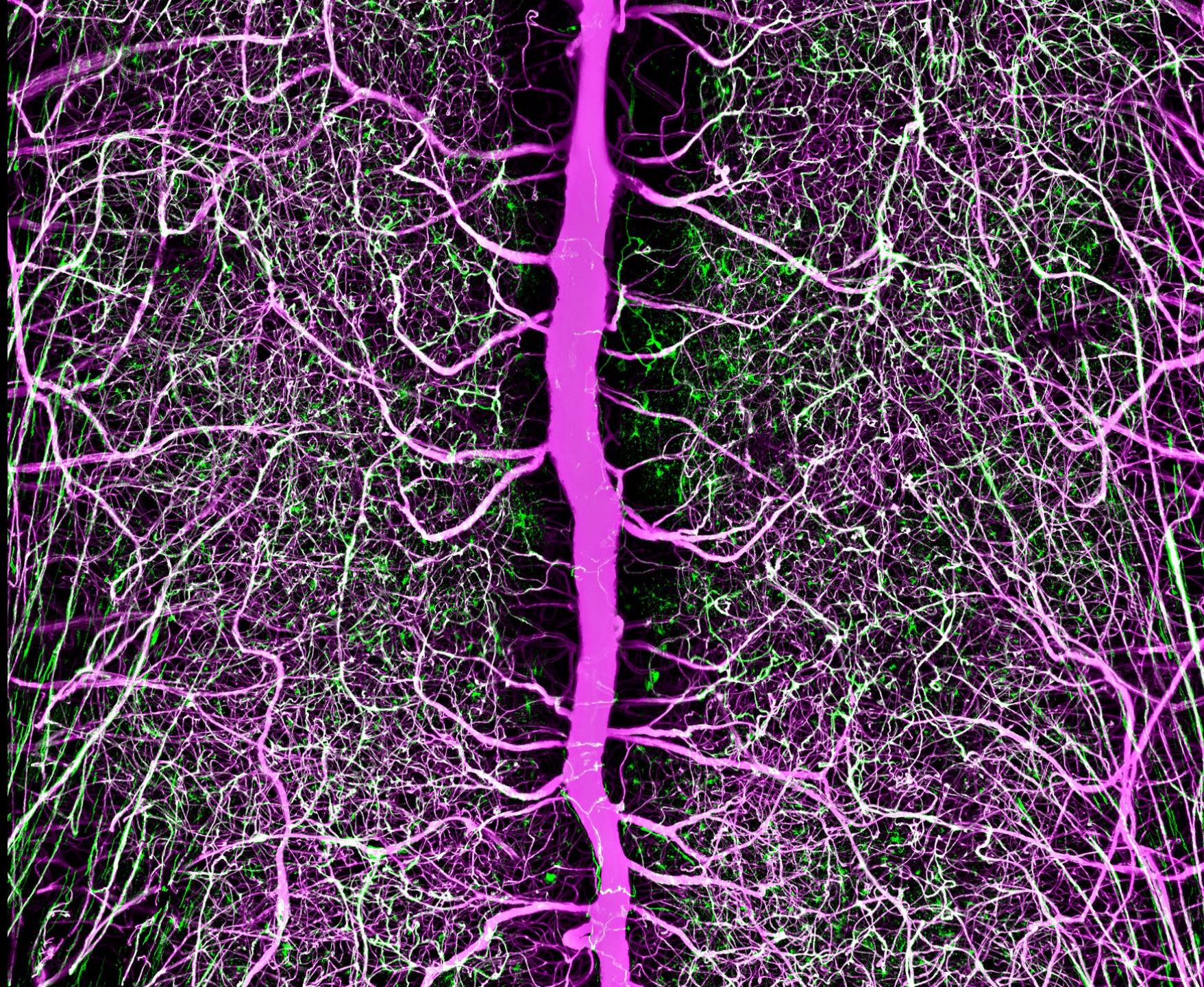


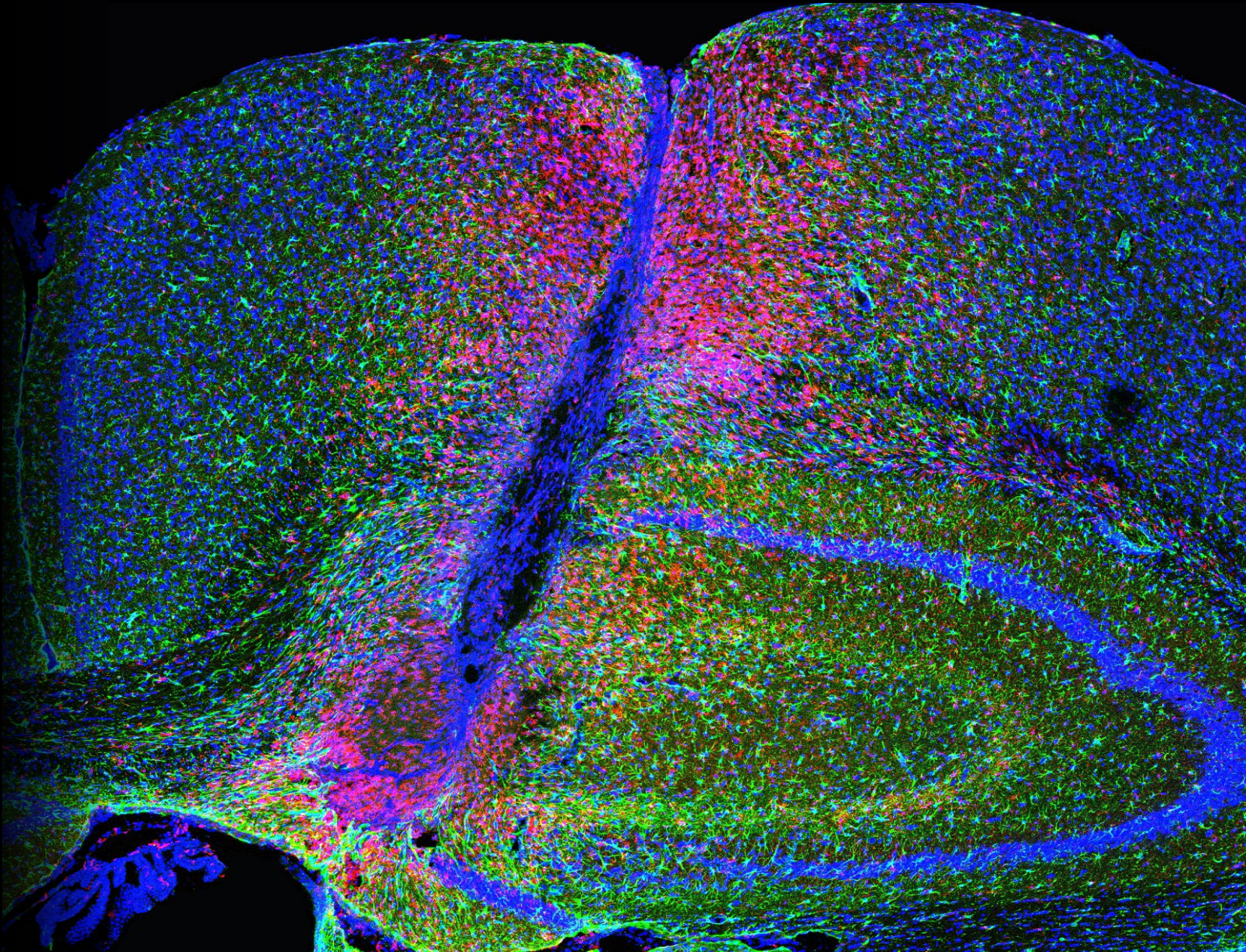
CHRONIC BRAIN INJURY PROGRAM

Annual Report
Fiscal Year 2022

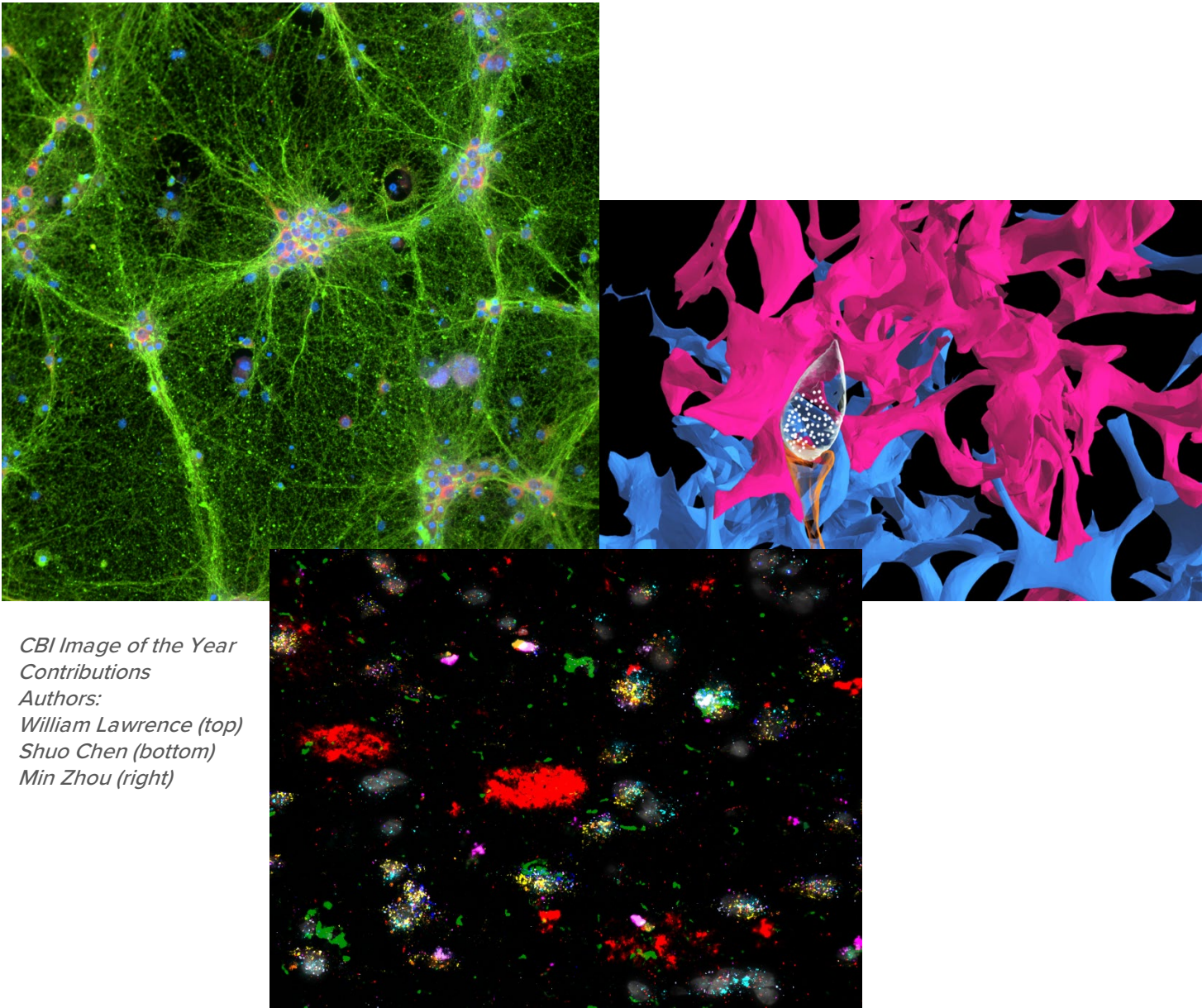


THE OHIO STATE UNIVERSITY





Program	3
Impact	8
Community	16



*CBI Image of the Year
Contributions
Authors:
William Lawrence (top)
Shuo Chen (bottom)
Min Zhou (right)*

VISION

Ohio State will be a global leader in the prevention, characterization, detection, and treatment of brain injuries and neurodegenerative disease.

MISSION

The Chronic Brain Injury Program (CBI) will:

- Drive interdisciplinary and translational research in brain injury, spinal cord injury, and neurodegenerative disease
- Facilitate collaboration and engagement across convergent research teams and external partners
- Invest in talent, innovation, resources, and training

SOCIETAL CHALLENGE

Brain injury is an invisible and costly epidemic that affects the health, education, careers, relationships, and social participation of individuals, families, and communities. Existing CDC and Ohio Brain Injury Program data show alarming prevalence and impact of brain injury here and across the nation. Our health care and support systems struggle to address the lifelong and complex health and social challenges of chronic brain injury.



1 in 4 Ohio adults will be a brain injury survivor.



TBIs occur every 15 seconds, more frequently than breast cancer and heart attacks.



Each year, Ohioans incur \$6B in direct costs and lost wages; nationally, TBIs cost \$77B.



Up to 70% of brain injury survivors may face long-term consequences.



Up to 50% of concussions may go unreported.



Limited awareness and training is commonly reported among health professionals.



SCOPE & SCALE

CBI develops and supports research and clinical teams across Ohio State and partner organizations who must converge to solve the health, care, and life challenges of neurotraumas.

CBI faculty affiliates study a variety of conditions including traumatic brain injury, concussion, stroke, spinal cord injury, mental health, vision, speech, aging, and dementia.

We are developing and improving our understanding and capabilities in translational neuroscience, diagnostic tools, and treatment in clinic and at home.

By leveraging this broad and diverse scope, we can create meaningful change for children, older adults, veterans, athletes, victims of violence, and others affected by chronic brain injury.

