

**THURSDAY, MAY 18, 2023**  
**RESEARCH, INNOVATION & STRATEGIC PARTNERSHIPS COMMITTEE MEETING**

Lewis Von Thaer, chair  
Reginald A. Wilkinson  
Juan Jose Perez  
Tanner R. Hunt  
Phillip Popovich  
Hiroyuki Fujita (*ex officio*)

Location: Sanders Grand Lounge, Longaberger Alumni House  
2200 Olentangy River Rd, Columbus, Ohio 43210

Time: 1:00 – 2:30 pm

**Public Session**

*ITEMS FOR DISCUSSION*

1. *Committee Chair's Remarks – Mr. Lou Von Thaer* 1:00-1:05pm
2. *George Washington Carver Science Park and Starlab Terrestrial Analog Facility Impacts on Research, Education and Economic Development – Dr. John Horack, Miss Cassidy Brozovich and Mr. Kenny McDonald* 1:05-1:25pm
3. *Pelotonia Research Center's Future Impact on Societal Challenges – Dr. Peter Mohler, Dr. Russell Lonser and Dr. Sayoko Moroi* 1:25-1:40pm

*ITEM FOR ACTION*

4. *Approval of February 2023 Committee Meeting Minutes – Mr. Lou Von Thaer* 1:40-1:45pm

**Executive Session**

1:45-2:30pm



# Research Innovation & Strategic Partnerships Committee Meeting



# George Washington Carver Science Park and Starlab Terrestrial Analog Facility: Impacts on research, education and economic development

John M. Horack, Professor and Neil Armstrong Chair in Aerospace Policy

Cassidy Brozovich, Undergraduate Student, Food, Agricultural and  
Biological Engineering

Kenny McDonald, President and CEO, Columbus Partnership



THE OHIO STATE UNIVERSITY



# Spaceflight, *Starlab*, and The Ohio State University

*An integrated strategy to build a path forward*

*John M. Horack, PhD - The Ohio State University*  
*Professor and Neil Armstrong Chair in Aerospace Policy*  
*College of Engineering and John H. Glenn College of Public Affairs*

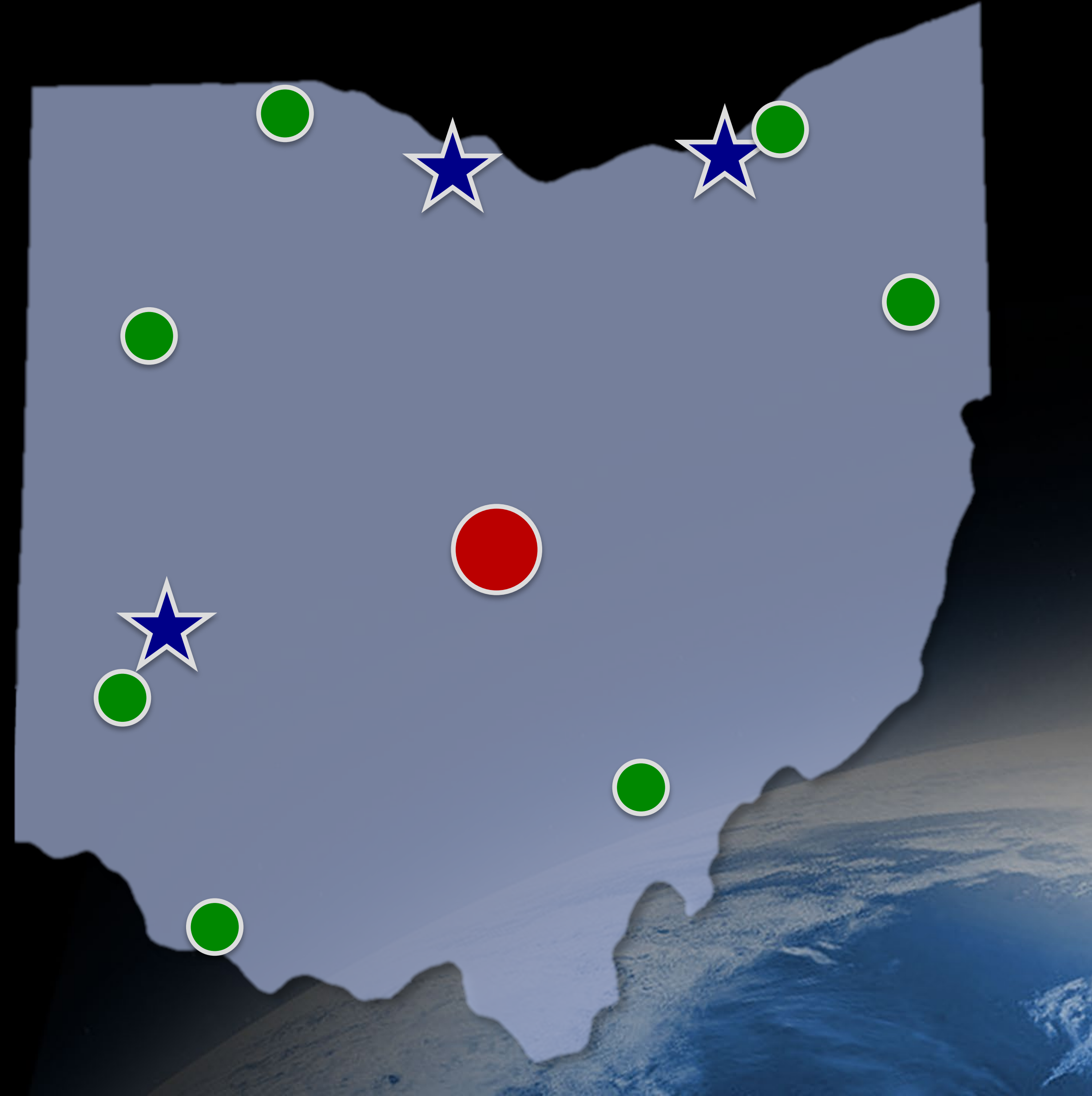
[horack.1@osu.edu](mailto:horack.1@osu.edu)

The Ohio State University

May 2023

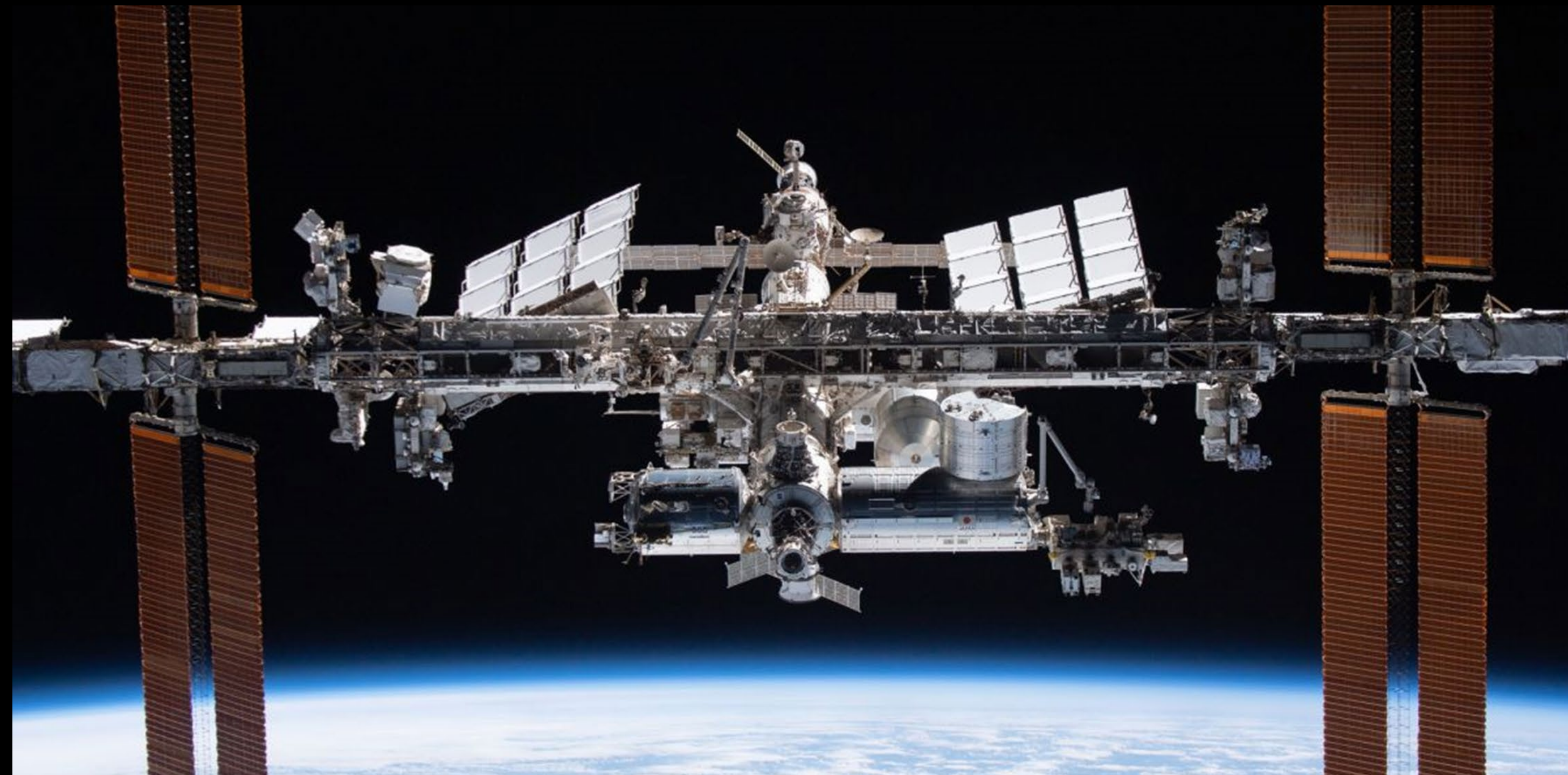
# Spaceflight and Ohio - A unique history, present, and future

