



COBRE

Puerto Rico Center for
Microbiome Sciences

TEAM MEETING #1

June 10, 2025



Agenda

- Introduce ourselves
- Mission of the PR-CMS
- Team
- RPs
- Organizational chart
- Administrative core activities
- Research Core Services
- Activities and dates
- SAVE THE DATE Annual retreat and Microbiome Symposium



COBRE
Puerto Rico Center for
Microbiome Sciences

MISSION COBRE Puerto Rico Center for Microbiome Sciences (PR-CMS)



is dedicated to advancing microbiome research in the Caribbean region by establishing itself as a **premier resource center**, equipped with instrumentation, robust analytical capabilities, and comprehensive training opportunities.

By providing **essential infrastructure and expert guidance**, the Center ensures **accessibility to cutting-edge microbiome science** for researchers at every career stage across Puerto Rico, promoting a broader participation in scientific discovery.

Moreover, through **enhancing microbiome literacy and fostering a diverse scientific workforce**, the PR-CMS positions Puerto Rico as a pivotal hub for microbiome research, addressing critical questions in health, disease, and industrial innovation.

OUR TEAM

Leadership Team



Filipa Godoy, Ph.D.

PI and Research core lead



Maria Sosa, Ph.D.

Administrative core lead



Mark Miller, Ph.D.

Faculty Dev and Mentoring Core Lead

Research Project leaders (Y1-3)



Roberto Morales, Ph.D.



Yancy Ferrer, Ph.D.



Stephanie Dorta, Ph.D.



National Institute of General Medical Sciences



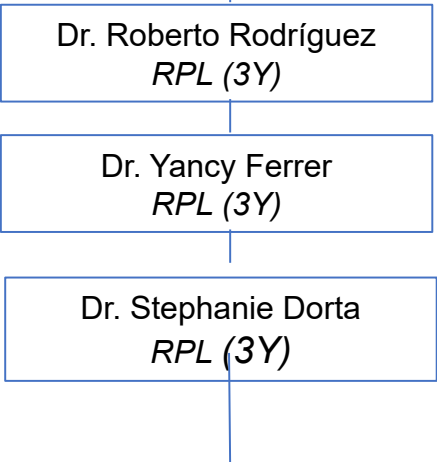
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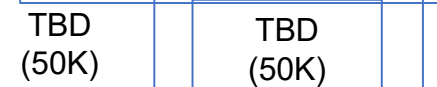
Research Support Core



Pilot projects Y2 & 3



Pilot projects Y4 y Y5

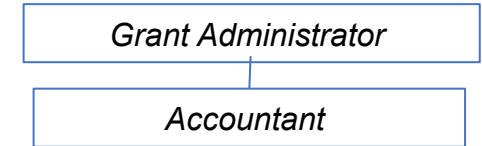
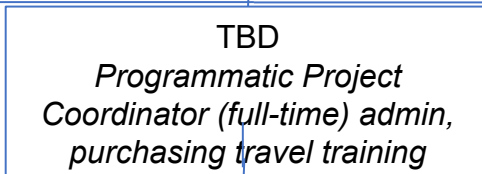
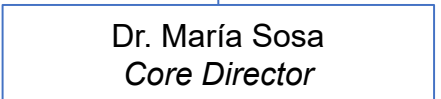


Faculty Development

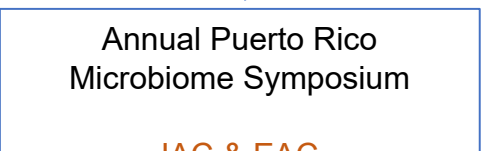
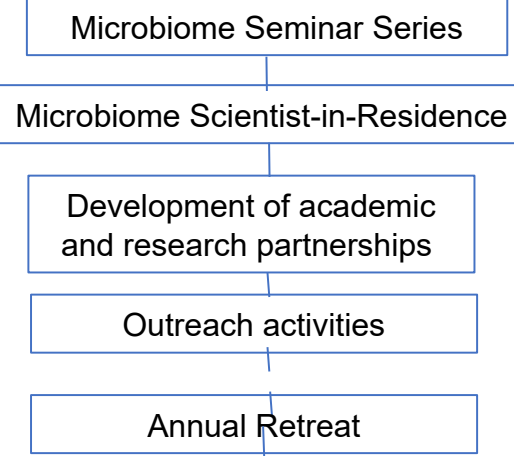


