

SC79

Akt activator; autophagy inhibitor

Catalog # inh-sc79

<http://www.invivogen.com/sc79>

For research use only

Version # 17J13-MM

PRODUCT INFORMATION

Contents:

- 10 mg SC79

Storage and stability:

- SC79 is provided lyophilized and shipped at room temperature. Store at -20 °C.

- Upon resuspension, prepare aliquots of SC79 and store at -20 °C. Resuspended SC79 is stable for 6 months when properly stored.

Quality control:

- Purity ≥95% (UHPLC)
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) is confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.
- The inhibitory activity of the product has been validated using cellular assays.

DESCRIPTION

SC79 is a selective and cell-permeable activator of Akt (also known as protein kinase B), a serine/threonine protein kinase signaling molecule with anti-apoptotic activity^{1, 2}. The Akt kinase family comprises three highly homologous isoforms: Akt1 (PKB α), Akt2 (PKB β) and Akt3 (PKB γ). SC79 potently activates all three isoforms and functions effectively in multiple cells types, including HeLa and HEK293 cells². Interestingly, in animal models SC79 exhibits protective effects against the apoptotic and oxidative damage caused by ultraviolet radiation¹. Moreover, this blood-brain barrier permeable molecule displays neuroprotective properties in experimental stroke models possibly through its dual antiapoptotic and antioxidative activities^{2, 3}.

1. **Gong YQ. et al., 2016.** SC79 protects retinal pigment epithelium cells from UV radiation via activating Akt-Nrf2 signaling. *Oncotarget*. 7(37):60123-60132.
2. **Jo H. et al., 2012.** Small molecule-induced cytosolic activation of protein kinase Akt rescues ischemia-elicited neuronal death. *PNAS* 109(26):10581-6.
3. **Zhang D. et al., 2016.** Akt Specific Activator SC79 Protects against Early Brain Injury following Subarachnoid Hemorrhage. *ACS Chem Neurosci*. 2016;7:710-8.

CHEMICAL PROPERTIES

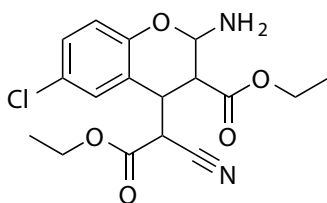
Solubility: 10 mg/ml (27.26 mM) in DMSO

CAS number: 305834-79-1

Formula: C₁₇H₁₉ClN₂O₃

Molecular weight: 366.8 g/mol

Structure:



METHODS

Preparation of 10 mg/ml (27.26 mM) stock solution

- Add 1 ml of DMSO to 10 mg of SC79. Mix by vortexing.

- Prepare dilutions using sterile, endotoxin-free water or an aqueous buffer.

Working concentration: 0.3-10 µg/ml for cell culture assays

Autophagy reporter assay:

Below is a protocol for RAW-Difluo™ mLC3 cells, an autophagy reporter cell line derived from murine RAW 264.7 macrophages. They express two fluorescent reporter genes (RFP and GFP) fused to the N-terminal of the LC3 protein enabling monitoring of autophagic flux in real time. For more information visit: <http://www.invivogen.com/raw-difluo-mlc3>

Day 1

1. Prepare a RAW-Difluo™ mLC3 cell suspension at ~100,000 cells/ml.
2. Add 500 µl of cell suspension (~50,000 cells) per well of a 24-well plate.
3. Leave to incubate overnight at 37 °C in a 5% CO₂ incubator.

Day 2

1. Remove test medium and gently rinse cells with pre-warmed, sterile phosphate buffered saline (PBS; pH 7.4)
2. Add 450 µl of test medium to every well of a 24-well plate.
3. Stimulate cells with an autophagy inducer such as rapamycin at a final concentration of 25 µM in the presence or absence of SC79 at a final concentration of 0.3-10 µg/ml per well. Incubate at 37 °C.
4. Monitor the autophagic flux at different time intervals (e.g. after 30 min, 1h, 2h30 and 5h) using a high-resolution fluorescent microscope.

PROTOCOLS

For reference only; as described in the indicated publications.

Cell Culture Assay¹

Cells: Human and murine epithelial cells

Working concentration: 1-10 µg/mL (2.74-27.41 µM)

Incubation time: 24 hours

Method: Apoptosis assays, RT-PCR and Western blotting

Cell Culture Assay²

Cells: HeLa cells and primary cortical or hippocampal neuronal cultures

Working concentration: 4 µg/ml

Incubation time: 15-30 minutes

Method: Western blotting and cytotoxicity assays

Animal Study¹

Animal model: Mice (C57 Black/6)

Dose: 0.04 mg/g mouse body weight, once per hour for 6 hours

Administration: Intraperitoneal (IP)

RELATED PRODUCTS

| Product | Description | Cat. Code |
|-------------------------|--------------------------|------------|
| HeLa-Difluo™ hLC3 cells | Autophagy reporter cells | heldf-hlc3 |
| Rapamycin | Autophagy inducer | tlrl-rap |
| RAW-Difluo™ hLC3 cells | Autophagy reporter cells | rawdf-mlc3 |

TECHNICAL SUPPORT

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