RUTGERS
School of Arts and Sciences
DEPARTMENT OF GENETICS

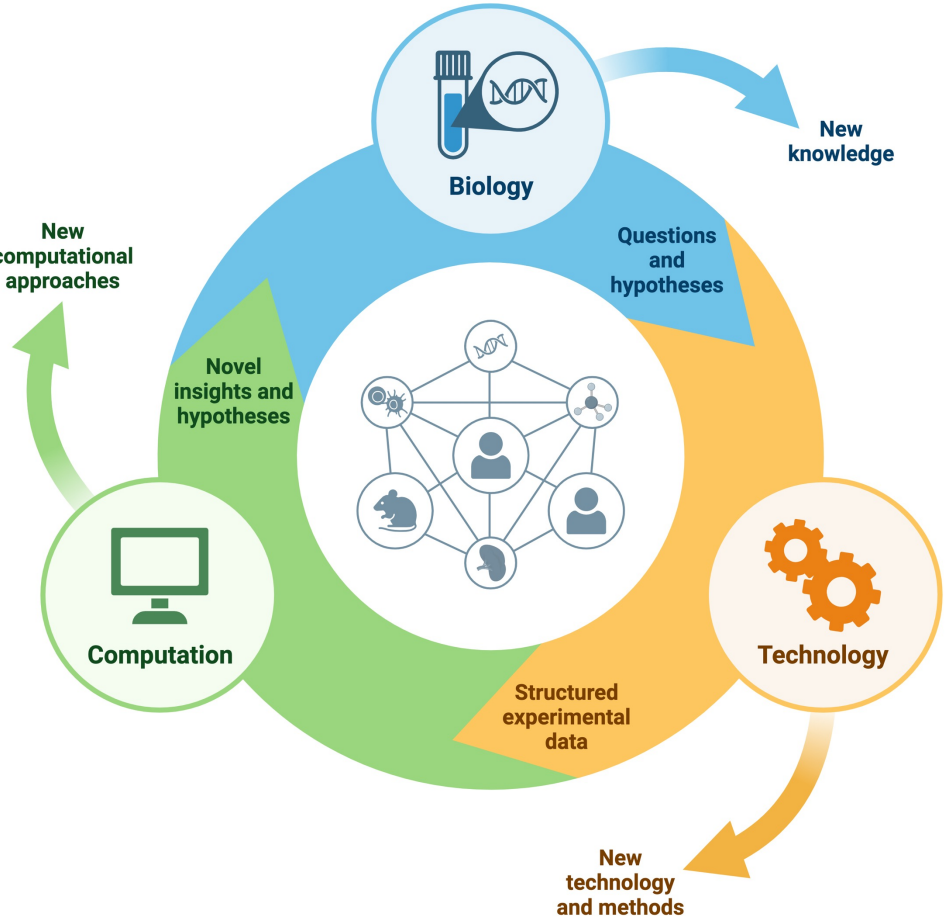
JIEKUN YANG LAB
COMP BIO SPARKS INNOVATION