Feasibility projects Y1 N=2 Y2-5 N=3

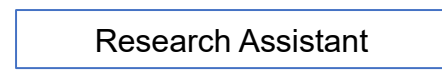
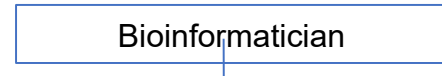
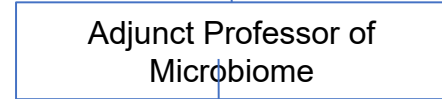
Administrative Core



Infrastructure Enhancement



Research Facilities Core



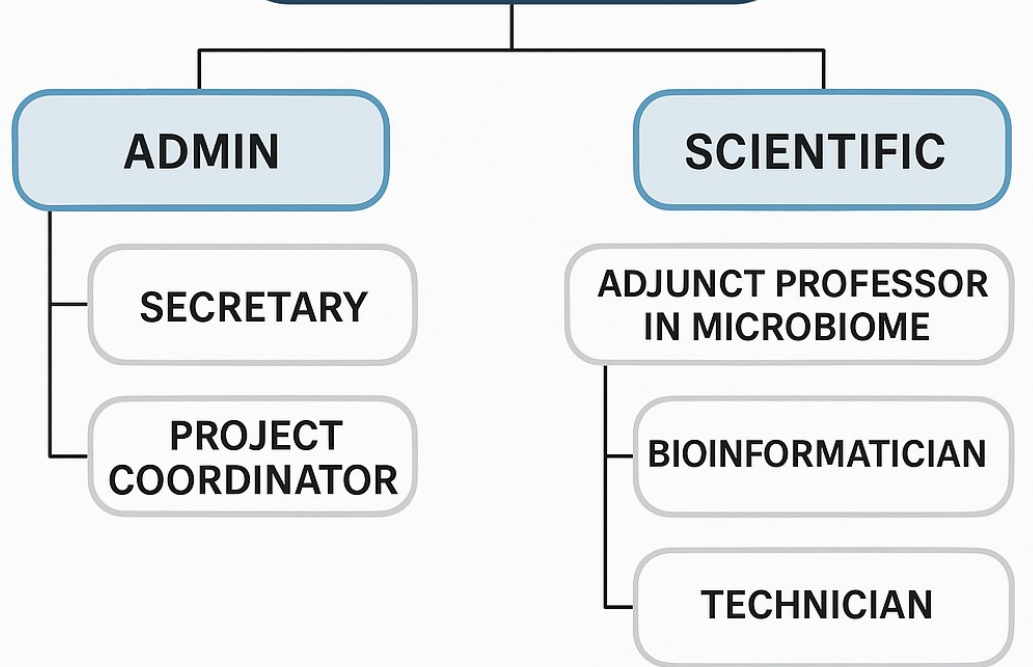
CORE FACILITY B324 / Offices A376/A

Filipa Godoy, Ph.D.

PI and Research core lead



MICROBIOME RESEARCH CORE



Jaleniz Suarez, BS

COBRE Bioinformatician



RP1: The contribution of gut microbiome composition to natural variation in sleep and aggression across populations in the blind Mexican cavefish



Mentor
Dr Riccardo Papa



ROBERTO RODRIGUEZ MORALES
Assistant Professor/Department of Anatomy & Neurobiology

TOPIC

BEHAVIOR ADAPTATIONS IN EXTREME ENVIRONMENTS

MICROBIOME INTEGRATION

We will associate gut microbiome diversity with behavioral adaptation in cave-adapted blind fish.

AIMS

AIM 1. *Examining the relationship between gut microbiota and sleep in the Mexican tetra.*

AIM 2. *Comparison of the gut microbiota across a gradient of aggression in the Mexican tetra.*

EXPECTED OUTCOMES

Measure the impact of diet on sleep, aggression, and gut microbiome composition. (1A and 2A).

Generate dysbiosis in sighted and blind fish populations, and determine impact on sleep and aggression. (1B and 2B).

RP2: Determining the impact of the lysophospholipid edelfosine on restoring the gut microbiota after an epileptic insult



YANCY FERRER ACOSTA
Assistant Professor/ Department of
Anatomy and Neurobiology

TOPIC

NEUROPROTECTION VIA GUT
MICROBIOTA MODULATION AFTER
EPILEPSY

MICROBIOME INTEGRATION

This project will identify gut microbes with anti-seizure potential and reveal how drugs like edelfosine modulate gut-brain interactions.



Mentor
Dr Cristina Velazquez

AIMS

Aim 1: Characterize gut microbiome diversity in an epilepsy animal model and its association with Ef treatment effects.

