



Duke Microbiome Center

Spring 2023 DMC Newsletter

This quarterly newsletter is provided by the Duke Microbiome Center (DMC) to inform the Duke University community about activities, resources, news, funding and educational opportunities, and recent highlights in the microbiome sciences at Duke and beyond. To suggest items for this newsletter or to add someone to our newsletter listserv, please email [Cindy Wicker](mailto:Cindy.Wicker@duke.edu). For further information on the DMC, please visit the DMC [website](https://www.duke.edu/microbiome).

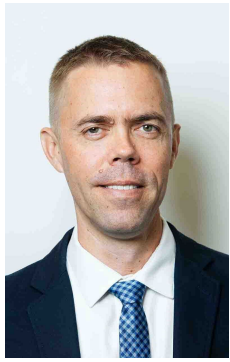
In this newsletter:

- [A Message from the Director](#)
- [Highlights from Listening Tour](#)
- [Pixu Shi joins DMC to assist with Microbiome Biostatistics](#)
- [Eva Kim is awarded the 2022 DMC Diversity Matters Award](#)
- [2023 Duke Summer Bioinformatics Short-Course May 15-26](#)
- [Microbiome Data Analysis Resources](#)
- [ASM Microbiome Resource Page](#)
- [Duke Microbiome Center Development Grants](#)
- [Funding Opportunities through the DMC](#)
- [Upcoming Conferences and Workshops](#)
- [Upcoming DMC Meetings](#)
- [Microbiome Startup Club Returns](#)
- [Highlighted Microbiome Funding Opportunities](#)
- [Highlighted Recent DMC Publications](#)
- [Jobs Listing](#)



A Message from the Director

Dear DMC Community,



As we come upon the end of the first quarter mark of 2023, we already have many new developments to share and celebrate. In the newsletter below, I anticipate you'll find several items that will interest you. Here are some highlights and reminders:

- Eva Kim, a graduate student in Dr. Claudia Gunsch's lab, is the recipient of the [2022 DMC Diversity Matters Award](#). Congratulations and thanks to Eva!
- Dr. Pixu Shi (Duke Dept. of Biostatistics & Bioinformatics) begins a partnership with the DMC to support microbiome biostatistics. See below for details.
- DMC Assistant Director Dr. Jason Arnold provides a summary of his recent listening tour across the DMC. See below for details.
- DMC announces two different Development Grant RFAs with a deadline of 1 May 2023. See below for details.
- Everyone, please save the date for the **North Carolina Microbiome Symposium on Wednesday May 4**. This all-day in-person event will be held at NCBC in RTP with opportunities for poster presenters and networking with academic and industry colleagues. For details and registration portal, click [here](#).
- DMC faculty, if you haven't already, please register for our inaugural DMC Faculty Retreat on May 4-5. To register, please email [Cindy Wicker](#).

In addition to these Center events, we also celebrate the important research and impactful discoveries ongoing in every lab within the DMC. The DMC exists to support you, so as always, please let us know how we can better support your work.

Sincerely,
John Rawls
Director, Duke Microbiome Center

Highlights from Dr. Jason Arnold's DMC listening tour

Since joining the DMC late last year, DMC Assistant Director Dr. Jason Arnold had embarked on a listening tour with the DMC community to identify the evolving needs of our community. With input from over 30 research groups across ~10 departments, we have identified 3 major areas of interest for improvement within DMC.

- 1) Needed resources and computational support.** These needs include bioinformatics support and computational expertise, data storage and computational power, facilitated sample acquisition, and shared tools and technologies.
- 2) Improved visibility of DMC across the Duke campus.** Knowledge of the center's existence and resources is not universal.
- 3) Need for additional microbiome-focused educational opportunities.** Existing courses and workshops are insufficient to reach everyone.

Taking this information into consideration, the Microbiome Center is actively working to expand offerings in each of these areas!

[Back to Directory](#)



Dr. Pixu Shi joins DMC to assist with microbiome biostatistics

[Dr. Pixu Shi, Assistant Professor in the Department of Biostatistics and Bioinformatics](#), has formally partnered with the DMC to assist the DMC community with their microbiome biostatistics needs. Pixu received her Ph.D. in biostatistics from the University of Pennsylvania