# Using Single-cell Computation and Biology to Dissect Myeloid Cell States in Health and Disease

MBS orientation

2023.8.25

# Computational-driven Biological Discovery

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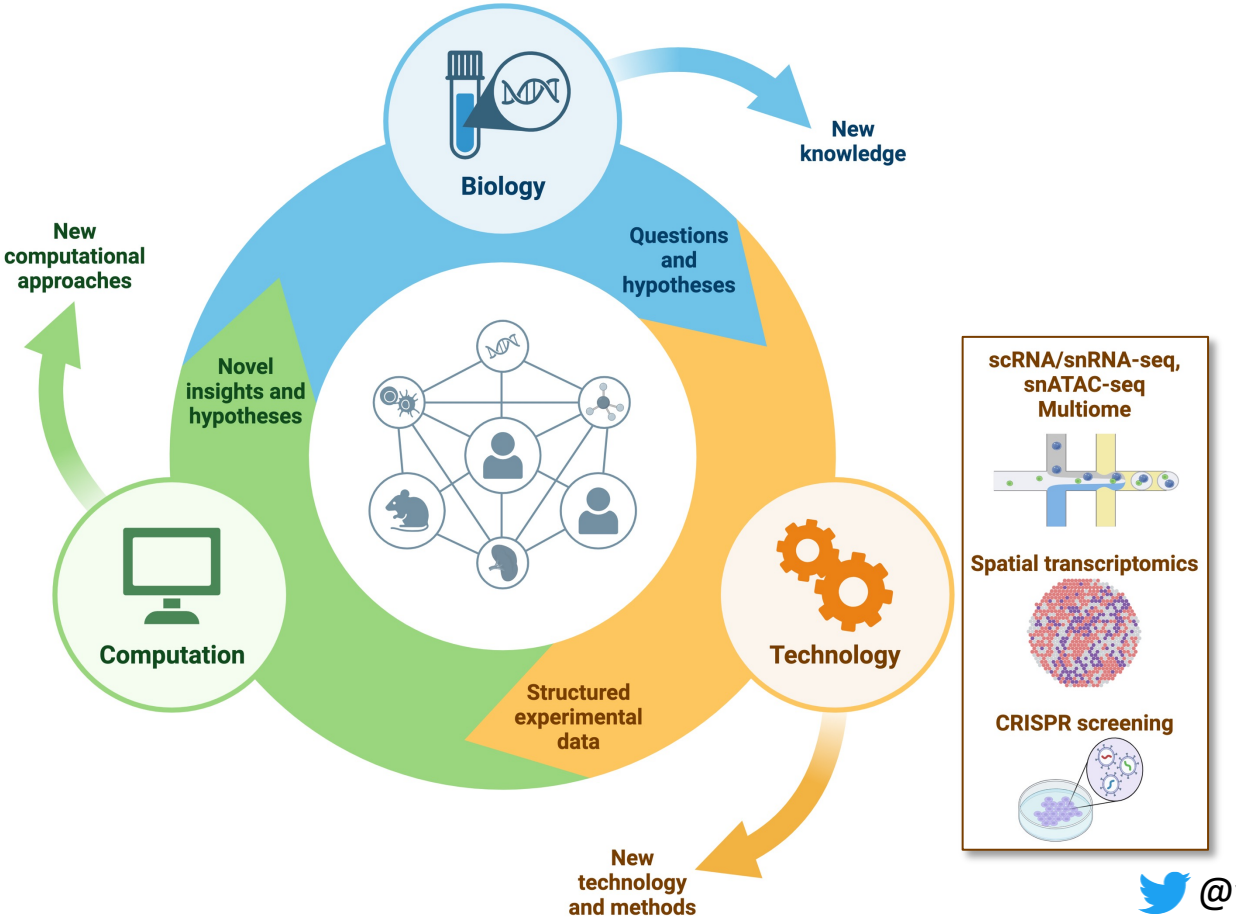
# Computational-driven Biological Discovery