Aim 2: Identify gut bacterial and brain metabolite differences linked to reduced inflammation in Ef-treated versus untreated mice.

Aim 3: Evaluate whether fecal microbiota transplants from Ef-treated mice enhance gut resilience and decrease seizure severity in epileptic animals.

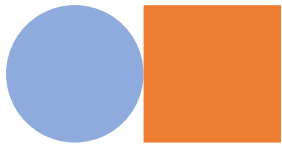
EXPECTED OUTCOMES

-Untreated epileptic animals: Increased seizures, reduced Bifidobacteria and Lactobacillus levels, decreased microbial α -diversity, and increased β -diversity.

-Ef-treated epileptic animals: Decreased seizures, restore these bacterial strains, increase α -diversity, and reduce β -diversity, resembling the naïve group.

Induction of gut dysbiosis in mice with pilocarpine and post-treatment with brain-targeted Ef will restore the regular gut microbial population in mice.

RP3: IMMUNOLOGICAL CHANGES ASSOCIATED WITH ANTIBIOTIC USE IN OROPHARYNGEAL CANCER



STEPHANIE DORTA ESTREMER, PH.D.
ASSISTANT PROFESSOR
MICROBIOLOGY AND IMMUNOLOGY
DEPARTMENT

TOPIC

CANCER IMMUNOLOGY AND MICROBIOME

MICROBIOME INTEGRATION

Microbiota composition will be associated with immunological changes in preclinical and clinical projects to determine the effect of antibiotic use



Mentor
Dr. Surangani
Dharmawardhane

AIMS

AIM 1) Determine the biological effect of oral and topical antibiotics on cancer treatment in preclinical models of oropharyngeal cancer

AIM 2) Identify the impact of antibiotic use on oral microbiota and inflammation in Hispanic women with high risk of developing cancer

EXPECTED OUTCOMES

- **Immunosuppressive microenvironment and increase in tumor growth after tetracycline, penicillin and/or cephalosporin treatment in a preclinical model of oropharyngeal cancer**
- Dysbiotic microbiota after antibiotic use a preclinical model of oropharyngeal cancer
- **Changes in cytokines and microbial composition from banked saliva from women with high risk to develop cancer**
- Leukocyte presence associated with dysbiotic microbiota in newly collected samples.

ACTIVITIES!

- Faculty mentoring activities (Dr Miller) – PAPER AND GRANT WRITING WORKSHOPS – YOU LET US KNOW!
 - Please identify needs! Tells us what you'd like to have;
- RPLs Monthly meetings with Godoy (follow ups); Meeting in August and December individually with Dr Miller) and develop
- Every week staff meets with Godoy
- RPLs Identify a seminar 3 speakers from abroad; 24/09; 29/10/; 19or 26/11; 17/12; 28/01;11/03
- check study sections who's on them and invite folks that align with your interests
- NIH early career reviewer program/ NSF ad-hoc programs – SAVE EVIDENCES and share with Miller/Godoy/Carrucini (for eval team)
- Grant submission by December 2025

Monthly seminars –last Wednesday each month 11am

		July				August					September			
Sun		6	13	20	27	3	10	17	24	31	7	14	21	28
Mon		7	14	21	28	4	11	18	25	1	8	15	22	29
Tue	1	8	15	22	29	5	12	19	26	2	9	16	23	30
Wed	2	9	16	23	30	6	13 Scientific night Parallel 18 PRTRU ST	20 COBRE SEMINR PRESEN TTION	27	3	10	17	24	
Thu	3	10	17	24	31	7	14	21	28	4	11	18	25	
Fri	4	11	18	25	1	8	15	22	29	5	12	19	26	
Sat	5	12	19	26	2	9	16	23	30	6	13	20	27	

		October				November					December			
Sun		5	12	19	26	RPPR 1 DUE 2 ND NOV	9	16	23	30	7	14	21	28
Mon		6	13	20	27	3	10	17	24	1	8	15	22	29
Tue		7	14	21	28	4	11	18	25	2	9	16	23	30
Wed	1	8	15	22	29	5	12 JG?	19	26	3	10	17	24	31
Thu	2	9	16	23	30	6	13	20	27	4	11	18	25	
Fri	3	10	17	24	31	7	JACK GILB 14	21	28	5	12	19	26	
Sat	4	11	18	25	1	8	15	22	29	6	13	20	27	

