

NEW COMPOSITION OF MATTER THAT CAN BE USED TO TREAT MULTIDRUG RESISTANT INFECTIONS

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Value Proposition: Covalent mechanism-based inhibitors of tetracycline destructases for treating infectious diseases.

Technology Description

Researchers at Washington University in St. Louis have developed a group of C9-modified anhydrotetracyclines that inhibit tetracycline destructases (TDases). Antimicrobial resistance (AMR) is a major global public health issue. Tetracycline antibiotics have been commonly used to treat multidrug resistant infections in clinical and agriculture settings. Intensive use of these antibiotics has given rise to high abundance and diversity of tetracycline resistant genes.

These compositions inhibit tetracycline inactivating enzymes irreversibly and form the basis of a combination therapy with tetracycline antibiotics to overcome tetracycline antibiotic resistance and other types of resistance in clinical, agricultural, and other applicable settings.

Publications

Li R, Xue YP, Le ST, Tang WK, Tolia NH, Dantas G, Wencewicz TA. Covalent Irreversible Inhibitors of Tetracycline Destructases. ACS Infect Dis. 2025 Sep 12;11(9):2476-2490. doi: 10.1021/acsinfecdis.5c00322. Epub 2025 Aug 30. PMID: 40884835; PMCID: PMC12467390.

Applications

- Infectious disease treatment
- Therapeutic for drug resistance

Key Advantages

- New composition of matter
- Extends the utility of existing TCs
- Offers enhanced potency, longer target dwell time, and reduced dosage frequency

Patents

Patent application filed

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