



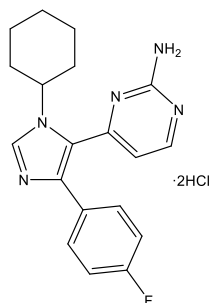
Catalog # 10-4692

PF-670462 dihydrochloride

CAS# 950912-80-8

4-[3-Cyclohexyl-5-(4-fluorophenyl)imidazol-4-yl]pyrimidin-2-amine 2HCl

Lot # FBS3035



PF-670462 is a potent inhibitor of casein kinase 1 ϵ/δ (CK1 ϵ , IC₅₀ = 7.7 nM; CK1 δ , IC₅₀ = 14 nM).¹ It is a circadian clock modifier that caused robust phase delays in rats¹ and Cynomolgus monkeys². PF-670462 caused nuclear retention of the clock protein PER resulting in period lengthening in a phase-specific manner that was dependent on CK1 δ inhibition and not CK1 ϵ .³ It improved cognitive performance and reduced amyloid load in various mouse models of Alzheimer's disease.⁴⁻⁶ PF-670462 slowed the progression of and increased survival of chronic lymphocytic leukemia in mice alone and in combination with Ibrutinib.⁷ PF-670462 is also an inhibitor of the S-acyltransferase ZDHHC8, an enzyme that regulates ferroptosis via palmitoylation of GPX4.⁸

- 1) Badura et al. (2007), *An Inhibitor of Casein Kinase 1 ϵ Induces Phase Delays in Circadian Rhythms under Free-Running and Entrained Conditions*; J. Pharmacol. Exp. Ther. **322** 730
- 2) Sprouse et al. (2009), *Inhibition of casein kinase 1 epsilon/delta produces phase shifts in the circadian rhythms of Cynomolgus monkeys*; Psychopharmacology (Berl) **204** 735
- 3) Meng et al. (2010), *Entrainment of disrupted circadian behavior through inhibition of casein kinase 1 (CK1) enzymes*; Proc. Natl. Acad. Sci. USA **107** 15240
- 4) Adler et al. (2019), *Therapeutic Targeting of Casein Kinase 1 δ/ϵ in an Alzheimer's Disease Mouse Model*; J. Proteome Res. **18** 3383
- 5) Sundaram et al. (2019), *Inhibition of casein kinase 1 δ improves cognitive-affective behavior and reduces amyloid load in the APP-PS1 mouse model of Alzheimer's Disease*; Sci. Rep **9** 13743
- 6) Mahoney et al. (2021), *Inhibition of casein kinase 1 δ/ϵ improves cognitive performance in adult C57BL/6J mice*; Sci. Rep. **11** 4746
- 7) Janovska et al. (2018), *Casein kinase 1 is a therapeutic target on chronic lymphocytic leukemia*; Blood **131** 1206
- 8) Zhou et al. (2025), *Palmitoylation of GPX4 via the targetable ZDHHC8 determines ferroptosis sensitivity and antitumor immunity*; Nat. Cancer **6** 768

PHYSICAL DATA

Molecular Weight:	337.40
Molecular Formula:	C ₁₉ H ₂₀ FN ₅ ·2HCl
Purity:	>98% by HPLC NMR: (Conforms)
Solubility:	DMSO (25 mg/mL)
Physical Description:	Off-white solid
Storage and Stability:	Store as supplied at -20°C for up to 2 years from the date of purchase. Solutions in DMSO may be stored at -20°C for up to 3 months.

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