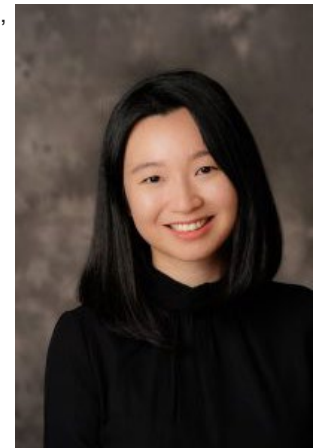
focusing on statistical methods for microbiome data. Her specialties were high-dimensional regression analysis with microbial composition predictors, and taxonomic tree-based two-sample testing. Since joining the Duke faculty in 2020, she has been working primarily with the Duke Cancer Institute on analysis of various genome data including RNA-seq, scRNA-seq, and spatial transcriptomic datasets. In her new partnership with the DMC, Pixu is available on a collaborative basis to work with DMC community members on biostatistical aspects of their projects. This includes, but is not limited to, dimension reduction and association analysis of longitudinal microbiome studies, integration of microbiome and metabolome and other types of data, and other questions prompted by DMC projects. She will be working closely with DMC Assistant Director Dr. Jason Arnold, Dr. So Young Kim, and the Duke Microbiome core to develop and refine the 16S rRNA and shotgun statistical analysis pipelines. She will also be available to DMC labs to assist in grant proposal development, study design and data analysis plan development, review of relevant statistical literature, and either conducting or facilitating data analysis. Please contact Dr. Pixu Shi directly for more information on these opportunities at <pixu.shi@duke.edu>.

[Back to Directory](#)

Eva Kim is awarded the 2022 DMC Diversity Matters Award

The [Duke Microbiome Center \(DMC\)](#) leadership team is happy to announce that the recipient of the 2022 DMC Diversity Matters Award is Eva Kim, a graduate student in the laboratory of Dr. Claudia Gunsch. The DMC is committed to advancing diversity, equity, and inclusion as fundamental to our center's success and excellence (read more [here](#)). Our ability to achieve these ends relies on the initiative, leadership, and engagement of our center members. Launched in 2020, the annual [Diversity Matters Award](#) is designed to recognize individuals within the DMC that have made significant advances towards these ends within Duke and our broader scientific and geographic communities. We are very happy to recognize Eva as the recipient of this year's DMC Diversity Matters Award for their contributions described below..

Eva's receipt of the DMC Diversity Matters Award recognizes the vision, leadership, and generosity she has displayed in advancing diversity, equity and inclusion in her lab, within the Pratt School of Engineering, within the broader Duke community, and even beyond the walls of the university through her work in the NSF IBIEM National Research Training Program and PreMiEr Engineering Research Center. She has served as a member of (1) the Pratt Diversity, Equity, Inclusion and Community Committee; (2) the Pratt School Student Government Council; and (3) the PreMiEr Scholars Leadership Council. Across all of these activities, Eva has worked hard to lend a voice to those who may not have the ability, fortitude or courage to speak up about their experiences in our community. However, her work does not stop at being a voice – she is also a champion for change and ensuring our community challenges itself to move beyond the comfortable status quo. Ms. Kim herself is a member of an underrepresented group within our community and her own lived experience serves as a driving force for championing change as well as a reminder that we all have different lived experiences. Even though we know that diversity is a driver of success, as a community we still struggle with truly bringing equity to the forefront especially when the work is hard. Eva Kim has been an effective student leader in those institutional efforts and is therefore a deserving recipient of this 2022 DMC Diversity Matters Award.



The next nomination cycle for the DMC Diversity Matters Award will be announced in fall 2023. For further details on this award mechanism, go [here](#).

[Back to Directory](#)

2023 Summer Bioinformatics Short-Course May 15-26

The Department of Biostatistics and Bioinformatics (B&B) at Duke University is pleased to accept applications for its 2023 summer bioinformatics short course in Microbiome Immunology Cancer (MIC).

The course will cover the biology, assays, online resources, bioinformatics pipelines and statistical methods needed to understand the analysis and interpretation of the results. This two-week course will be held **May 15 – May 26, 2023**. This is the third year of a five-year training program funded by the National Cancer Institute (NCI). The course will be in **a virtual format**.

The first week of the course will consist of preparatory material, and the second week will focus on an assay-specific sequence. The preparatory sequence will be devoted to teaching the fundamental elements and principles of the microbiome, cancer immunology, computing and statistics needed to prepare students to engage in bioinformatics analysis of high-throughput data. The week two, assay-specific sequence will be devoted to teaching the requisite methodology and tools for conducting in-depth analysis, from start to finish, of microbiome sequence data (16S amplicon and shotgun). In future years, the course will focus on other assays (2024: Whole-Exome DNA-Seq, 2025: TCR-Seq). Course participants are encouraged, but not required, to attend the course over multiple years.

The course will teach best practices in reproducible analysis and provide hands-on practice needed to master performing the requisite analyses. The courses will be self-contained, in that no specialized background in biology, statistics or bioinformatics is assumed, although participants are expected to be sufficiently motivated to learn challenging interdisciplinary material.

There are no fees for attending the course since it is funded by a grant from the NCI. Because of this funding, accepted participants will be asked to formally affirm their commitment to attend the course in its entirety.

We especially welcome applications from women, individuals from underrepresented racial and ethnic groups, individuals with disabilities or individuals from disadvantaged backgrounds.