56

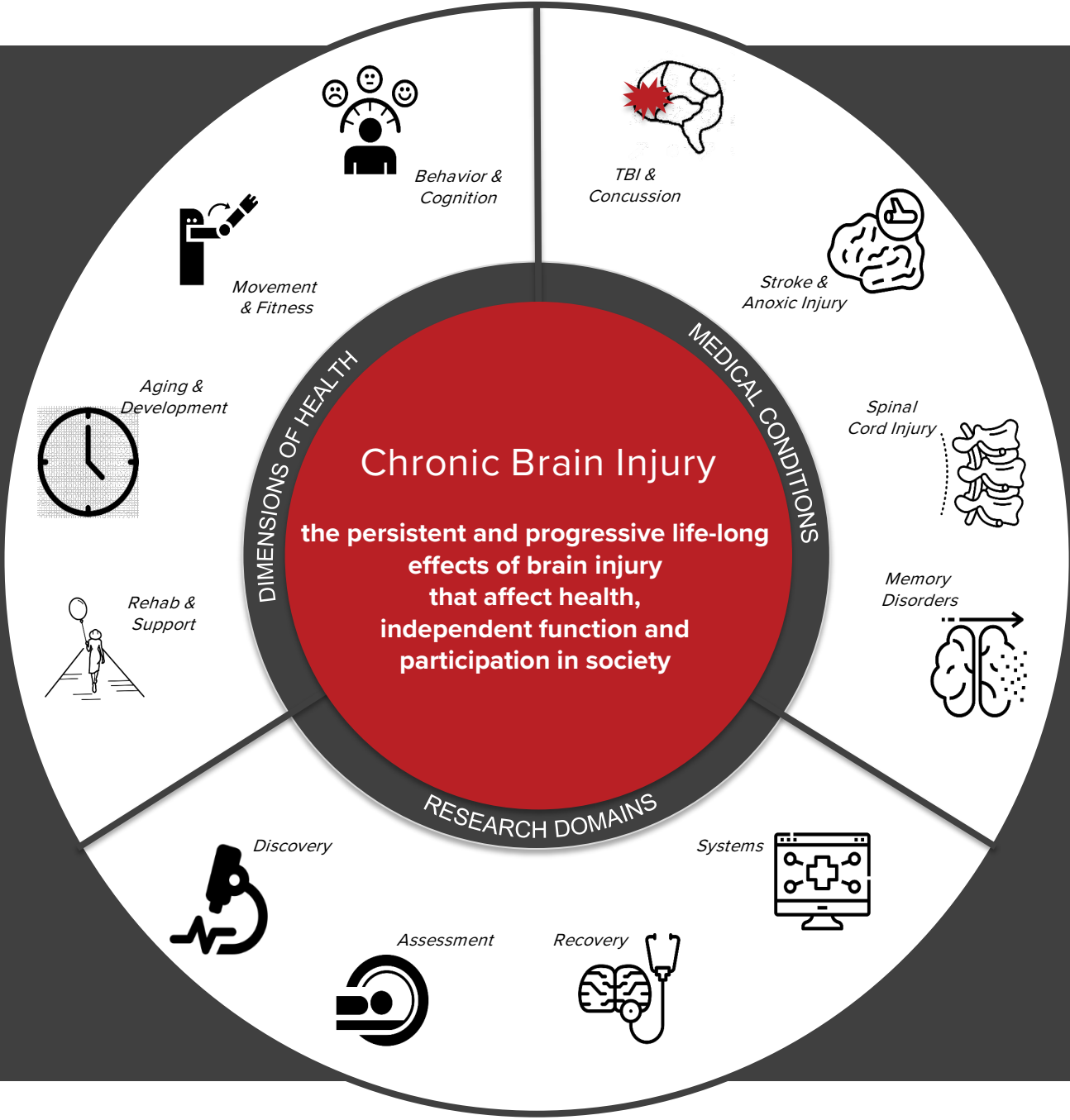
CORE FACULTY

7

COLLEGES

18

DEPARTMENTS



PROGRAM & PROJECTS

CBI programming is guided by 5 goals shown below that reflect our mission, areas of need, and areas of strength and capability. Activities aim to engage and support faculty, staff, and student Buckeyes to develop team projects, improve research and training capabilities, and share knowledge with external partners and stakeholders. In FY22, CBI awarded new grants for clinical and community research partnerships in sports concussion, selected a large clinical pilot grant to combat chronic neurotrauma symptoms, began review workshops to strengthen revised grant submissions, and launched a survivor and caregiver storytelling platform. Additionally, several high-impact and high-visibility projects led by CBI affiliates were developed and funded, showcasing the excellence of our campus brain injury teams.

GOALS

1

COMPREHENSIVE & COORDINATED PLAN OF CARE

2

NEW INTERVENTIONS & DIAGNOSTIC TECHNOLOGIES

3

CONNECTED & ACCESSIBLE CLINICAL DATA SYSTEMS

4

TRAINED & ENGAGED PROFESSIONALS

5

COMMUNITY OF RESEARCHERS, SURVIVORS & CARE PROVIDERS

ACTIVITIES

CBI GRAND ROUNDS	ACTION POTENTIAL GRANTS	PARTNER ENGAGEMENT GRANTS
RESEARCH PILOT AWARDS	CLINICAL PILOT AWARDS	PREP-work PROPOSAL REVIEWS
BRAIN HEALTH HACK / ENG CAPSTONES	SHARED RESOURCE GRANTS	FASTER: TBI DATA REPOSITORY
SUMMER RESEARCH FELLOWSHIPS	OHIO TBI SUMMIT	NEUROTRAUMA COURSE SERIES
NT-RIPS & BNL SEMINAR SERIES	ANNUAL RESEARCH DAY	NEURONIGHTS WELLNESS WORKSHOPS

STEWARDSHIP

OUTREACH

TEACHING

RESEARCH

NOTABLE FY22 PROJECTS & LEADERS

Health-enhancing active lifestyle intervention to promote optimal aging, health and function with CBI (HEAL-CBI)
Catherine Quatman-Yates, PhD

High Resolution Microwave Tomographic Imaging of Brain Strokes Using Low-Frequency Measurements and Deep Neural Networks
Asimina Kiourti, PhD & Yousef Hannawi, MD

