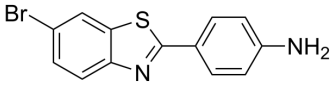
4-(6-Bromo-2-benzothiazolyl)benzenamine

Cat. No.:	HY-111514
CAS No.:	566169-97-9
Molecular Formula:	$C_{13}H_9BrN_2S$
Molecular Weight:	305.19
Target:	Amyloid-β; Oxidative Phosphorylation
Pathway:	Neuronal Signaling
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



BIOLOGICAL ACTIVITY

Description	4-(6-Bromo-2-benzothiazolyl)benzenamine is a β-amyloid PET (positron emission tomography) tracer that can be used in the diagnosis of neurological diseases, such as Alzheimer's and Down's syndrome.
IC_{50} & Target	β-amyloid[1]
In Vitro	4-(6-Bromo-2-benzothiazolyl)benzenamine (compound 6l) plus ultraviolet A (UVA) can induce caspase-3 activity, poly(ADP-ribose)polymerase cleavage, M30 positive CytoDeath staining, and subsequent apoptotic cell death. Treatment of A375 cells with 4-(6-Bromo-2-benzothiazolyl)benzenamine plus UVA results in a decrease in mitochondrial membrane potential ($\Delta\Psi_{mt}$), oxidative phosphorylation system (OXPHOS) subunits, and adenosine triphosphate (ATP) but an increase in mitochondrial DNA 4977-bp deletion via reactive oxygen species (ROS) generation. Transmission electron microscopy (TEM) observations also show major ultrastructural alterations of mitochondria[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	4-(6-Bromo-2-benzothiazolyl)benzenamine plus UVA is shown to reduce murine melanoma size in a mouse model. 4-(6-Bromo-2-benzothiazolyl)benzenamine-PDT may serve as a potential ancillary modality for the treatment of melanoma[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	For fluorescence Measurement of Uptake of 4-(6-Bromo-2-benzothiazolyl)benzenamine, cultured A375 cells are seeded on glass coverslips with a density of 2×10^4 cells/well in 24-well plate for 24 h until cell attachment. Then the cells are exposed to 4-(6-Bromo-2-benzothiazolyl)benzenamine at 5 μM for indicated times in the dark. The cells are washed twice with PBS and are then fixed with 4% paraformaldehyde at 4°C for 30 min. The qualitative expression of cell fluorescence is determined using a Leica inverted microscope[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Mice[2] A total of 5×10^6 B16 cells are inoculated into female ICR mice (about 19-21 g, 7 weeks). The subcutaneous inoculation of tumor cells resulted in tumor generation at the injection site. When tumors reached about 4×4 mm^2 in diameter, mice are separated into groups. Each group had four mice in each experiment; 4 mg/kg of 4-(6-Bromo-2-benzothiazolyl)benzenamine

	is injected into the tumor site, and then tumor is exposed to different doses of UVA on the day after injection. Tumor volume is measured by calipers every 5 days after agent injection, and tumor volume is calculated[2] MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Klunk W, et al. Benzothiazole derivative compounds, compositions and uses. WO2004083195 A1

[2]. Chen YK, et al. Apoptosis induced by 2-aryl benzothiazoles-mediated photodynamic therapy in melanomas via mitochondrial dysfunction. Chem Res Toxicol. 2014 Jul 21;27(7):1187-98.

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