL ACTIVITY

Description	CMC2.24 (TRB-N0224), an orally active tricarbonylmethane agent, is effective against pancreatic tumor in mice by inhibiting Ras activation and its downstream effector ERK1/2 pathway. CMC2.24 is also a potent inhibitor of zinc-dependent MMPs with IC_{50}s ranging from 2.0-69 μM. CMC2.24 alleviates osteoarthritis progression by restoring cartilage homeostasis and inhibiting chondrocyte apoptosis via the NF-κB/HIF-2α axis[1][2][3].

IC_{50} & Target				
	RAS	MMP-1 69.8 μM (IC_{50})	MMP-1 69.8 μM (IC_{50})	MMP-2 4.8 μM (IC_{50})
	MMP-3 2.9 μM (IC_{50})	MMP-7 5 μM (IC_{50})	MMP-8 4.5 μM (IC_{50})	MMP-9 8 μM (IC_{50})
	MMP-12 2 μM (IC_{50})	MMP-13 2.7 μM (IC_{50})	MMP-14 15.3 μM (IC_{50})	

In Vitro

CMC2.24 (0-60 μM; 24 hours) inhibits pancreatic cancer growth in vitro[1].
CMC2.24 reduces $STAT3^{Ser727}$ phosphorylation levels, induces mitochondrial reactive oxygen species and mitochondrial cell death in pancreatic cancer cells. CMC2.24 induces mitochondrial reactive oxygen species and intrinsic apoptosis[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	AsPC-1, Panc-1, MIA PaCa-2 and BxPC-3 PC cells
Concentration:	0-60 μM
Incubation Time:	24 hours
Result:	Inhibits PC cell growth in a concentration-dependent manner.

In Vivo

CMC2.24 (50 mg/kg; p.o.; five times per week during 17 days) inhibits the growth of pancreatic cancer xenografts[1].
CMC2.24 inhibits the growth of human PC through a strong cytokinetic effect. CMC2.24 inhibits ERK signaling pathway in PC cells and xenografts[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female immune deficient BALB/c nude mice[1]
Dosage:	50 mg/kg
Administration:	P.o.; five times per week during 17 days
Result:	Reduced the rate of growth over baseline by 66.9%.

REFERENCES

[1]. Mallangada NA, et al. A novel tricarbonylmethane agent (CMC2.24) reduces human pancreatic tumor growth in mice by targeting Ras. Mol Carcinog. 2018;57(9):1130-1143.

[2]. Zhou Y, et al. Chemically modified curcumin (CMC2.24) alleviates osteoarthritis progression by restoring cartilage homeostasis and inhibiting chondrocyte apoptosis via the NF-κB/HIF-2α axis. J Mol Med (Berl). 2020;98(10):1479-1491.

[3]. Zhang Y, et al. Design, synthesis and biological activity of new polyenolic inhibitors of matrix metalloproteinases: a focus on chemically-modified curcumins. Curr Med Chem. 2012;19(25):4348-4358.

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