Product Data Sheet

Product Name: ML 239
Cat. No.: GC17468

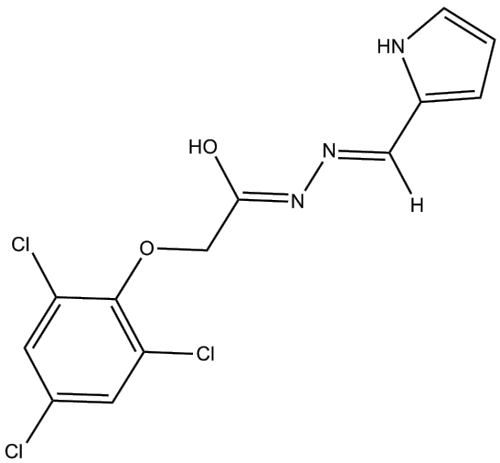
Chemical Properties

Cas. No.	1378872-36-6
Chemical Name	(1Z,N'E)-N'-((1H-pyrrol-2-yl)methylene)-2-(2,4,6-trichlorophenoxy)acetohydrazonic acid
SMILES	ClC1=CC(Cl)=C(OC/C(O)=N/N=C([H])/C2=CC=CN2)C(Cl)=C1

Formula	$C_{13}H_{10}Cl_3N_3O_2$	M.Wt	346.6
Solubility	DMSO: 10 mg/ml	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



Protocol

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Cell experiment: Cancer cell lines (CCLs) are plated at a density of 500 cells/well in white opaque tissue-culture-treated Aurora 1536-well MaKO plates in the provider-recommended growth media using a highly automated platform. Compounds (ML239) are added by acoustic transfer using a Labcyte Echo 555. 24 hours after plating. The effects of small molecules (ML239) are measured over a 16-point concentration range (two-fold dilution) in duplicate. DMSO is used at a constant concentration of 0.33%, including vehicle-only control wells. As a surrogate for viability, cellular ATP levels are assessed 72 hours after compound transfer by addition of CellTiterGlo followed by luminescence measurement using a ViewLux Microplate Imager. Duplicates are averaged and luminescence values normalized to vehicle (DMSO) treatment and background (media-only) wells[2].

References:

[1]. Germain AR, et al. Identification of a selective small molecule inhibitor of breast cancer stem cells. Bioorg Med Chem Lett. 2012 May 15;22(10):3571-4.
[2]. Rees MG, et al. Correlating chemical sensitivity and basal gene expression reveals mechanism of action. Nat Chem Biol. 2016 Feb;12(2):109-16.

Background

ML239 is the best-in-class inhibitor of the breast cancer stem cells with an IC_{50} = 1.16 μM. [1]

ML239 was a selective inhibitor an IC_{50}= 1.18 μM against HMLE_sh_ECad, demonstrated a >23-fold selectivity over the control line, and was toxic to another CSC-like line, HMLE_shTwist, and a breast carcinoma cell line, MDA-MB-231. Five genes (*ATP6V0C, PKM2, PPDPF, RPL23*, and *SERINC2*) were differentially regulated in HMLE_sh_GFP after treatment with ML239. Gene expression studies conducted with ML239-treated cells showed altered gene expression in the NF-κB pathway in the HMLE_sh_ECad line but not in the isogenic control line. ML239 was selectively toxic toward another CSC-like cell line, HMLE_Twist, and the breast cancer line, MDA-MB-231. Similar to the results observed in the HMLE_sh_ECad cell line, ML239 was potently toxic, inhibiting HMLE_Twist with an IC_{50} ~0.1 μM. ML239 displayed potent toxicity (IC_{50} = 2.81 μM) to the breast carcinoma cell line, MDA-MB-231 [1]. ML239 also alters the expression of genes in the NF-κB, MAPK and inflammatory

cytokine pathways.

Reference:

1.Phenotypic high-throughput screening elucidates target pathway in breast cancer stem cell-like cells. J Biomol Screen. 2012 Oct;17(9):1204-10. Epub 2012 Aug 30.