
Product Data Sheet

Product Name: ZLN024
Cat. No.: GC37970

Chemical Properties

Cas. No. 723249-01-2

SMILES CC1=CC=C(OCCSC2=NC=CC=N2)C(Br)=C1

Formula $C_{13}H_{13}BrN_2OS$

M.Wt 325.22

Solubility DMF: 30 mg/ml, DMF:PBS (pH 7.2) (1:4): 0.2 mg/ml, DMSO:
25 mg/ml, Ethanol: 5 mg/ml

Store
Storage at -
20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure

Protocol

Caution: Product has not been fully validated for medical applications. For research use only.

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Kinase experiment:

Before the scintillation proximity assay (SPA) assay, 200 nM recombinant AMPK protein ($\alpha 1\beta 1\gamma 1$, $\alpha 2\beta 1\gamma 1$, $\alpha 1\beta 2\gamma 1$, $\alpha 2\beta 2\gamma 1$, $\alpha 1(1-394)$, $\alpha 1(1-335)$, $\alpha 1(1-312)$) is constructed, expressed, purified and fully phosphorylated. The SPA reactions are performed in 96-well plates in a final volume of 50 μ L containing 20 mM Tris-HCl, pH 7.5, 5 mM MgCl₂, 1 mM DTT, 2 μ M biotin-SAMS, 2 μ M ATP and 7.4×10^3 Bq/well [γ -³³P]ATP. The reactions are initiated by the addition of 50 nM recombinant AMPK protein to the reaction solutions, followed by incubation at 30°C for 2 hr. The reactions are then terminated by the addition of 40 μ L of stop solution containing 80 μ g Streptavidin-coated SPA beads per well, 50 mM EDTA and 0.1% Triton X-100 in PBS, pH 7.5, followed by incubation for 1 hr. Finally, 160 μ L of suspension solution containing 2.4 M CsCl, 50 mM EDTA and 0.1% Triton X-100 in PBS, pH 7.5, is added to the reaction solution to suspend the SPA beads completely. The SPA signals are measured in a Wallac Microbeta plate counter 30 min later[1].

Animal experiment:

Mice[1]C57BKS db/db mice are maintained under a 12 hr light-dark cycle with free access to water and food. At 8 weeks of age, male db/db mice are randomly assigned to the various treatment groups by body weight and glucose levels (n=6-8). The treatment groups for the 5-week chronic study are as follows: vehicle (0.5% methylcellulose), ZLN024 (15 mg/kg) and Metformin (250 mg/kg). The treatments are orally administered once daily. The body weights and food intake are measured daily. After 5 weeks of treatment, the mice are killed after a final dose, and the tissues are collected for further analysis.

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References:

[1]. Zhang LN, et al. Novel small-molecule AMP-activated protein kinase allosteric activator with beneficial effects in db/db mice. PLoS One. 2013 Aug 20;8(8):e72092.

Background

ZLN024 is an allosteric activator of AMP-activated protein kinase (AMPK) heterotrimers ($EC_{50}s = 0.42$ and $0.95 \mu M$ for $\alpha1\beta1\gamma1$ and $\alpha2\beta1\gamma1$, respectively).¹ Activation of AMPK by ZLN024 requires phosphorylation of AMPK on Thr¹⁷², and ZLN024 protects Thr¹⁷² from dephosphorylation by protein phosphatase 2 α .¹ ZLN024 stimulates glucose uptake and fatty acid oxidation in L6 myotubes. In primary hepatocytes, ZLN024 decreases fatty acid synthesis and glucose output.¹ ZLN024 reduces liver triacylglycerol and total cholesterol content and improves glucose tolerance in *db/db* mice.¹

1.Zhang, L.-N., Xu, L., Zhou, H.-Y., et al. Novel small-molecule AMP-activated protein kinase allosteric activator with beneficial effects in db/db mice. PLoS One 8(8)e72092(2013)

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