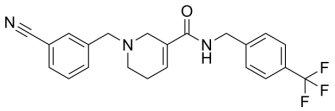
NCA029

Cat. No.:	HY-163319
Molecular Formula:	$C_{22}H_{20}F_3N_3O$
Molecular Weight:	399.41
Target:	ClpP; Apoptosis
Pathway:	Cell Cycle/DNA Damage; Apoptosis
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

NCA029 is a potent and selective homo sapiens caseinolytic protease P (HsClpP) activator with an EC_{50} of 0.15 μM. NCA029 acts on HsClpP to activate an ATF3-dependent integrative stress response, leading to colon cancer cell death[1].

In Vitro

NCA029 inhibits human colon adenocarcinoma (COAD) cell lines with IC_{50} values of 1.1 μM, 1.5 μM, 3.5 μM, 5.4 μM, and 3.1 μM for HCT116, SW620, HCT15, SW480, and DLD-1, respectively[1].

NCA029 causes an increase in intracellular ROS levels in HCT116 cells in a dose-dependent manner, indicating impaired respiratory chain activity[1].

NCA029 (0.5-2 μM; 48 h) inhibits tumor cell proliferation and metastasis[1].

NCA029 (0.5-2 μM; 48 h) dose-dependently induces apoptosis and arrests cells with G2/M phase in HCT116 cells[1].

NCA029 (0.5-2 μM) dose-dependently reduces the expression of SDHB and up-regulated the expression of the pro-apoptotic protein BAX, while down-regulating the expression of the antiapoptotic protein Bcl-2[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Migration Assay [1]

Cell Line:	HCT116 cells
Concentration:	0.5 μM, 1 μM, 2 μM
Incubation Time:	48 h
Result:	Resulted in a dose-dependent reduction in HCT116 clone formation ability.

Cell Cycle Analysis[1]

Cell Line:	HCT116 cells
Concentration:	0.5 μM, 1 μM, 2 μM
Incubation Time:	48 h
Result:	Significantly increased the number of cells in the G2 phase.

In Vivo

NCA029 (1.25-5 mg/kg; iv; twice weekly; for 21 days) significantly inhibits tumor growth in HCT116 xenografts[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Balb/c nude mice bearing HCT116 tumors[1]
Dosage:	1.25, 2.5, and 5 mg/kg
Administration:	intravenous administration; twice weekly; for 21 days
Result:	Inhibited tumor growth in mice xenograft model.

REFERENCES

[1]. Jiangnan Zhang, et al. Discovery of a Novel Series of Homo sapiens Caseinolytic Protease P Agonists for Colorectal Adenocarcinoma Treatment via ATF3-Dependent Integrated Stress Response. J Med Chem. 2024 Feb 22;67(4):2812-2836.

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