

OFFICE OF RESEARCH

2021 - 2022



The University of Alabama at Birmingham

INTRODUCING THE OFFICE OF RESEARCH FAMILY



Tika Benveniste, Ph.D.

Senior Vice Dean for Research
Associate Vice President for Medicine and Basic Sciences
Charlene A. Jones Endowed Chair in Neuroimmunology
Professor, Department of Cell, Developmental and Integrative Biology



Victor Darley-USmar, Ph.D.

Senior Associate Dean for Research Compliance and Administration
Endowed Professor of Mitochondrial Medicine and Pathology
Professor, Department of Pathology



Shaila Handattu, Ph.D., MBA

Executive Director, HSOM Office of Research



Jenna Pate, MSHA, MSHQS, LSSGB

Data Analyst, HSOM Office of Research



Kimberly Sanders

Executive Assistant II



Carita Henry

Administrative Associate

STRATEGIC RESEARCH FOCUS AREAS 2022-2027

The University of Alabama at Birmingham (UAB) Heersink School of Medicine ranks among the nation's best academic medical centers. Since 2016 the UAB Heersink School of Medicine has consistently ranked in the top 25 in NIH funding and in the top 10 among public schools. This remarkable growth was primarily due to the Strategic Plan that the school implemented in 2014. However, in the past two years NIH funding has plateaued along with investigator growth and NIH ranking. To address this, Heersink School of Medicine leadership created a Strategic Research Planning Steering Committee to take a fresh look at the current and future landscape for research and was tasked with refocusing the school's Strategic Research Focus Areas. The steps undertaken during this process are listed below:

- Requesting proposals for new focus areas from Heersink SOM faculty
- Categorizing the proposals into broad themes
- Utilizing a crowdsourcing platform, SPARK, to broadly engage the UAB research community on the future research priorities for the school
- Identifying four potential themes
 - Disruptive Technology Empowering Precision Health (D-TECH)
 - Health Equity
 - I-4ward (Infection, Inflammation, Immunity, and Immuno-Therapy)
 - Brain Health and Disease Across the Lifespan
- Research retreat to finalize Themes
- Create small task force for each Theme to facilitate implementation

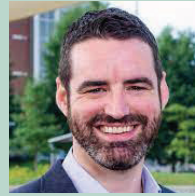
MEMBERS OF THE STRATEGIC RESEARCH PLANNING STEERING COMMITTEE



Tika Benvensite, Ph.D.
Senior Vice Dean for Research (Chair)



Anupam Agarwal, M.D.
Executive Vice Dean;
Interim Senior Vice President for
Medicine and Dean



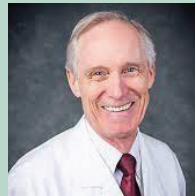
Jeremy Day, Ph.D.
Associate Professor of Neurobiology;
Director, Comprehensive Neuroscience
Center



Anindya Dutta, M.D., Ph.D.
Professor and Chair, Department of
Genetics



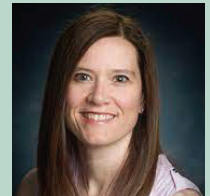
Shaila Handattu, Ph.D., MBA
Executive Director, Office of Research



Robert Kimberly, M.D.
Senior Associate Dean for Clinical and
Translational Research



Toni Leeth, MPH
Associate Dean for Strategic Planning
and Administration



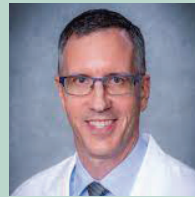
Jayme Locke, M.D., MPH
Professor and Director, Division of
Transplantation, Department of Surgery;
Director, UAB Comprehensive Transplant
Institute



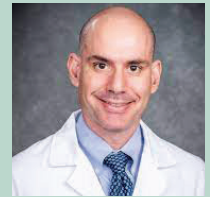
Jeanne Marrazzo, M.D., MPH
Professor and Director, Division of
Infectious Diseases, Department of
Medicine