		January				February				March				
Sun		4	11	18	25	1	8	15	22	1	8	15	22	29
Mon		5	12	19	26	2	9	16	23	2	9	16 RRPR	23	30
Tue		6	13	20	27	3	10	17	24	3	10	17	24	31
Wed		7	14	21	28	4	11	18	25	4	11	18	25	
Thu	1	8	15	22	29	5	12	19	26	5	12	19	26	
Fri	2	9	16	23	30	6	13	20	Retreat 27	6	13	20	27	
Sat	3	10	17	24	31	7	14	21	Retreat 28	7	14	21	28	

SAVE THE DATE



- COBRE CMS, CARIB CARES; COBRE CEPACHE CO-HOSTED:
Ecological Changes, Microbiomes, and Cancer:
Intersections for Innovation **NOV 14-15 2025?** TBD



- ISME & AMI: Scientific dissemination and student awards

SAVE THE DATE



Annual Retreat and Symposium

27 & 28 Feb 2026, TBD

- Presentation of the Cores outcomes and evaluation
- RPLs advances and preliminary data
- Feasibility projects
- Microbiome Scientist in Residence
- Student presentations
- Abstracts-peer reviewed (presentations)
- IAC and EAC meeting



Applied
Microbiology
International

- ISME & AMI: Scientific dissemination and student awards

Mid term report due Nov
2ND

RPPR March 16, 2026

10th Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE), held in person at the Bethesda North Marriott Hotel and Conference Center in Rockville, Maryland, from June 14–17, 2026.



Administrative Core Activities



- Faculty mentoring and development
- Proposal & manuscript writing workshops
- Scientific Communication Skills Workshop
- Specialized national and international conferences
- Development of academic and research partnership
- Laboratory management skills
- Rigor & Responsibility in Research
- Program management and compliance
- Research infrastructure enhancement
- Other workshops in collaboration with IDEA and other Local centers (COBREs, RCMI, PR-INBRE, ALLIANCE)
- NIH Early Career Reviewer Program
- Individual grant submission by Y2 midpoint (Dec 2026)

INFRASTRUCTURE ENHANCEMENT

- Microbiome Seminar Series (monthly)
- Microbiome Scientist in Residence (1-3 week rotations)
- Support for new Feasibility and Pilot Projects
- Academic and Research Partnerships
- Outreach activities
- Annual Retreat and Microbiome Symposium

Research Core Services

- **Consultation and study design** (including sample collection and power analyses)
- **Advisory support for compliance** (IRB/IBC/IACUC SOPs and protocol development)
- **Biorepository services storage and processing** (inventory maintenance, aliquoting of liquids, body fluids, stool specimens, swab storage)
- **Nucleic acid isolation and quantification** for next-generation sequencing
- **Basic microbiome analysis** (standardized 16S/IT'S/18S rRNA analysis; metagenomics)
- **Advanced bioinformatics services** (journal-ready analyses and figures available on request)
- **Training in SOP development**
- **Bioinformatics training for microbiome data analysis**
- **Metabolomics consulting for multi-omics** (guidance for independent research)
- **Data analysis and manuscript preparation support**
- **Support for meeting international microbiome science standards** (public repositories, metadata curation)

