

Product Data Sheet

Product Name: ALV2
Cat. No.: GC63535

Chemical Properties

Cas. No. 2438124-95-7

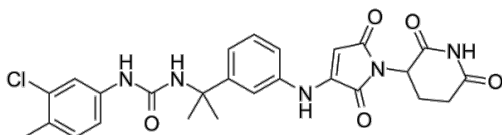
Formula $C_{26}H_{26}ClN_5O_5$ M.Wt 523.97

Solubility DMSO : 160 mg/mL (305.36 mM; Need ultrasonic)|Water : < 0.1 mg/mL (insoluble) Storage Store 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

Cell experiment [1]:

Cell lines RAW 264.7 macrophages (a murine macrophage cell line)

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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Preparation Method RAW 264.7 macrophages were cultured in Dulbecco's modified Eagle medium (DMEM) supplemented with 10% fetal bovine serum (FBS) and 1% penicillin-streptomycin. For high-throughput screening, cells were seeded into 96-well plates and infected with green fluorescent protein (GFP)-labeled SalmonellaTyphimurium UK-1. Following infection, cells were treated with ALV2 (10 μ M).

Reaction Conditions 10 μ M; 2 or 24 hours.

Applications ALV2 significantly reduced the secretion of TNF- α .

Animal experiment [2]:

Animal models Humanized Crbn^{I391V} mice (a mouse model with a CRBN mutation that renders it permissive to IMiD-induced degradation).

Preparation Method Mice were treated with ALV2 (100mg/kg; twice daily for 7 days) via intraperitoneal injection.

Dosage form 100mg/kg; i.p.; twice daily for 7 days.

Applications ALV2 administration induced selective and significant degradation of the Helios (IKZF2) protein in splenic CD4⁺ FoxP3⁺ regulatory T cells (Tregs).

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References:

- [1] Santelices J, Schultz A, Walker A, et al. Targeting deubiquitinating enzymes and ubiquitin pathway modulators to enhance host defense against bacterial infections. *mBio*. 2025 Oct 8;16(10):e0031225.
- [2] Wang ES, Verano AL, Nowak RP, et al. Acute pharmacological degradation of Helios destabilizes regulatory T cells. *Nat Chem Biol*. 2021 Jun;17(6):711-717.

Background

ALV2 is an effective and selective degrader of Helios (IKZF2). ALV2 binds to CRBN with an IC_{50} of $0.57\mu M$ ^[1-2]. Helios is a zinc-finger transcription factor that maintains a stable regulatory T cell (Treg) phenotype within the inflammatory tumor microenvironment. ALV2 is used in research investigating the regulation of T cell function and the tumor immune microenvironment^[3-4].

In vitro, ALV2 ($1\mu M$) was used to pre-treat human naive CD4⁺ T cells for 5 days, followed by activation with anti-CD3/CD28 antibodies for 2 days. This treatment significantly upregulated the production of CD25 and effector cytokines (such as IL-21 and IFN γ), and enhanced the ability of these cells to infiltrate inflammatory tissues in a human-synovial tissue-mouse chimeric model^[5]. In RAW 264.7 murine macrophages infected with *Salmonella* for 1 hour, ALV2 ($10\mu M$; 24-hour treatment) significantly reduced the secretion of tumor necrosis factor-alpha (TNF- α)^[6].

In vivo, in a mouse model with the humanized Crbn ^{I391V} genotype, administration of ALV2 via intraperitoneal injection ($100mg/kg$; twice daily; for 7 days) significantly reduced the protein levels of Helios (IKZF2) in splenic CD4⁺ FoxP3⁺ regulatory T cells (Tregs), without affecting Ikaros (IKZF1) levels^[7].

References:

- [1] Zhang Y, Li L, Xu J, et al. A Novel Paradigm for Targeting Challenging Targets: Advancing Technologies and Future Directions of Molecular Glue Degraders. *Molecules* (Basel, Switzerland). 2026 Jan;31(3):459.
- [2] Slabicki M, Park J, Nowak RP, et al. Expanding the druggable zinc-finger proteome defines properties of drug-induced degradation. *Molecular Cell*. 2025 Aug;85(16):3184-3201.e14.
- [3] Xue F, Zhang M, Li S, et al. SE(3)-equivariant ternary complex prediction towards target protein

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degradation. Nature Communications. 2025 Jul;16(1):5514.

[4] Chen Z, Dhruv H, Zhang X, et al. Development of PVTX-405 as a potent and highly selective molecular glue degrader of IKZF2 for cancer immunotherapy. Nature Communications. 2025 May;16(1):4095.

[5] Zhang H, Jadhav RR, Cao W, et al. Aging-associated HELIOS deficiency in naive CD4+ T cells alters chromatin remodeling and promotes effector cell responses. Nat Immunol. 2023 Jan;24(1):96-109.

[6] Santelices J, Schultz A, Walker A, et al. Targeting deubiquitinating enzymes and ubiquitin pathway modulators to enhance host defense against bacterial infections. mBio. 2025 Oct 8;16(10):e0031225.

[7] Wang ES, Verano AL, Nowak RP, et al. Acute pharmacological degradation of Helios destabilizes regulatory T cells. Nat Chem Biol. 2021 Jun;17(6):711-717.

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