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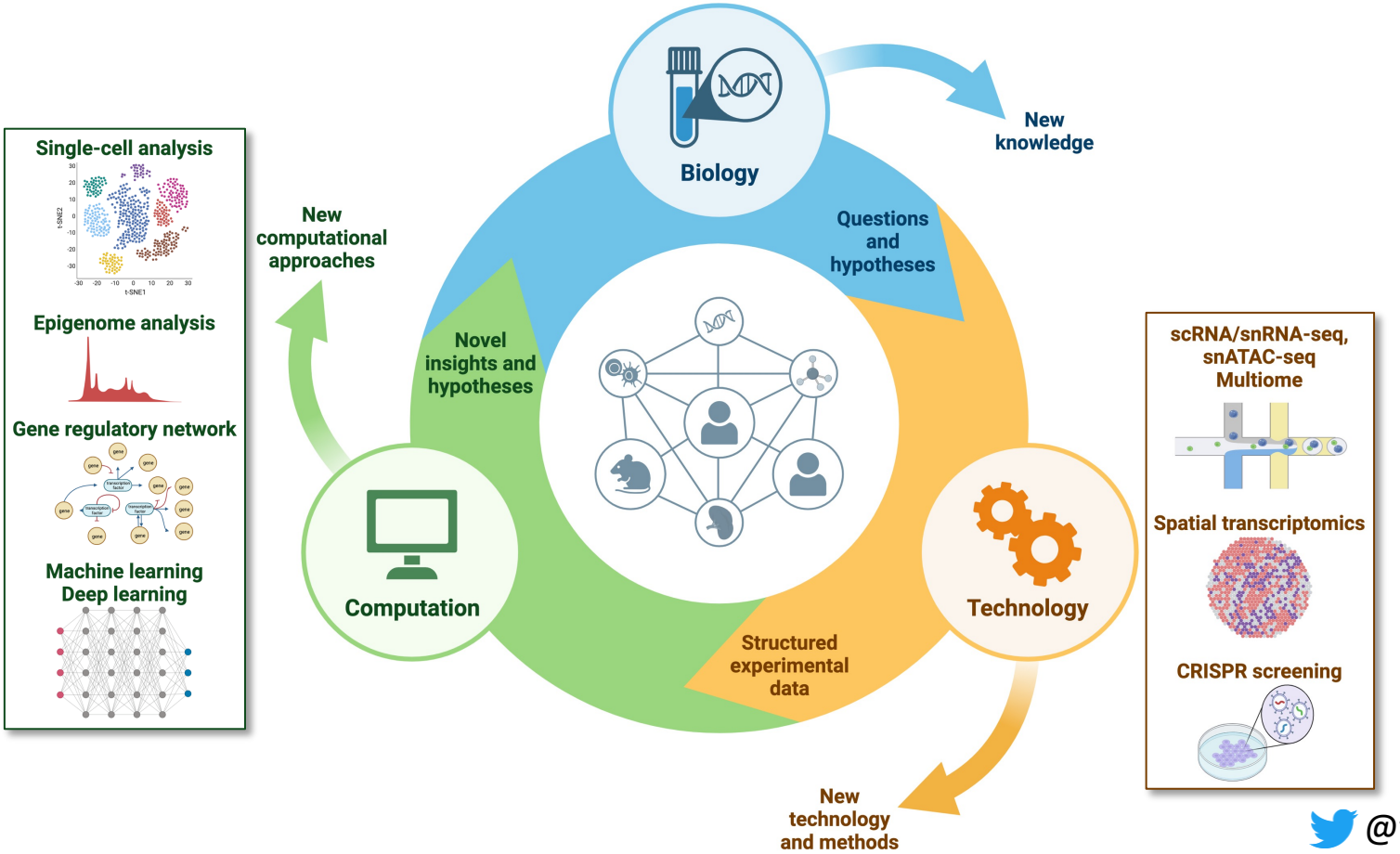


