



Duke Microbiome Center

September 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).

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A Message from the Director

Dear DMC Community,



As we move into the new fall semester, the DMC is excited to announce several new resources and events. Please take a few minutes to look through the articles below, and I anticipate that you'll find items that will be of interest and benefit to you.

- A new collaborative agreement provides significantly improved computational resources to DMC labs
- The DMC will host the next meeting of the North Carolina chapter of the American Society for Microbiology (NC ASM) on November 4, 2023
- The Breakfast Club - a new community building forum with free breakfast on Wednesday mornings
- Nominate a colleague for the DMC Diversity Matters Award, deadline January 8, 2024

Please read below for more details on each of these and other topics. 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

New collaborative agreement provides improved computational resources to DMC labs

The DMC is very excited to announce that we have finalized a resource sharing agreement with Duke's Center for Human Systems Immunology (CHSI) that will provide increased access to computational resources within the Duke Compute Cluster (DCC) for all Duke Microbiome Center investigators (and their lab members)!

Our agreement has resulted in a new partition within DCC that will provide higher priority to DMC and CSHI members than to the general public within Duke.

Historically, everyone at Duke has low priority access to resources in DCC by using "scavenger" or "common" nodes, allowing jobs to run if unused resources are available. This resulted in all "low priority" individuals to compete for resources, often causing delays in resource allocation (ultimately delaying processes).

With our new DCC partition, all members will circumvent the queues for the resources allocated to our centers.

All DMC and CSHI lab groups should already have been granted access to the partition, and the partition is officially online!

To access the partition, you'll need to simply add the partition name (**dmcshared**) to any scripts or commands run on DCC!

For example, if using sbatch to run scripts in DCC, you'll simply add dmcshared to your header, and nodes within that partition will be prioritized for the analyses:

```
#SBATCH --job-name="job"
```

```
#SBATCH --partition=dmcshared,scavenger
```

By adding "dmcshared", your job will automatically be queued at medium priority for all nodes within the dmcshared partition. Access to scavenger partition will remain at low priority, but can be added to the script as a backup in case all dmcshared resources are full.

Please share this information with your lab members, as they should all have access to these resources as well!

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DMC is hosting the next NC ASM Meeting on November 4

The [North Carolina Branch of the American Society for Microbiology \(NC-ASM\)](#) has selected DMC Assistant Director Dr. Jason W. Arnold as their president for the 2023-2024 term.

As a result, the Annual NC-ASM Research Conference will be taking place at Duke University this fall! Event is scheduled for Saturday, November 4th at the Trent Semans Center for Health Education.

[Registration for the event is open now!](#)

American Society for Microbiology Distinguished Lecturer, [Dr. Kristen DeAngelis](#) from University of Massachusetts Amherst will be attending as Keynote Speaker for the event!

The Duke Microbiome Center will be heavily involved in event planning and hosting, providing a microbiome-focused talk session in addition to the general microbiology talks. There will be limited space for talks/posters, so if you are interested in presenting your work, please register ASAP!

Deadline to [submit an abstract](#) is October 13th.

Additional information and reminders about the event will be sent to DMC and departmental email lists and will be posted on [DMC](#) and [NC-ASM](#) websites. Please stay tuned and plan on attending!

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The Breakfast Club has launched!

We are excited to announce the launch of “The Breakfast Club” - a weekly community building forum every Wednesday morning with free breakfast and coffee.

WHO: This new forum is jointly sponsored by the Department of Integrative Immunobiology (IIB), Department of Molecular Genetics and Microbiology (MGM), Center for Host-Microbial Interactions (CHoMI) and Duke Microbiome Center (DMC). Students, postdocs, staff, and faculty in any laboratory affiliated with DMC, CHoMI, MGM, or IIB are invited.



WHEN: Weekly every Wednesday from 8:00-10:00AM

WHERE: OBGE Lounge in MSRB3 room 1260

WHAT: Free coffee and breakfast catered by NOSH (while supplies last!) in a flexible and informal space for community building.

WHY: We seek to build community across IIB, MGM, CHoMI, and DMC. In addition to informal conversation, attendees are invited to use The Breakfast Club to hold any kind of small group activity (e.g., small group meetings, journal clubs, office hours, practice chalk talks, networking, etc.). Be creative – it's your forum!

The Breakfast Club will not be held on Sept. 13 due to the MGM Retreat.

