

2018 New Investigator Award Winner



Corey McMillan, PhD

Associate Professor of Neurology
University of Pennsylvania

REC Co-Leader and Genomics Core
Co-Leader, Penn ADRC



NACC New Investigator Support: From Genotype to Genetic Program

Presented by: Corey T. McMillan (University of Pennsylvania)

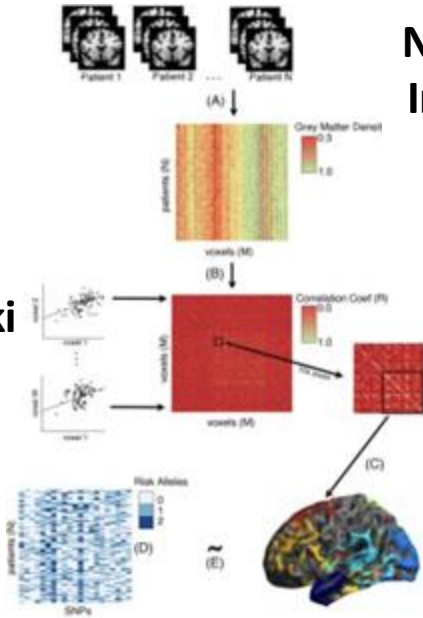
Fall 2024 – ADRC Directors Meeting NAIP Luncheon

A Winding Road to a Bioinformatics Career

Murray Grossman

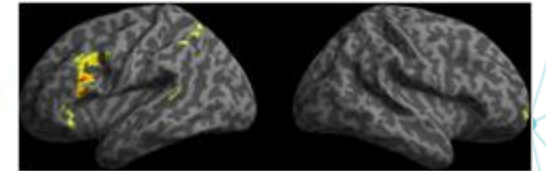


John Q. Trojanowski



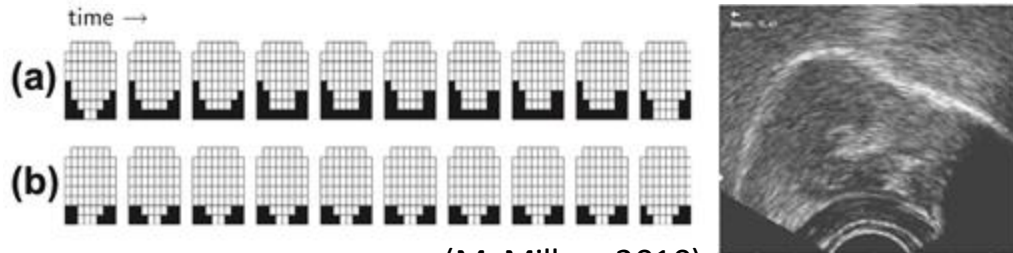
NIH K01 Award
Imaging-Genomics &
Neuropathology
(McMillan, 2014)

MRI of Language Deficits in FTD



(McMillan, 2013)

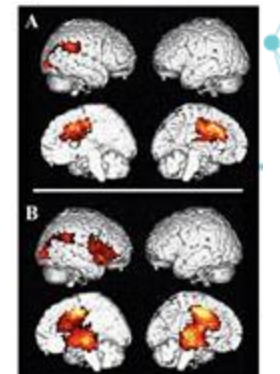
Articulatory Imaging of Speech Models



(McMillan, 2010)