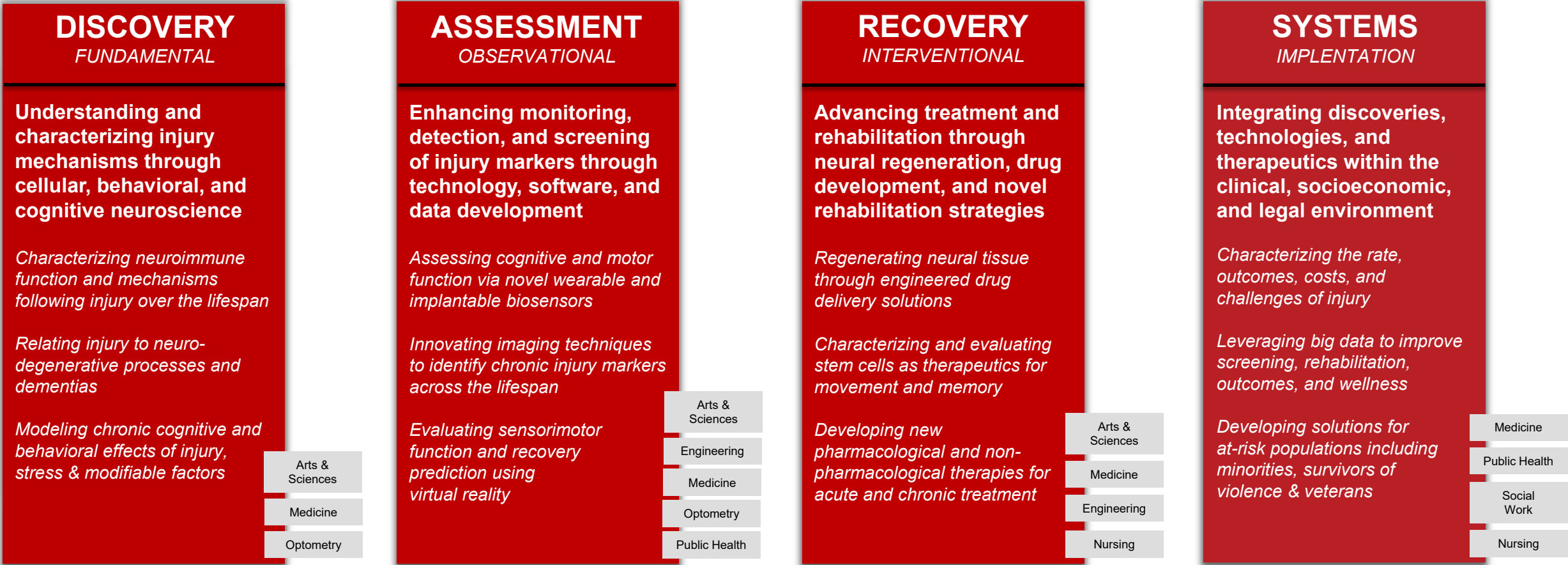
Comparing Treatment Approaches to Promote Inpatient Rehabilitation Effectiveness for Traumatic Brain Injury (CARE-4-TBI)
Jennifer Bogner, PhD

Americas School of Neuroimmunology 2022 International Conference | 200 attendees
Jonathan Godbout, PhD

Domestic Violence & TBI World Cafés
Julianna Nemeth, PhD

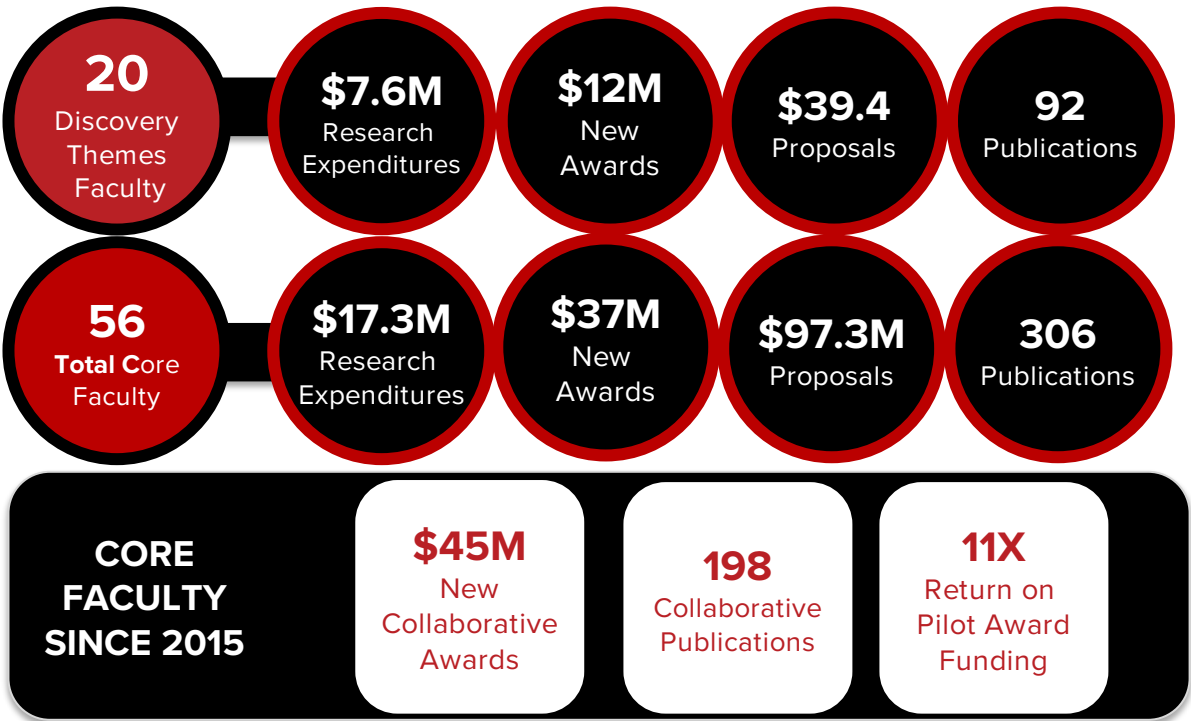
RESEARCH AREAS

CBI faculty broadly study topics areas in chronic brain injury, spinal cord injury, neurodegenerative disease, aging, stress, trauma, cognition, behavior, and movement. Faculty participate in several interdisciplinary and cross-college research clusters, which are categorized into four key research areas shown below. Each area features multiple faculty clusters spanning two or more colleges.



OUTCOMES

FY2022 and lifetime metrics are shown for our Core Faculty, including specifics for Discovery Themes faculty. In addition, CBI has contributed to a dramatic rise in annual National Institutes of Health (NIH) funding for brain injury research, with Ohio State now ranking among the top 10 institutions for active NIH R01 funding and projects in traumatic brain injury. CBI Discovery Themes faculty added four new R01s this year. While NIH is the primary funder for this work, CBI faculty are also winning prestigious CAREER awards from the National Science Foundation and investigator awards from the Department of Defense.



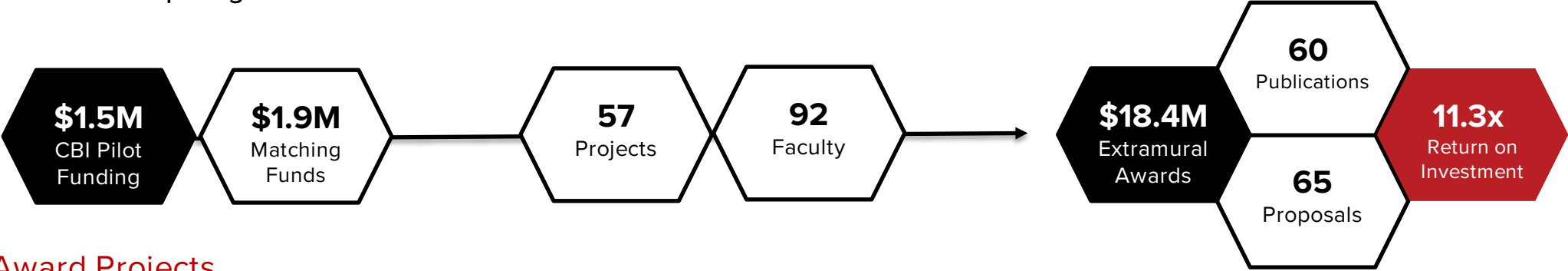
Data for the period July 1, 2021, to June 30, 2022.
Financials obtained Workday/PI Portal | Publications obtained from Scopus



INNOVATION

CBI’s Pilot Award Program invests in teams of scientists that bridge colleges and institutions. Each team is granted \$25,000 to realize ambitious ideas and to advance projects to the next level. Since 2016, CBI has funded 57 team projects. Over 40% of our completed projects have already found success, resulting extramural awards from federal, industry, and foundation funders. In FY2022, CBI funded 10 new projects, and offered a new \$100,000 clinical trial pilot grant to be awarded in FY23.

