Product Datasheet

ND-646

Catalog No. **BP-01889** · CAS **1434639-57-2** · Form **free base** · Physical state **solid** · Color **white to off-white** · Version **1.0** · Revision **2026-09-04**

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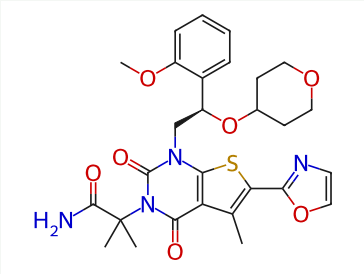
Target	Research area
Acetyl-CoA Carboxylase	**Cancer**

Molecular formula	**$C_{28}H_{32}N_4O_7S$**
Molecular weight	**568.6410**

STRUCTURE



DESCRIPTION

ND-646 is an orally bioavailable and steric inhibitor of acetyl-CoA carboxylase (ACC) with IC50s of 3.5 nM and 4.1 nM for recombinant hACC1 and hACC2, respectively.

BIOLOGICAL ACTIVITY

In Vitro

ND-646 inhibits both ACC1 and ACC2 and therefore precludes the ability of ACC2 to compensate for ACC1 inhibition. ND-646 inhibits dimerization of recombinant human ACC2 BC domain (hACC2-BC) under native conditions; hACC2-BC migrates as a dimer in its absence and a monomer in its presence. In cell free systems, ND-646 inhibits enzymatic activity of recombinant human ACC1 (hACC1) with an IC50 of 3.5 nM and recombinant human ACC2 (hACC2) with an IC50 of 4.1 nM.

In Vivo

To explore the impact of chronic ND-646 treatment on NSCLC tumor growth and to determine the efficacy of twice-daily dosing, athymic nude mice bearing established A549 subcutaneous tumors are treated orally with either vehicle twice daily (BID), 25 mg/kg ND-646 once daily (QD), 25 mg/kg ND-646 BID or 50 mg/kg ND-646 QD for 31 days. ND-646 at 25 mg/kg QD is ineffective at inhibiting tumor growth. However, ND-646 administered at 25 mg/kg BID or 50 mg/kg QD significantly inhibits subcutaneous A549 tumor growth. ND-646 is well tolerated throughout the treatment period, with no significant weight loss occurring after chronic ND-646 dosing, suggesting that the maximum tolerated dose (MTD) has not been reached. Mice are sacrificed at 1 hr post final dose and tissues are either prepared for immunohistochemistry (IHC) or immunoblot analysis. Tumors treated with all doses of ND-646 have lost detection of P-ACC at 1 hr, demonstrating effective tumor penetration and acute ACC inhibition by ND-646. Notably, only at the doses of ND-646 that lead to significant tumor growth inhibition (25 mg/kg BID and 50 mg/kg QD) is significant elevation of P-EIF2αS51 expression observed in tumor lysates.

SOLUBILITY

Soluble in DMSO

REFERENCES

[1]. Svensson RU, et al. Inhibition of acetyl-CoA carboxylase suppresses fatty acid synthesis and tumor growth of non-small-cell lung cancer in preclinical models. Nat Med. 2016 Oct;22(10):1108-1119.

Tel: +86 20 31130026 · Fax: +86 20 36822386 · tech@biochemprobe.com · www.biochemprobe.com