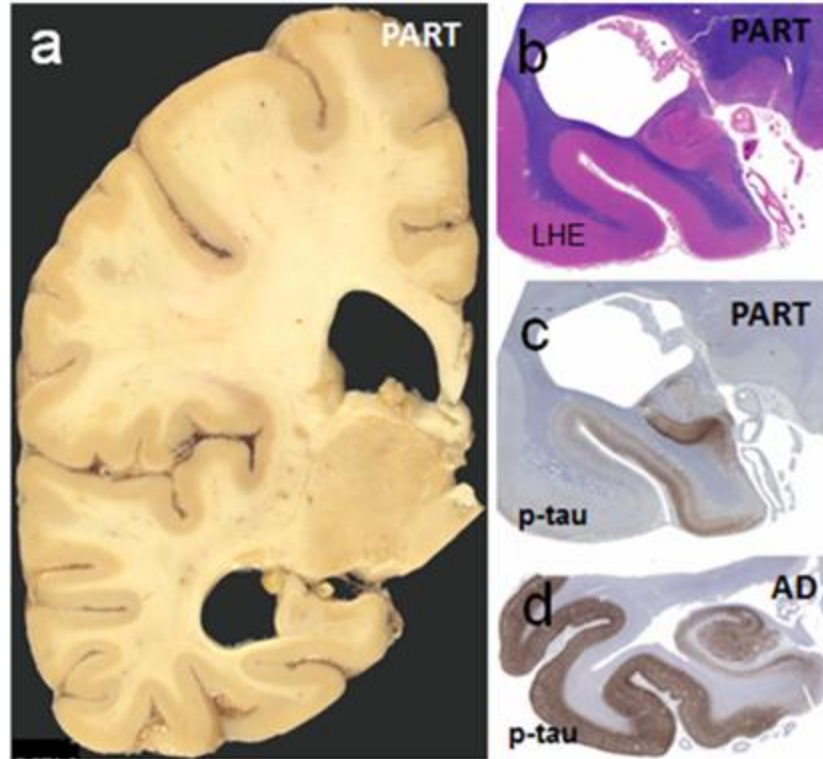
fMRI of Healthy
Language Processing

(McMillan, 2005)



Encouraged to Accept a Challenge

Neuropathology of Primary Age-Related Tauopathy (PART)



Neuropathological Criteria:

- Tau NFTs at Braak Stage I-IV
- *Definite PART*: No amyloid (CERAD=0)
- *Probable PART*: Minimal amyloid (CERAD=1)

There are no clinical criteria:

- Previously, “tangle-predominant senile dementia” (TPSD).
- But individuals could meet neuropathological criteria without dementia.

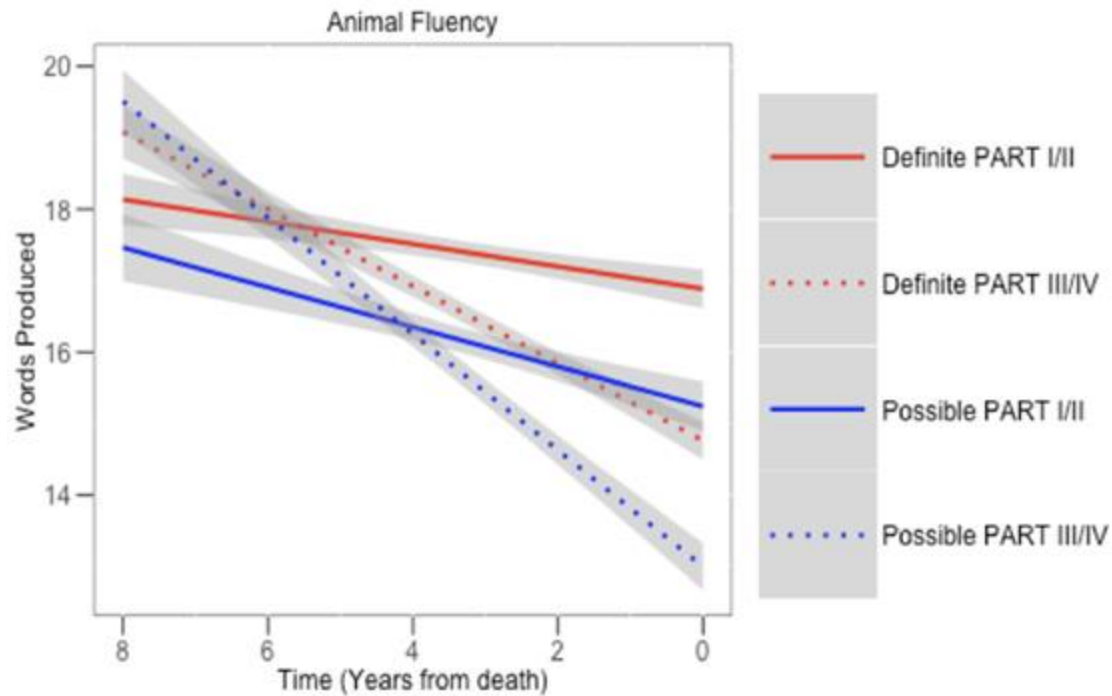
(Crary et al, 2014)