Lifetime Outcomes



2022 Pilot Award Projects

- Divergent responses to CNS injury: Region-specific and sex-specific microglia transcriptional phenotypes
Faith Brennan, Kathryn Lenz, Olga Kokiko-Cochran | Medicine, Arts & Sciences
- The discovery of tau aggregation inhibitors by molecular simulation and experimental verification
J. Gao, J. Wang | Medicine, University of Pittsburgh
- Measuring Cognitive Activity Workload in Children with Concussion
Asimina Kiourti, Ginger Yang, Daniel Cohen | Engineering, Nationwide Children’s Hospital
- Determining the Role of the Gut Microbiome in TBI-induced Cognitive Impairment
Kris Martens, Michael Bailey, Cole Vonder Haar | Medicine, Nationwide Children’s Hospital
- Assessing Readiness to Transition to Physical Activity Post-Concussion in Youth
Ginger Yang, Catherine Quatman-Yates, Gerry Taylor | Medicine, Nationwide Children’s Hospital

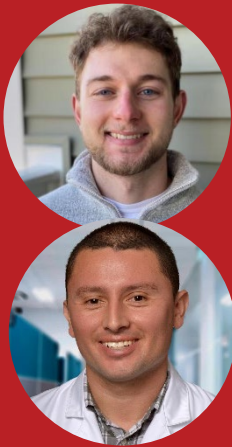
- Untangling the association between periodontal disease and Alzheimer’s disease using relevant mouse models
Ruth Barrientos, Sarah Peters | Medicine, Dentistry
- Normalizing adipose tissue homeostasis promotes recovery following CNS trauma
Andrea Tedeschi, Kristy Townsend | Medicine
- Influence of Equine Assisted Services on the Biopsychosocial Health and Well-being of Trauma Victims
Kimberly Cole, Holly Jedlicka | CFAES, PBJ Connections
- QUEST (Quitting Using Executive function Strategy Training) Tobacco Cessation Component Development and Acquired Brain Injury (ABI)/Cognitive Function Measurement
Julianna Nemeth, Jennifer Lundine, Min-Ae Song | Public Health, Arts & Sciences
- A Miniaturized Neural Probe for Continuous Monitoring of Neuronal Chemicals in Living Animals with TBI
Jinghua Li, Andrea Tedeschi, Wenjing Sun | Engineering, Medicine

TEAM SCIENCE

In FY22, CBI continued investing in convergent teams to develop large, impactful initiatives featuring multiple projects or integrated activities. CBI’s Action Potential Grant (APG) series provides \$15,000 to develop multi-college teams that together can address a complex issue in brain injury. In FY22, two faculty teams participated in the APG process with projects bringing together academic, industry, nonprofit, and government organizations to solve challenges in trauma and follow up care.

PAPER OF THE YEAR

Since 2018, CBI has held an annual competition to select our most impactful publication from the past calendar year. In CY21, our Paper of the Year was *Nanotransfection-based vasculogenic cell reprogramming drives functional recovery in a mouse model of ischemic stroke*”, published in Science Advances by trainee Luke Lemmerman, along with PI Daniel Gallego Perez, PhD and CBI coauthors Shahid Nimjee and Dana McTigue.



Formation of OSU's Transformative, Transdisciplinary Research Program in Brain Trauma from Interpersonal Violence (BT-IPV)

Julianna Nemeth, PhD (lead) | Health Behavior & Health Promotion
Jasmeet Hayes, PhD | Psychology
Cole Vonder Haar, PhD | Neuroscience
Cecilia Mengo, PhD | Social Work
Rachel Ramirez, LISW-S | Ohio Domestic Violence Network



Health-enhancing active lifestyle intervention to promote optimal aging, health and function with CBI (HEAL-CBI)

Catherine Quatman-Yates, PT, DPT, PhD (lead) | Physical Therapy
Jennifer Bogner, PhD | Physical Medicine & Rehabilitation
James Burke, MD | Neurology,
Kevin Kerber, MD | Neurology
Kristen Webber, OT/L, BCPR | Neurologic Rehabilitation
Brad Kurowski, MD, MS | Cincinnati Children’s Hospital
Jared Ciner | SPIRIT Club

HIGHLIGHTS



The National Institute of Neurological Disorders and Strokes allocated \$16 million toward a seven-year, multicenter research project led by the Ohio Valley Center for Brain Injury Prevention & Rehabilitation in the Department of Physical Medicine & Rehabilitation that will compare inpatient rehabilitation treatments for traumatic brain injuries (TBI). The project, titled CARE-4-TBI, involves the Ohio Regional TBI Model System, along with 14 other TBI Model System sites across the United States that provide brain injury care and rehabilitation to assist individuals with returning home and re-entering their community. Led by CBI affiliates Jennifer Bogner, PhD, Cynthia Beaulieu, PhD, John Corrigan, PhD along with Ohio State co-investigator Tim Huerta, PhD, MS, and co-PI Erinn Hade, PhD at NYU Langone Health, this observational study will recruit nearly 1,600 participants. The Ohio Regional TBI Model Systems grant is also expected to be renewed in FY23, continuing its streak of funding since 1997.



Asimina Kiourti, PhD received a National Science Foundation CAREER award titled “Multi-Utility Textile Electromagnetics for Motion Capture and Tissue Monitoring Cyber-Physical Systems.” This 5-year \$527 thousand award aims to understand the unique challenges of operating textile sensors, which have medical, sports and defense applications, within “in-the-wild” environments to empower their reliable operation via closed-loop interaction among fabrics, electronics, and humans. The project focuses on new classes of functionalized garments that can seamlessly monitor kinematics and/or tissue abnormalities with unique advantages over the state-of-the-art.



Liz Kirby, PhD (Psychology) received a National Institute of Neurological Disorders and Stroke R01 grant titled "Regulation of adult hippocampal function by the neural stem and progenitor cell secretome." This 5-year, \$1.9 million project will examine how neural stem cells regulate adult hippocampal function via secreted proteins to better understand normal memory function and neuroprotective mechanisms for seizure-induced injury.



The National Council on Aging and the U.S. Administration for Community Living selected Catherine Quatman-Yates, PT, DPT, PhD (Physical Therapy) and her Community-FIT – CARES paper and partnership with Upper Arlington Fire Department as one of four EMS-Academic partnerships to showcase nationally for fall prevention efforts. Falls are the leading cause of TBI.