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NASA is moving from government-designed, owned, and operated to commercially-procured launch services for people and cargo.



To that end, NASA made three awards in December 2021 for the development of commercial free-flying space stations in low-Earth orbit.

# STARLAB A NEXT-GENERATION COMMERCIAL SPACE STATION

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- ***Voyager/Nanoracks awarded \$160 million from NASA to develop Starlab***
- ***NASA will be the anchor tenant***
- ***Supports civil, commercial, national and security space domains***
- ***Starlab is expected to deploy in a single launch in 2028***

The Ohio State University is the lead university in the *Starlab* partnership.



# More than a “Space Station” - a research ecosystem

*George Washington Carver Science Park (GWCSF) is the world's first space-focused research park with assets on the ground and in space. As the home for the GWCSF Terrestrial Analog Facility, Ohio State plays a critical role in testing missions, parallel research development and experimentation and unique learning opportunities.*



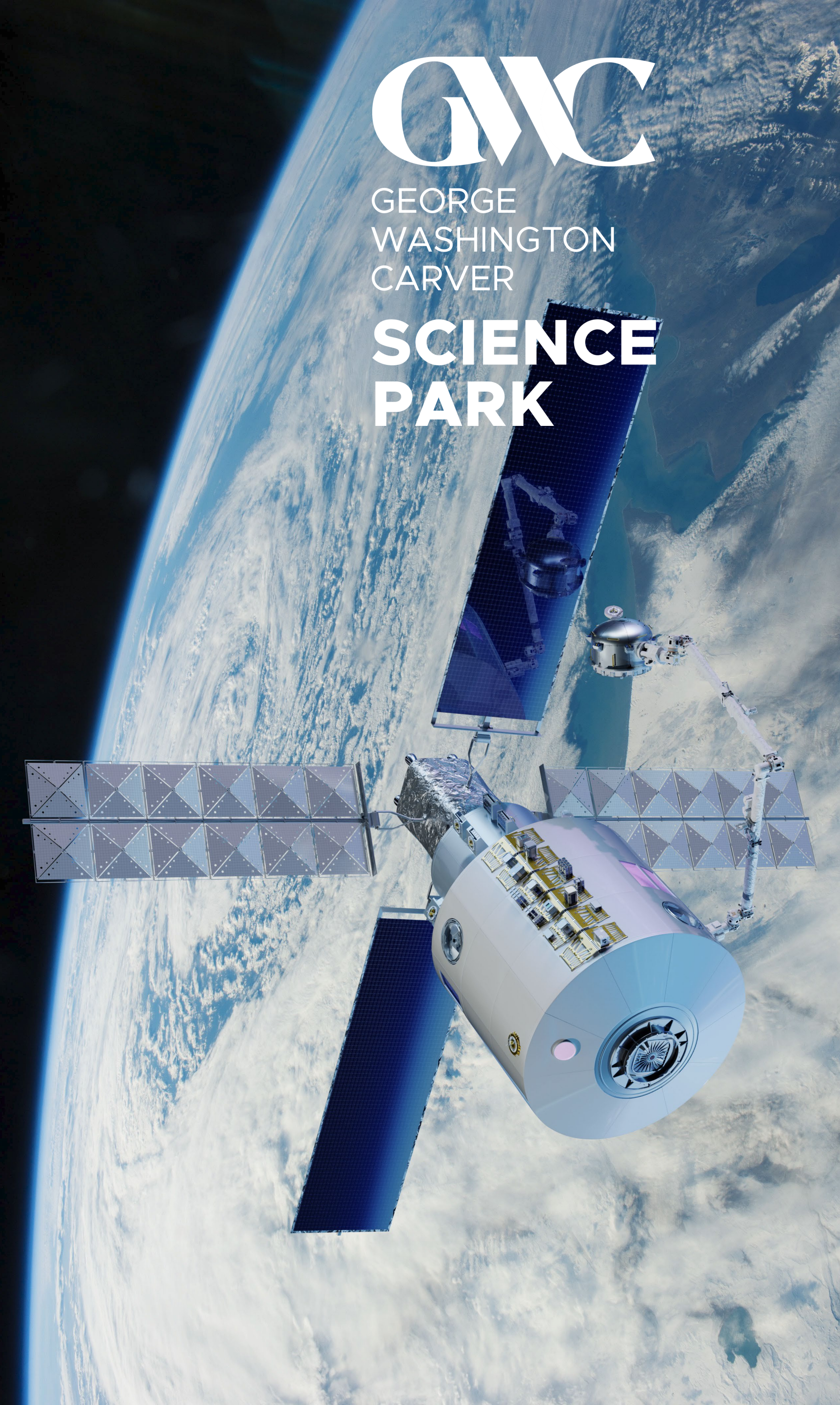
Ohio State's role in Starlab and GWCSF provides a ~60-year leadership advantage for Ohio State, fortifying our land grant mission through commercial space research and innovation in low-Earth orbit.



# George Washington Carver Science Park

Multi-domain research in space  
and on earth

- Human/Biological Research
- Agriculture/Plant Research
- Materials/Manufacturing
- Physical Sciences
- Earth/Space Sciences
- Open workbench areas
- External instrument hosting
- Commercial projects
- STEM Education



**GWC**

GEORGE  
WASHINGTON  
CARVER

**SCIENCE  
PARK**

# Ohio State's strategic roles in *Starlab* - GWCSF

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- **Leading growth of the global research community** across university, industry, non-profit, and government entities.
- **Engaged in outreach and growth of STEM education activities**, starting in grade school in cooperation with DreamUp, community and other key partners.
- **Spearheading research commercialization**, start-up company development, incubation, and innovation derived from *Starlab* - GWCSF research.
- **Providing scientific leadership in specific areas, including agricultural and plant biological research** aboard *Starlab* – GWCSF.
- **Hosting the *Starlab* Terrestrial Analog Facility and anchor site of the GWCSF** to provide comprehensive payload, research, testing, and engineering ecosystem development for flight.





Thank You



**Miss Cassidy Brozovich**  
Bachelor's Degree (May 2023)  
Food, Agricultural and Biological Engineering



**Mr. Kenny McDonald**  
President and CEO  
Columbus Partnership

# Impact of the Pelotonia Research Center: Gene Therapy Institute

Peter Mohler, Interim Executive Vice President, Research, Innovation and Knowledge

Russell Lonser, Professor and Chair, Department of Neurological Surgery

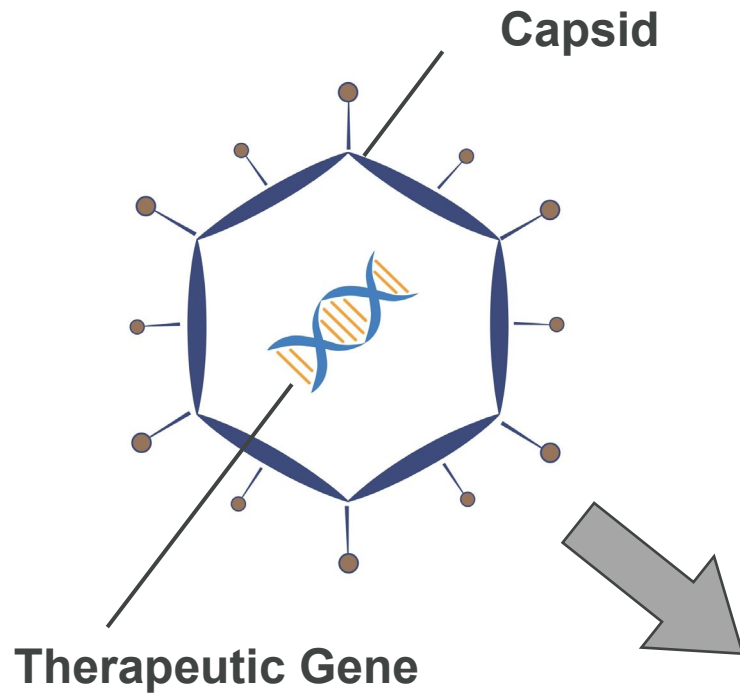
Sayoko Moroi, Chair and Director of the Havener Eye Institute, Professor of Ophthalmology



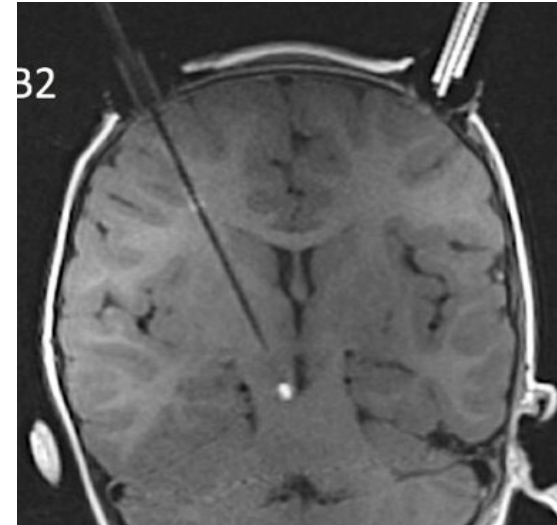
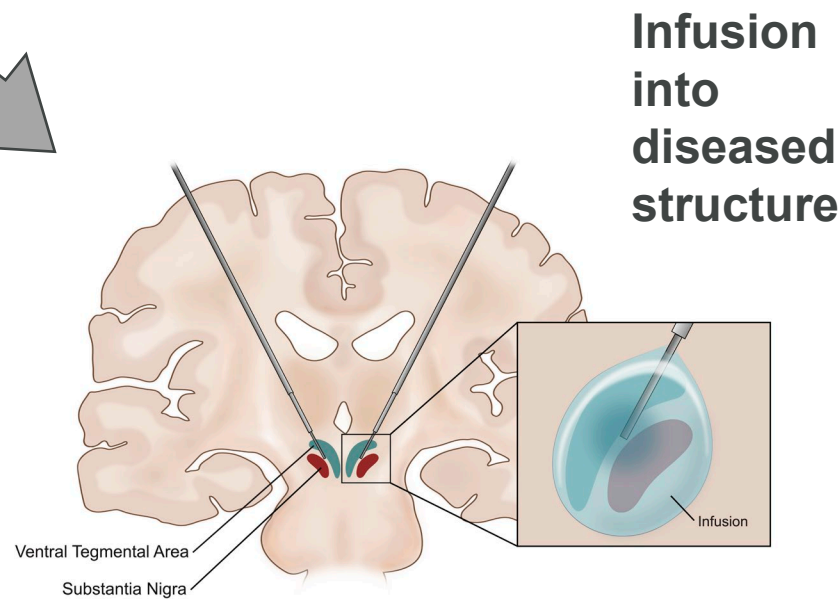
# Gene Therapy at Ohio State

Ohio State is home to the largest nervous system gene therapy clinical program in the world.

Ohio State is pioneering new ways to more effectively deliver gene therapy. Teams are working to tackle diseases like Parkinson's disease, Huntington's disease, multiple vision disorders, Alzheimer's disease and even addiction.



Nervous system disorders require  
“next generation” gene therapy

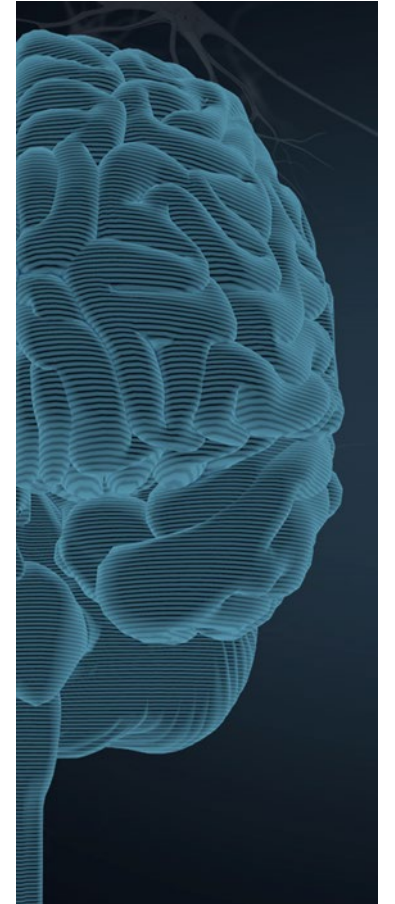


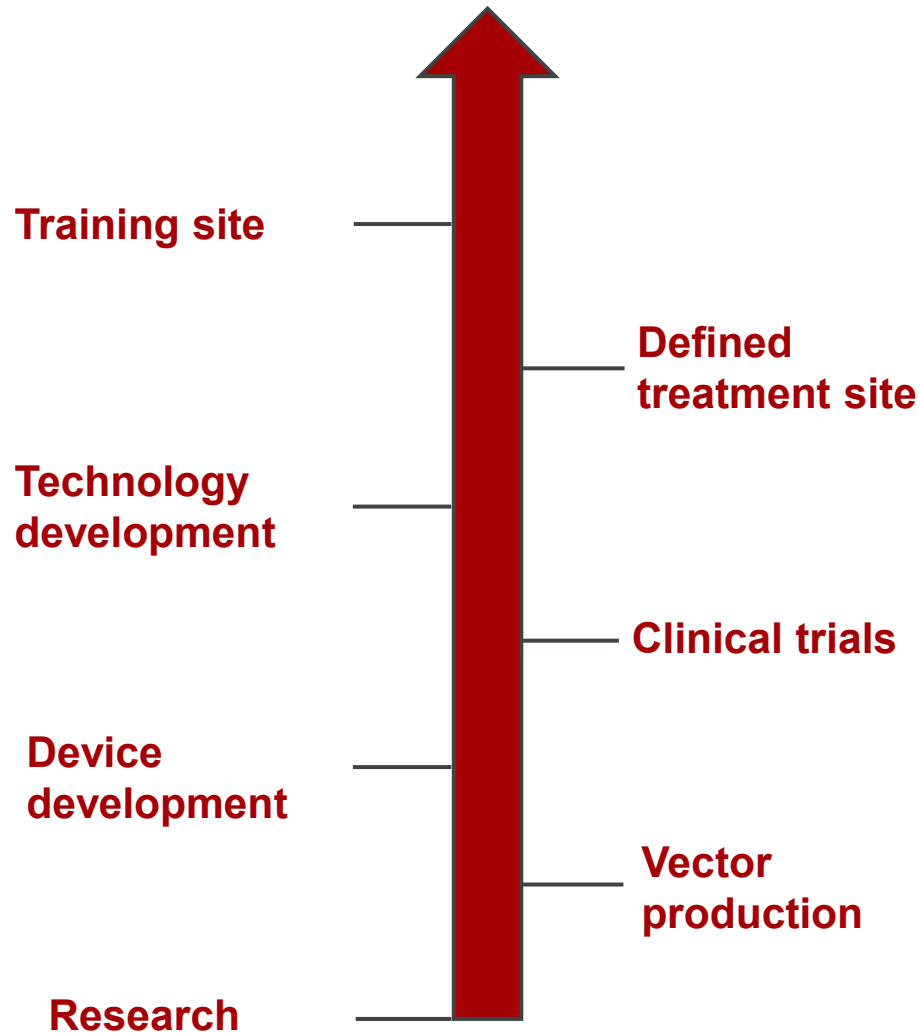


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# Gene Therapy Institute objectives

- Foster interdisciplinary community in gene therapy science and transformative care
- Create infrastructure to accelerate gene therapy science and cures for complex diseases
- Develop business model to ensure long-term sustainability
- Generate IP, new companies and outside partnerships
- Train the next generation of scientists and physicians in gene therapeutics
- Support Ohio as the destination for clinical gene therapy





# Gene Therapy Institute

Vertically integrated from basic and applied science research through clinical trials, training, and clinical treatment.

