



@PSUmBiome

The Penn State Microbiome Center

*A community of researchers
studying communities*

Kickstart Program 2020

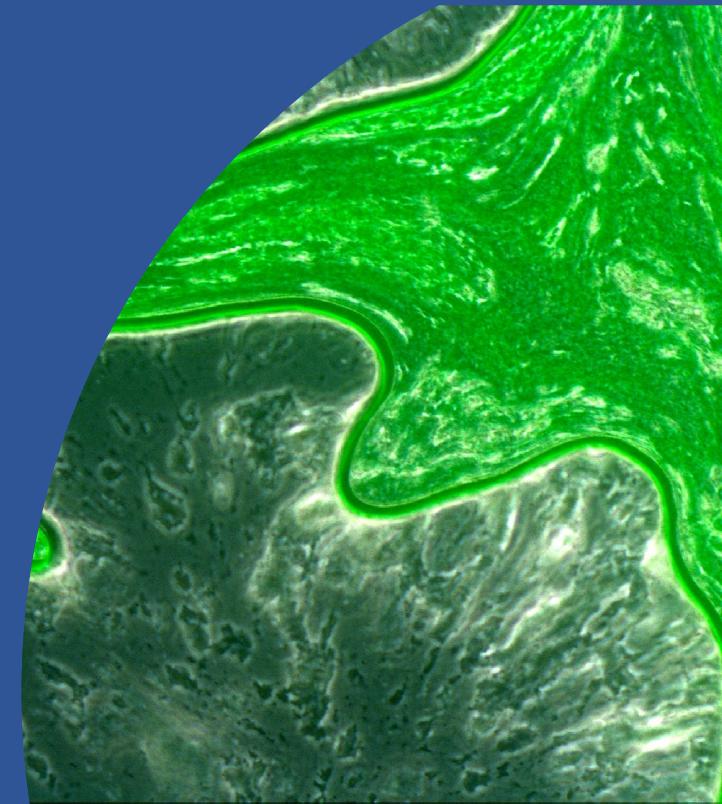


Brief History – Penn State Microbiome Center

- **Microbiomes in College of Agriculture**
- **Microbiomes in the College of Medicine**
- **PSU Microbiome workshop 6/16**
 - **Participations from:** Communications, AS, EMS, Engineering, HHD, IST, Medicine, Science, Huck, ICS-ACI, SIRO
 - **Outcomes:**
 - \$120,000 committed from five colleges and one institute
 - Microbiome Planning Committee established

Microbiome Center Executive Committee

- **Director:** Carolee Bull
- **Agricultural Sciences:** Darrell Cockburn, Mary Ann Bruns, Jasna Kovac, Siela Maximova, Andrew Patterson
- **Arts and Architecture:** Cynthia White
- **Anthropology:** Laura Weyrich
- **Communications:** Lee Ahern
- **Earth and Mineral Science:** Jim Adair
- **Engineering:** Jay Regan
- **Health and Human Development and Huck:** Connie Rogers
- **Information Science & Technology:** Vasant Honavar
- **Medicine:** Guy Townsend
- **Science:** Tim Miyashiro, David Koslicki





