

# Antimicrobial Peptides: Yesterday, Today, and Tomorrow

*A 1-day virtual meeting dedicated to the 20 anniversary of the antimicrobial peptide database (APD)*

October 6, 2023 (Friday), Omaha, Nebraska, USA

## Chairs:

Guangshun Wang, Ph.D., Professor (University of Nebraska Medical Center)

Charles Bevins, PhD, Professor (*UC Davis School of Medicine*)

Monique van Hoek, PhD, Professor (*George Mason University*)

## Opening remarks

8:00 a.m.-8:30 a.m.

**Kenneth Bayles** (Vice Chancellor for Research, UNMC)

**Joseph Khoury** (Chair, Department of Pathology and Microbiology, UNMC)

**Robert Hancock** (University of British Columbia, Canada)

## Session I: Database, design and prediction of antimicrobial peptides

**Moderator:** Monique van Hoek and Weiwei Zhang

8:30 a.m-8:50 a.m.

**Keynote Speaker 1**

Guangshun Wang (University of Nebraska Medical Center, USA)

[The antimicrobial peptide database as a tool for antimicrobial development](#)

9:00 a.m-9:20 a.m.

Gajendra P S Raghava (Indraprastha Institute of Information Technology, India)

Machine learning based models for designing therapeutic peptides from the antimicrobial peptide database

**9:30 a.m-9:50 a.m.**

Jun Wang (Chinese Academy of Sciences, China)

Deep learning prediction of antimicrobial peptides from human gut microbiome

**9:50 a.m.-10.00 a.m. Symposium break**

## **Session II: Promising antimicrobial leads and mechanisms of action**

**Moderator:** Gus Wang and Chuck Bevins

**10:00 a.m-10:20 a.m. Keynote Speaker 2**

Kim Lewis (Antimicrobial Discovery Center, Northeastern University, USA)

Novel peptide antibiotics with unusual modes of action

**10:30 a.m-10:45 a.m.**

Berthony Deslouches (University of Pittsburgh, USA)

Precision design of cationic peptides to overcome bacterial resistance to conventional antibiotics

**10:50 a.m-11:05 a.m.**

Evan Haney (Asep Medical, Canada)

Development of AMPs into antibiofilm agents: An industrial view

**11:10 a.m-11:25 a.m.**

Michaela Wenzel (Chalmers University of Technology, Sweden)

Membrane active antimicrobial peptides: Beyond pore-forming

**11:30 a.m-11:45 a.m.**

Renee Fleeman (University of South Florida, USA)

[Proline-rich antimicrobial peptides: heat-shock proteins, ribosomes, and more?](#)

**11:50 a.m-12:40 p.m.** Lunch break 50 min

## **Special Event**

**12:40 p.m.-12:55 p.m.** Sandip Bhattacharyya, PhD., Scientific Review Officer (NIH/NIAID, USA)

[NIAID grantsmanship](#)

## **Session III: Microbiota, antimicrobial peptides and human diseases**

**Moderator:** Chuck Bevins and Sujata Chaudhari

**1:00 p.m-1:20 p.m.** **Keynote Speaker 3**

Nita Salzman (Medical College of Wisconsin, USA)

[The microbiota-antimicrobial peptide axis and novel antimicrobial strategies](#)

**1:30 p.m-1:45 p.m.**

Bruno Lemaitre (École Polytechnique Fédérale de Lausanne, Switzerland)

[Antimicrobial peptides and its role in insect aging and lifespan](#)

**1:50 p.m-2:05 p.m.**

Delphine Destoumieux-Garzón (University Perpignan Via Domitia, France)

[Salt-resistant big defensins regulate oyster microbiota](#)

**2:10 p.m-2:25 p.m.**

Bart Thomma (University of Cologne, Germany)

[Antimicrobial peptides shape plant microbiota](#)

**2:30 p.m-2:45 p.m.**

Eugene B. Chang (University of Chicago, USA)

[A new class of Paneth cell antimicrobial peptides that maintain Candida gut commensalism and innate immunity](#)

**2:50 p.m.-3:00 p.m. Symposium break**

## **Session IV: Sunlight, vitamin D, human cathelicidin and antimicrobial role**

**Moderator:** Monique Van Hoek and Gus Wang

**3:05 p.m-3:25 p.m.**

**Keynote Speaker 4**

John H White (McGill University, Canada)

[Vitamin D, human LL-37 and the antiviral connection](#)

**3:35 p.m-3:50 p.m.**

Jingwei Xie (UNMC, USA)

[Topical delivery of immunomodulating compounds and LL-37 derived peptides for wound management](#)

**3:55 p.m-4:10 p.m.**

Nuch Tanphaichitr (U Ottawa, Canada)

[Development of human LL-37 and related peptides into a spermicide/microbicide](#)

**4:15 pm: Conference Awards and Closing Remarks**