

Transforming health, energy and agriculture.

DRUG DEVELOPMENT

CLINICAL MEDICINE

SOIL SCIENCE

PERSONAL CARE

RENEWABLE ENERGY

FOOD SCIENCE

ENVIRONMENT

RESEARCH PARTNERSHIPS

We partner with industry to solve pressing challenges of mutual interest in the microbiome sciences.

TOOLS AND TECHNOLOGIES

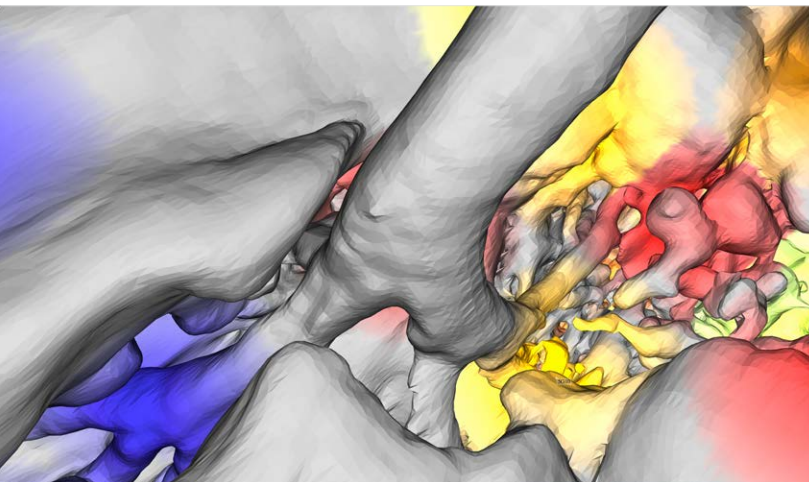
We collaborate to develop better tools for microbiome sample reading and processing, metabolomics analysis, and big-data analysis.

RAPID RESPONSE

When every minute counts, we can generate and analyze microbiome and metabolome data in as little as 48 hours.

MICROBIOME WORKFORCE

We prepare students and postdoctoral researchers to innovate and lead in the rapidly evolving microbiome sciences. This emerging workforce hails from life sciences, engineering, computer science, medicine, pharmacy, physical sciences and beyond.



Disease Diagnosis & Treatment

Imagine a system for real-time identification of the microbes responsible for life-threatening lung infections in people with cystic fibrosis. In just a few years, clinicians will likely be using these real-time data to prescribe personalized – and far more effective – antibiotics regimens. This is just one of the many ways interdisciplinary microbiome and metabolome research at UC San Diego is poised to disrupt medical research and clinical medicine.

Leveraging the Microbiome Revolution

“Every day we learn more about the crucial roles microorganisms play in life on earth at all scales, from specific regions of the human body, to individuals, populations and ecosystems. At UC San Diego, we pursue the interdisciplinary research and academic-industry collaborations that will ensure that the microbiome and metabolome revolutions address as many of our global society’s pressing challenges as possible.”

— Rob Knight, Ph.D.

Center for Microbiome Innovation, Faculty Director



UC San Diego microbiome researchers

CLINICAL MEDICINE

We are changing diagnosis and course of care for conditions including IBD, type 2 diabetes, pulmonary disease and cystic fibrosis. We are exploring connections to psychiatric conditions, autism and more.



DRUG DEVELOPMENT

Understanding how the microbiome impacts drug efficacy and antibiotic resistance are just two of the many ways the microbiome sciences are transforming drug development.



AGRICULTURE

We are leaders in efforts to understand how microbes in the soil, and within and on surfaces of plants, leaves, stems, roots and seeds play crucial roles in plant health, productivity and protection from disease.



PERSONAL CARE

Beauty and hygiene products can be improved by understanding how products change, or are changed, by microbial communities on the human body.



ENERGY AND ENVIRONMENT

From ecosystem function to renewable energy development, we uncover and harness the power of microorganisms in ecosystems around the world.



TECHNICAL INNOVATION

We partner with companies focused on genome sequencing, DNA and RNA extraction, DNA synthesis, synthetic biology and more.



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CENTER DIRECTOR

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Join us

We welcome industry partners, faculty members and researchers to join the Center for Microbiome Innovation.

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