**63 Faculty** engaged from the colleges of Medicine, Law, Business, Engineering, Nursing, Pharmacy, Veterinary Medicine, Arts and Sciences.

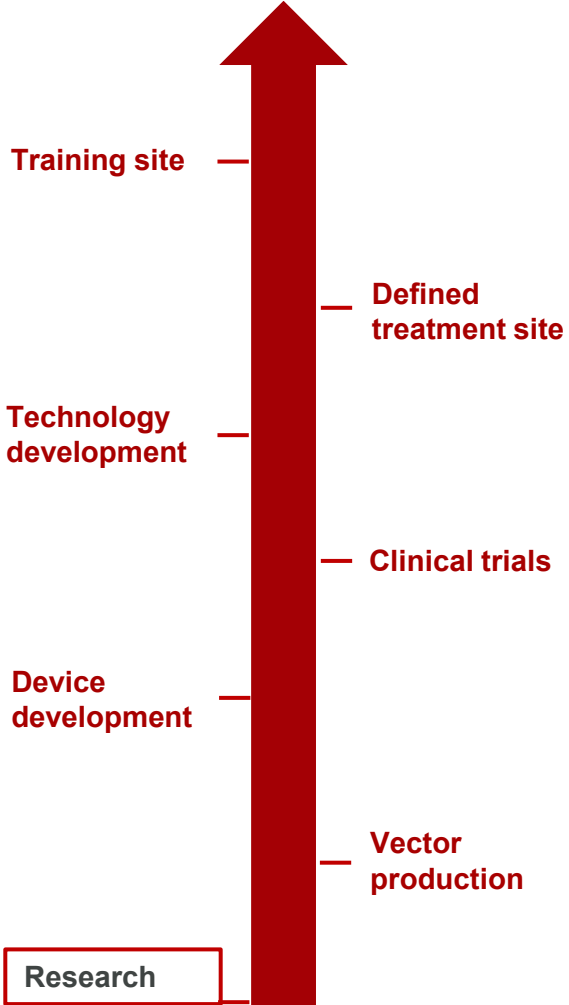
# External Partners Key for Success

*Industry – Foundations - Federal/FDA – Universities - Philanthropy*

Opportunity	Program	Partner
Basic/Translational Research	Multiple	Investigator, Biogen, Eikonklastes, Allen Institute, Battelle, Neucore Bio, UC Berkeley
Plasmid and vector development	Multiple	Investigator, Forge Therapeutics, Andelyn Biosciences, Allen Institute
Clinical trials	Multiple	Investigator, Voyager, uniQure, Regenix Bio, Aviado Bio, Biogen, Neucore Bio, Battelle, Bayer, UC San Diego, Brodno (Warsaw)
Device development	Ball joint guide array	Investigator
Device development	Robotics	Medtronic
Imaging and work-flow	Portable Imaging	Hyperfine
Gene infusion training	Training	Ohio State
Gene therapy treatment sites	Ambulatory Sites	Ohio State



# Research



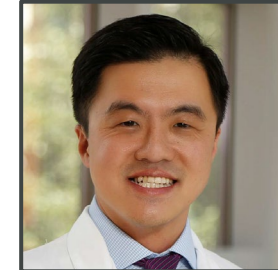
Sy Moroi, MD, PhD



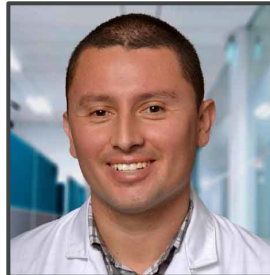
Krys Bankiewicz,  
MD, PhD



Paco Herson, PhD



Yin Ren, MD, PhD



Daniel Gallego-Perez,  
PhD



Natalia Higuera-Castro,  
PhD

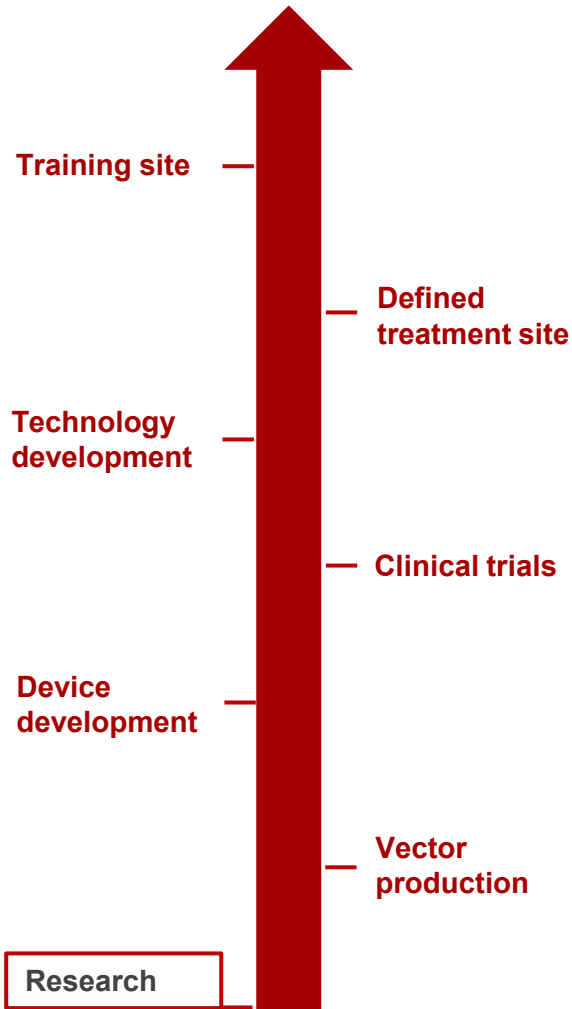


Raymond Gao, PhD

19 institute-affiliated  
faculty are basic/  
translational science  
investigators.