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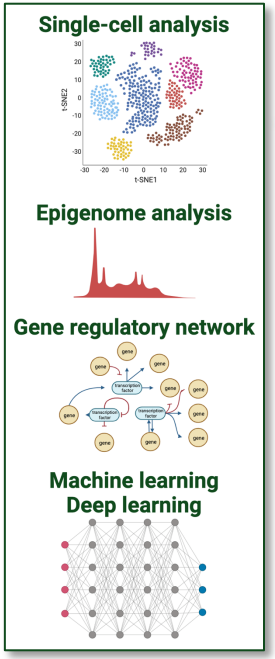
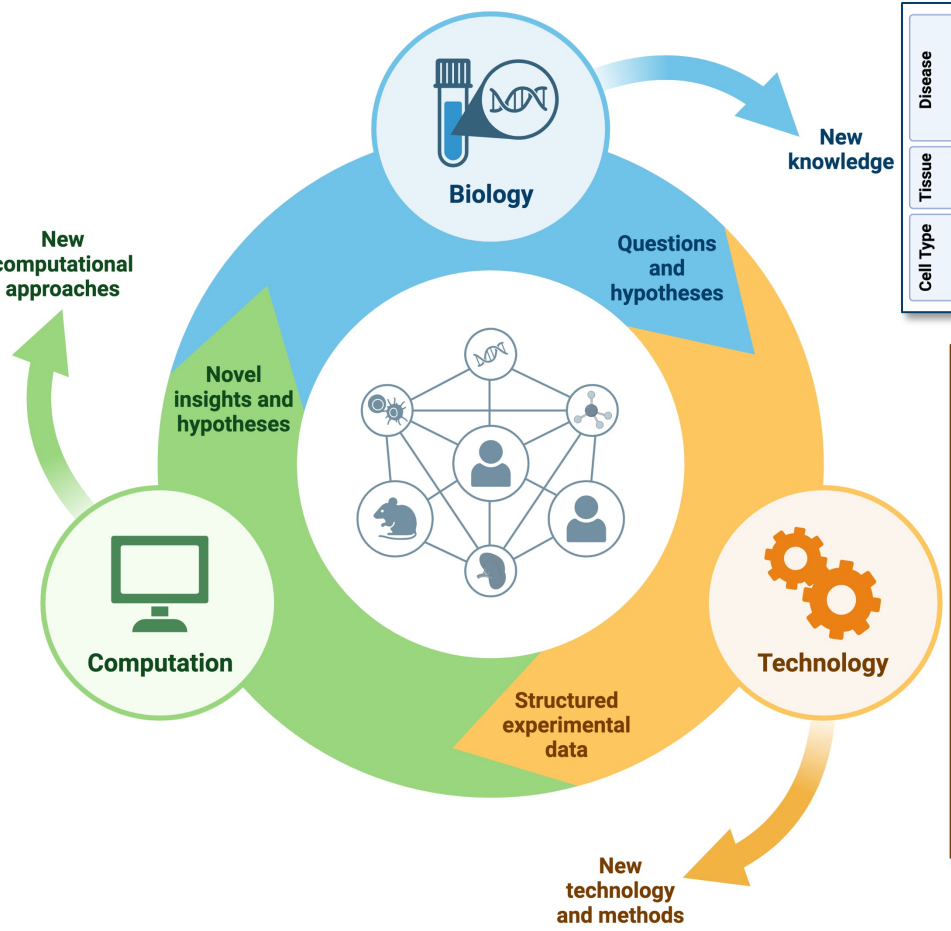
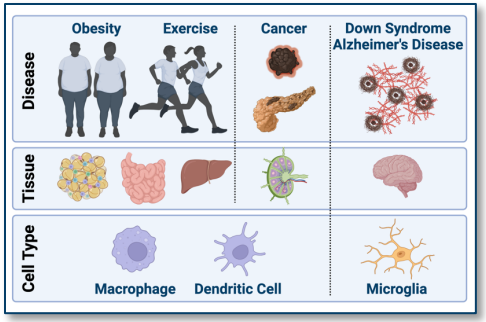
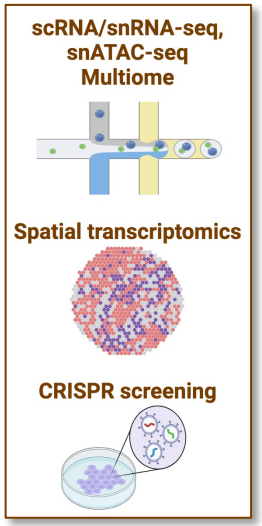
# Computational-driven Biological Discovery

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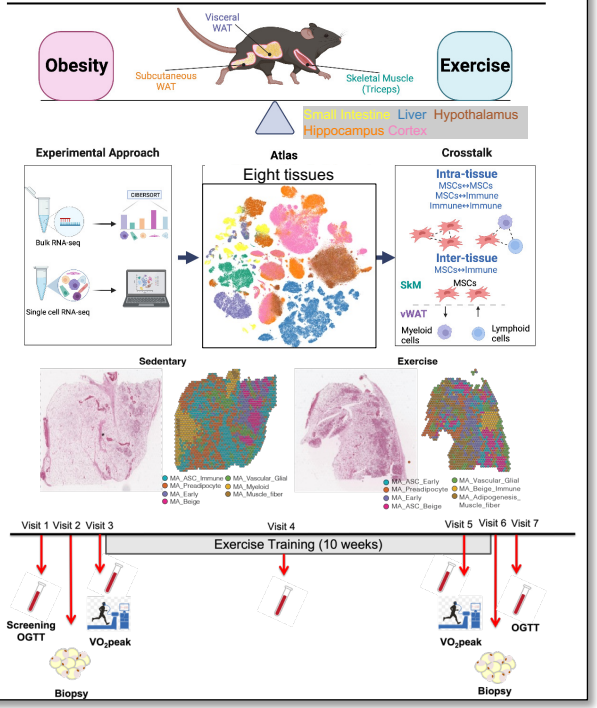
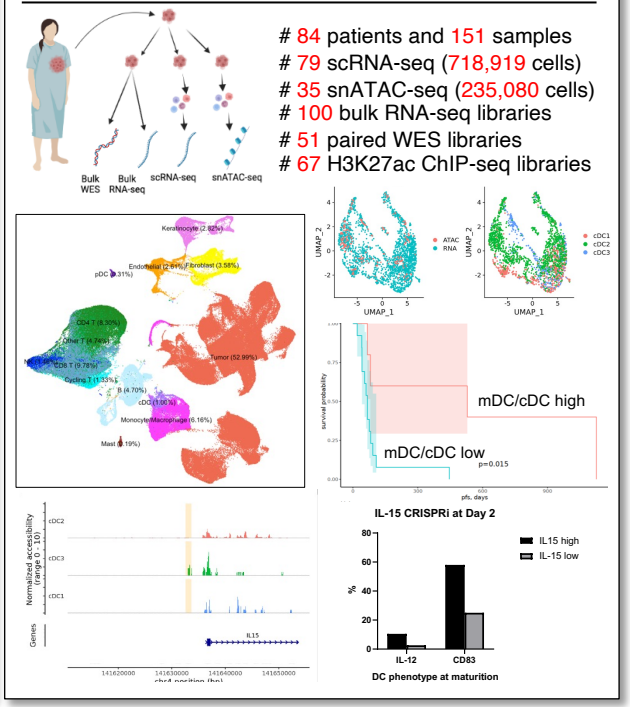
# Ongoing and Future Projects

