



Duke Microbiome Center

Summer 2021 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 [Pat Massard](mailto:Pat.Massard). For further information on the DMC, please visit our [website](#).

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A Message from the Director:

Dear DMC Community,

As we prepare these DMC newsletters each quarter, I never fail to be inspired by the scope and impact of the work being carried out across our DMC community. I encourage you to take a minute to browse the sections below and I anticipate you'll find something that will interest you too. For example, here are a few important news items that are described in greater detail in the newsletter below:

- Our new [faculty search](#) in partnership with the Department of Biochemistry is now open!
- The [DMC Rolling Voucher Program](#) has been expanded!
- The next DMC Startup Club is scheduled for September 15th.
- In September, we will also restart the [DMC Research-In-Progress Talk Series](#) (1st Mondays at 4PM) and the [DMC Seminar Series](#) (3rd Mondays at 4PM). In particular, I invite all of you to attend the first seminar series slot of the fall, scheduled for September 20th, in which we will hold a journal club discussion about "Race and Racism in Microbiome Science". Stay tuned for more details on that as the date approaches.
- The DMC will be undergoing a routine center review by the Duke University School of Medicine this fall 2021. DMC faculty and trainees may be contacted to ask for information or short interviews to assist in

this important process, so please keep an eye out for those emails and respond accordingly.

- Faculty please also mark your calendar for our next DMC Faculty Meetings at 1PM on the following dates: 18 October 2021, 31 January 2022, and 25 April 2022.

Finally, I want to update you on the continued work in the Duke University School of Medicine to dismantle racism and advance diversity, equity, and inclusion. As many of you know, the School of Medicine recently released the [“Moments to Movements – Strategic Plan”](#) which summarizes the important work of several committees over the past year to chart a path forward. For this strategic plan to succeed, each of us needs to understand what it contains and to identify those parts of the plan that we are called to contribute to, as individuals and as a center. The DMC leadership strongly supports this strategic plan, and I urge each of you to read it (and then read it again). We will be continuing to work with School of Medicine leaders in the weeks and months to come to identify the best ways for our center to help Duke realize the goals of this important new strategic plan. Realizing the goals of this strategic plan will require individual as well as institutional transformation. I therefore encourage each of you to familiarize yourself with the emerging array of anti-racism training opportunities and resources through the [Office of Diversity and Inclusion](#), [Office of Institutional Equity](#), [Office of Faculty Advancement](#). These webpages will continue to be updated in the weeks and months to come as more programs are formalized and announced, so please refer back to them. One interesting workshop series with a rapidly approaching deadline is the ["Racial Equity Learning Arc Program"](#) with registration closing this week August 20.

At the same time, the DMC is continuing to identify ways we can respond to these challenges in field-specific and center-specific ways. Over the last year, the DMC has taken several steps in that direction, including establishing our

new [DMC Seminar Series](#) that includes an intentionally diverse slate of speakers and establishing the [DMC Diversity Matters Award](#) (nominations for the 2022 award will be open later this fall!). Our center discussion at 4PM on September 20th will give us a forum to discuss further challenges and potential action items for the DMC in the months to come. I look forward to seeing you there!

Sincerely,

John F. Rawls

Director, Duke Microbiome Center

Microbiome Biochemistry Faculty Search is Open!

The Duke Microbiome Center and the Department of Biochemistry at the Duke University School of Medicine are partnering in a faculty search in the field of microbiome biochemistry. More information and application instructions can be found [here](#). Please help circulate this advertisement within your respective networks and help us recruit another great colleague into our community.

DMC Rolling Voucher Program Has Been Expanded!

For the last several years, the DMC has offered a [Rolling Voucher Program](#) which seeks to provide small funds to support small microbiome projects that currently lack external funding. Since its inception, this program was limited to a subset of Duke core facilities and was capped at \$5,000 every two years for

each faculty member. In response to feedback from DMC membership, the program was expanded this summer to be open to all Duke School of Medicine cores and the cap has been increased to \$10,000 every two years for each faculty member. Read more [here](#) and take advantage of this exciting program!

Funding Opportunities through the DMC

The DMC current has one active funding opportunity:

[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](#).

Next DMC Startup Club Session Will Be September 15

The DMC Startup Club brings together people from DMC and the rest of the Duke community to learn about translation, commercialization, and company

formation in the microbiome sciences. Our next speaker will be Dr. Will DeLoache from [Novome Biotechnologies](#). The meeting will be Wednesday September 15th, from 4:00-5:00PM in 1125 MSRB3 with a Zoom option. If you would like to receive future emails about the DMC Startup Club, contact [Pat Massard](#).

