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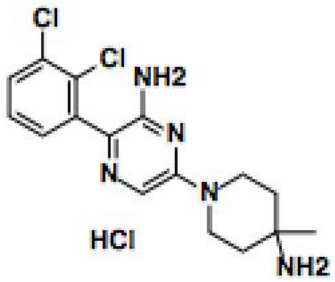
SHP2 Phosphatase Inhibitor – SHP099

Chemical Name: 6-(4-amino-4-methylpiperidin-1-yl)-3-(2,3-dichlorophenyl)pyrazin-2-amine hydrochloride



Molecular Weight:	388.72
Formula:	$C_{16}H_{20}Cl_3N_5$
Purity:	≥98%
CAS#:	1801747-11-4
Solubility:	DMSO up to 100 mM
Storage	Powder: 4 °C 1 year DMSO: 4 °C 3 months -20 °C 1 year

Biological Activity:

SHP099 is a highly potent, selective and orally bioavailable small-molecule SHP2 inhibitor with IC_{50} 0.071 μM. It stabilizes SHP2 in an auto-inhibited conformation, concurrently binds to the interface of the N-terminal SH2, C-terminal SH2, and protein tyrosine phosphatase domains, thus inhibiting SHP2 activity through an allosteric mechanism. SHP099 suppresses RAS–ERK signaling to inhibit the proliferation of receptor-tyrosine-kinase-driven human cancer cells in vitro and is efficacious in mouse tumor xenograft models. SHP099's activity provides evidence that pharmacological inhibition of SHP2 is a viable strategy to target RTK-driven cancers and presents a new chemical tool for further interrogation of the multifaceted cellular functions of SHP2 in development, tumorigenesis, RTK-driven drug resistance and immune-checkpoint modulation.

How to Use:

In vitro: SHP099 was used at 10 μM in vitro and cellular assays.

In vivo: SHP099 was dosed orally to mouse tumor xenograft models at 75-100 mg/Kg once per day.

Reference:

1. Chen YN, et al. Allosteric inhibition of SHP2 phosphatase inhibits cancers driven by receptor tyrosine kinases. (2016) Nature. 535(7610):148-52.