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David Lab Research on Using DNA Barcoding to Identify Plants People Have Eaten Is Published



A new technique using DNA barcoding to identify the plant matter in human feces may get at the truth, improving clinical trials, nutrition studies, and more.

Building on earlier studies that attempted to compare DNA found in feces with reported diets, graduate student Briana Petrone and other researchers in the lab of DMC's [Lawrence David](#) have developed a genetic marker for plant-based foods that can be retrieved from poop.

The marker is a region of DNA plants use to power chloroplasts, the organelle that converts sunlight into sugars. Every plant has this genomic region, called trnL-P6, but it varies slightly from species to species. In a series of experiments, they tested the marker on more than 1,000 fecal samples from 324 study participants across five different studies, about twenty of whom had high-quality records of their diet.

In findings in the [Proceedings of the National Academy of Sciences](#), the researchers show that these DNA markers can indicate not only what was consumed, but the relative amounts of certain food species, and that the diversity of plant DNA found in feces varies according to a person's diet, age, and household income.

Click [here](#) to read more.

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Valdivia Lab Unlocks Akkermansia Genetics



Utilization of genetic systems in host-derived microorganisms provide unique tools to better understand host-microbiota interactions! In recent work published in *Nature Microbiology*, the Valdivia lab has made major advancements in the development of functional genetic systems in the human gut microorganism, *Akkermansia*.

Click [here](#) to read more!

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Microbiome Center Researchers Revisit Results of High Profile Mycobiome Publication

A 2019 [publication in Nature](#) by New York University researchers described changes in fungal communities that were associated with pancreatic cancer.

Supported by a [DMC Development Grant](#), Duke investigators Peter Allen and Matthew Kelly analyzed the microbiome in pancreatic cancer samples in their own repository and also re-analyzed the next generation sequencing data sets from the published study above, to find that their results were inconsistent with the original conclusions.

These findings were recently published as a “Matters Arising” in *Nature* in August 2023 entitled:

[“Revisiting the intrinsic mycobiome in pancreatic cancer”](#)

This work has also been highlighted in a recent [New York Times article](#) exploring the challenges of studying low-biomass microbial communities that may exist in host tissues.

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News & Awards

- [Saunders Named 2023 Medical Alumni Association Awardee](#)
- [Lodge speaks on the Value of Federal Investments in Research](#)

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Updated Membership Criteria for New DMC Faculty

The DMC has historically required faculty candidates requesting to join DMC to give a brief presentation during a DMC quarterly faculty meeting, seminar series, or other DMC forum.

Due to increased demand for new memberships, and limited opportunities for presentations throughout the year, we have adjusted the membership pipeline for new investigators.

Instead of being required to present at a faculty meeting, faculty candidates may now submit a brief pre-recorded video presentation, which will be shared with the microbiome research community and evaluated by DMC leadership. We feel that including this digital component in membership will help to expand new investigator visibility within the DMC, and will provide more opportunities for faculty within DMC to identify potential collaborators.

As we begin putting this new procedure into action, we would like existing DMC investigators to consider producing short video presentations (10-15 minutes) highlighting their own research interests and goals, which can also be made available to the whole microbiome research community at Duke!

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Nominate a colleague for the DMC Diversity Matters Award

The annual [DMC “Diversity Matters Award”](#) is designed to recognize individuals within DMC laboratories that have made significant advances towards the DMC’s goals to advancing diversity, equity, and inclusion within Duke and our broader scientific and geographic communities. Nominations are now invited for the 2023 DMC Diversity Matters Award. Nominees should have contributed to one or more of the ends stated above, and thereby advancing diversity, equity, and/or inclusion.

Application deadline: **5:00PM EST on Monday January 8th, 2024**

Eligibility of nominee: Any student, fellow, faculty, or staff employed at Duke University in a DMC laboratory for at least 6 months prior to the nomination deadline.

Eligibility of nominator: Any student, fellow, faculty, or staff at Duke University. The nominator does not necessarily need to be affiliated with the DMC. Self-nominations are not permitted.

Nomination package contents:

- Nomination letter (2 pages max) written by the nominator describing the specific ways the nominee has contributed to the ends above;
- Letter of support (2 pages max) written by someone other than the nominator. This referee does not necessarily need to be employed at Duke University or affiliated with the DMC;
- The nominee’s full CV.

Please consider nominating a deserving colleague for this important award this year. For more information, go [here](#).

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Funding Opportunities through the DMC

[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](#).