Harry Fu, PhD (Neuroscience) received a National Institute of Aging R01 grant titled “Ectodermal-neural cortex 1 and neuronal vulnerability to tau pathology in Alzheimer's disease.” This 5-year, \$2.4 million project will explore why some neurons are highly vulnerable to degeneration in early Alzheimer's disease. This study continues pilot work funded by CBI and involves cutting-edge research using cerebral organoids.



Phillip Popovich, PhD, Jan Schwab, MD, PhD, and Kristina Kigerl, PhD won funding through Ohio’s Third Frontier program for their project “Metagenomic analysis of gut microbiota after SCI to identify novel therapeutic targets,” which support the development of custom probiotic interventions to treat spinal cord injury and establish an advanced analytics platform for human spinal cord injury microbiome research.



Hiroki Taniguchi, PhD joined Ohio State in 2021 and received a new National Institute of Neurological Disorders and Stroke R01 grant titled “Molecular mechanisms underlying cortical interneuron synaptic specificity.” This 3-year, \$1.3M award will provide novel insights into the molecular identities and their interactions that govern synaptic specificity of interneuron networks implicated in epilepsy, autism, and other mental health disorders.

SELECTED PUBLICATIONS

Kenigsbush et al. A shared disease-associated oligodendrocyte signature among multiple CNS pathologies. 2022, Nature Neuroscience. IF: 19.85

Rose et al. Quality Improvement in Neurology: Concussion Quality Measurement Set. 2021, Neurology. IF: 15.9

Baradaran et al. Bladder Management With Chronic Indwelling Catheter is Associated with Elevated Mortality in Patients with Spinal Cord Injury. 2022, Urology. IF: 15.9

Wang et al. scGNN is a novel graph neural network framework for single-cell RNA-Seq analyses. 2021, Nature Communications. IF: 15.41

Brennan et al. Microglia coordinate cellular interactions during spinal cord repair in mice. 2022, Nature Communications. IF: 15.41

Olsen & Corrigan. Does Traumatic Brain Injury Cause Risky Substance Use or Substance Use Disorder? 2022, Biological Psychiatry. IF: 14.71

Brett et al. Traumatic Brain Injury and Risk of Neurodegenerative Disorder. 2022, Biological Psychiatry. IF: 14.71

Breach et al. Maternal allergic inflammation in rats impacts the offspring perinatal neuroimmune milieu and the development of social play, locomotor behavior, and cognitive flexibility. 2021, Brain, Behavior, and Immunity. IF: 14.09

Butler et al. Dietary DHA prevents cognitive impairment and inflammatory gene expression in aged male rats fed a diet enriched with refined carbohydrates. 2021, Brain, Behavior, and Immunity. IF: 14.09

Breach et al. Prenatal allergic inflammation in rats programs the developmental trajectory of dendritic spine patterning in brain regions associated with cognitive and social behavior. 2022, Brain, Behavior, and Immunity. IF: 14.09

Hayano et al. IgSF11 homophilic adhesion proteins promote layer-specific synaptic assembly of the cortical interneuron subtype. 2021, Science Advances. IF: 13.93

Liu et al. Battery-free, tuning circuit-inspired wireless sensor systems for detection of multiple biomarkers in bodily fluids. 2022, Science Advances. IF: 13.93

Steinecke et al. Neuromodulatory control of inhibitory network arborization in the developing postnatal neocortex. 2022, Science Advances. IF: 13.93

Frankot et al. Acute Gut Microbiome Changes After Traumatic Brain Injury Are Associated With Chronic Deficits in Decision-Making and Impulsivity in Male Rats. 2022, Behavioral Neuroscience. IF: 12.71

DiSabato et al. Interleukin-1 receptor on hippocampal neurons drives social withdrawal and cognitive deficits after chronic social stress. 2021, Molecular Psychiatry. IF: 11.91

Dontha et al. Wearable Sensors Based on Force-Sensitive Resistors for Touch-Based Collaborative Digital Gaming. 2022, Sensors. IF: 11.44

Chen et al. Waterproof, flexible field-effect transistors with submicron monocrystalline Si nanomembrane derived encapsulation for continuous pH sensing. 2022, Biosensors and Bioelectronics. IF: 11.44

EDUCATION



Americas School of Neuroimmunology

CBI director Jonathan Godbout, PhD organized the 2022 Americas School of Neuroimmunology (ASNI), a 4-day international conference for graduate students from North, Central, and South America to explore research topics including brain injury, spinal cord injury, and multiple sclerosis. ASNI featured nearly 200 attendees including 24 invited speakers, X students, and Y posters. The conference was hosted at the Ohio Union with support from the Neuroscience Research Institute and \$60,000 in partner sponsorships.



Summer Undergraduate Research Fellowships (SURF)

CBI offers fellowships to support young researchers completing summer projects with our affiliates. These fellowships create an additional training component to ongoing research projects and serve as a mechanism to keep students engaged in basic and clinical sciences. In FY22, CBI funded 6 new SURF fellows on projects ranging from chronic injury mechanisms, neural development, stroke therapeutics, and memory modulation by diet and exercise. Each fellow will present their work at CBI events across the 2022-2023 academic year.

 <p>SAKEEF AHSAN Olga Kokiko-Cochran, PhD <i>Analysis of Mitochondrial Activity Following post-TBI Sleep Fragmentation</i></p>	 <p>HABIB AKOURI Katy Lenz, PhD <i>The Impact of Juvenile Traumatic Brain Injury on Oxytocin-Microglia Interactions in Social Brain Regions</i></p>	 <p>ARIANNA CARFORA Lluís Samaranch, PhD <i>Combinatorial Treatment for Acute Ischemic Stroke: Merging Von Willebrand Factor Inhibition and Gene Therapy</i></p>
 <p>HAANYA IJAZ Ruth Barrientos, PhD <i>Assessing Gene Expression Alterations Caused by High Fat Diet in the Aging Hippocampus using RNA-seq</i></p>	 <p>JENNA MCCLOSKEY Kris Martens, PhD <i>Dissociating the Role of Cues in Simple Versus Complex Decision-Making after Brain Injury</i></p>	 <p>MICHEAL MELVILLE Scott Hayes, PhD <i>Memory and acute exercise: An investigation of acute exercise intensity on episodic memory and executive function performance</i></p>

OUTREACH

NeuroNights

A partnership between CBI, Wexner Medical Center, and undergraduate student club BRAIN, NeuroNights is an online workshop series that engages brain injury survivors, caregivers, and students to learn about current research, study participation, and wellness activities and resources. In FY22, NeuroNights held 21 themed workshops with expert speakers from Ohio State’s research and clinical teams, as well as partnering agencies including Ohio Bureau of Vocational Rehabilitation and Central Ohio Transit Authority. Additionally, NeuroNights began a series of survivor stories to help support Ohio brain injury policy objectives.



LiFESports

CBI partnered with the College of Social Work to provide concussion education to underrepresented middle-school and high-school students participating in sports camps at Ohio State. In June 2022, CBI organized and concussion prevention and STEM careers workshop for LiFESports Youth Leadership Academy participants, showcasing technologies and clinics used in brain injury research and therapies, including outpatient facilities at the Martha Morehouse complex. This connection has spurred regular engagement with LiFESports attendees, as well as connections with schools to recruit young athletes into research studies.



