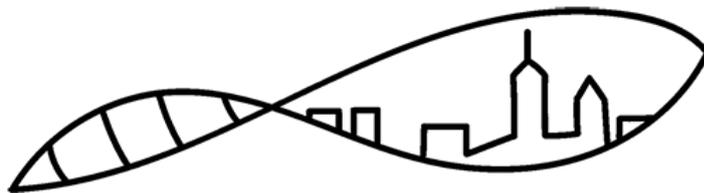


# REMNET



RESEARCH EXPERIENCES IN MICROBIOMES NETWORK  
NEWSLETTER

SEPT. 2020, ISSUE 7



**Happening now Sept. 28th –  
Oct 4th, 2020**

The mission of the event is to showcase the presence and accomplishments of Black microbiologists from around the globe. The organizers want to connect Black microbiologists with one another and help nurture and grow a sense of community among them. They also aim to provide a forum for the discussion of racial disparities in microbiology and its sub-disciplines, and engage with the community at large to increase general microbiology knowledge. Let's help the event and amplify the work of Black scientists in all fields, let's acknowledge their contributions to their disciplines and give our support the collective work of pursuing equity in academe, industry, government, and beyond. It is a vibrant celebration of Black microbiologists, with talks and panels featuring microbiologists across career stages and subdisciplines. Including:

**Dr. Beronda Montgomery**  
**Dr. Kizzmekia Corbett**  
**Dr. Michael D.L. Johnson**



## ***Black Microbiologists Push for Visibility Amid a Pandemic***

A week of talks, panels and discussions seeks to counter an impression “that this talent pool just does not exist.”

[The New York Times has also featured the story. Read it here!](#)

### UPCOMING EVENTS:

**SACNAS:** 10/19/20-10/24/20

ONLINE REGISTRATION OPEN NOW

**ASM:** 10/23/20-10/26/20

CONFERENCE ON NEXT GENERATION  
SEQUENCING

LAST CHANCE REGISTRATION BY OCT  
26TH

**MACUB:** 10/31/20

VINCENT RANCANIELLO WILL BE ONE  
OF THE GUEST SPEAKERS

**AACU:** 11/5/20-11/7/20

TRANSFORMING STEM HIGHER  
EDUCATION

**ABRCMS:** 11/9/20-11/13/20

ONLINE  
REGISTRATIONS OPENS 9/8/20



# CONGRATULATIONS VERONICA!

Our very own Veronica Segarra, REMNet member and co-chair of the wet bench working group has been named one of the 100 of the most inspiring Hispanic/Latinx scientists working in the United States.

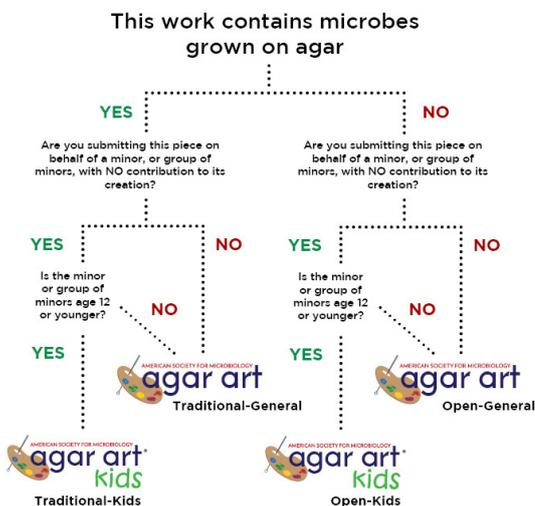
Compiled by the folks at Cell MENTOR, members were selected based on their scholarly achievements, mentoring excellence, and commitment to diversity, equity, and inclusion. Their aim was to highlight diverse scientists who can give seminars, serve as panelists, or fill scientific positions. They highlighted scientists encompassing careers within academia, government, and biotech and showcase individuals committed to serving diverse student populations at Hispanic-serving institutions.

While the list is not fully representative of all the Hispanic/Latinx scientific working in our communities, it may help change the perception of what a scientist looks like.



## AGAR ART COMPETITION - Deadline Oct 23rd

This year, Agar Art (like everything else) will be different. Recognizing the safety issues presented by the COVID-19 pandemic, as well as the current difficulty of accessing supplies, resources and especially laboratories, they've decided to open up the contest to allow different types of submissions. We will now allow participants to utilize a broad range of media to create their artwork. Check out the "Open" category to learn more about this new twist to the contest. If you're able to safely access laboratory equipment and resources, contestants can still enter the contest by submitting their entry under the "Traditional" category. What a lovely way to engage the public with the microbial sciences on social media!!