## Multi-tissue single-cell dissection of the obesity-exercise axis in mouse & human



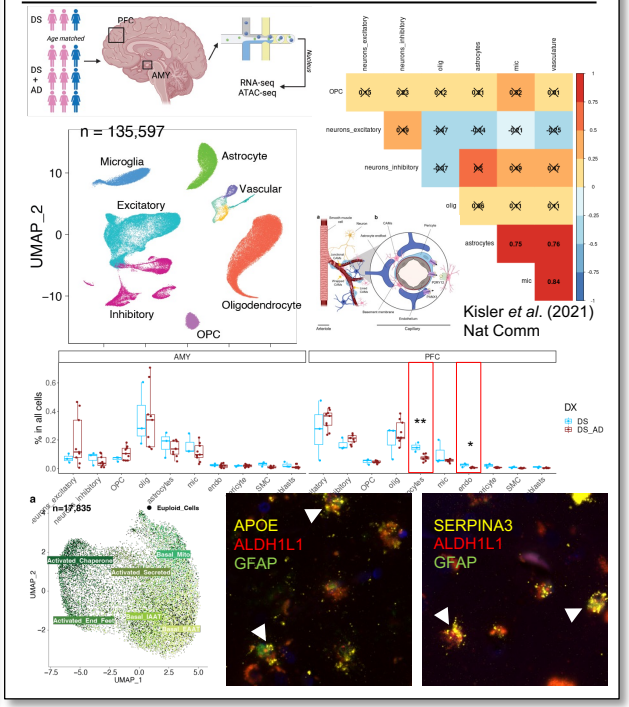

Yang, *et al*. Cell Metabolism (2022)

## Understanding and epigenetic manipulation of dendritic cell state in the tumor microenvironment




Yang, *et al*. Nature (submitted)

## Epigenomic & transcriptomic landscape of Alzheimer's Disease in Down Syndrome




Yang, *et al*. (in preparation) @yangjiekun

# Collaborators and Mentees

## *Within Rutgers*

### Metabolism

**Mike Verzi**, Ph.D.
Professor, Department of Genetics
CINJ

**Steven Malin**, Ph.D.
Associate Professor, Department of Kinesiology and Health

**Wenwei Hu**, Ph.D.
Professor, Department of Radiation Oncology, CINJ

### Cancer

**Zhongren (David) Zhou**, M.D., Ph.D.
Professor, RWJ Medical School

### Down Syndrome

**Peng Jiang**, Ph.D.
Assistant Professor, Department of Cell Biology and Neuroscience

### Method/Assay Dev.

**Biju Parekkadan**, Ph.D.
Associate Professor, Department of Biomedical Engineering

*More to come…*

## *Past Mentees*

**Ruiwen (Doris) Fu**
MIT Master of Engineering 2022
Scientist @ Cellarity Boston
Will apply for PhD this fall

**Raina Thomas**
MIT CS & Biology undergrad 2023
Scientist @ Deepmind London
Admitted to all the top comp bio PhD programs, e.g., Harvard BIG
Won Merck Prize for her research

## *Current Mentees*

**Cassia Wang** (MIT Master of Engineering, expected to graduate by Dec. 2023)
**Wendi Liu** (Harvard Biotechnology Master, apply for PhD this fall)
**Anusha Puri** (MIT BME undergrad, apply for PhD this fall)
**Lee Chen** (MIT CS & Biology undergrad)

*Join us!*

## *Outside Rutgers*

### Postdoc Mentors

**Li-Lun Ho**
**Ben Lengerich**
**Kiki Galani**

**Manolis Kellis**, Ph.D.
Professor, MIT Department of CS
Head, MIT Comp. Biology group
Broad Institute of MIT and Harvard

**Mazhar Adli**, Ph.D.
Associate Professor, Feinberg School of Medicine at Northwestern
Robert Lurie Comprehensive Cancer Center

### Obesity-Exercise Study

**Maria Vamvini**
**Pasquale Nigro**
**Jan-Willem Middelbeek**
Michael Hirshman

**Laurie J. Goodyear**, Ph.D.
Professor of Medicine
Harvard Medical School
Section Head and Senior Investigator
Joslin Diabetes Center

### Cancer Study

Dennie Frederick
Tatyana Sharova

**Genevieve Boland**, MD, Ph.D.
Vice Chair of Research, Surgery
Surgical Director, Termeer Center

Amy Huang
Tyler Aprati

**David Liu**, MD, MS, MPH
Medical Oncologist
Assistant Professor of Medicine, HMS

Sandeep Yadav
Wentao Deng

**Kunal Rai**, Ph.D.
Associate Professor of Genomic Medicine
MD Anderson Cancer Center

### Machine Learning/Deep Learning Study

**Caleb Ellington**

**Eric Xing**, Ph.D.
President at Mohamed bin Zayed U. of AI
Professor of Computer Science, CMU

Marcus Alvarez
Sankha Das

**Paivi Pajukanta**, MD, Ph.D.
Department Vice Chair, Professor
Human Genetics, UCLA

**Tom Watkins**

**Kevin Litchfield**, Ph.D.
Group Leader, Tumor Immunogenomics and Immunosurveillance (TIGI) Lab, UCL

### Down Syndrome-Alzheimer's Disease

**Dong Shin Park**
Ada Yuan-Da Lin

**Li-Huei Tsai**, Ph.D.
Director, Picower Institute for Learning and Memory, Professor of Neuroscience

**Sierra Wright**
Cherie Stringer
Leslie Vazquez-Rangel
Lisi Flores-Aguilar

**Elizabeth Head**, Ph.D.
Professor, University of California-Irvine

### Immunology Study

**Huan Wang**

**Tanya Mayadas**, Ph.D.
Professor of Pathology, Brigham and Women's Hospital & HMS

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# RUTGERS Mentoring Philosophy and Lab Environment

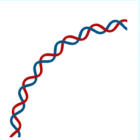
Mentoring extends beyond mere knowledge transfer. I champion:

1. **Intellectual Equality** - Every question merits exploration; embrace the freedom to delve into science.
2. **Shared Growth** - We evolve through failures, transforming them into successes.
3. **Collaborative Spirit** - I neither compete with mentees over contributions nor foster competition within the team.
4. **Holistic Wellness** - Prioritizing mental and physical well-being over sheer productivity.
5. **Transparency** - Decisions and resources are communicated openly.

Our lab is a thriving hub of innovation, defined by:

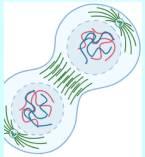
1. **Kindness** - Fostering a compassionate atmosphere.

2. **Integrity** - Upholding unwavering ethical standards.



3. **Collaboration** - Achieving excellence through teamwork.

4. **Openness** - Welcoming diverse ideas and perspectives.



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# Contact us! E-mail us! Join us!

jackie.yang@rutgers.edu; jkyang@mit.edu.

The Yang Lab is actively seeking talented individuals for various positions! More details:
https://lnkd.in/eVN4eBDT

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