OPPORTUNITIES

PROGRESS FROM FY21

TARGET FACULTY CLUSTERS FOR GROWTH

CBI continued to invest in strategic development of aligned faculty research projects to compete for prestigious center and training grants. Potential areas include neuroimmunology, treatment of mild TBI, and neuro-diagnostics. CBI invested in program grant development, new planning grants, and visibility for training programs. We aim to capture program and training grants in FY2023.

HEALTH ECONOMICS, POLICY & LAW

Health policy experts noted a strong need for story-telling by brain injury survivors, caregivers, and professionals, as well as public health assessments for sports concussion policy, vulnerable populations, and health costs. CBI developed story-telling workshops, solicited grants for first-responders, and worked to support new federal legislation.

GROWING RESEARCH

TARGETED GRANTS | CBI faculty clusters are preparing to submit large NIH and DOD proposals for program project- and SBIR-type grants; investments in FY22 will continue in FY23.

FIRST RESPONDERS & CRIMINAL JUSTICE | Multiple CBI studies in brain injury and mental health are intersecting with law enforcement groups; in FY23, CBI will support faculty teams to become national leaders in surveillance and training of first responders.

PRECLINICAL MODELING | To retain a critical area of strength, the preclinical injury modeling core will be supported by CBI to develop new methods, technologies, collaborators and customers, including capstone projects in the College of Engineering.

GROWING PROGRAMS

COLLEGE SYMPOSIA | To deepen relationships with partner Colleges, CBI will host several symposia in FY23 and FY24 to help teams form, create interdisciplinary capstone projects, and acquire new funding strategies; early targets include Optometry, Engineering, and Arts & Sciences.

VETERANS COACHING | To support and recruit military-connected Ohio State students into research projects, CBI, Fisher College of Business, and Student Life will launch a novel peer-coaching program to train community leaders in brain injury and suicide prevention, along with leadership skills.

SHARED DATA PROTOCOLS, & RESOURCES | To improve access to institutional knowledge and meet NIH requirements, CBI will create a web-based repository for faculty to share data, protocols, expertise, and equipment.

ORGANIZATION

ENTERPRISE FOR RESEARCH, INNOVATION & KNOWLEDGE



DISCOVERY THEMES FACULTY



Ruth Barrientos, PhD
Psychiatry &
Behavioral Health



Jaclyn Caccese, PhD
Health & Rehabilitation
Sciences



Emre Ertin, PhD
Electrical & Computer
Engineering



Hongjun Fu, PhD
Neuroscience



Jie Gao, PhD
Neuroscience



Jasmeet Hayes, PhD
Psychology



Scott Hayes, PhD
Psychology



Asimina Kiourti, PhD
Electrical & Computer
Engineering



Elizabeth Kirby, PhD
Psychology



Olga Kokiko-Cochran, PhD
Neuroscience



Kiryung Lee, PhD
Electrical & Computer
Engineering



Jinghua Li, PhD
Materials Science &
Engineering



Giles Plant, PhD
Neuroscience



Zeynep Saygin, PhD
Psychology



Jan Schwab, MD, PhD
Neurology



Hiroki Taniguchi, PhD
Pathology



Andrea Tedeschi, PhD
Neuroscience



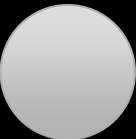
Cole Vonder Haar, PhD
Neuroscience



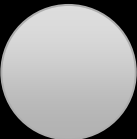
Jeff Wing, PhD
Epidemiology



Kathy Wright, PhD
Nursing



VACANT POSITION
Neurological Surgery



VACANT POSITION
Speech & Hearing Sciences

CORE FACULTY

In addition to Program Faculty hired via Discovery Themes, our Core Faculty members are highly engaged contributors to the CBI mission and program activities. Core Faculty attend events, serve on advisory boards and as reviewers, poster judges, mentors, and gateways to new and exciting collaborative research.

Michele Basso, EdD, PT
Professor
Health & Rehabilitation Sciences
Medicine

Daniel Gallego-Perez, PhD
Assistant Professor
Biomedical Engineering
Engineering

Sheital Bavishi, DO
Assistant Professor
Physical Medicine & Rehab
Medicine

Jonathan Godbout, PhD
Professor
Neuroscience
Medicine

Cynthia Beaulieu, PhD
Associate Professor
Physical Medicine & Rehab
Medicine

Chen Gu, PhD
Associate Professor
Biological Chemistry and Pharmacology
Medicine

Jennifer Bogner, PhD
Professor
Physical Medicine & Rehab
Medicine

Yousef Hannawi, MD
Assistant Professor
Neurology
Medicine

John Corrigan, PhD
Professor Emeritus
Physical Medicine & Rehab
Medicine

Andrew Hartwick, OD, PhD
Associate Professor
Optometry

Paco Herson, PhD
Professor
Neurological Surgery
Medicine

Kristin Hoskinson, PhD
Assistant Professor
Center for Biobehavioral Health
Nationwide Children's Hospital

Lisa Jordan, PhD
Research Professor
Optometry

Deb Kegelmeyer, DPT
Professor
Health & Rehabilitation Sciences
Medicine

Anne Kloos, PhD, PT
Professor
Health & Rehabilitation Sciences
Medicine

Christine Koterba, PhD
Assistant Professor
Center for Biobehavioral Health
Nationwide Children's Hospital

Deborah Larsen, PhD, PT
Professor & Associate Dean
Health & Rehabilitation Sciences
Medicine

Kathryn Lenz, PhD
Associate Professor
Psychology
Arts & Sciences

Benedetta Leuner, PhD
Associate Professor
Psychology
Arts & Sciences

Jennifer Lundine, PhD
Assistant Professor
Speech & Hearing Sciences
Arts & Sciences

Dana McTigue, PhD
Professor & Associate Dean
Neuroscience
Medicine

W. Jerry Mysiw, MD
Professor
Physical Medicine & Rehabilitation
Medicine

Julianna Nemeth, PhD
Assistant Professor
Health Behavior & Health Promotion
Public Health

Shahid Nimjee, MD, PhD
Assistant Professor
Neurological Surgery
Medicine

Jose Otero, MD, PhD
Associate Professor
Pathology
Medicine

Phillip Popovich, PhD
Professor & Chair
Neuroscience
Medicine

Catherine Quatman-Yates, PhD, DPT
Assistant Professor
Health & Rehabilitation Sciences
Medicine

Karen Rose, PhD
Professor
Nursing

Sean Rose, MD
Assistant Professor
Neurology
Nationwide Children's Hospital

Andrew Sas, MD, PhD
Assistant Professor
Neurology
Medicine

Hudson 'Gerry' Taylor, PhD
Professor
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Lise Worthen-Chaudhari, PhD, MFA
Research Scientist
Physical Medicine & Rehab
Medicine

Ginger Yang, PhD, MPH
Professor
Center for Injury Research & Prevention
Nationwide Children's Hospital

