

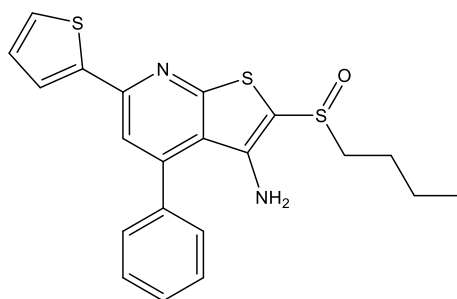
Catalog # 10-4888

SW033291

CAS# 459147-39-8

4-Butylsulfinyl-4-phenyl-6-thiophen-2-ylthieno[2,3-b]pyridin-3-amine

Lot # FBS4074



SW033291 is an inhibitor of 15-hydroxyprostaglandin dehydrogenase ($IC_{50} = 1.5 \text{ nM}$) that increases prostaglandin E_2 levels in bone marrow and other tissues by inhibiting *in vivo* degradation of PGE_2 .¹ It accelerated neutrophil recovery, regeneration of platelets and red blood cells, and expanded the numbers of more primitive bone marrow SKL cells in bone marrow transplants. SW033291 also stimulated colon epithelial regeneration in a mouse model of ulcerative colitis. It increased bone formation in mice via PGE_2 activation of EP4.² SW033291 enhanced myogenic differentiation and myotube formation in repairing muscle defects in mice.³ It reduced the severity of pulmonary fibrotic lesions and extracellular matrix remodeling and improved pulmonary function in bleomycin-treated mice.⁴ It also prevented hepatic ischemia-reperfusion injury in mice.⁵ SW033291 mitigates oxidative damage, suppresses neuroinflammation, and restores blood-brain barrier integrity in mouse models of Alzheimer's disease and traumatic brain injury.⁶ In addition to halting neurodegeneration, it also preserved cognitive function at levels indistinguishable from healthy controls.

- 1) Zhang *et al.* (2015), *Inhibition of the Prostaglandin Degrading Enzyme 15-PGDH Potentiates Tissue Regeneration*; Science, **348** aaa2340
- 2) Chen *et al.* (2019), *Prostaglandin E_2 mediates sensory nerve regulation of bone homeostasis*; Nat. Commun., **10** 181
- 3) Dong *et al.* (2020), *Effects of SW033291 on the myogenesis of muscle-derived stem cells and muscle regeneration*; Stem Cell Res. Ther., **11** 76
- 4) Smith *et al.* (2020), *Therapeutic targeting of 15-PGDH in murine pulmonary fibrosis*; Sci. Rep., **10** 11657
- 5) Xie *et al.* (2022), *Effects of small molecule inhibitor SW033291 on hepatic ischemia-reperfusion injury in mice*; Biochem. Biophys. Res. Commun., **615** 70
- 6) Koh *et al.* (2025), *Inhibiting 15-PGDH blocks blood-brain barrier deterioration and protects mice from Alzheimer's disease and traumatic brain injury*; Proc. Natl. Acad. Sci. USA, **122** e2417224122

PHYSICAL DATA

Molecular Weight:	412.58
Molecular Formula:	$C_{21}H_{20}N_2OS_3$
Purity:	98% by HPLC
	NMR: (Conforms)
Solubility:	DMSO (25 mg/ml)
Physical Description:	Yellow solid
Storage and Stability:	Store as supplied desiccated 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 2 months.

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