“...there is no way, neuropathologically, genetically, or clinically, to differentiate PART from early AD”

(Duyckaerts et al, 2014)

Important Grant Awards to Pursue the Challenge

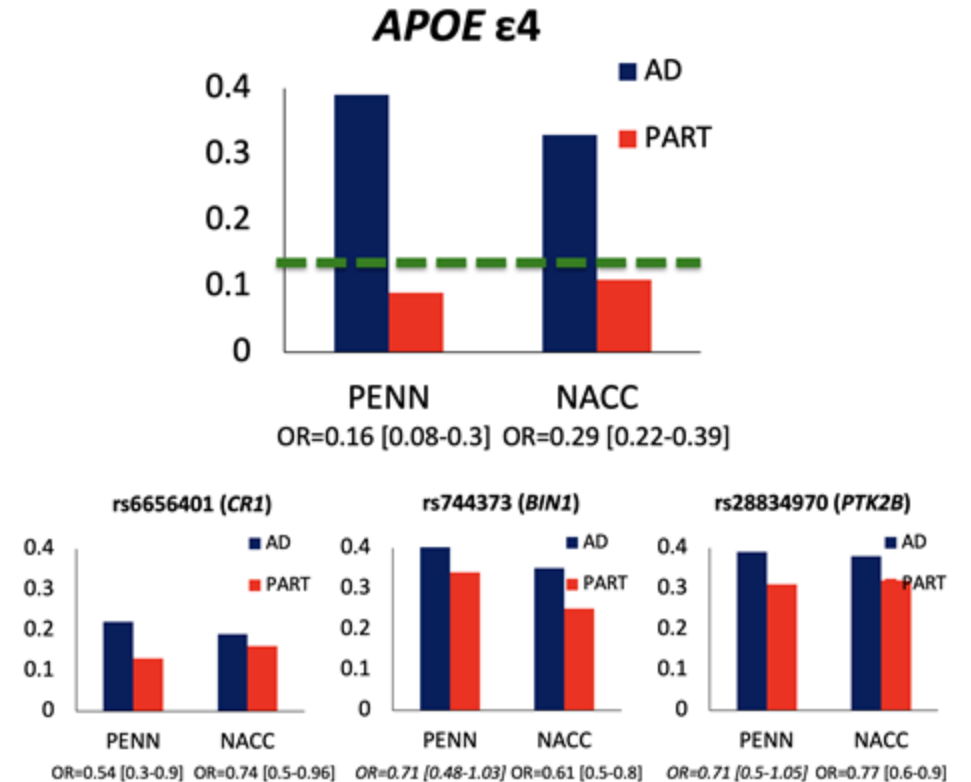
First Detailed Clinical Characterization of PART



(Jefferson-George, 2017)