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Upcoming Conferences and Workshops

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

From studying cryptococcal morphogenesis to mRNA vaccine development:

- Tuesday, September 12, 2023
- 12:30 pm - 1:30 pm
- [Nanaline Duke 147](#)
- Xiaorong LinUPGG Tuesday Seminar Series

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Upcoming DMC Meetings

[DMC Seminar Series](#): We are currently in the process of reorganizing DMC Seminars to better accommodate the schedules of DMC members. No seminars are scheduled at this time.

DMC Faculty Meetings: The next Faculty meeting will be Monday, November 27, 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!

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Highlighted Microbiome Funding Opportunities

- **Request for Information: Prioritization of Drug, Vaccine, and Dietary Supplement Research Needs for Pregnant, Postpartum, and Lactating Persons** ([https://urldefense.com/v3/__https://us19.mailchimp.com/mctx/clicks?url=https*3A*2F*2Fresearchfunding.duke.edu*2Frequest-information-prioritization-drug-vaccine-and-dietary-supplement-research-needs-pregnant&id=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=5bd1b5f37dd5b2d795be650ec4b4754ac9e21ea77fdda98c7f8bac1c191a594f__;JSUIJQ!!OToaGQ!tHs3LhoiZqXGxGQUSchvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC6Aw16We\\$](https://urldefense.com/v3/__https://us19.mailchimp.com/mctx/clicks?url=https*3A*2F*2Fresearchfunding.duke.edu*2Frequest-information-prioritization-drug-vaccine-and-dietary-supplement-research-needs-pregnant&id=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=5bd1b5f37dd5b2d795be650ec4b4754ac9e21ea77fdda98c7f8bac1c191a594f__;JSUIJQ!!OToaGQ!tHs3LhoiZqXGxGQUSchvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC6Aw16We$))
- **Coastal Program Grants** (https://urldefense.com/v3/__https://us19.mailchimp.com/mctx/clicks?url=https*3A*2F*2Furldefense.com*2Fv3*2F__http*3A*2Fgrants.nih.gov*2Fgrants*2Fguide*2Fnotice-files*2FNOT-RM-23-015.html__*3B*21*21OToaGQ*21rZLD3_n6F3Wjbg4vwos_6DICbRmeYnBz-XC9ccZDgZk-IGfmk1yHMFdshttK53tCMEcliFxiWjcELp8w1Z6B5sDkg*24&id=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=2adbbfc05300)

[999fa5b2b0a4525efcb29d9af5f70fcb4f43fee3e5302283575c_;](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Furldefense.com%2Fv3%2Fhttp%3A%2Fgrants.nih.gov%2Fgrants%2Fguide%2Fnotice-files%2FNOT-RM-23-016.html%3B%21%21OToaGQ%21rZLD3_n6F3Wjbg4vwos_6DICbRmeYnBz-XC9ccZDgZk-IGfmk1yIHMFdshttK53tCMEcliFixiWjclp8w1YjHTFziQ%24&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=128c0e583baf83de395c3bd463a95f57c66815109bd4d11e526290db2fde51b)JSUIJSUIJSUIJSUIJSUIJQ!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC6EZuYkQ\$)

- **Time-Sensitive Opportunities for Health Research (R61/R33 Clinical Trial Not Allowed)** ([https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Furldefense.com%2Fv3%2Fhttp%3A%2Fgrants.nih.gov%2Fgrants%2Fguide%2Fnotice-files%2FNOT-RM-23-016.html%3B%21%21OToaGQ%21rZLD3_n6F3Wjbg4vwos_6DICbRmeYnBz-XC9ccZDgZk-IGfmk1yIHMFdshttK53tCMEcliFixiWjclp8w1YjHTFziQ%24&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=128c0e583baf83de395c3bd463a95f57c66815109bd4d11e526290db2fde51b";JSUIJSUIJSUIJSUIJSUIJQ!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC8BddCh5\\$](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Furldefense.com%2Fv3%2Fhttp%3A%2Fgrants.nih.gov%2Fgrants%2Fguide%2Fnotice-files%2FNOT-RM-23-016.html%3B%21%21OToaGQ%21rZLD3_n6F3Wjbg4vwos_6DICbRmeYnBz-XC9ccZDgZk-IGfmk1yIHMFdshttK53tCMEcliFixiWjclp8w1YjHTFziQ%24&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=128c0e583baf83de395c3bd463a95f57c66815109bd4d11e526290db2fde51b))
- **Organismal Response to Climate Change (ORCC): Expanding Understanding and Improving Predictions of Life on a Warming Planet** ([https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fresearchfunding.duke.edu%2Forganismal-response-climate-change-orcc-expanding-understanding-and-improving-predictions-life&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=52f92f1aa54fbb27d9d7d7f84e2e9abeb24eeb544650758b40ec1e1ab5aeec38";JSUIJQ!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC9MljRb3\\$](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fresearchfunding.duke.edu%2Forganismal-response-climate-change-orcc-expanding-understanding-and-improving-predictions-life&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=52f92f1aa54fbb27d9d7d7f84e2e9abeb24eeb544650758b40ec1e1ab5aeec38))

