## Product Specification Sheet

### Product Name: Sorafenib
### Catalog Number: C7672

#### Technical Information:
- **Chemical Formula:** C_{21}H_{16}ClF_3N_4O_3
- **CAS #:** 284461-73-0
- **Molecular Weight:** 464.82
- **Purity:** > 99%
- **Appearance:** White solid
- **Solubility:** Soluble in DMSO up to 100 mM
- **Chemical Name:** 4-[(4-chloro-3-(trifluoromethyl)phenyl)ureido]phenoxo)-N-methylpicolinamide
- **Storage:** Store solid powder at 4°C desiccated; Store DMSO solution at -20°C.
- **Shelf Life:** In the unopened package, powder is stable for 1 year and DMSO solution is stable for 6 months under proper storage condition.

#### Handling:
- To make 10 mM stock solution, add 0.215mL of DMSO for each mg of Sorafenib.
- For DMSO solution, briefly spin the vial at 500 rpm in a 50 mL conical tube to ensure maximum sample recovery.

#### Biological Activity:
Sorafenib (BAY 43-9006) is biarylurea-based inhibitor of Raf1 (IC50, 6 nM) with additional activity against B-Raf, mVEGFR2, mPDGFRb (IC50, 22 nM, 15 nM, and 57 nM respectively), and related kinases. [1] In MDA-MB-231 breast cancer cells, sorafenib efficiently blocks activation of the MAPK pathway. Dose-dependent inhibition of basal MEK 1/2 and ERK 1/2 phosphorylation was observed at IC50s of 40 and 100 nM, respectively. [1]

In hepatocellular carcinoma cell lines, sorafenib inhibited cell proliferation in a dose-dependent manner with an IC50 of 6.3 uM in PLC/PRF/5 and 4.5 uM in HepG2 cells. [2] Flow cytometry studies indicated a decrease in G1 and increase of S phase after sorafenib treatment in HepG2 cells.

#### Reference:
1. Wilhelm et al., BAY 43-9006 exhibits broad spectrum oral antitumor activity and targets the RAF/MEK/ERK pathway and receptor tyrosine kinases involved in tumor progression and angiogenesis. Cancer Res. 2004, 64, 7099-7109. Pubmed ID: 15466206

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