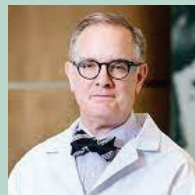
Jason Nichols, O.D., Ph.D., MPH
Senior Associate Vice President for
Research at UAB; Professor, School of
Optometry



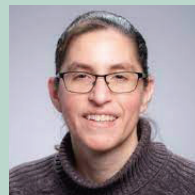
Erik Roberson, M.D., Ph.D.
Professor and Director, Center for
Neurodegeneration and Experimental
Therapeutics, Department of Neurology;
Director, Alzheimer's Disease Center



Steve Rowe, M.D., MSPH
Professor of Medicine; Director, Gregory
Fleming James Cystic Fibrosis Research
Center



Barry Sleckman, M.D., Ph.D.
Professor of Medicine; Director, O'Neal
Comprehensive Cancer Center



Amy Weinmann, Ph.D.
Professor of Microbiology

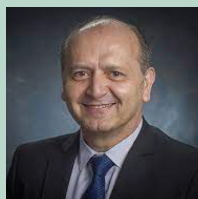
Selected Themes

Disruptive Technology Empowering Precision Health (D-TECH)

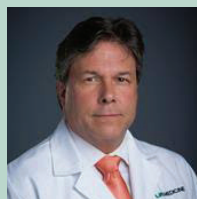
Advances in genomic, transcriptomic, proteomic and metabolomic analyses coupled with the innovative progress in digital technology, computational health and data science will reshape health care delivery beyond our imagination. Although the disruptive impact of these advances has so far been best appreciated in Precision Oncology, it will no doubt be soon revolutionizing **Precision Health**. The impact will span the entire spectrum of the health care odyssey: from wellness and prevention to precision screening, to diagnostics and therapeutics and the ultimate goal of delivering the most effective and efficient value-based healthcare.

The strategic imperative of investing in the above disruptive technologies is self-evident and has not been lost on leading national and international health care institutions like ours. UAB's recent investments in establishing the **Hugh Kaul Precision Medicine Institute**, the **Informatics Institute** and the **Center for Genomic Medicine** were critical first installments. However, it is vital that the next **Research Focus Strategic Plan** encompasses a sustained concerted investment in the four cornerstones of Precision Health: *i) People; ii) Data Services; iii) Cyber infrastructure; and iv) Security and Networking*. It is only with such investment that we can position our enterprise to continue to be a relevant player in discovery, education, and care delivery in the age of Artificial Intelligence, Machine Learning and Big Data empowered Precision Health.

Task Force Members



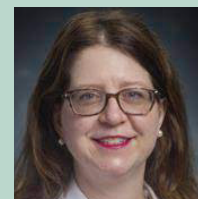
George Netto, M.D.
Chair, Department of Pathology- Lead



James Cimino, M.D.
Professor, Department of Medicine;
Director, Informatics Institute



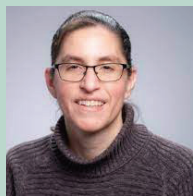
Suzanne Lapi, Ph.D.
Professor, Department of Radiology



Merry-Lynn McDonald, Ph.D.
Associate Professor, Department of Medicine,
Division of Pulmonary, Allergy and Critical
Care Medicine



Matthew Might, Ph.D.
Professor, Department of Medicine; Director,
Hugh Kaul Precision Medicine Institute



Amy Weinmann, Ph.D.
Professor, Department of Microbiology



Ralph Zottola, Ph.D.
Assistant Vice President for Research
Computing

Health Equity

Health Equity is about more than access to quality, affordable healthcare; health equity is about empowering the opportunity for a healthy life for all people, inclusive of all races, ethnicities, gender identities, sexual orientations, disabilities, and geographic locations. Transformation is required to truly change the health of our communities, and the Heersink School of Medicine is leading the way locally and globally through cutting-edge research programs to make health equity a reality in part by investing in the **Center for Outcomes and Effectiveness Research and Education**. We partner with people, communities, and organizations to understand and effect biological, behavioral, clinical, and social determinants of health in our physical/built and sociocultural environment, and healthcare systems. We apply technological, methodological, and analytic innovations to catalyze discoveries from the bench to the community that optimize individual and population health. We move beyond describing differences and disparities in health towards developing and disseminating knowledge and interventions that attenuate and overcome intersectional inequities.