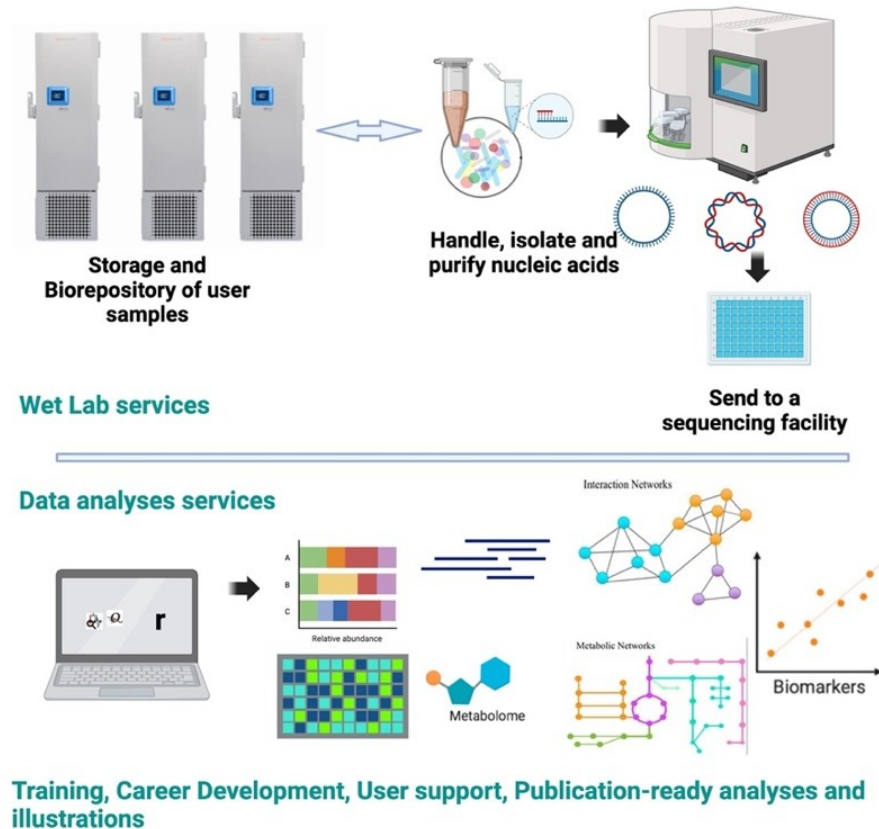


Fig 1. Microbiome Research Core activities

Sustainability

- Fee-for-service offerings
- Industry and Medical partnerships
- Training fees and workshops (groups, societies)

ALTERATIONS AND RENOVATIONS



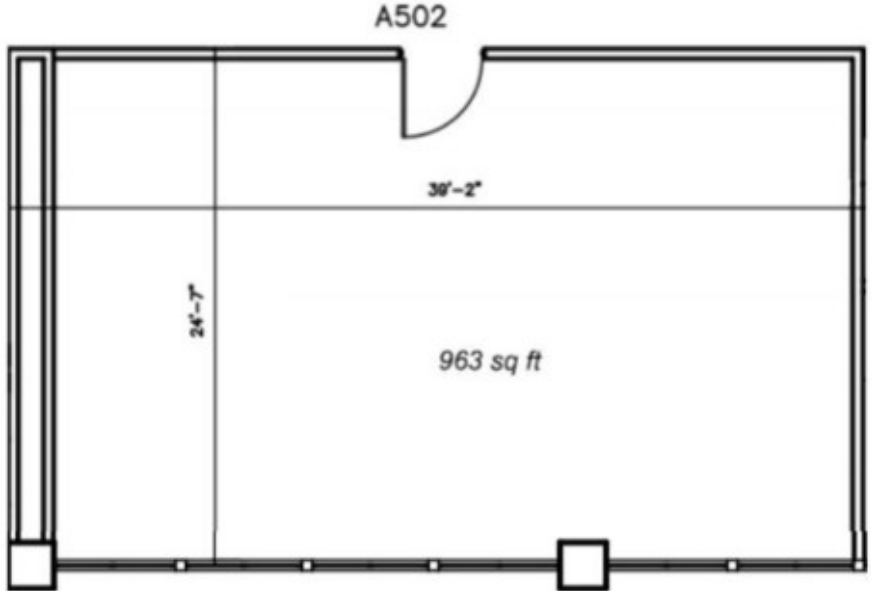
- MICROBIOLOGY AND NEUROBIOLOGY & ANATOMY DEPARTMENTS

Lab B324/B324A (MICRO) will be renovated to house the COBRE Research Core Laboratory.

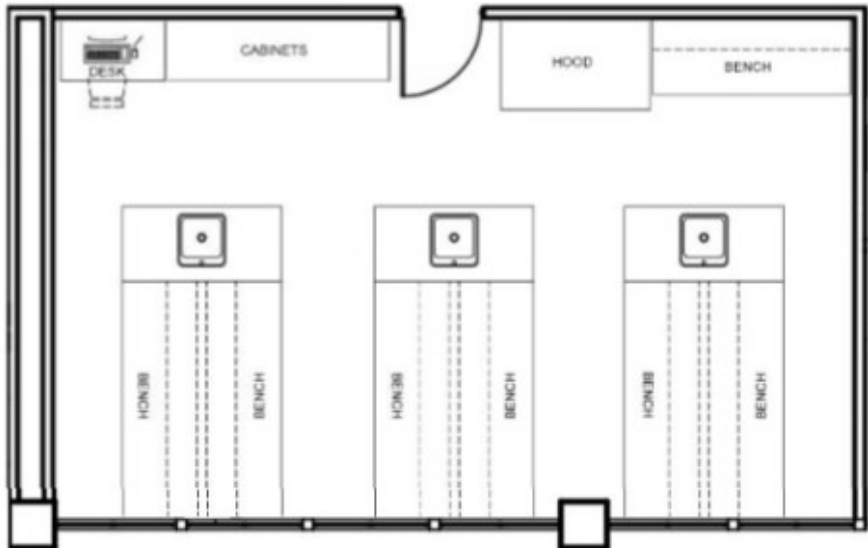
Lab A502 (Anato) will be renovated as a research laboratory for a new hire.

