

CBASS Inhibitor: Unlocking Next-Generation Phage Therapy to Combat Antimicrobial Resistance and Immunological Diseases

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TECHNOLOGY DESCRIPTION

UCSF inventors have developed a novel CBASS inhibitor, a single protein capable of blocking bacterial cyclic-oligonucleotide-based anti-phage signaling systems (CBASS), which are a major obstacle to effective phage therapies. This innovation addresses the global challenge of antimicrobial resistance by disabling bacterial immunity and enhancing phage efficacy against pathogens such as *Pseudomonas aeruginosa*. The inhibitor demonstrates broad-spectrum capabilities, including blocking cGAS-like signaling in bacteria and human cells, positioning it as a powerful tool for both infectious disease and immunological disorders. Currently in advanced research stages, this technology offers unique insights into bacterial immunity and co-evolution with phages, with transformative applications in engineered phage therapeutics and anti-infective drug development. Its ability to target diverse CBASS systems across domains of life presents a key advantage in developing next-generation biologics to combat resistant infections.

RELATED MATERIALS

- ▶ [Phage anti-CBASS protein simultaneously sequesters cyclic trinucleotides and dinucleotides, PMID: PMC11102597, DOI: 10.1016/j.molcel.2023.11.026 - 01/18/2024](#)

PATENT STATUS

Patent Pending

CONTACT

Catherine Smith
Catherine.Smith2@ucsf.edu
tel: 510-646-0631.



OTHER INFORMATION

KEYWORDS

CBASS inhibitor, Drug-resistant bacterial infections, Next-generation phage therapeutics, Biotech innovation in infectious diseases, Biologics for bacterial infections, Innovative biologics development, Immunology and infectious disease therapeutics, Phage therapy enhancement

CATEGORIZED AS

- ▶ **Medical**
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ADDRESS

UCSF

Innovation Ventures

600 16th St, Genentech Hall, S-272,
San Francisco, CA 94158

CONTACT

Tel:

innovation@ucsf.edu

<https://innovation.ucsf.edu>

Fax:

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