Task Force Members



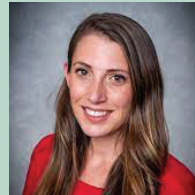
Michael Mugavero, M.D.

Professor, Department of Medicine,
Division of Infectious Diseases; Director,
Center for Outcomes and Effectiveness
Research and Education-Lead



Andrea Cherrington, M.D.

Professor, Department of Medicine,
Division of Preventive Medicine



Caitlin Clevenger, Ph.D.

Assistant Professor, Department of
Psychiatry and Behavioral Neurobiology



Bertha Hidalgo, Ph.D.

Associate Professor, Epidemiology, School of
Public Health



Gabriella Oates, Ph.D.

Assistant Professor, Department of
Pediatrics



Alan Tita, M.D., Ph.D., MPH

Professor, Department of OB/GYN; Director,
Mary Heersink Institute for Global Health

I-4ward (Infection, Inflammation, Immunity, and Immuno-Therapy)

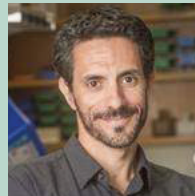
I-4ward focuses on the microbes that promote health and disease, the inflammatory processes associated with non-infectious and infectious disease, the immune system that controls infection, mediates inflammation, and can undergo malignant transformation as well as the immune-targeted medicines and therapies that are used to treat and prevent acute and chronic diseases (including cancer) that affect all organ systems. The I-4ward focus areas span biomedical research from basic fundamental studies in Biochemistry, Immunology, Microbiology, Cell Biology, Pathology, Structural Biology, Glycobiology and Molecular Biology to translational studies to understand the pathophysiology of acute and chronic infectious, inflammatory and immune-based diseases. The HSOM **Immunology Institute** chartered in 2022 underscores the significance of this theme. Importantly, the I-4ward mission bridges discovery of small molecule drugs, immunotherapies and vaccines, to target validation in pre-clinical models and testing of these interventions in human clinical trials for infectious diseases, acute and chronic inflammatory diseases, and cancer.

Task Force Members



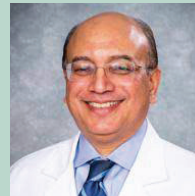
Fran Lund, Ph.D.

Professor, Department of Microbiology;
Director, Immunology Institute-Lead



Andre Ballesteros, Ph.D.

Associate Professor, Department of Medicine,
Division of Immunology and Rheumatology



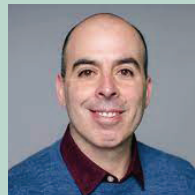
Khurram Bashir, M.D., MPH

Professor, Department of Neurology



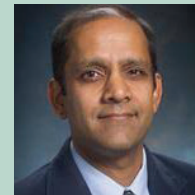
David Kimberlin, M.D.

Professor, Department of Pediatrics, Division of
Infectious Diseases



Carlos Orihuela, Ph.D.

Professor and Interim Chair, Department
of Microbiology



Rakesh Patel, Ph.D.

Professor, Department of Pathology

Brain Health and Disease Across the Lifespan

The nervous system is an interconnected network of circuits and feedback mechanisms that are centrally linked to nearly all aspects of health and disease. Brain development is critical for how we learn about and interact with the world, and genetic or environmental perturbations during development can result in profound but common intellectual disabilities or disorders. In adolescence and adulthood, mental health complications lead to debilitating conditions that broadly affect quality of life, and have resulted in growing epidemics of suicide, substance use disorders, and drug overdose deaths. Likewise, in aging individuals, neurodegenerative disorders are a major cause of dementia and loss of functional autonomy. With an aging population, overdose epidemic, and high prevalence of factors that contribute to chronic diseases, Alabamians are more vulnerable to all of these conditions. As such, treatments that restore quality of life to patients suffering from these conditions are likely to have **enormous impact** both locally and nationally.