See more microbiome funding opportunities [here](#)

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Highlights Recent DMC Publications

Names of MGM authors are bolded.

Daniel Rittschof "*Omics*" *Techniques Used in Marine Biofouling Studies*" ([https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1571673&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=f16849fd577b84e02ac63a81afe873861e5fa845f3d6d7e9cf19ede8f2369b93";JSUIJSUI!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC1MaQyUV\\$](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1571673&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=f16849fd577b84e02ac63a81afe873861e5fa845f3d6d7e9cf19ede8f2369b93))

Emily S. Bernhardt "*MacroSheds: A synthesis of long-term biogeochemical, hydroclimatic, and geospatial data from small watershed ecosystem studies*" ([https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1569528&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=d4f7d783de5e00ad829dc3fd963992db3ecdd20e802017aef2610b9dbae12de4";JSUIJSUI!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NCwCyNvfl\\$](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1569528&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=d4f7d783de5e00ad829dc3fd963992db3ecdd20e802017aef2610b9dbae12de4))

Anthony D Sung "*High-resolution analyses of associations between medications, microbiome, and mortality in cancer patients*" ([https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1562508&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=b682fbd13f189c97014aad60e2b12340fbf59a5dd8a6169814da9e3bdd089e28";JSUIJSUI!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NCyZyjYdF\\$](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1562508&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=b682fbd13f189c97014aad60e2b12340fbf59a5dd8a6169814da9e3bdd089e28))

Joseph Heitman "*Frequent transitions in mating-type locus chromosomal organization in *Malassezia* and early steps in sexual reproduction*" (https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1565372&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=78a3c09eb476769ce2ab5)

[26d8c0b894ff5af4495760e47d9762d6393c8aee636_;JSUIJSU!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC_HlgFr-\\$\)](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1578773&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=c39c4e5de28e3cf976c9c6e73e5d950338d7bafd4b875a8e17408b03735090b5)

Matthew Kelly "*Leveraging the human microbiota to target bacterial respiratory pathogens: new paths toward an expanded antimicrobial armamentarium*"

([https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1578773&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=c39c4e5de28e3cf976c9c6e73e5d950338d7bafd4b875a8e17408b03735090b5_;JSUIJSU!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC-PVx092\\$](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1578773&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=c39c4e5de28e3cf976c9c6e73e5d950338d7bafd4b875a8e17408b03735090b5))

[url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1578773&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=c39c4e5de28e3cf976c9c6e73e5d950338d7bafd4b875a8e17408b03735090b5_;JSUIJSU!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NC-PVx092\\$](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Fpublication%2F1578773&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=c39c4e5de28e3cf976c9c6e73e5d950338d7bafd4b875a8e17408b03735090b5))

Jason Arnold "*Greener residential environment is associated with increased bacterial diversity in outdoor ambient air*" ([https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Findividual%2F1571561&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=3923c493a1cb0d5e08364719b6d6a63ed8cb52b4f516f5854679a25cade61fa8_;JSUIJSU!!OToaGQ!tHs3LhoiZqXGxGQUscbvgtCYJWuPie31NmkZPPMAPGe3Onti3eetSs0_-SA2o9OecyoiObsH2yVB95gX45Bt9B7NCxHLyq9C\\$](https://urldefense.com/v3/https://us19.mailchimp.com/mctx/clicks?url=https%3A%2F%2Fscholars.duke.edu%2Findividual%2F1571561&xid=b95b8063c1&uid=106355658&iid=10440441&pool=template_test&v=2&c=1694139379&h=3923c493a1cb0d5e08364719b6d6a63ed8cb52b4f516f5854679a25cade61fa8))

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