First Genetic Characterization of PART

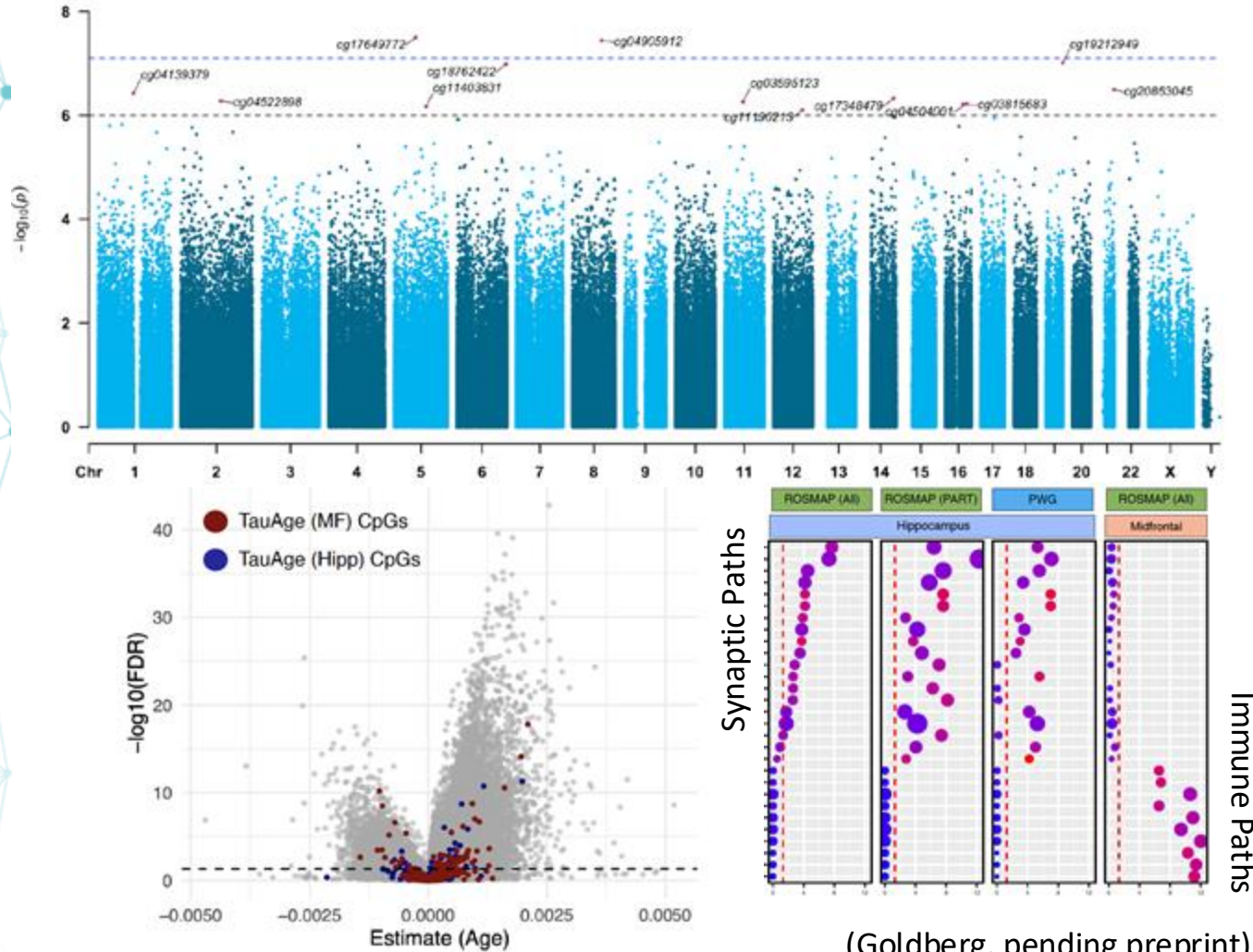


(McMillan, 2018)



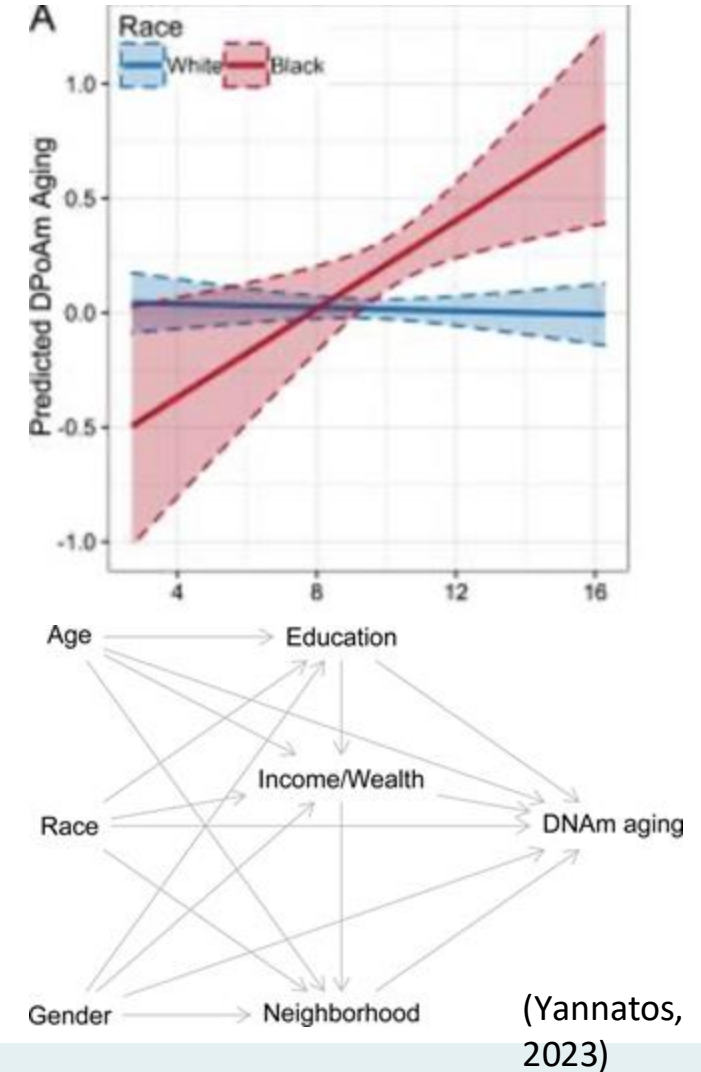
An R01 Awarded to Further Characterize PART

