Lenvatinib
PRODUCT DATA SHEET

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Product Name:	Lenvatinib
Product Number:	L051
CAS Number:	417716-92-8
Molecular Formula:	$C_{21}H_{19}ClN_4O_4$
Molecular Weight:	426.85
Form:	Solid
Appearance:	Red-brown to white-like solid
Solubility:	DMSO (40 mg/ml). Insoluble in water and ethanol.
Source:	Synthetic
Storage Conditions:	-20C
Description:	Lenvatinib, the free base form of the compound, is a small-molecule multityrosine kinase inhibitor that inhibits many receptor tyrosine kinases including vascular endothelial growth factor (VEGF), fibroblast growth factor (FGF), and stem cell factor (SCF). These growth factors are associated with many types of cancers. The compound can inhibit angiogenesis (the formation of new vessels), and tumor cell growth.
Mechanism of Action:	Lenvatinib is a multiple kinase inhibitor. It inhibits VEGFR1, 2, and 3. It also inhibits FGFR 1, 2, 3 and 4. Some of these proteins play a role in cancer signaling pathways.
Cancer Applications	Lymph node metastases occur through lymphangiogenesis (formation of new lymphatic vessels) and metastases to distant organs occurs through angiogenesis (formation of new blood vessels). These phenomena are regulated by endothelial cell-specific growth factors such as VEGFs. In a xenograph model of human breast adenocarcinoma with MDA-MB-231 cells that express excessive VEGF-C, Lanvatinib was found to inhibit tumor growth. The compound reduced angiogenesis and lymphangiogenesis in models of MDA-MB-231 tumor in the lymph nodes. (Matsui et al, 2008). Lanvatinib provides antitumor activity via inhibition of angiogenesis but also inhibits fibroblast growth factor receptors (FGFR) and RET signaling pathways in preclinical human thyroid cancer models. The compound had antiproliferative activity against the human differentiated thyroid cancer cell line RO82-W-1 and human medullary thyroid cancer TT cell line in vitro (Tohyama et al, 2014).

References:

Matsui J et al. (2008) E7080, a novel inhibitor that targets multiple kinases, has potent antitumor activities against stem cell factor producing human small cell lung cancer H146, based on angiogenesis inhibition. Int. J. Cancer 122(3): 664-671 PMID 17943726 Matsui J (2008) Multi-kinase inhibitor E7080 suppresses lymph node and lung metastases of human mammary breast tumor MDA-MB-231 via inhibition of vascular endothelial growth factor-receptor (VEGF-R) 2 and VEGF-R3 kinase.Clin. Cancer Res 14(17):5459-5465 PMID 18765537 Tohyama O et al (2014) Antitumor activity of lenvatinib (E7080): An angiogenesis inhibitor that targets multiple receptor tyrosine kinases in preclinical human thyroid cancer models. J. Thyroid Res. 2014: 638747 PMID 25295214