Upcoming DMC Meetings

** Note: all DMC seminars and faculty meetings will be hybrid until further notice. Videoconference links will be provided by email. **

DMC Seminar Series: This monthly seminar series is held on *third* Mondays each month at 4PM in-person in 1125 MSRB3 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. Instead of a seminar, on September 20th there will be a DMC Journal Club discussion about Racism in Microbiome Science. [Dr Ariane Peralta](#) of ECU will present on October 18th. The complete schedule of speakers and location can be viewed [here](#).

DMC Microbiome Research-In-Progress Talks: This monthly research-in-progress series is held on *first* Mondays at 4PM in-person in 1125 MSRB3 with a Zoom open. It is open to the entire DMC community. The schedule of speakers and location can be viewed [here](#). If you would like to present your work in a future DMC Microbiome Research-In-Progress meeting, please contact [Pat Massard](#).

DMC Faculty Meetings: The next DMC faculty meetings will be 18 October 2021, 31 January 2022, and 25 April 2022. All faculty meetings are at 1:00PM in-person in

4122 MSRB3 with a Zoom option.

Please mark your calendars!

News

[Dr. Neil Surana named new Director of the Duke Scholars in Molecular Medicine \(DSMM\)](#) - 6/29/2021

The Duke Clinical and Translational Science Institute (CTSI) has announced that DMC's [Neil Surana, MD, PhD](#), an Assistant Professor of Pediatrics, Immunology, and Molecular Genetics and Microbiology in the School of Medicine, will be the next Director of the [Duke Scholars in Molecular Medicine \(DSMM\)](#) career development program. Read more [here](#).

[Our genes shape our gut bacteria, new research shows](#) - 7/29/2021

Under the leadership of the DMC's [Jenny Tung, PhD](#) and collaborators at Duke, the University of Minnesota, and Notre Dame, researchers discovered that most bacteria in the gut microbiome are heritable after looking at more than 16,000 gut microbiome profiles collected over 14 years from a long-studied population of baboons in Kenya's Amboseli National Park. However, this heritability changes over time, across seasons and with age. The team also found that several of the microbiome traits heritable in baboons are also heritable in humans. Their study was published in [Science](#) on July 9.

[Drug-resistant bacteria found in the guts of lemurs who live around humans](#) - 8/11/21

In a new study appearing August 9 in the journal *Frontiers in Ecology and*

Evolution, the DMC's [Christine Drea, PhD](#) and graduate student Sally Bornbusch have found evidence for antibiotic resistance in the microbiome of lemurs living close to humans. And the closer the contact, the more antibiotic resistance they found. Read more [here](#).

Upcoming Conferences and Workshops

For a full list of upcoming microbiome conferences, click [here](#).

Highlighted Microbiome Funding Opportunities

Identification and Characterization of Bioactive Microbial Metabolites for Advancing Research on Microbe-Diet-Host Interactions (R01 Clinical Trial Not Allowed). Award Amount: See solicitation for details (see [here](#)). 10/20/2021

Identification and Characterization of Bioactive Microbial Metabolites for Advancing Research on Microbe-Diet-Host Interactions Knowledgebase Management Center (U24 Clinical Trial Not Allowed). Award Amount: See solicitation for details (see [here](#)). 10/20/2021

Modulating Intestinal Microbiota to Enhance Protective Immune Responses against Cancer (R01 Clinical Trial Not Allowed). Award Amount: See solicitation for details (see [here](#)). 11/8/2021

Microbial-based Cancer Therapy - Bugs as Drugs (R01, R21 Clinical Trial Not Allowed). Award Amount: See solicitation for details (see [here](#)). 10/5/2021

Notice of Special Interest (NOSI): Methods Development in Natural Products Research (SBIR/STTR). Award Amount: See solicitation for details (see [here](#)). 9/5/2021

See more microbiome funding opportunities [here](#).