# Research

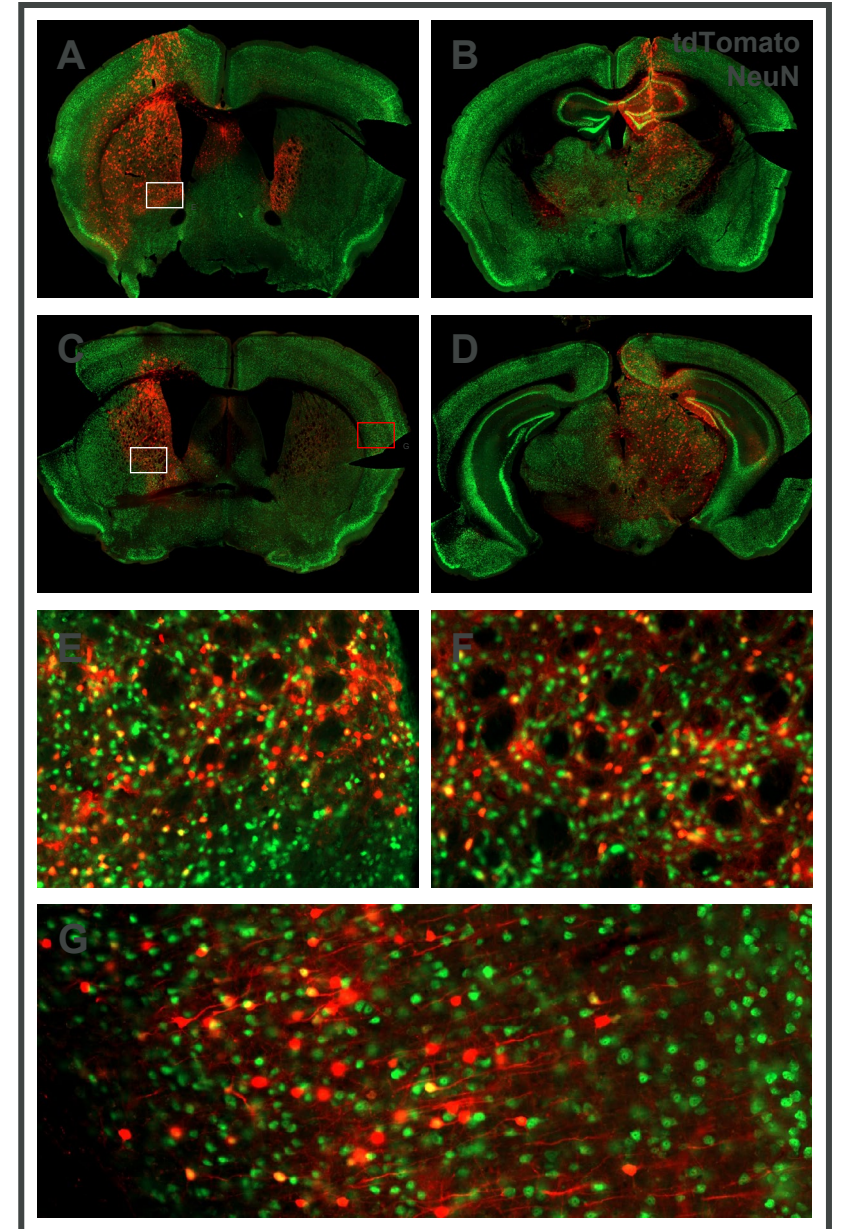


Jennifer Doudna, PhD  
UC Berkeley

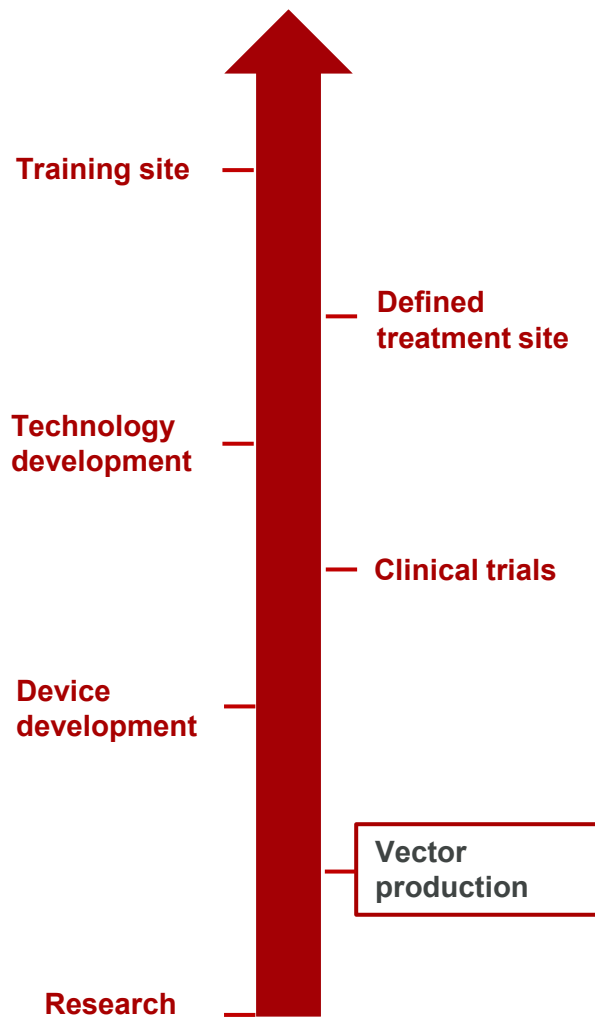


Krystof Bankiewicz, MD, PhD  
The Ohio State University

CRISPR Program: Correction via allele-specific excision of pathogenic repeats (Huntington's disease and Amyotrophic Lateral Sclerosis)