## Editing the microbiome

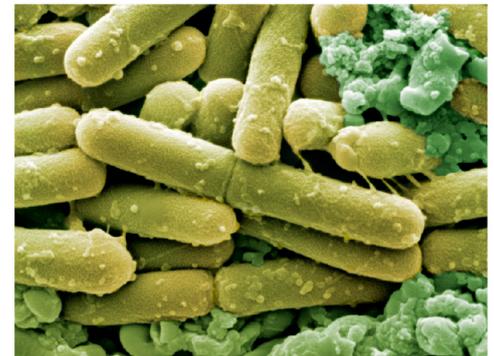
After years of monitoring the body's microbial communities, researchers are now starting to modify them to treat disease.

Jyoti Madhusoodanan, Science Writer

Put the gut microbes from an obese mouse into the body of a lean one, and the latter will pack on weight—even without changes to its diet, activity, or other habits (1). Such studies have made it increasingly clear that an organism's commensal microbes can have powerful health effects, including in humans. A decade of research suggests that our microbiota help drive brain development, spur immune-system development or allergies (2), and might trigger certain cancers. These observations have spawned industries that offer probiotics, prebiotics, personal microbiota sequencing, and more.

But few therapeutics actually alter—much less improve—our commensal microflora, in part because watching these microbial dynamics play out is still a step short of understanding their mechanisms well enough to intervene effectively and safely.

Already, fecal microbial transplants (FMTs) have demonstrated both the promise and peril of manipulating microbiota. For desperate patients fighting persistent intestinal *Clostridium difficile* infections, the transplants, in which the entirety of bacteria from a healthy person's intestines are transferred to those of an ill individual, can offer relief (3). Yet even when FMT



Infections of *Clostridium difficile* (pictured in scanning electron micrograph) are a particularly attractive target for microbiome researchers, who generally have a good understanding of the pathogen's interaction with commensal microbes and the gut environment. Image credit: Science Source/Paul Gunning.



## OPEN DJ-1 (Park7) affects the gut microbiome, metabolites and the development of innate lymphoid cells (ILCs)

Yogesh Singh<sup>1,4,6,12</sup>, Christoph Trautwein<sup>2</sup>, Achal Dhariwal<sup>2</sup>, Madhuri S. Salker<sup>1,4</sup>, Md Alauddin<sup>1</sup>, Laimdota Zizmare<sup>1,2</sup>, Lisann Pelz<sup>1,4,5</sup>, Martina Feger<sup>1</sup>, Jakob Admard<sup>1</sup>, Nicolas Casadei<sup>1,3</sup>, Michael Föller<sup>1</sup>, Vivek Pachauri<sup>1</sup>, David S. Park<sup>3</sup>, Tak W. Mak<sup>1,3</sup>, Julia-Stefanie Frick<sup>1,3</sup>, Diethelm Wallwiener<sup>1</sup>, Sara Y. Brucker<sup>1</sup>, Florian Lang<sup>1,2,3</sup> & Olaf Riess<sup>1,2,3</sup>

The proper communication between gut and brain is pivotal for the maintenance of health and, dysregulation of the gut-brain axis can lead to several clinical disorders. In Parkinson's disease (PD) 85% of all patients experienced constipation many years before showing any signs of motor phenotypes. For differential diagnosis and preventive treatment, there is an urgent need for the identification of biomarkers indicating early disease stages long before the disease phenotype manifests. DJ-1 is a chaperone protein involved in the protection against PD and genetic mutations in this protein have been shown to cause familial PD. However, how the deficiency of DJ-1 influences the risk of PD remains incompletely understood. In the present study, we provide evidence that DJ-1 is implicated in shaping the gut microbiome including; their metabolite production, inflammation and innate immune cells (ILCs) development. We revealed that deficiency of DJ-1 leads to a significant increase in two specific genera/species, namely *Alistipes* and *Rikenella*. In DJ-1 knock-out (DJ-1<sup>-/-</sup>) mice the production of fecal calprotectin and MCP-1 inflammatory proteins were elevated. Fecal and serum metabolic profile showed that malonate which influences the immune system was significantly more abundant in DJ-1<sup>-/-</sup> mice. DJ-1 appeared also to be involved in ILCs development. Further, inflammatory genes related to PD were augmented in the midbrain of DJ-1<sup>-/-</sup> mice. Our data suggest that metabolites and inflammation produced in the gut could be used as biomarkers for PD detection. Perhaps, these metabolites and inflammatory mediators could be involved in triggering inflammation resulting in PD pathology.

# PUBLICATIONS