Highlighted Recent DMC Publications

Kim YJ; Womble JT; Gunsch CK; Ingram JL. The gut/lung microbiome axis in obesity, asthma, and bariatric surgery: A literature review. *Obesity* 29:636 (4/1/2021) <https://scholars.duke.edu/individual/pub1476391>

Gogarten JF; Rühlemann M; Archie E; Tung J; Akoua-Koffi C; Bang C; Deschner T; Muyembe-Tamfun J-J; Robbins MM; Schubert G. Primate phageomes are structured by superhost phylogeny and environment. *P Natl Acad Sci USA* 118 (4/1/2021) <https://scholars.duke.edu/individual/pub1480543>

Paasch BC; He SY. Toward understanding microbiota homeostasis in the plant kingdom. *PLoS Pathog* 17:e1009472 (4/22/2021) <https://scholars.duke.edu/individual/pub1480471>

Tang H; Bohannon L; Lew M; Jensen D; Jung S-H; Zhao A; Sung AD; Wischmeyer PE. Randomised, double-blind, placebo-controlled trial of

Probiotics To Eliminate COVID-19 Transmission in Exposed Household Contacts (PROTECT-EHC): a clinical trial protocol. *BMJ Open* 11:e047069 (5/5/2021) <https://scholars.duke.edu/individual/pub1482275>

Patel P; Roper J. Gut microbiome composition is associated with COVID-19 disease severity. *Gastroenterology* (5/13/2021) <https://scholars.duke.edu/individual/pub1483536>

Becken B; Davey L; Middleton DR; Mueller KD; Sharma A; Holmes ZC; Dallow E; Remick B; Barton GM; David LA. Genotypic and phenotypic diversity among human isolates of *Akkermansia muciniphila*. *mBio* 12 (5/18/2021) <https://scholars.duke.edu/individual/pub1482886>

Fuirst M; Ward CS; Schwaner C; Diana Z; Schultz TF; Rittschof D. Compositional and functional microbiome variation between tubes of an intertidal polychaete and surrounding marine sediment. *Front Mar Sci* 8 (5/31/2021) <https://scholars.duke.edu/individual/pub1486029>

Simonin M; Rocca JD; Gerson JR; Moore E; Brooks AC; Czaplicki L; Ross MRV; Fierer N; Craine JM; Bernhardt ES. Consistent declines in aquatic biodiversity across diverse domains of life in rivers impacted by surface coal mining. *Ecol Appl* e2389 (6/17/2021) <https://scholars.duke.edu/individual/pub1486244>

Congdon M; Hong H; Young RR; Cunningham CK; Enane LA; Arscott-Mills T; Banda FM; Chise M; Motlhatlhedhi K; Feemster K. Effect of *Haemophilus influenzae* type b and 13-valent pneumococcal conjugate vaccines on childhood pneumonia hospitalizations and deaths in Botswana. *Clin Infect Dis* 73:e410 (7/1/2021) <https://scholars.duke.edu/individual/pub1450743>

Grieneisen L; Dasari M; Gould TJ; Björk JR; Grenier J-C; Yotova V; Jansen D; Gottel N; Gordon JB; Learn NH; ; Gesquiere LR; Wango TL; Mututua RS; Warutere JK; Siodi L; Gilbert JA; Barreiro LB; Alberts SC; Tung J; Archie EA; Blekhman R. Gut microbiome heritability is nearly universal but environmentally contingent. *Science* 373:181 (7/1/2021)

<https://scholars.duke.edu/individual/pub1488818>

Redfern LK; Jayasundara N; Singleton DR; Di Giulio RT; Carlson J; Sumner SJ; Gunsch CK. The role of gut microbial community and metabolomic shifts in adaptive resistance of Atlantic killifish (*Fundulus heteroclitus*) to polycyclic aromatic hydrocarbons. *Sci Total Environ* 776:145955 (7/1/2021)

<https://scholars.duke.edu/individual/pub1475568>

Silverman JD; Bloom RJ; Jiang S; Durand HK; Dallow E; Mukherjee S; David LA. Measuring and mitigating PCR bias in microbiota datasets. *PLoS Comput Biol* 17:e1009113 (7/6/2021) <https://scholars.duke.edu/individual/pub1487983>

Wen J; Mercado GP; Volland A; Doden HL; Lickwar CR; Crooks T; Kakiyama G; Kelly C; Cocchiari JL; Ridlon JM; Rawls JF. Fxr signaling and microbial metabolism of bile salts in the zebrafish intestine. *Sci Adv* 7 (7/23/2021)

<https://scholars.duke.edu/individual/pub1489887>

Bornbusch SL; Drea CM. Antibiotic resistance genes in lemur gut and soil microbiota along a gradient of anthropogenic disturbance. *Front Ecol Evol* 9:704070 (8/9/2021) <https://doi.org/10.3389/fevo.2021.704070>

See more DMC publications [here](#).

Jobs Listing

[Research Assistant](#) - Theriot Lab, NCSU

[Research Assistant](#) - Kartzinel Lab, Brown University

[Postdoc](#) - Archie Lab, University of Notre Dame