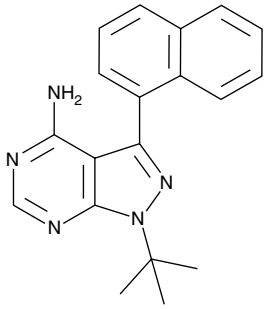
Product Information

1-NA-PP1

Item No. 10954

CAS Registry No.:	221243-82-9
Formal Name:	1-(1,1-dimethylethyl)-3-(1-naphthalenyl)-1H-pyrazolo[3,4-d] pyrimidin-4-amine
Synonyms:	1-Naphthyl-PP1, PP1 Analog
MF:	$C_{19}H_{19}N_5$
FW:	317.4
Purity:	≥98%
Stability:	≥2 years at -20°C
Supplied as:	A crystalline solid
UV/Vis.:	λ_{max}: 214, 286 nm



Laboratory Procedures

For long term storage, we suggest that 1-NA-PP1 be stored as supplied at -20°C. It should be stable for at least two years.

1-NA-PP1 is supplied as a crystalline solid. A stock solution may be made by dissolving the 1-NA-PP1 in the solvent of choice. 1-NA-PP1 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of 1-NA-PP1 in these solvents is approximately 2, 20, and 30 mg/ml, respectively.

1-NA-PP1 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 1-NA-PP1 should first be dissolved in DMF and then diluted with the aqueous buffer of choice. 1-NA-PP1 has a solubility of approximately 0.15 mg/ml in a 1:5 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

1-NA-PP1 is a reversible, cell-permeable inhibitor of Src-family tyrosine kinases that have been mutated, by a single base substitution, to become 'analog sensitive' (as), as compared to the wild-type kinase. 1-NA-PP1 was first developed to optimally inhibit v-Src-as1, with an I338G substitution, preferentially over v-Src (IC_{50} = 1.5 nM *versus* 1.0 µM, respectively).[1] The homologous mutation in other kinases generated similar analog sensitivity (*e.g.*, IC_{50} = 1.5 nM for c-Fyn-as1 *versus* 0.6 µM for c-Fyn; 7.0 nM for c-Abl-as2 *versus* 0.6 µM for c-Abl; 15 nM for Cdk2-as1 *versus* 18 µM for Cdk2).[2] This approach has been used to elucidate functions of several kinases in both mammalian and yeast systems.[2-4]

References

1. Bishop, A.C., Kung, C., Shah, K., *et al.* Generation of monospecific nanomolar tyrosine kinase inhibitors *via* a chemical genetic approach. *J. Am. Chem. Soc.* **121**, 627-631 (1999).
2. Bishop, A.C., Ubersax, J.A., Petsch, D.T., *et al.* A chemical switch for inhibitor-sensitive alleles of any protein kinase. *Nature* **407**, 395-401 (2000).
3. Endo, S., Satoh, Y., Shah, K., *et al.* A single amino-acid change in ERK1/2 makes the enzyme susceptible to PP1 derivatives. *Biochem. Biophys. Res. Commun.* **341**, 261-265 (2006).
4. Kenski, D.M., Zhang, C., von Zastrow, M., *et al.* Chemical genetic engineering of G protein-coupled receptor kinase 2. *J. Biol. Chem.* **280(41)**, 35051-35061 (2005).

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