For additional information, please see the following:

- [Course webpage](#)
- [Course flyer](#)
- [Course FAQ](#)
- [Course Instructors and Staff](#)

If you have any questions please contact the program administrator by email (miccourse@duke.edu).

[Back to Directory](#)

Microbiome Data Analysis Resources

The Microbiome Centers Consortium (MCC) Education Committee has been working on a searchable [microbiome resources list](#), which is now available in beta version. Their vision for the page is to provide an entry point for microbiome data generation and analyses for educators of all skill levels. This page will likely continue to be updated with new listings, so please bookmark it.

[Back to Directory](#)

New ASM Microbiome Resource Page

With the help of the Microbiome Centers Consortium (MCC), the American Society for Microbiology (ASM) has launched a new [Microbiome Resource Page](#) aimed at reaching the public, educators, and other non-specialists. This joins ASM's other useful resource pages on topics such as Climate Change, Monkeypox, Antimicrobial Resistance.

[Back to Directory](#)

Duke Microbiome Center Development Grants

The Duke Microbiome Center is requesting applications for two funding opportunities this spring. The deadline for both is 1 May 2023. See below for details.

Duke Microbiome Center Development Grant

The Duke Microbiome Center (DMC) supports microbiome science at Duke University through pilot project funding. The DMC is pleased to announce this new request for proposals for DMC Development Grants. The objective of the DMC Development Grant program is to support interdisciplinary and collaborative research projects in the microbiome sciences at Duke University. For more information, see [the program announcement](#). The deadline for proposals to this RFA is **1 May 2023**.

Duke Child Health Discovery Initiative – Duke Microbiome Center Joint Partnership Development Grant

The early stages of life are critically important for human health throughout the lifespan and also for assembly and activity of the microbiome. Understanding the associations and interactions between microbiomes and their hosts during early life stages is therefore an important area of research. The [Duke Microbiome Center \(DMC\)](#) is partnering with the [Duke Children's Health and Discovery Initiative \(CHDI\)](#) to offer a CHDI-DMC Joint Partnership Development Grant. The objective is to support interdisciplinary and collaborative research projects at the intersection of child health and the microbiome sciences at Duke University. For more information, see [the program announcement](#). The deadline for proposals to this RFA is **1 May 2023**.

[Back to Directory](#)

Funding Opportunities through the DMC

In addition to the two Development Grant RFAs mentioned above, the DMC offers the DMC Rolling Voucher Program.

DMC Rolling Voucher Program:

Duke University has established shared resources that avail diverse technologies to Duke investigators that can be used to advance microbiome science. To facilitate Duke Microbiome Center investigators' access to these shared resources, particularly for microbiome projects that are not yet externally funded, we are pleased to announce the Duke Microbiome Center Rolling Voucher Program. This rolling voucher program offers vouchers in amounts ranging up to \$10,000. Each DMC faculty member cannot receive more than \$10,000 of funds through this mechanism within any two year period. These vouchers are redeemable at any of the [Duke University School of Medicine's many core facilities](#), and applicants are required to contact the directors of these shared resources to develop project budgets. Learn more [here](#).

[Back to Directory](#)

Upcoming Conferences and Workshops

For a full list of upcoming microbiome conferences, click [here](#). See also the two NC Microbiome Consortium events listed above.

[The Chemical Biology of the Microbiome](#), May 31 - June 1, 2023

The microbiome has been the topic of a growing body of research linking the interactions between microbes and the host organism to a number of novel therapeutic avenues for the treatment of diseases. This two-day conference will convene global experts at the intersection of chemical biology and microbiology to discuss the latest research into the basic metabolism and the therapeutic potential of the microbiome. Presentation topics will include:

- Chemical Approaches for Understanding the Microbiome
- Microbial Metabolites
- Translational Microbiome Research

This symposium will feature keynote presentations by world-renowned leaders in the field, **Dr. Martin J. Blaser**, Rutgers University, **Dr. Laura L. Kiessling**, Massachusetts Institute of Technology, and **Dr. Michael Fischbach**, Stanford University. The event will include a panel discussion on the *Challenges to Translation* and competitively selected short talks and poster presentations by early career investigators, students, and post-docs.

Chemical Biology of the Microbiome will be held in person in New York City and virtually. Abstracts for poster sessions and selected short talks will be due by **March 24, 2023**

[The Molecular and Cell Biology of Symbiosis](#), hosted by the Marine Biological Laboratory in Woods Hole, MA, USA. This is an immersive research-based course designed to teach basic concepts, open research questions, and facilitate state-of-the-art experimental approaches in symbiosis research. The course will take place **10 May – 8 June 2023**, with an application deadline of **10 February 2023**.

