Revision 1

Store at -20C

#14240

Perifosine

5 mg

Cell Signaling TECHNOLOGY®

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Background

Perifosine, also known as KRX-0401, is a novel synthetic alkylphospholipid with a structure that closely resembles naturally occurring phospholipids. Perifosine inhibits Akt at both Ser473 and Thr308 sites via blocking pleckstrin homology (PH) domain mediated Akt cell membrane recruitment and activation. It does not directly affect PI3 Kinase or PDK1 activity (1). Investigators have shown that perifosine inhibits Akt in a dose dependent manner at concentrations causing cell growth inhibition in numerous cancer cell types including PC-3, multiple myeloma (MM), and malignant pleural mesothelioma (MMe) cells (1-3). Research studies have demonstrated that perifosine blocks cell cycle progression in squamous carcinoma cells by inducing p21WAF1 expression through a p53-independent pathway (4). Perifosine has been shown to possess a synergistic cytotoxicity with many other antineoplastic reagents. For example, investigators have demonstrated that perifosine and etoposide treatment of human leukemia T cells results in more pronounced reduction of Akt and FoxO1 phosphorylation levels, increased mitochondrial injury and caspase activation, and a marked increase in cell death (5).

Molecular Formula

$C_{25}H_{52}NO_4P$

Molecular Weight

461.66 g/mol

Purity

>99%

CAS

157716-52-4

Solubility

Soluble in EtOH at 200mg/ml and H2O at 50mg/ml.

Storage

Store lyophilized or in solution at -20ºC, desiccated. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

Directions for Use

Perifosine is supplied as a lyophilized powder. For a 20 mM stock, reconstitute the 5 mg in 541.5 µl ethanol or sterile water. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used at 5-40 µM for 1-24 hr.

Background References

1. Kondapaka, S.B. et al. (2003) *Mol Cancer Ther* 2, 1093-103.
2. Hideshima, T. et al. (2006) *Blood* 107, 4053-62.
3. Pinton, G. et al. (2012) *PLoS One* 7, e36856.
4. Patel, V. et al. (2002) *Cancer Res* 62, 1401-9.
5. Nyåkern, M. et al. (2006) *Mol Cancer Ther* 5, 1559-70.

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