These spaces will be key to advance the COBRE PR-CMS aims at fostering development of meritorious junior investigators into competitive researchers working on projects with broad biomedical significance, and establish the only a facility in the island to directly support the development of microbiome research projects.

Renovation ANATOMY A502



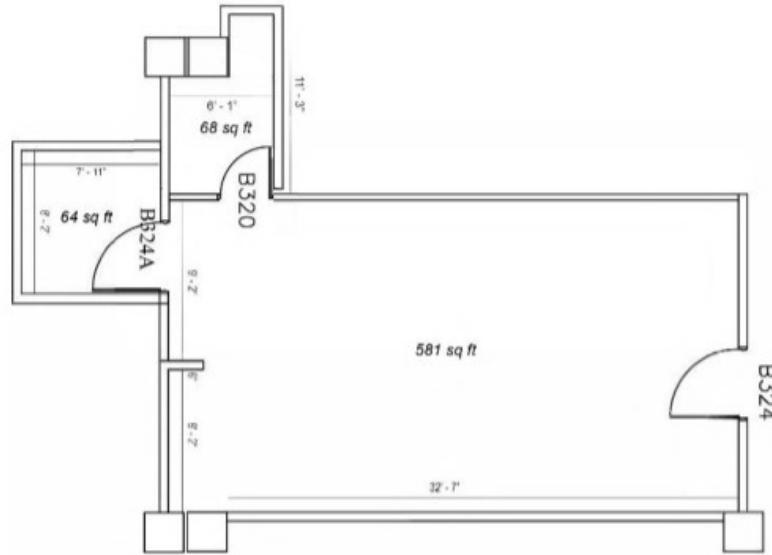
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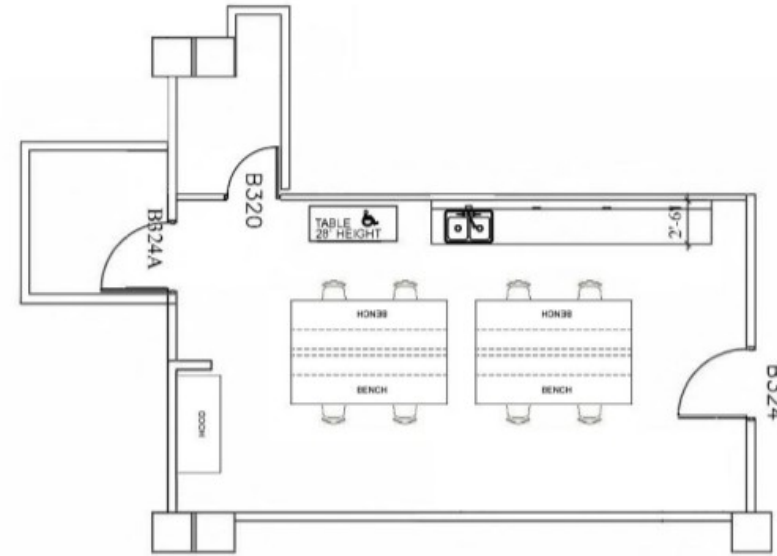
PROPOSED PROGRAM
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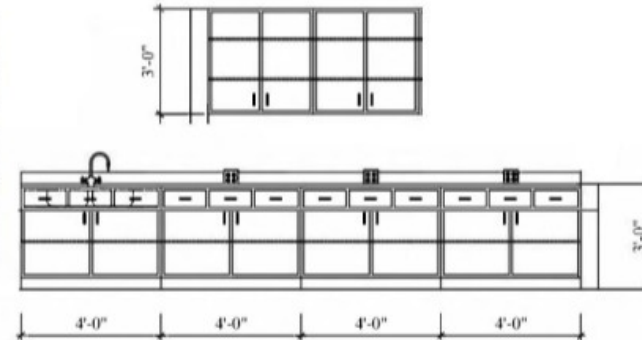
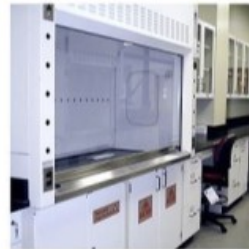
Renovation Microbiology Dept (B324/B324A/B320)



PRESENT CONDITION
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PROPOSED PROGRAM
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ELEVATION A:
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Strategic Collaboration with the MCC – Microbiome Centers Consortium



