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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

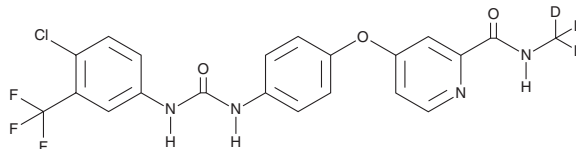
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PRODUCT INFORMATION



Sorafenib-d₃ Item No. 34487

CAS Registry No.: 1130115-44-4
Formal Name: 4-[4-[[[4-chloro-3-(trifluoromethyl)phenyl]amino]carbonyl]amino]phenoxy]-N-(methyl-d₃)-2-pyridinecarboxamide
Synonyms: BAY 43-9006-d₃
MF: C₂₁H₁₃ClD₃F₃N₄O₃
FW: 467.8
Chemical Purity: ≥95% (Sorafenib)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₃); ≤1% d₀
Supplied as: A solid
Storage: -20°C
Stability: ≥3 years



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

Laboratory Procedures

Sorafenib-d₃ 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-d₃ is supplied as a solid. A stock solution may be made by dissolving the sorafenib-d₃ in the solvent of choice, which should be purged with an inert gas. Sorafenib-d₃ is soluble in DMSO and methanol.

Description

Sorafenib is a multi-kinase inhibitor that inhibits Raf-1 and B-Raf (IC₅₀s = 6 and 22 μM, respectively), as well as the receptor tyrosine kinases VEGFR2, VEGFR3, PDGFRβ, FLT3, and c-Kit (IC₅₀s = 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 (IC₅₀s = >10 μM for all).² Sorafenib inhibits proliferation of PLC/PRF/5 and HepG2 cells (IC₅₀s = 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 (IC₅₀ = 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.

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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM