ISX-9

Small molecule inducer of neurogenesis

ISX-9 (Isoxazole-9) is a synthetic small molecule that promotes the differentiation of adult neural stem and progenitor cells into neurons. It activates calcium-dependent signaling pathways and transcription factors such as MEF2 and modulates Wnt/β-catenin and TGF-β/EMT signaling. ISX-9 is effective both *in vitro* and *in vivo*, crossing the blood-brain barrier and enhancing neurogenesis and cognitive function in animal models. It is typically used at concentrations ranging from 2.5 to 50 μM, with neurogenic effects observed at ~20 μM *in vivo.*

Key features and applications include:

- **Neurogenic Induction:** Promotes neuronal differentiation while suppressing gliogenesis in adult hippocampal stem cells.
- **Calcium-Dependent Mechanism:** Triggers MEF2-dependent gene expression via NMDA receptor-mediated calcium influx.
- **Multi-Pathway Activation:** Engages Wnt/β-catenin and TGF-β signaling, relevant in both neural and cardiac differentiation.
- **In Vivo Efficacy:** Enhances hippocampal neurogenesis and spatial memory in mice at 20 mg/kg intraperitoneally.

Research Applications:

- Neural stem cell differentiation
- Adult neurogenesis and brain plasticity
- Cognitive enhancement and memory studies
- Cardiac and developmental biology
- High-throughput screening for neurogenic compounds

Relevant disease states include:

- **Neurodegenerative Diseases:** Potential therapeutic relevance in Alzheimer's, Parkinson's, and Huntington's diseases through promotion of endogenous

neurogenesis.

- **Cognitive Disorders:** Improves spatial memory and learning in preclinical models, supporting its use in cognitive enhancement research.
- **Traumatic Brain Injury (TBI):** Investigated for its ability to stimulate repair and regeneration in damaged neural tissue.
- **Cardiac Development:** Modulates EMT and Wnt signaling, making it useful in studies of heart development and regeneration.

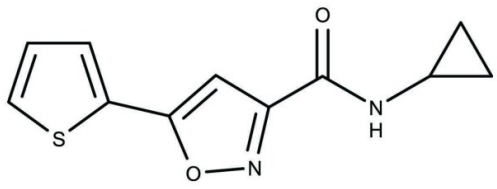
Ordering Information

Order Online »

ENZ-CHM338-0025	25mg

Manuals, SDS & CofA

View Online »


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Handling & Storage

Use/Stability	As indicated on product label or CoA when stored as recommended.
Short Term Storage	-20°C
Long Term Storage	-20°C
Shipping	Ambient Temperature

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	N-cyclopropyl-5-thiophen-2-yl-1,2-oxazole-3-carboxamide, Isoxazole 9
Appearance	Tan solid.
CAS	832115-62-5
Couple Target	TGF-beta, Wnt
Couple Type	Modulator
Formula	$C_{11}H_{10}N_2O_2S$
Identity	Determined by NMR.
MW	234.28
Purity	≥98% (TLC)
Solubility	Soluble in DMSO (up to 60 mg/mL) or in ethanol (up to 16 mg/mL).

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