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The emergence of microbiome centres

[Jennifer B. H. Martiny](#) , [Katrine L. Whiteson](#), [Brendan J. M. Bohannon](#), [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](#), ... [Joel L. Sachs](#) + Show authors

[Nature Microbiology](#) **5**, 2–3 (2020) | [Cite this article](#)

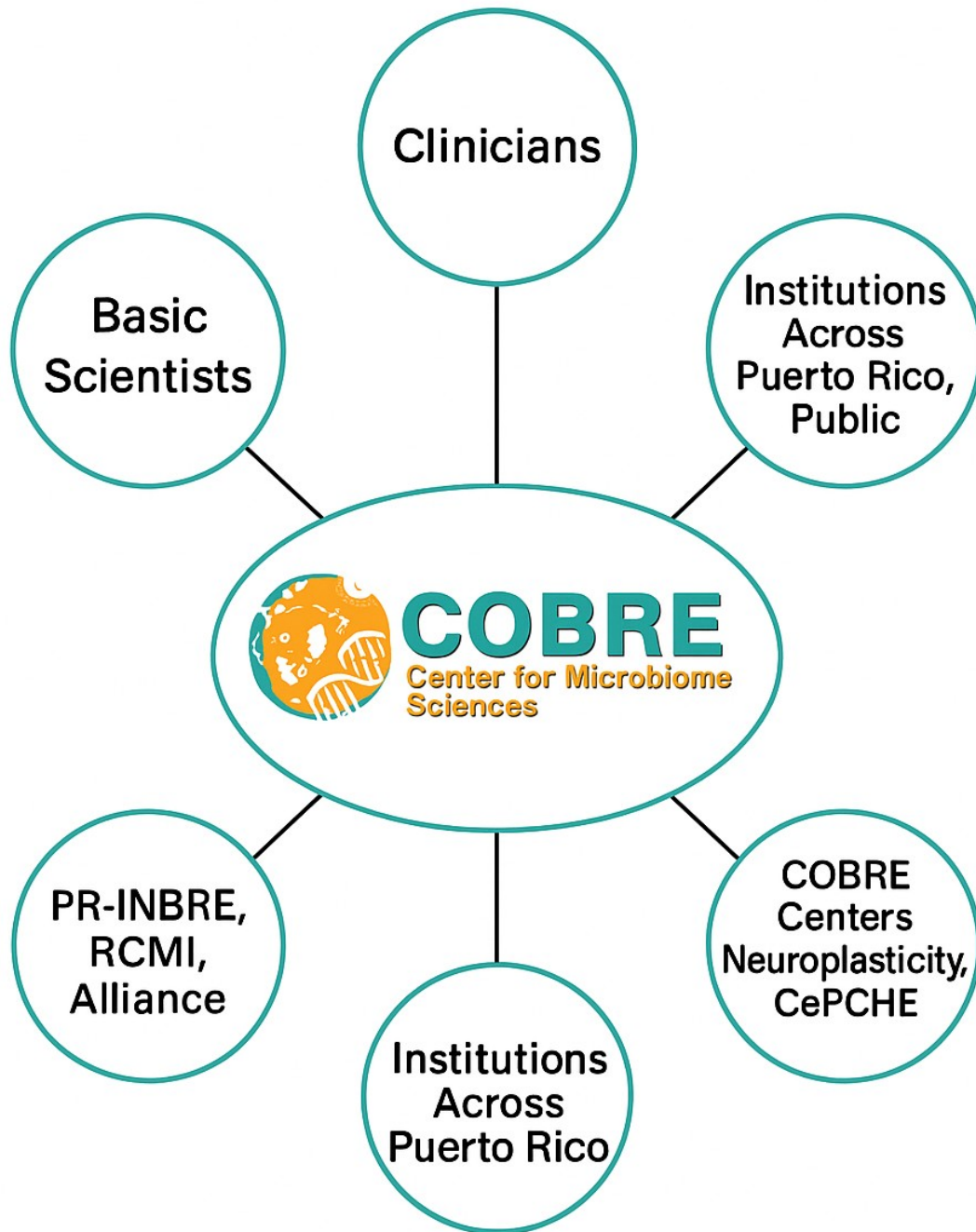
9032 Accesses | **12** Citations | **156** Altmetric | [Metrics](#)

- **2nd meeting during ASM 2025**
- **Rep will come to our annual meeting**

Rapid Growth of Centers: Over 50 microbiome research centers –expansion of the field

Multifaceted Missions: These centers aim to accelerate microbiome research through collaboration, project support, analytical services, and outreach

Creation of MCC: The Microbiome Centers Consortium (MCC) was formed to unify efforts, standardize practices, foster collaboration, and advocate for sustainable funding and cross-system research.