New Microbiome Hires

2017

Plant Pathology and Environmental Microbiology: Terry Bell

Food Science: Darrell Cockburn

Food Science: Jasna Kovac

Plant Pathology and Environmental Microbiology: Kevin Hockett

2018

Hershey Medical Center: Guy Townsend

Hershey Medical Center: Mauricio Pontes

2019

Animal Science: Erika Korzune Ganda

Department of Nutritional Sciences: Vishal Singh

Plant Science: Francisco DiniAndreote

Biochemistry and Molecular Biology: Emily E Weinert

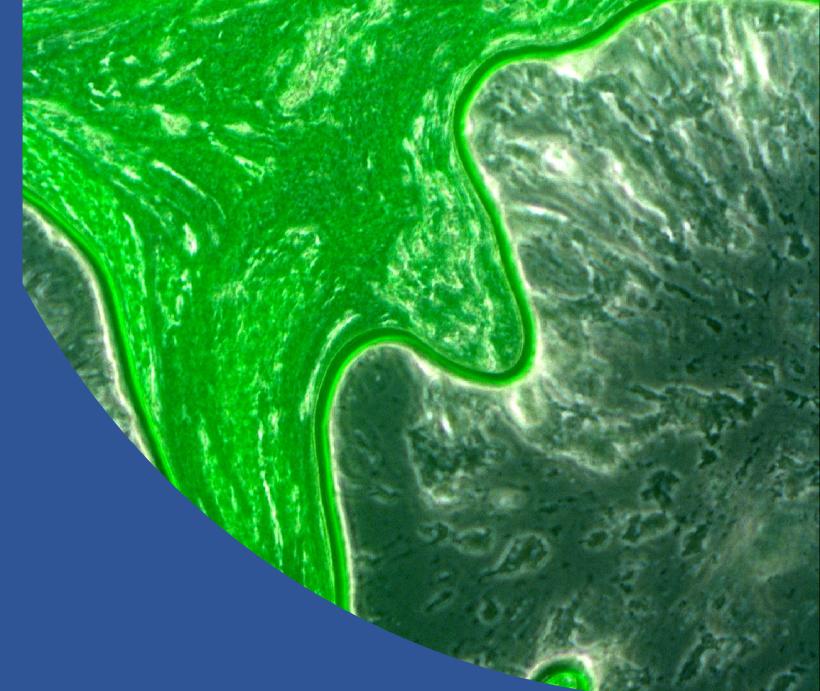
Biology: Emily Davenport

Computer Science and Engineering and Biology: David Koslicki

Anthropology: Laura Weyrich

Veterinary and Biomedical Sciences: Josh Kellogg

Biology: Howie Weiss



2020

Plant Pathology and Environmental Microbiology: Sharifa Crandall

Plant Science: Liana Burghardt

Ecosystem Science and Management: Estelle Couradeau

IST and Medicine: Justin Silverman

Positions in BMB and statistics are in the works
that may also increase our new faculty list

Working with departments to fill gaps in our expertise

Zoom Weekly Meetings
to Campuses

Microbiome Center Timeline



Weekly meetings begin



First Microbiome
Initiative Workshop

PSU
Strategic
Planning
Meeting

First Annual
Networking
Event

Official Start Date of
the Microbiome Center

First Microbiome Hires

Symposia – YouTube Channel
Apple a Day



DAWG

Co-sponsored
Conference
Wild and Tamed
Phytobiomes

Industry
Funded
Graduate
Fellowship

CATS –
Anticipated
2020

Macroses
for
Microbes

SU 2016

FA 2016

SP 2017

FA 2017

SP 2018

FA 2018

SP 2019

FA 2019

Microbiome Center Vision

Penn State will be leaders in microbiome research & education

The Microbiome Center will identify and support research areas where we have strength and/or have the potential to be transformative while simultaneously providing infrastructure and resources needed for a broader involvement in microbiome research

- Goal is to have as broad participation as possible
- We are *A community of researchers studying communities*

A Functioning Community



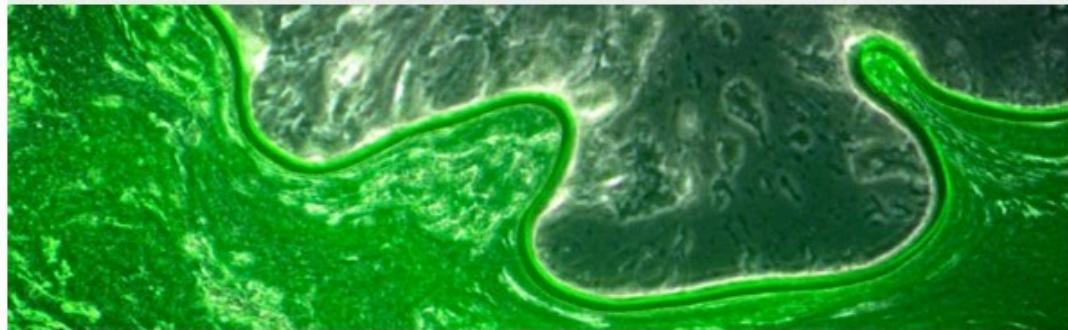
Ursus Wehrli
& J. Leveau

How we currently describe the community



Ursus Wehrli

MICROBIOME CENTER WEEKLY NEWSLETTER



Beyond the zooxanthellae, exploring
the diversity of coral associated
microeukaryotes

Javier del Campo, Ph.D., University of
Miami

AUG 2020

07

11:00 a.m. - 12:00 p.m.