Epigenetic Characterization of PART



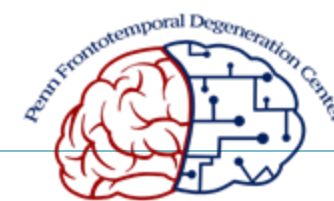
(Goldberg, pending preprint)

Disparities in Aging Through Epigenetics

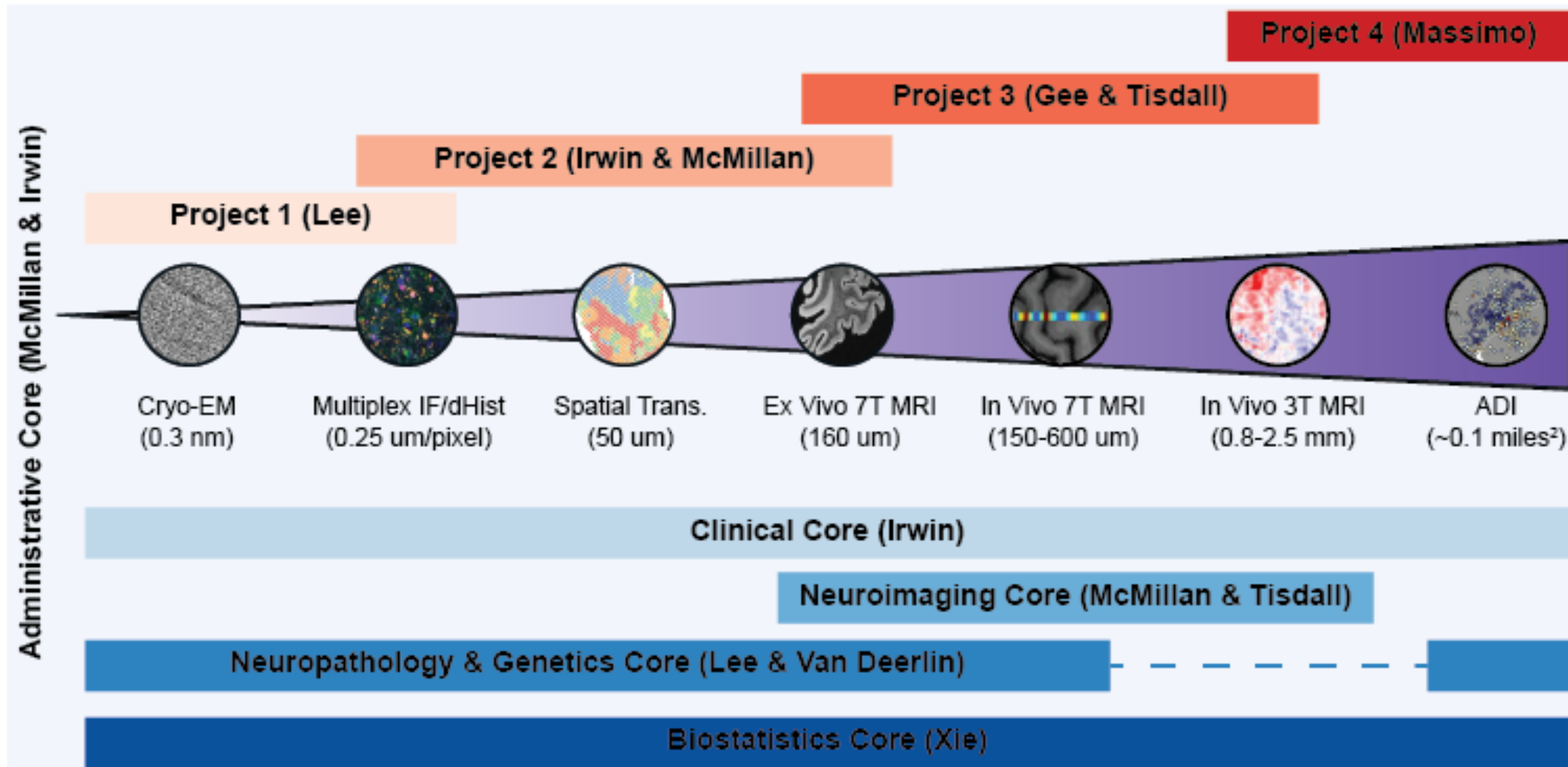


(Yannatos, 2023)

Leading an Integrative Program Project



From Molecules to Complex Syndromes



Strategies for a Successful NACC New Investigator Award

- Identify an impactful research question
- The (wo)man, a plan, and a fan.
- Demonstrate growth and how this will launch your career
- Leverage valuable resources:
 - Your local ADRC infrastructure (or collaborate with an ADRC)
 - Broaden mentorship team and stay connected with them.
 - Consider NACC, NIAGADS, NCRAD, ADNI, and other repositories.

Important Lessons Learned Along the Way

- Strong mentorship is critical for success.
- Believe in the system and be patient as you work through it.
- Networking is never easy, but it does get easier.
- Rejection is inevitable, but persistence wins in the end.
- Small wins accumulate to large gains.

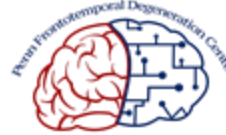
Science is a Team Sport!

Thank you to volunteers, patients and their families for participating in research



Chris Brown
Lyles Clark
Jesse Cohen
Nadia Dehgani
Brian Nelson

Ting Shen
Barbara Spencer
Anil Wadhvani
Joanne Woodford



Penn FTD Center

Kathryn Cousins
David Irwin
Lauren Massimo
Jeff Phillips
