

## MB-Buf

## Chemical Properties

CAS No. :

Formula:

Molecular Weight:

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.

## Biological Description

Description	MB-Buf is a conjugate of methylene blue and bufalin. Upon photoactivation, MB-Buf selectively degrades GPX4. It induces apoptosis, ferroptosis, and the production of reactive oxygen species (apoptosis). MB-Buf has applications in cancer research, such as in the study of breast cancer.
Targets(IC50)	Apoptosis, Ferroptosis, Glutathione Peroxidase
In vitro	MB-Buf, when administered at 5 $\mu$ M and subjected to 660 nm laser irradiation for 0-5 minutes, induces the production of singlet oxygen, superoxide anions, and hydroxyl radicals. With a concentration of 0.1-1 $\mu$ M and 6-hour pretreatment followed by 660 nm laser irradiation for 5 minutes, it demonstrates strong inhibitory activity against MCF-7, MDA-MB-231, and 4T1 cells, with IC50 values of 28.74, 36.82, and 64.41 nM, respectively. Furthermore, at the same concentration and conditions, MB-Buf induces reactive oxygen species production and ferroptosis in MCF-7 cells. Additionally, when used at 10-100 nM with a 6-hour pretreatment and 660 nm laser irradiation for 2-5 minutes, it degrades GPX4 in MCF-7 cells. MB-Buf at 0.5 $\mu$ M, with 6-hour pretreatment and 660 nm laser irradiation for 5 minutes, inhibits migration and induces apoptosis in MCF-7 cells.
In vivo	Intravenous administration of MB-Buf (1 mg/kg) every three days in combination with light exposure can inhibit tumor growth in 4 T1-Luci xenografted mice.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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