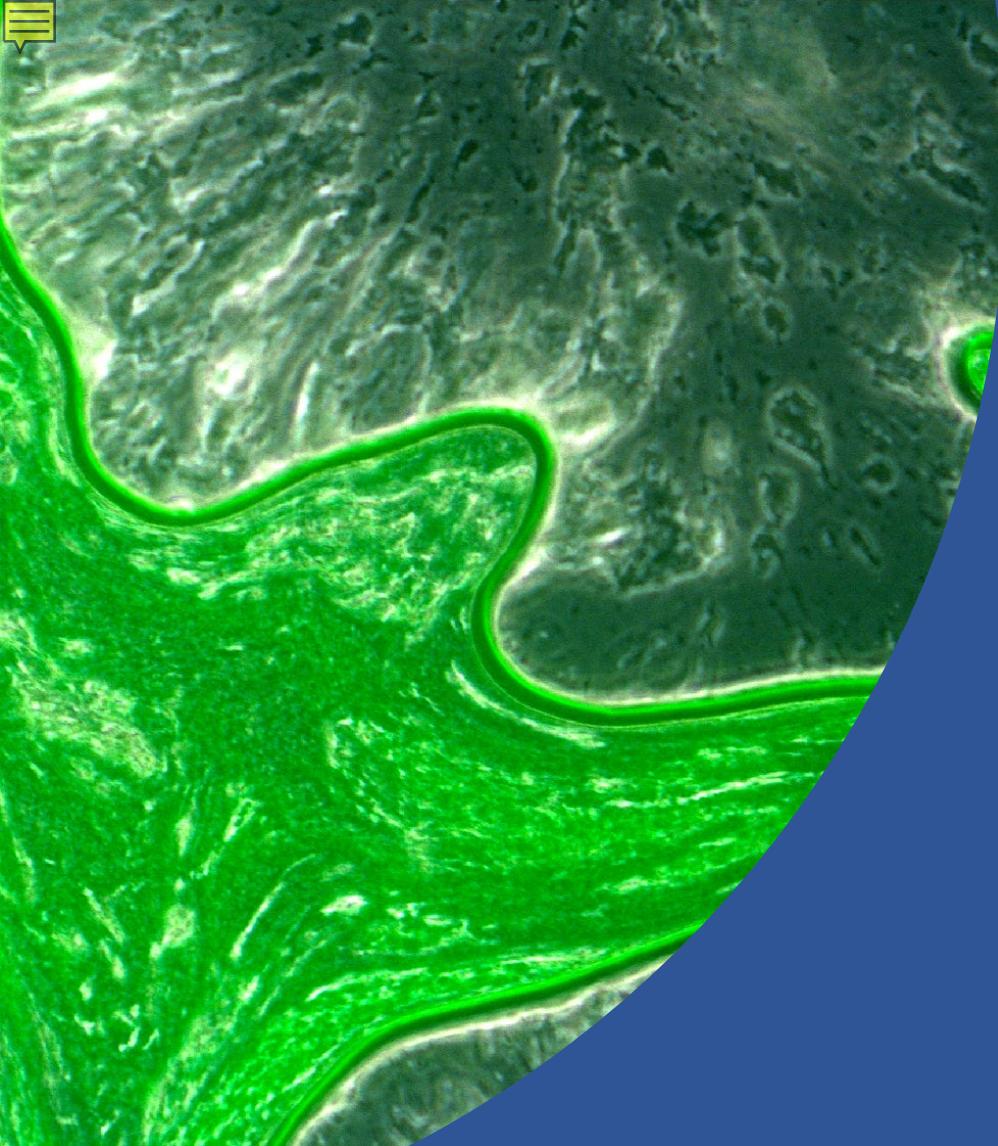
[Join via Zoom](#)

[Upcoming
Events](#)

Penn State Microbiome Center

How can you Join weekly meetings
Contact: Matt Black mblack@psu.edu

The screenshot shows the YouTube channel page for 'Penn State Microbiome Center'. The channel has 35 subscribers. The main video thumbnail is titled 'Microbiome Center Weekly Meeting Presentations' and shows a group of people at a conference booth. Below the video, there are four smaller thumbnail previews of other videos, each with a timestamp: 'Charlie Mason - Penn State Microbiome Center Weekly...' (1:00:09), 'Penn State Microbiome Center welcomes our New...' (51:46), 'Microbiome Center Welcomes our New...' (55:54), and 'Thulani Makhanyane - From deserts to oceans...' (1:05:53). The channel navigation bar includes links for Home, Videos, Playlists, Channels, Discussion, and About.



Penn State Microbiome Center

- Articles in Penn State News
- Letters of support
- Collaborations with faculty at PSU Campuses
 - Funding for collaboration between campuses and UP
 - Visits from faculty (both directions) and director
- Curriculum Committee
- Arts – Microbiome Center events
- Strategic Planning event - January 2020
- Professional Development Events

How To Be Your Own Best Mentor

August 21 from 2 to 5 PM via zoom

Sign up information available through the Microbiome Center Newsletter

The workshop is divided into three parts:

Introduction: Define the place where your passions and skills come together

Part 1: Define the skills on which you are evaluated

Part 2: Make an honest self –evaluation of yourself and learn to make time to bench-mark

Part 3: Define ways to get the skills or demonstrate the skills that you have defined as weak



National Microbiome Centers Meeting June 25-26, 2019

UCI University of California, Irvine



comment

The emergence of microbiome centres

As microbiome science expands, academic centres scramble to fill many needs, from service provider to industry liaison. A newly created network aims to share strategies and accelerate knowledge transfer, and invites others to join the efforts.

