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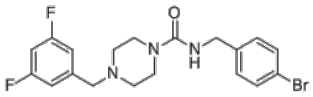
Data Sheet

Global Supplier of Chemical Probes, Inhibitors & Agonists.

Product Name	:	HsClpP activator ZK53
Cat. No.	:	PC-21313
CAS No.	:	3031789-26-8
Molecular Formula	:	$C_{19}H_{20}BrF_2N_3O$
Molecular Weight	:	424.29
Target	:	Other Targets
Solubility	:	10 mM in DMSO



Biological Activity

HsClpP activator ZK53 is a potent, selective activator of mitochondrial caseinolytic protease P (**HsClpP**) with EC50 of 0.22 uM in FI-based protease activity assays, inactive toward bacterial ClpP proteins.
ZK53 selectively binds and stabilizes HsClpP rather than SaClpP in vitro.
ZK53 potently inhibits Lung squamous cell carcinoma (LUSC) cell proliferation with GI50 of 0.5-1 uM, also inhibits cell proliferation in the clonogenic assay and the time-dependent MTT assays, but does not induce cell apoptosis in human lung fibroblast MRC-5 cells.
ZK53 impairs mitochondrial functions and targets HsClpP in LUSC cells, ZK53 triggers a substantial reduction in multiple ETC subunits, including NDUFB8, SDHA, UQCRC2, and COXIV in a dose-dependent manner, also reduces the protein abundances of TFAM, TUFM, and ACO2 in H1703 cells.
ZK53 treatment (1 uM) significantly downregulates the E2F targets in H1703 cells, impairs the essential regulatory pathways for the G1/S transition.
ZK53 activates the ataxia-telangiectasia mutated (ATM)-mediated DNA damage response in H1703 cells.
ZK53 (80 mg/kg, dissolved in 40% 2-hydroxypropyl-β-cyclodextrin, i.p. twice a day) exhibits anticancer activity in xenograft and autochthonous mouse models.

References

Zhou LL, et al. ***Nat Commun.*** 2023 Nov 3;14(1):7069.

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