

Our Focus Areas

Hospitals: Stop spread of infection



- **Real-time microbial sensors** to detect pathogens.
- **Novel biotic formulations** to inhibit pathogen colonization and promote healthy microbiome
- “Healthy-building” microbiome index **dashboard**

Residential: Keep homes biologically healthy



- **Scale-up** environmental sampling and characterization of indoor microbiome
- **Engineered building materials** and novel **cleaning methods** to promote healthy microbes
- **Partnering** with local communities to protect children, families, and schools.

Poor Building Health Has Price Tag

When buildings make people sick, we all pay the price



Lifestyle Change

People in the US spend more than 90% of their time indoors



Hospital-Associated Infections

Affects 1 in 31 patients;
costs the U.S. \$28–45 billion every year



Residential Molds

Linked to Chronic diseases. 1.1 trillion/year,
5.8% of US GDP (Miliken Institute)



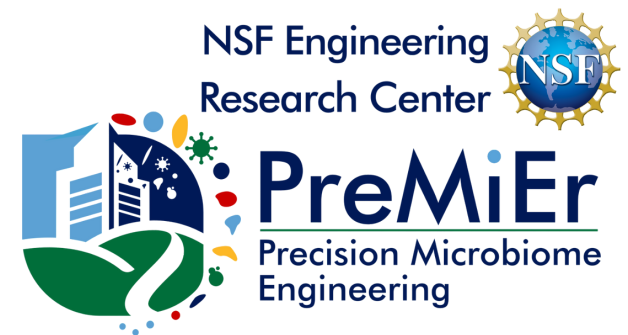
COVID-19 pandemic losses

\$77 billion–\$2.7 trillion globally, with a 27.5%
chance of another pandemic by 2033
(Airfinity)



Climate disasters

Flood damages cost \$17 billion a year
(FEMA)



PreMiEr: Engineering Healthier Microbiomes in the Indoor Environment

NSF Engineering Research Center | premier-microbiome.org



Who We Are

- NSF and industry support: \$26M+ for 5 years
- Multidisciplinary: involving 10+ colleges in 5 universities
- World-class experts: 40+ Research leaders
- Trained workforce: 200+ Trainees & Scholars

Mission

PreMiEr's mission is to develop innovative approaches to engineer-built environment microbiomes, promoting beneficial microbes while preventing the spread of pathogens.

Vision

PreMiEr's vision is to enable the bioinformed design and operation of smart, healthy built environments through microbiome engineering.



Connect with us
on LinkedIn!



Anurodh Tripathi, Ph.D.

Associate Director of Business
Development and Industry Partnerships

<https://premier-microbiome.org/>

anurodh.tripathi@duke.edu

+1 919 534 5027

Current Members



Why Join Us



Research & Technology

Priority access to world-class experts, research, and facilities



Collaboration

Joint funding opportunities for external grants



Financial

Leverage R&D funds through shared costs and significantly reduced overhead



Operational Ease

Streamlined access to resources within PreMiEr through the Industry Liaison Officer



Training and Recruiting

Access to a highly-trained workforce with mentorship opportunities



Technology Translation

Engage with faculty and students to move research to commercialization

Pilot Scale Evaluation

PreMiEr Testbeds

Includes advanced technologies available at these leading research institutions: Genomics, Metabolomics, Engineering Design, Cryo-EMs



Environmental Chambers

Precision-controlled environmental chambers for studying aerosolized microbial spread, colonization, and interactions with building materials.

Environmental Bioreactors

Environmental bioreactor testbeds that simulate engineered indoor built environments to design and test microbiome interventions



PreMiEr Home @ Duke

Single-family home residential testbed for conducting MoBE research and tech validation.

Partner Hospitals

Hospital test beds across North Carolina and South America for conducting MoBE research and tech validation.



Global Community Sites

Collaborations with communities in Bolivia and both urban & rural North Carolina for field-based research.