Emma Rhodes

Penn ALS Center

Defne Amado
Michael Baer
Lauren Elman
Colin Quinn

The CReATe Consortium

... including Michael Benatar, Joanne Wu, Paul Taylor, Gang Wu, and Evadnie Rampersaud

Private-Foundation Support:

Penn Institute on Aging, DeCrane Family Foundation

Federal Funding Support:

National Institutes of Health (AG066152, AG066597, AG072979, AG070885)

Alzheimer's Disease Research Center

An NIH-recognized ADRC at Penn

Penn Alzheimer Disease Research Center

Edward Lee
Vivianna Van Deerlin
Eunran Suh
David Wolk
Sharon Xie

Penn Neurodegeneration Genomics Center

Adam Naj
Jerry Schellenberg
Li-San Wang

Murray Grossman
(1952-2023)



John Q. Trojanowski
(1946-2022)



Thank you!





Connect with me!

Corey McMillan, PhD

mcmillac@pennmedicine.upenn.edu

A decorative background consisting of a network of light blue lines connecting various nodes. Some nodes are solid dark blue circles, while others are light gray circles. The network is spread across the top and bottom of the slide, framing the central text.

Q & A

NACC-REC Rising Star Awards

Visit the REC Poster Session!

- October 17, 9:30-10:45pm ET

Vote on your top three presenters

- In-person

Two awards

- \$1,000 each

**Awardees announced after lunch on
October 17**

Vote Here



[https://bit.ly/24Fall
RisingStar](https://bit.ly/24FallRisingStar)