Jennifer B. H. Martiny, Katrine L. Whiteson, Brendan J. M. Bohannan, Lawrence A. David, Nicole A. Hynson, Margaret McFall-Ngai, John F. Rawls, Thomas M. Schmidt, Zaid Abdo, Martin J. Blaser, Seth Bordenstein, Christian Bréchet, Carolee T. Bull, Pieter Dorrestein, Jonathan A. Eisen, Ferran Garcia-Pichel, Jack Gilbert, Kirsten S. Hofmockel, Mary L. Holtz, Rob Knight, David B. Mark Welch, Daniel McDonald, Barbara Methé, Nigel J. Mouncey, Noel T. Mueller, Catherine A. Pfister, Lita Proctor and Joel L. Sachs

Microbiomes — assemblages of interacting microorganisms, such as bacteria, archaea, fungi and viruses — are increasingly recognized as being crucial to the functioning of ecosystems, ranging from the deep sea to the human body. Understanding something as complex as a microbiome requires combining perspectives from many disciplines. Such transdisciplinary research is increasingly being organized, supported and facilitated in microbiome centres.

researchers to include microbiomes in their research has outstripped the capacity of microbiome experts to collaborate with newcomers to the field. While we have models for training graduate students in a new field, we do not have good models for training mid-career researchers or beyond who seek to add a new dimension to their work. The centres have tackled this challenge in different ways, from developing service facilities and providing seed funding, to training in microbiome central design and analysis as well as consulting. A second driver of the emergence of microbiome centres is a desire for a more holistic approach to microbiome research; one that shares knowledge on knowledge from across all systems and scientific disciplines. Microbiomes reside nearly everywhere and perform processes that are shaped by similar evolutionary constraints, regardless of habitat. Reflective of this, few of the centres focus exclusively on one such as the human microbiome, encompass research on a variety of animal hosts, environmental systems and human-engineered systems. Microbiome centres thus bring together a range of scholars from the sciences that naturally bridge across institutional university structure. Finally, if microbiome centres is a result of a funding landscape. Centres provide a platform for involving philanthropy in microbiome science with the particular benefit that this funding may not be limited to a specific system.

While these commonalities among microbiome centres, there has been little communication among them. This is now changing. Last year, the Microbiome Centers Consortium (<http://microbiomecenters.org/>) was formed after representatives of 28 US

microbiome centres gathered for a meeting at the University of California, Irvine. The aim of forming such a network of centres is to strengthen their ability to develop their mission, acting as an entry point for those new to the field and providing a cross-disciplinary bridge that paves the way for a more holistic study of microbiomes. The potential synergies of a consortium are numerous: the network can share best practices about their broad range of activities, help reduce redundancy in their workloads and become a communication hub to both advocate for the field and advise policymakers. The MCC can also contribute to the development, implementation and communication of methodological and data standards, as well as curricula and other materials. Finally, and perhaps most importantly, an integrated network can provide a platform for the major work ahead for the field. Regardless of the system (for example, host-associated or environmental), the big questions in microbiome science are similar: what role do microbiomes play in system health and resilience? Are the drivers of community structure conserved across different systems? Can we alter microbiomes to improve environmental and human health, and develop more sustainable biotechnology and resilient agriculture? To answer these questions, the field must uncover fundamental principles of microbiomes that will not be apparent by studying one system at a time. Addressing these challenges will require sharing knowledge, expertise and ideas widely among scientists and non-scientists alike, and across borders.

However, there is also a large structural barrier for microbiome science, which the MCC would aim to address. Over 85% of academic centres in the US are currently supported by short-term, internal funding and depend heavily on faculty members volunteering their time, motivated by a

NATURE MICROBIOLOGY | VOL 5 | JANUARY 2020 | 2-3 | www.nature.com/naturemicrobiology



Jennifer Martiny

@allmicrobiomes

<https://microbe.net/2019/07/02/microbiome-centers-input-wanted/>

<http://microbiomecenters.org/>

**Wanted – help compiling a list of academic #microbiome centers
53 and counting**

COVID and Microbiomes

Next Steps – Strategic planning 2020

Slack Channel
Graduate Curriculum -
Dual Title
Kickstart Workshop
More Corporate Funding
A real website

Awards – Fall Mixer –
Twitter Takeover @PSUmBiome

