

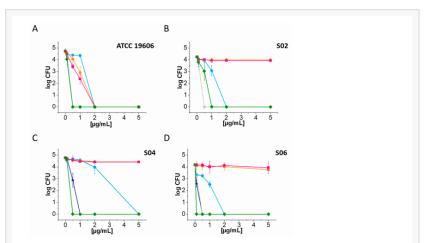
# Groundbreaking Research on Ceragenins for Combatting Life-Threatening Acinetobacter baumannii Infections

Ceragnins -- Novel Class of Potent Anti-Infectives --- address the AMR crisis

PARK CITY, UT, UNITED STATES, July 18, 2024 /EINPresswire.com/ -- N8 Medical Inc. and its drug subsidiaries Kinnear Pharmaceuticals, LLC and Kinnear Pharma AUS Pty Ltd are excited to announce the publication of significant research on ceragenins, demonstrating their potential as powerful agents against Acinetobacter baumannii, a critical-priority pathogen. This research, published in the International Journal of Molecular Sciences, highlights the groundbreaking capabilities of ceragenins in preventing and eradicating this life-threatening bacterium infection.

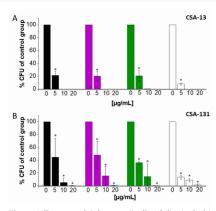
# Key Findings:

- Efficacy Against Biofilms: The study assessed ceragenins CSA-13, CSA-44, and CSA-131 on 65 clinical isolates of A. baumannii, revealing a strong bactericidal effect, even against biofilm-embedded cells.
- Membrane Breakdown: AFM analysis showed significant membrane damage in A. baumannii cells treated with



**Figure 3.** Bactericidal activities of ceragenins (CSA-13, dark blue stars; CSA-44, blue circles; CSA-131, grey triangles) and conventional antibiotics (ciprofloxacin, orange triangles; meropenem, pink squares; colistin, green rhombus) against *A. baumannii* (ATCC 19606) (**A**) and clinical strains of carbapenem-resistant *A. baumannii* (S02, (**B**); S04, (**C**); S06, (**D**)) determined with use of colony counting assay (killing assay).

#### Bactericidal activities of CSAs



**Figure 6.** Decrease of *A. baumannii* cell viability in the biofilm pre-formed on the surface of silicone biomedical tubes after CSA-13 (**A**) and CSA-131 (**B**) treatment. The percentage of biofilm-embedded bacteria for laboratory strain (ATCC 19606, black columns) and carbapenem-resistant clinical strains of *A. baumannii* (S02, purple columns; S04, green columns; S06, white columns) was estimated after sonication of the preformed biofilm attached to the surface in the final moment of exposure to the tested ceragenin. The results are presented as mean  $\pm$  SD. \* Indicates statistical significance (p < 0.05) when compared to control.

## Anti-biofilm activity

ceragenins, indicating their ability to disrupt bacterial cell surface structures.

- Anti-Adhesive Properties: In A549 lung epithelial cell cultures, CSA-13 inhibited bacterial

adhesion, suggesting a mechanism for preventing bacterial invasion of host cells and attachment to medical devices.

# Implications for Antimicrobial Strategies:

These findings underscore the potential of ceragenins as a new class of broad-spectrum antimicrobials, capable of addressing the urgent need for effective treatments against multidrug-resistant pathogens. The research provides a solid foundation for developing new antimicrobial and anti-adhesive strategies to combat nosocomial infections caused by A. baumannii.

## **Quotations:**

Dr. Robert Bucki, Professor of Medical Microbiology at the Medical University of Białystok and a leading researcher on this study, stated, "Ceragenins show great promise as therapeutic agents for treating Acinetobacter baumannii infections, especially against carbapenem-resistant strains. By efficiently destroying bacterial membranes and preventing biofilm development, ceragenins could revolutionize how we manage these severe infections."

Carl Genberg, CEO of Kinnear Pharmaceuticals and Kinner Pharma AUS Pty Ltd, added, "The research highlights CSA-131's significance in treating severe infections, providing a potential breakthrough in antimicrobial therapies. This not only underscores the importance of ceragenins but upon issuance of a QID{P designation will also secure their market exclusivity and expedited FDA processes, facilitating faster patient access to these innovative treatments."

# **About Ceragenins:**

Ceragenins are synthetic mimics of cationic antimicrobial peptides, designed to replicate the body's innate immune defense mechanisms. Unlike traditional antibiotics, repeated use of ceragenins do not induce mutational resistance and exhibit broad-spectrum activity, making them effective against a variety of pathogens, including gram-positive and gram-negative bacteria, fungi, and lipid-enveloped viruses such as COVID-19.

# **Future Prospects:**

N8 Medical and its Kinnear subsidiaries are committed to advancing the development of ceragenins for clinical use, aiming to transform the treatment landscape for infections caused by multidrug-resistant bacteria. The company envisions the widespread adoption of ceragenin-based therapies to significantly reduce the incidence and impact of hospital-acquired infections.

#### Contact:

Carl Genberg, CEO Kinnear Pharmaceuticals, LLC and Kinnear Pharma AUS Pty LTd carlgenberg@kinnearpharma.com (702) 285-5740 (PDT)

For more information, visit [www.n8medical.com](http://www.n8medical.com);www

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#### About N8 Medical Inc and Kinnear.:

N8 Medical Inc. and its Kinnear drug subsidiaries are at the forefront of developing innovative solutions to combat antimicrobial resistance. The company's cutting-edge research and development efforts focus on creating advanced antimicrobial agents to address critical healthcare challenges.

#### About the Research:

The research titled "Investigating the Effectiveness of Ceragenins against Acinetobacter baumannii to Develop New Antimicrobial and Anti-Adhesive Strategies" was conducted by a team of scientists from the Medical University of Białystok and Brigham Young University. The study highlights the potential of ceragenins in developing effective antimicrobial strategies against A. baumannii.

For the full research article, visit [MDPI](https://www.mdpi.com/1422-0067/25/13/7036).

Carl Genberg N8 Medical, Inc +1 7022855740 email us here

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