A Center for ALL



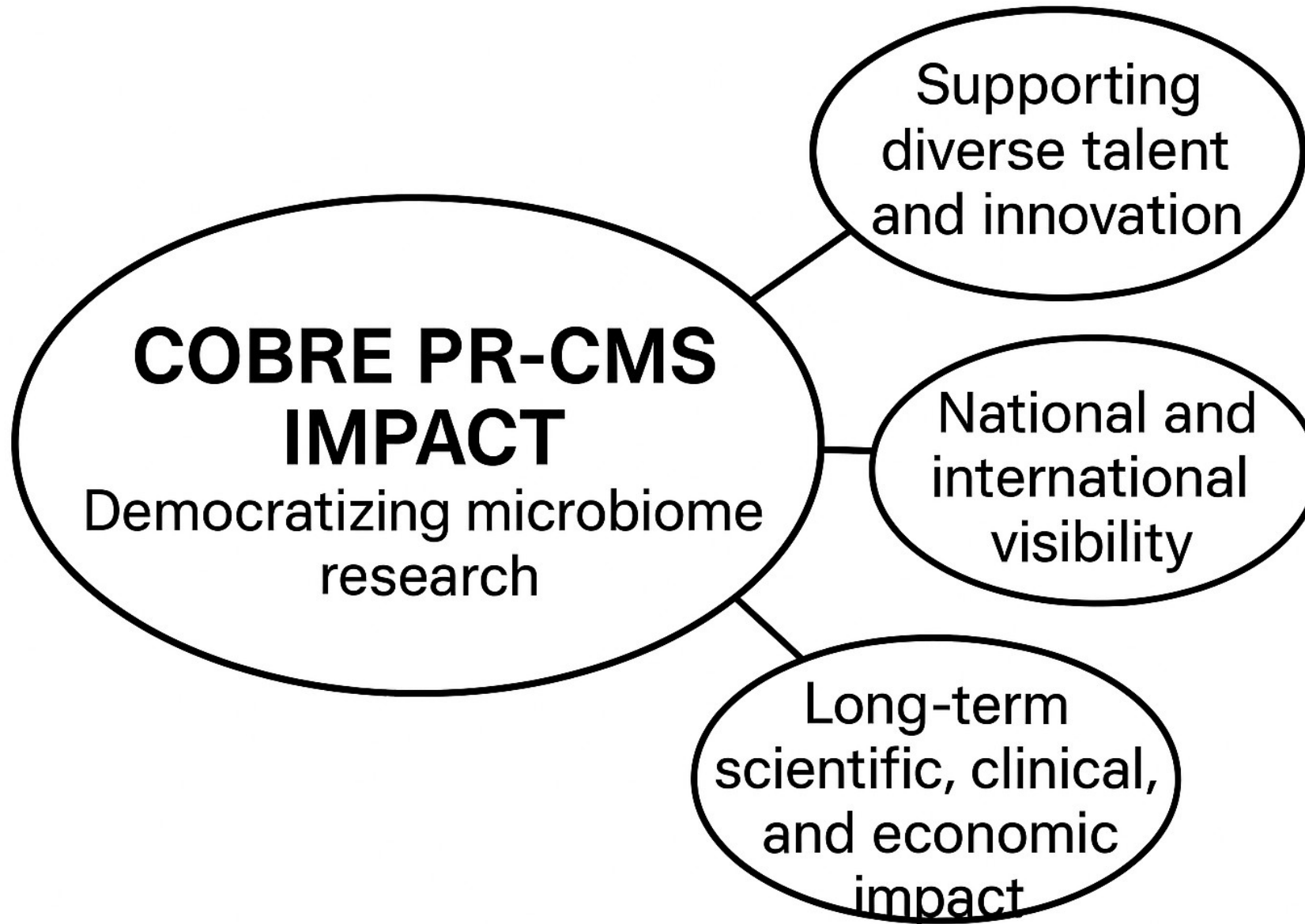
Center for the Promotion of Cancer Health Equity



Puerto Rico
Science, Technology
& Research Trust



Impact & Future Outlook



VISION
Build a sustainable, cross-sector microbiome science community



- This study was funded by the Institutional National Institute of General Medical Sciences of the National Institutes of Health (NIGMS-NIH) COBRE Puerto Rico Center for Microbiome Sciences 1P20GM156713-01



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