The [Gordon Research Conference on Animal Microbe Symbioses](#) is a premier, international scientific conference focused on advancing the frontiers of science through the presentation of cutting-edge and unpublished research, prioritizing time for discussion after each talk and fostering informal interactions among scientists of all career stages. The GRC will be held **June 18-23, 2023** at a small and relatively isolated location in Italy to minimize distractions and transportation issues. The [GRC](#) will be accompanied by a [Gordon Research Seminar \(GRS\)](#). This GRS is a 2-day event predating the GRC (**June 17-18, 2023**) that will enhance scientific education by attracting the brightest young minds in symbioses to network and exchange cutting-edge ideas in a highly-stimulating and non-intimidating environment.

The [SymbNET PhD Summer School on Host-Microbe Symbioses](#), hosted by the Instituto Gulbenkian de Ciência in Portugal. This is a two week, lecture-based course for students interested in host-microbe symbioses. This course is scheduled for **3-16 July 2023**. Registration will open in January/February 2023, with a deadline anticipated by the end of March. More information and a website will be available soon (the old 2022 website is available [here](#), but has not yet been updated for 2023).

[Back to Directory](#)

Upcoming DMC Meetings

[DMC Seminar Series](#): This monthly seminar series is held on *third* Mondays each month at 4PM in-person in MSRB3 1125 with a Zoom option. The DMC Seminar Series is organized by graduate students, postdocs, and fellows in DMC labs, and provides DMC trainees opportunities to build their networks and meet leaders in the field. Our next two speakers are:

- March 20, 2023 - [Barbara Rehermann](#), MD, NIH.
- April 17, 2022 - [Elizabeth Ryan](#), PhD, Colorado State University

DMC Faculty Meetings: The next Faculty meeting will be Monday, May 22, 2023. All faculty meetings are quarterly (every 3 months) on 4th Mondays, at 1:00 PM in-person in 4122 MSRB3 with a Zoom option.

Please mark your calendars!

[Back to Directory](#)

Microbiome Startup Club Returns!

Duke Microbiome Startup club aims to create a bridge between microbiome scientist working in academia and those working in industry. This working group began during COVID and is now being rekindled under leadership of two DMC graduate students Ammara Aqeel and Agastya Sharma.

Monthly events, including industry-focused seminars and social networking events will begin in the upcoming semester. Stay tuned!

[Back to Directory](#)

Highlighted Microbiome Funding Opportunities

[Identification and Characterization of Bioactive Microbial Metabolites for Advancing Research on Microbe-Diet-Host Interactions](#) (R01 Clinical Trial Not Allowed)

[Maximizing the Scientific Value of the NHLBI Biologic Biospecimen Repository: Scientific Opportunities for Exploratory Research](#) (R21)

[Notice of Special Interest: Administrative Supplements for Validation Studies of Analytical Methods for Dietary Supplement Constituents](#) (Admin Supp - Clinical Trial Not Allowed)

[Center for Gastrointestinal Biology and Disease - Pilot Feasibility Grant](#)

[Microsystems Exploration - DARPA](#)

See more microbiome funding opportunities [here](#)

[Back to Directory](#)

Highlights Recent DMC Publications

[Horizontal gene transfer enables programmable gene stability in synthetic microbiota.](#)

[River ecosystem metabolism and carbon biogeochemistry in a changing world.](#)

[The intestine is a major contributor to circulating succinate in mice.](#)

[Prebiotic galactooligosaccharides interact with mouse gut microbiota to attenuate acute graft-versus-host disease.](#)

[Diet-derived metabolites and mucus link the gut microbiome to fever after cytotoxic cancer treatment.](#)

See additional DMC publications [here](#).

[Back to Directory](#)

Jobs Listing

[Duke Microbiome Center Job Board](#) is now Live!

If you have open positions in your lab, please reach out to center admins to have them listed on our website!

New Listings updated daily.

Jobs within Duke Microbiome Center:

[Postdoctoral Fellow – Development and analysis of genomic surveys of human diet](#)

[Postdoctoral Fellow – Genomic surveys of diet and wastewater](#)

[Bioinformatician – Generate, analyze, and visualize genomic food intake data](#)

[Lab Research Analyst – Host–Microbiome–Immune Interactions](#)

[Research Technician – Host–Microbiome–Immune Interactions](#)

[Postdoctoral Associate – Host–Microbiome–Immune Interactions](#)

[Research Technician – Duke Microbiome Core](#)

External Academic Positions:

[Postdoctoral Fellowship – Comparative Genomics/Microbial Ecology – University of Hawaii](#)

[Postdoctoral Fellowship – Microbiota-Host and Microbiota-Diet Interactions – NCSU](#)

[Postdoctoral Fellow – Quantitative Evolutionary Microbiology – Rutgers](#)

[Professor and CIHR Canada Research Chair – Microbiota-Host Interactions – Université du Québec à Montréal](#)

[Back to Directory](#)



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