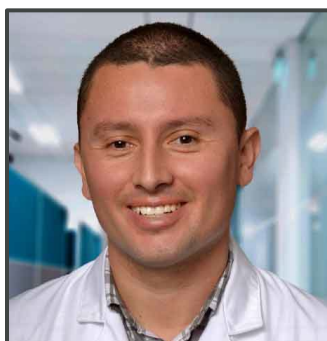
# Vector Production & Delivery



Victor Van Laar, PhD



Lei Cao, PhD



Daniel Gallego-Perez, PhD

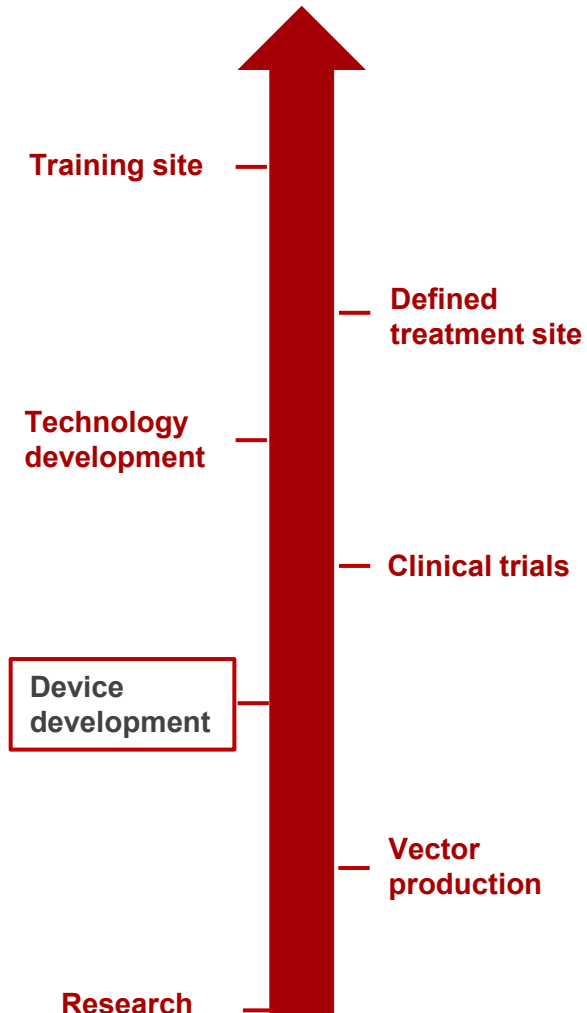


Natalia Higuera-Castro, PhD



Neucore Bio

# Device Development



Lluís Samaranch, PhD



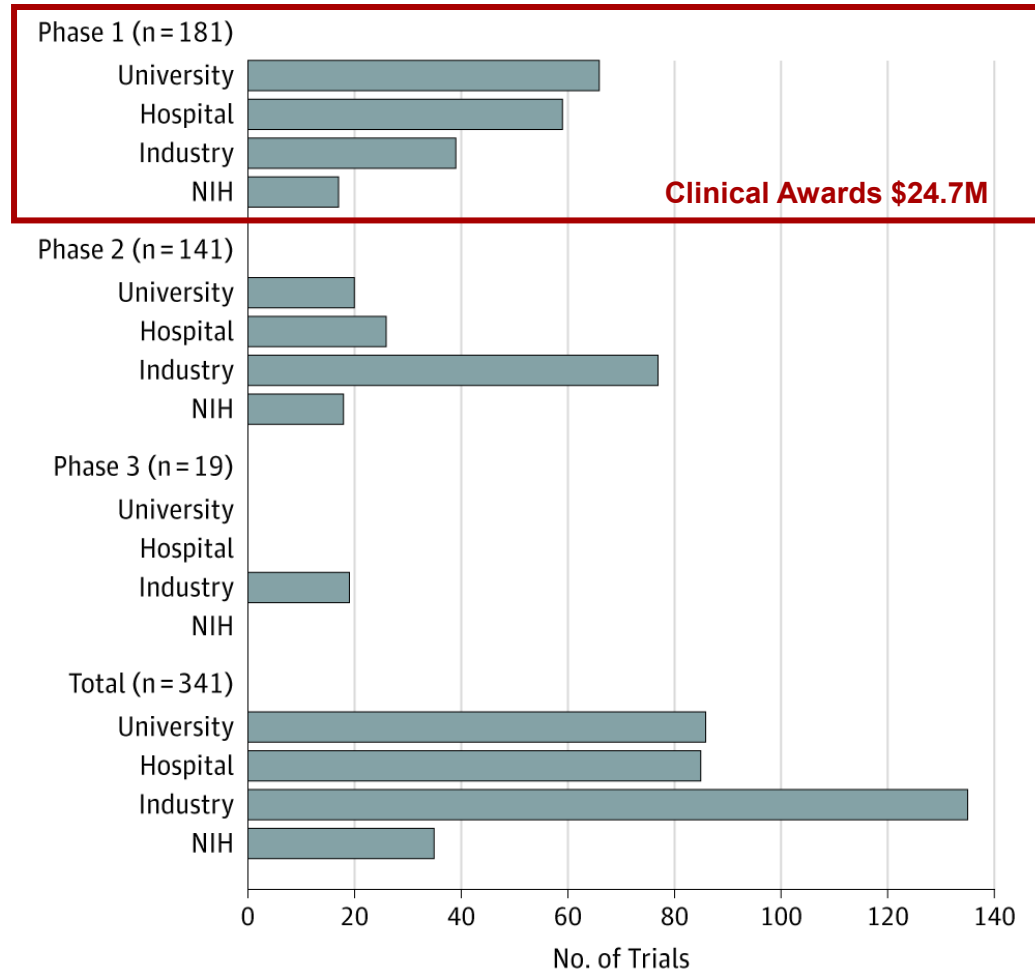
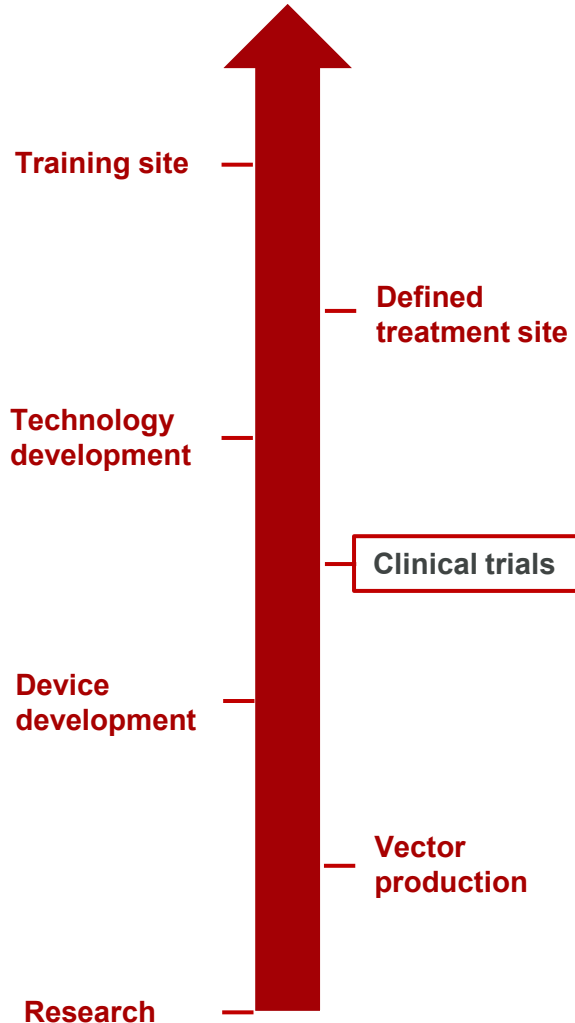
J. Bradley Elder, MD



# HYPERFINE



# Clinical Trials: First in Human

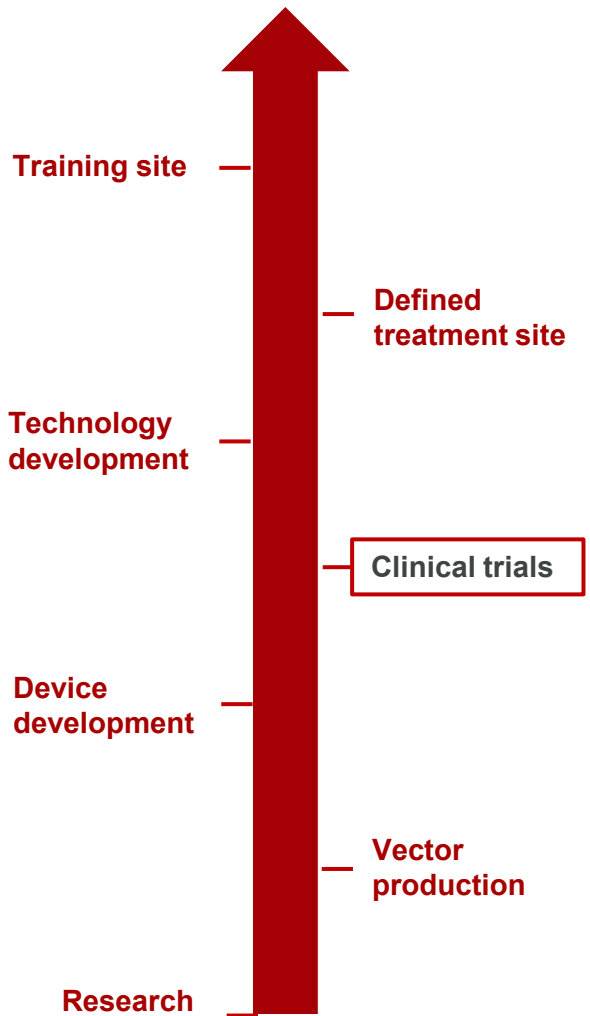


Ohio State leads the country in nervous system clinical trials.

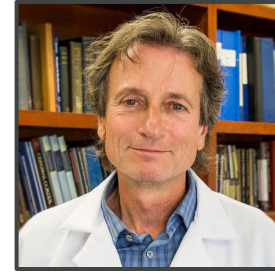
Z. Kassir, et al., Sponsorship and funding of gene therapy trials in the United States. *JAMA* 323:890-891, 2020



