**Imatinib**

5 mg

**Background:** Imatinib is a tyrosine kinase (TK) inhibitor that is a relatively specific ATP-binding site antagonist of Bcr-Abl, PDGF receptor, and c-Kit TKs (1-3). Results are encouraging in chronic myeloid leukemia (CML) clinical trials and imatinib has become a paradigm for targeted cancer therapeutics (4-6). Signal transduction through phosphotyrosine pathways has been studied extensively, and tyrosine phosphorylation has been linked to multiple cell growth and differentiation pathways (7-9). Because the observed leukemic state of CML is dependent on the intact Bcr-Abl tyrosine kinase activity, extensive work has been done to identify substrates of Bcr-Abl and thus possible mechanisms leading to a myeloid expansion. Many groups have characterized prominent tyrosine-phosphorylated protein substrates in both CML blasts and Bcr-Abl-expressing cell lines, including SHIP, c-Cbl, Dok, Dok, and CrkL (10-15). In addition, key signal transduction pathways involving PI3 kinase, Ras, Myc, and Stat5 are also activated in a Bcr-Abl kinase-dependent manner (16).

**Molecular Formula:** C<sub>29</sub>H<sub>31</sub>N<sub>7</sub>O + CH<sub>4</sub>SO<sub>3</sub>

**Molecular Weight:** 589.71 g/mol

**Solubility:** Soluble in DMSO at 100 mg/ml; poorly soluble in ethanol. Soluble in water at 200 mg/ml.

**Purity:** >99%

**Directions for Use:** Imatinib is supplied as a lyophilized powder. For a 10 mM stock, reconstitute the 5 mg in 847.9 μl DMSO. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used at 1-10 μM for 1-2 hours.

**Storage:** Store lyophilized or in solution at -20°C, desiccated. Protect from light. 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.

**Background References:**