Phillip Yuhas, OD, PhD
Assistant Professor
Optometry

Min Zhou, MD, PhD
Associate Professor
Neuroscience
Medicine

AFFILIATE FACULTY

Darrin Aase, PhD, ABPP-CN Clinical Associate Professor Psychiatry and Behavioral Health Medicine	Stacey Choi, PhD Associate Professor Optometry	Kari Hoyt, PhD Professor Pharmaceutics and Pharmacology Pharmacy	Catherine McDaniel, OD Professor-Clinical Optometry	Jim Phelan, PhD Professor English Arts & Science	Lauren Southerland, MD Professor Emergency Med Medicine
Hojjat Adeli, PhD Professor Emeritus Biomedical Engineering Engineering	Kara Corps, DVM, PhD Assistant Professor Veterinary Biosciences Veterinary Medicine	Christopher Jaroniec, PhD Professor Chemistry and Biochemistry Arts & Science	Jodi McDaniel, PhD, RN Associate Professor Nursing	Rita Pickler, PhD, RN, FAAN Professor Nursing	Wenjing Sun, PhD Assistant Professor Neuroscience Medicine
Gunjan Agarwal, PhD Professor Mechanical and Aerospace Engineering Engineering	Eugenia Costa-Giomi, PhD Professor Music Education Arts & Science	Shannon Jarrott, PhD Professor Social Work	Gail McKoon, PhD Professor Psychology Arts & Sciences	Ruchika Prakash, PhD Professor Psychology Arts & Science	Hiroki Taniguchi, PhD Associate Professor Pathology Medicine
W. David Arnold, MD Associate Professor Neurology Medicine	Laurence Coutellier, PhD Associate Professor Psychology Arts & Science	Joel Johnson, PhD Professor Electrical and Computer Engineering Engineering	Lorraine Mion, PhD, RN, FAAN Professor Nursing	Roger Ratcliff, PhD Professor Psychology Arts & Science	Judith Tate, PhD, RN Assistant Professor Nursing
Michele Balas, PhD, RN Associate Professor Nursing	Nathan Doble, PhD Associate Professor Optometry	Michael Knopp, MD, PhD Professor Radiology Medicine	Peter Mohler, PhD Professor Physiology and Cell Biology Medicine	Matthew Reilly, PhD Assistant Professor Biomedical Engineering Engineering	Jessica Winter, PhD Professor Chemical and Biomolecular Engineering Engineering
John Bolte, PhD Associate Professor Health & Rehabilitation Sciences Medicine	Daniel Eiferman, MD Associate Professor Trauma Surgery & Critical Care Medicine	Sebastian Kurtek, PhD Associate Professor Statistics Arts & Science	Todd Monroe, PhD Associate Professor Nursing	Christina Roup, PhD Associate Professor Speech & Hearing Arts & Science	Karla Zadnik, OD, PhD Professor, Dean Optometry
Laura Boxley, PhD, ABPP-CN Assistant Professor Psychiatry Medicine	Derek Hansford, PhD Associate Professor Biomedical Engineering Engineering	C. Glenn Lin, PhD Professor Neuroscience Medicine	Sarah Moore, DVM Associate Professor Veterinary Clinical Sciences Veterinary Medicine	Lluis Samaranch, PhD Assistant Professor Neurological Surgery Medicine	Aaron Zimmerman, OD Clinical Associate Professor Optometry
Jennifer Brello, MEd., CCC-SLP Associate Professor Speech & Hearing Sciences Arts & Science	Jill Heathcock, MPT, PhD Associate Professor Health & Rehabilitation Science Medicine	Russell Lonser, MD Professor Neurological Surgery Medicine	Eric Nelson, PhD Professor Pediatrics Medicine	Douglas Scharre, MD Professor Neurology Medicine	Ouliana Ziouzenkova, PhD Associate Professor Human Nutrition Education & Human Ecology
Craig Bryan, PsyD, ABPP Professor Psychiatry and Behavioral Health Medicine	Mark Hester, PhD Assistant Professor Pediatrics Medicine	Paola Malerba, PhD Assistant Professor Pediatrics Medicine	Xia Ning, PhD Associate Professor Biomedical Informatics Medicine	John Sheridan, PhD, MS Professor Dentistry	
			Karl Obrietan, PhD Professor Neuroscience Medicine	Ann Smith, PhD Clinical Professor Nursing	

PARTNERS

CBI is fortunate to work with several campus and external groups as part of its team-building and outreach missions. Notable new partnerships in FY2022:

- Faculty supported by a CBI Partnership & Engagement Grant are working with the Ohio High School Athletics Association to evaluate stakeholder feedback on helmet use in women’s lacrosse.
- CBI launched its first concussion education activities for youth from disadvantaged backgrounds who are involved with LiFESports, including presentations to Columbus Public Schools students.
- Interdisciplinary teams of faculty worked with the National Association of State Head Injury Administrators to help pass federal legislation that support brain injury research in first responders.

CAMPUS	Institute for Behavioral Medicine Research	Human Performance Collaborative
	Center for Brain & Spinal Cord Repair	LifeSports
EXTERNAL	Center for Cognitive & Behavioral Brain Imaging	Neurological Institute
	Center for Healthy Aging, Self-Management & Complex Care	Neuroscience Research Institute
	Center for Human-Animal Interactions Research & Education	Ohio Valley Center for Brain Injury Prevention & Rehabilitation
	ElectroScience Laboratory	SIMCenter
		Buckeyes Raising Awareness in Neuroscience
		

FACILITIES & EQUIPMENT

CBI OFFICES

Bricker Hall, Suite 08A

SHARED EQUIPMENT

Zeiss Apotome.2 Microscope
Psychology Building
Contact: Elizabeth Kirby, PhD | Psychology
kirby.224@osu.edu

Olympus FVMPE-RS Multiphoton Laser Scanning Microscope
Graves Hall
Contact: Karl Obrietan, PhD | Neuroscience
obrietan.1@osu.edu

Shimadzu LABNIRS
Pressey Hall
Contact: Robert Fox, PhD | Speech & Hearing Sciences
fox.2@osu.edu

Closed Head Impact Model of Engineered Rotational Acceleration
IBMR Building
Contact: Olga Kokiko-Cochran, PhD | Neuroscience
olga.kokiko-cochran@osumc.edu

RESOURCE AWARDS

CBI Resource Awards improve campus infrastructure to enable innovative and interdisciplinary basic, clinical, and translational research. CBI provides \$30,000 annually to teams of investigators who seek equipment, personnel, services, and relevant resources that enhance the research and clinical capabilities of the CBI community. In 2022, two teams of faculty were awarded to improve preclinical modeling of and novel interventions for neurotraumas.

Cole Vonder Haar, PhD (Neuroscience) was funded to improve surgical anesthesia equipment for preclinical neurotrauma modeling in the Center for Brain & Spinal Cord Repair (CBSCR), in order to improve throughput, safety, and cost-effectiveness.

Wenjing Sun, PhD (Neuroscience) was funded to acquire a NPI MVCS Iontophoresis System to improve spatial precision in drug and gene delivery for both ex vivo and in vivo preclinical models of neurotrauma and neurological disease. This is a new resource for CBI affiliates.





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