# Clinical Trials: First in Human



uniQure



Mark Tuszynski,  
MD, PhD



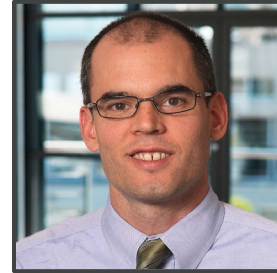
Krystof Bankiewicz,  
MD, PhD



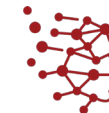
Matthew Ohr,  
MD



Sandra Kostyk,  
MD

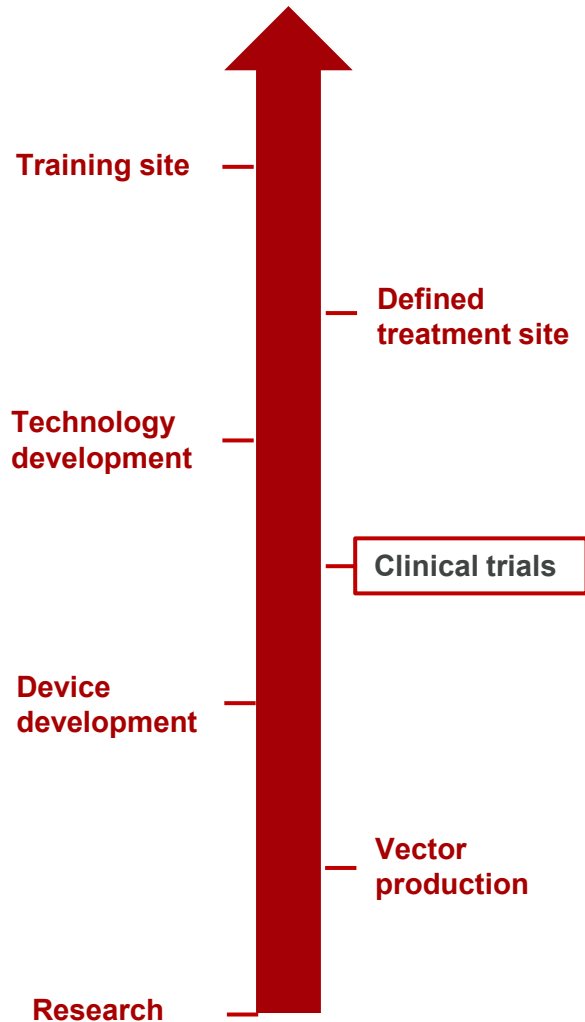


J. Bradley Elder, MD



AVIADOBIO

# Clinical Trials



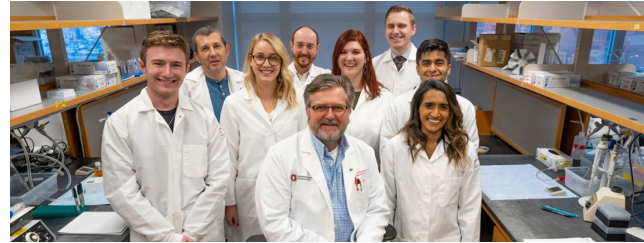
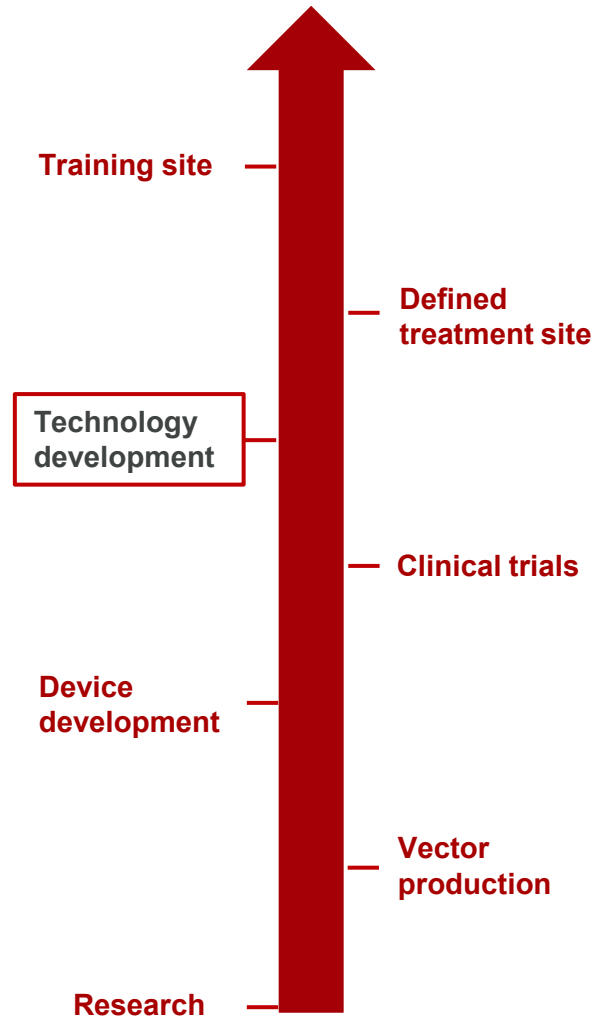
## Current Trials

Disease	Origin	Clinical Trial
Macular degeneration	Regenix Bio	Phase III
Parkinson's disease (regenerative)	Investigator (OSU)	Phase I
Parkinson's disease (symptomatic)	Investigator (OSU)	Phase I
Multisystem atrophy	Investigator (OSU)	Phase I
Huntington's disease	UniQure	Phase I
Alzheimer's disease	Investigator (UCSD)	Phase I
AADC-deficiency	Investigator	Phase I
Malignant glioma (multiple)	Industry	Phase I

## Emerging Trials

Disease	Origin	Clinical Trial
Frontotemporal dementia	AviadoBio	Phase I
Amyotrophic lateral sclerosis	Eikonklastes	Phase I
Drug addiction	Investigator (OSU)	Phase I
Obesity	Investigator (OSU)	Phase I
Leukodystrophy	Investigator (OSU)	Phase I

