Revision 3

Store at -20C

#12616

Vandetanib

Cell Signaling TECHNOLOGY®

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Background

Vandetanib, also known as ZD6474, is a selective inhibitor of VEGFR and EGFR tyrosine kinases (1-5). Researchers have shown that vandetanib inhibits VEGFR-2, VEGFR-3, and EGFR in recombinant enzyme assays with IC_{50} values of 40 nM, 108 nM, and 500 nM, respectively, and had selectivity over a variety of other tyrosine and serine/threonine kinases (2). Vandetanib inhibits VEGF and EGF stimulated proliferation of HUVE cells with an IC_{50} of 60 nM and 170 nM, respectively (2), and effectively blocks VEGF and EGF induced autophosphorylation (3-5). Inhibition of RET by vandetanib has also been observed (6).

Molecular Formula

$C_{22}H_{24}BrFN_4O_2$

Molecular Weight

475.35 g/mol

Purity

>99%

CAS

443913-73-3

Solubility

Soluble in DMSO at 30mg/ml and EtOH at 10mg/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

Vandetanib is supplied as a lyophilized powder. For a 10 mM stock, reconstitute the 5 mg in 1.05 ml DMSO. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used as a pretreatment at 1-10 µM for 0.5-2 hr prior to treating with a stimulator. It can also be used alone, with varying treatment times lasting up to 24 hr. Soluble in DMSO at 30 mg/ml; soluble in ethanol at 10 mg/ml with warming; very poorly soluble in water with maximum ~10-20 µM.

Background References

1. Morabito, A. et al. (2009) *Oncologist* 14, 378-90.
2. Wedge, S.R. et al. (2002) *Cancer Res* 62, 4645-55.
3. Jane, E.P. et al. (2009) *J Pharmacol Exp Ther* 331, 327-37.
4. McCarty, M.F. et al. (2004) *Mol Cancer Ther* 3, 1041-8.
5. Ciardiello, F. et al. (2003) *Clin Cancer Res* 9, 1546-56.
6. Carlomagno, F. et al. (2002) *Cancer Res* 62, 7284-90.

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