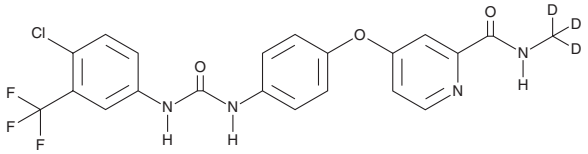
PRODUCT INFORMATION

Sorafenib-d_3

Item No. 34487

CAS Registry No.: 1130115-44-4
Formal Name: 4-[4-[[[[4-chloro-3-(trifluoromethyl) phenyl]amino]carbonyl]amino]phenoxy]-N-(methyl-d_3)-2-pyridinecarboxamide
Synonyms: BAY 43-9006-d_3
MF: $C_{21}H_{13}ClD_3F_3N_4O_3$
FW: 467.8
Chemical Purity: ≥95% (Sorafenib)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_3); ≤1% d_0
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Sorafenib-d_3 is intended for use as an internal standard for the quantification of sorafenib (Item No. 10009644) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Sorafenib-d_3 is supplied as a solid. A stock solution may be made by dissolving the sorafenib-d_3 in the solvent of choice, which should be purged with an inert gas. Sorafenib-d_3 is soluble in DMSO and methanol.

Description

Sorafenib is a multi-kinase inhibitor that inhibits Raf-1 and B-RAF (IC_{50}s = 6 and 22 µM, respectively), as well as the receptor tyrosine kinases VEGFR2, VEGFR3, PDGFRβ, FLT3, and c-Kit (IC_{50}s = 90, 15, 20, 57, and 58 nM, respectively).[1,2] It is selective for these kinases over 12 other kinases, including ERK1, MEK1, EGFR, and HER2 (IC_{50}s = >10 µM for all).[2] Sorafenib inhibits proliferation of PLC/PRF/5 and HepG2 cells (IC_{50}s = 6.3 and 4.5 µM, respectively) and induces apoptosis in these cells.[3] It completely inhibits tumor growth in a PLC/PRF/5 mouse xenograft model when administered at a dose of 30 mg/kg and reduces basic FGF-induced angiogenesis in a Matrigel™ assay *in vivo*.[3,4] Sorafenib (10 µM) induces ferroptotic cell death in HT-1080 fibrosarcoma cells, an effect that can be blocked by the ferroptosis inhibitors ferrostatin-1 (Item No. 17729), deferoxamine (Item No. 14595), and β-mercaptoethanol.[5] It inhibits glutamate release by the system x_c^- cystine/glutamate transporter in HT-1080 cells when used at concentrations ranging from 2.5 to 10 µM, decreases glutathione levels, and increases lipid peroxidation. Sorafenib also inhibits replication of hepatitis C virus (HCV) in Huh7.5 cells (IC_{50} = 7.2 µM).[6] Formulations containing sorafenib have been used in the treatment of hepatocellular, renal cell, and thyroid carcinomas.

References

1. Lyons, J. F., Wilhelm, S., Hibner, B., *et al*. *Endocr. Relat. Cancer* **8(3)**, 219-225 (2001).
2. Wilhelm, S. M., Carter, C., and Tang, L. *Cancer Res.* **64(19)**, 7099-7109 (2004).
3. Liu, L., Cao, Y., Chen, C., *et al*. *Cancer Res.* **66(24)**, 11851-11858 (2006).
4. Murphy, D.A., Makonnen, S., Lassoued, W., *et al*. *Am. J. Pathol.* **169(5)**, 1875-1885 (2006).
5. Dixon, S.J., Patel, D.N., Welsch, M., *et al*. *Elife* **3**, e02523 (2014).
6. Himmelsbach, K., Sauter, D., Baumert, T.F., *et al*. *Gut* **58(12)**, 1644-1653 (2009).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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