# Technology Development and Commercialization



\$14.6 million NIH award will accelerate gene therapy research for rare disorder

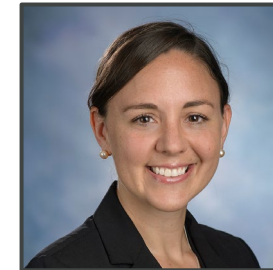


Bayer Acquires AskBio for Up to \$4 Billion to Expand Gene Therapy Platform

Published: Oct 26, 2020 | By Alex Keown



Moritz College of Law



Patricia J. Zettler, JD



Efthimios Parasidis, JD



Aravind Chandrasekaran, PhD



Fisher College of Business

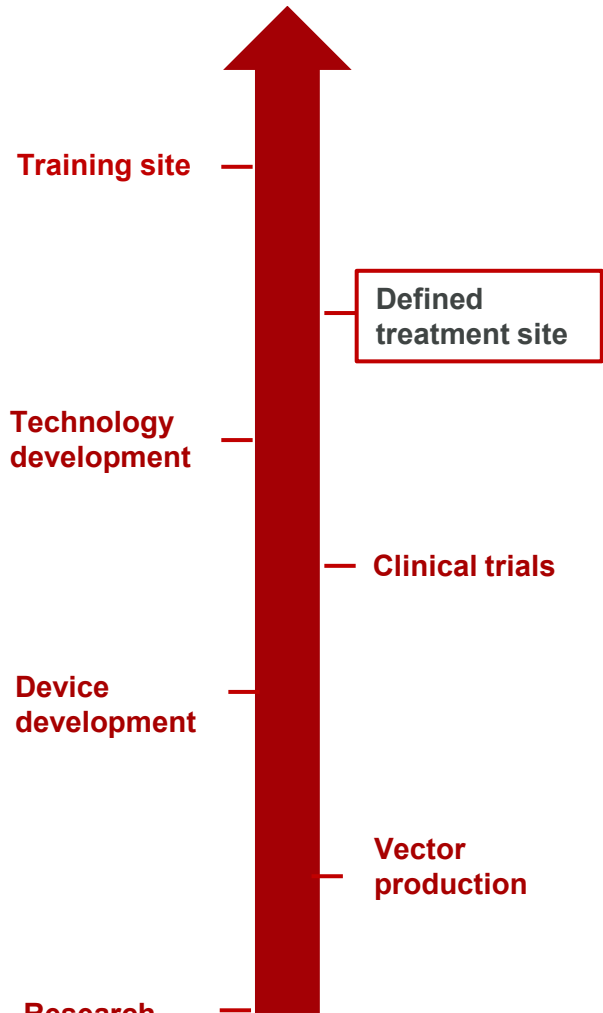


Rebecca Wolitz, JD, PhD



Paul Rose, JD

# Clinical Treatment and Destination Medicine



**Largest nervous system gene therapy clinical program worldwide**

**TODAY** ON THE SHOW COVID-19 & KIDS SHOPPING HEALTH PARENTS FOOD TRENDING BLACK VOICES **TODAY** all day

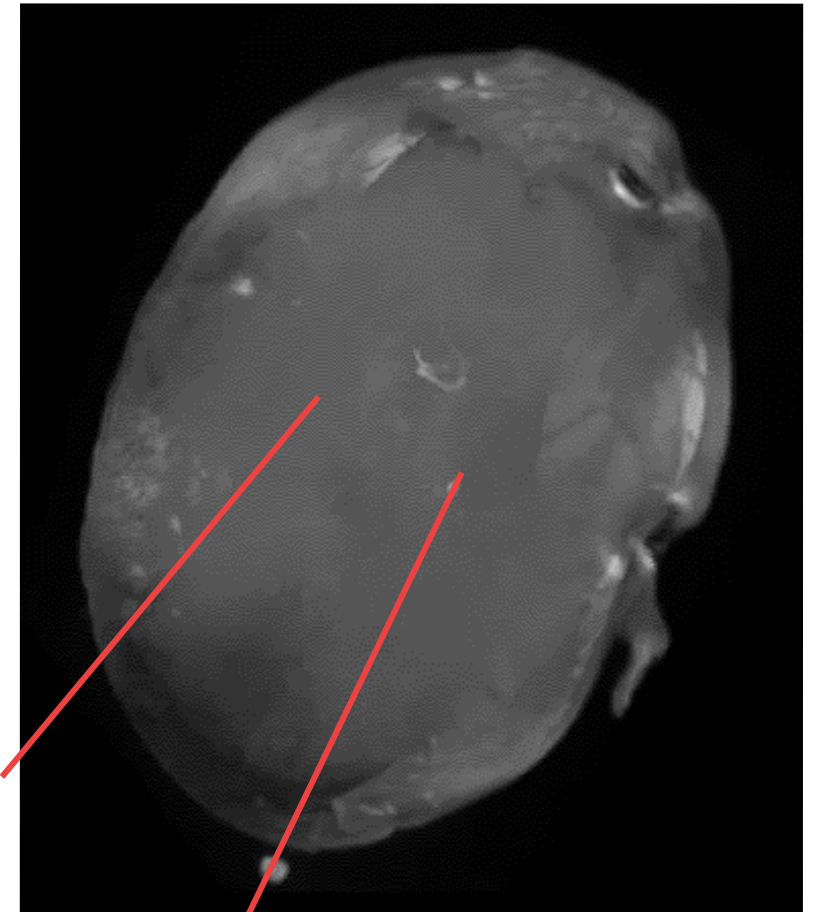
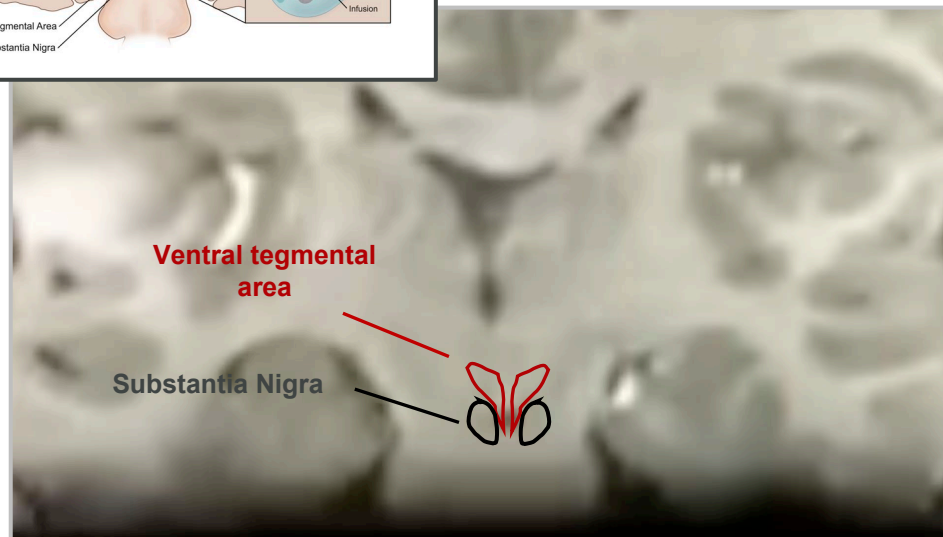
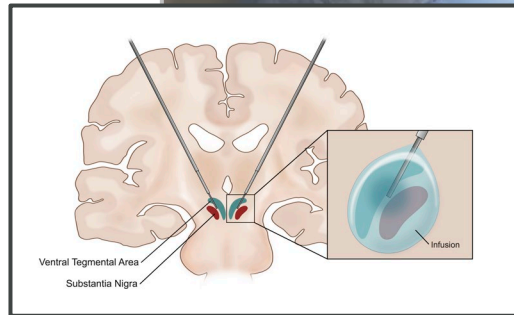
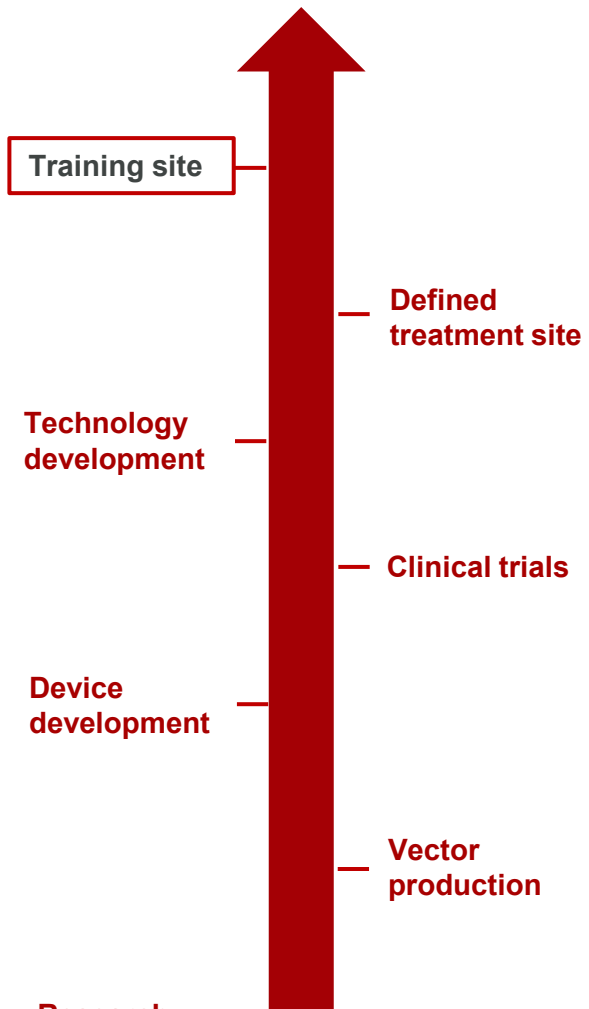
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HEALTH & WELLNESS

## Gene therapy is 'nothing short of a miracle' for 6-year-old with rare health condition

"This is nothing short of a miracle," mom Shante Stagg told TODAY of a gene therapy that has helped her son who has a rare health condition.

# Clinical Training Site



AADC-deficiency treated with AAV-AADC gene therapy



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## **The Impact of Ohio State Teams**

Global impact of Ohio State  
science: Science and training to  
impact patients across the globe



**SUMMARY OF ACTIONS TAKEN**

*February 16, 2023 – Research, Innovation & Strategic Partnerships Committee*

**Members Present:**

Lewis Von Thae  
Reginald A. Wilkinson  
Alexander R. Fischer (late)

Juan Jose Perez  
Tanner R. Hunt  
Phillip Popovich

Hiroyuki Fujita (ex officio)

**Members Present via Zoom:**

N/A

**Members Absent:**

N/A

The Research, Innovation & Strategic Partnerships Committee of The Ohio State University Board of Trustees convened on Thursday, February 16, 2022, in person at Longaberger Alumni House on the Columbus campus. Committee Chair Lewis Von Thae called the meeting to order at 12:59 p.m.

**PUBLIC SESSION**

***Items for Discussion***

1. Committee Chair’s Remarks: Mr. Von Thae kicked off the meeting by welcoming trustee, John Perez, to the committee. He also took a moment to publicly acknowledge and thank Grace Wang for her service to Ohio State as she moves on to be the 17<sup>th</sup> president of the Worcester Polytechnic Institute. Mr. Von Thae recognized Peter Mohler for stepping in as interim executive vice president for the Enterprise for Research, Innovation and Knowledge.
2. Highlights of New Research, Innovation and Knowledge Achievements: Dr. Grace Wang, provided a report highlighting research, innovation and knowledge achievements in four strategic priority areas over the last quarter.

*(See Attachment X for background information, page number XX)*

3. Research and Development Expenditures Update: Dr. Peter Mohler, provided an update on Ohio State’s research and development expenditures for Fiscal Year 2022 as well as information on Ohio State’s rankings for FY2021 that were recently released as part of the National Science Foundation’s Higher Education Research and Development (HERD) survey.

*(See Attachment X for background information, page number XX)*

***Items for Action***

4. Approval of Minutes: No changes were requested to the November 17, 2022, meeting minutes; therefore, a formal vote was not required, and the minutes were considered approved.



**EXECUTIVE SESSION**

It was moved by Mr. Von Thaer, and seconded by Dr. Fujita, that the committee recess into executive session to consider business-sensitive trade secrets required to be kept confidential by federal and state statutes, and to consult with legal counsel regarding pending or imminent litigation.

A roll call vote was taken, and the committee voted to go into executive session with the following members present and voting: Mr. Von Thaer, Dr. Wilkinson, Mr. Perez, Mr. Hunt, Dr. Popovich, and Dr. Fujita. Mr. Fischer was not present for this vote.

The committee entered executive session at 1:29 p.m. and the meeting adjourned at 2:20 p.m.

DRAFT