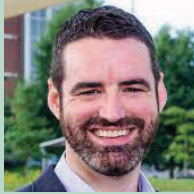
This focus area will transform our understanding of brain development, aging, and health, and leverage this knowledge to improve treatments for brain diseases. To do this, we will pursue four interrelated goals:

1. *Understand* brain disease states, with specific focus on areas of critical need such as aging and neurodegeneration, addiction, and chronic pain.
2. *Identify* genetic, molecular, and cellular factors that participate in normal brain function, and are disrupted in brain disease states.
3. *Harness* advanced neurotechnology to design, develop, and validate neuromodulation strategies or pharmacotherapies to treat brain diseases.
4. *Transform* care of brain-related diseases at UAB and across the nation by leveraging precision medicine, informatics, and novel therapies to inform patient care.

These goals will accelerate the pace of scientific discovery at the Heersink School of Medicine by promoting excellence in fundamental, translational, and clinical neuroscience research. HSOM's investment in the **Alzheimer's Disease Center**, the **Center for Addiction and Pain Prevention and Intervention**, the **Center for Neurodegeneration and Experimental Therapeutics**, the **Civitan International Research Center**, the **Comprehensive Neuroscience Center**, the **Depression and Suicide Center** and the **McKnight Brain Institute** will pave the way for realizing these goals.

Brain Health and Disease Across the Lifespan

Task Force Members



Jeremy Day, Ph.D.

Associate Professor, Department of Neurobiology;
Director, Comprehensive Neuroscience Center-Lead



Matt Alexander, Ph.D.

Associate Professor, Department of Pediatrics



Karen Cropsey, Psy.D.

Professor, Department of Psychiatry and
Behavioral Neurobiology



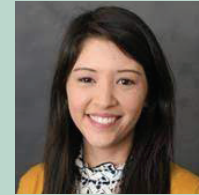
Lynn Dobrunz, Ph.D.

Professor, Department of Neurobiology



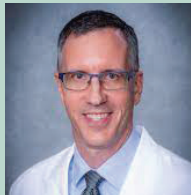
Alayne Markland, D.O.

Professor, Department of Medicine, Division of
Gerontology, Geriatrics and Palliative Care



Donna Murdaugh, Ph.D.

Assistant Professor, Department of
Pediatrics



Erik Roberson, M.D., Ph.D.

Professor, Department of Neurology; Director,
UAB Center for Neurodegeneration and
Experimental Therapeutics; Director, UAB
Alzheimer's Disease Center

FUNDING FOR 2021

21

Ranked number 21 among all schools and number 8 among public schools for NIH funding

\$272M

Total NIH funding for 2021

THREE DEPARTMENTS WERE RANKED IN THE TOP 10 FOR NIH FUNDING IN 2021

#2

Dermatology

#9

Microbiology

#10

Biomedical Engineering

NINE DEPARTMENTS WERE RANKED IN THE TOP 20 FOR NIH FUNDING IN 2021

#11

OB/GYN

#11

Urology

#14

Anesthesiology

#15

Cell, Developmental and Integrative Biology

#17

Genetics

#17

Medicine

#17

Pediatrics

#18

Surgery

#19

Ophthalmology

TOTAL FUNDING FOR 2021

\$505M

(INCLUDES FUNDING FROM NIH, NON-FEDERAL SOURCES, CLINICAL TRIALS, ETC.)

RESEARCH SUPPORT FOR FACULTY

Internal Awards

The Heersink SOM Office of Research oversees several internal award mechanisms to support faculty recruitment, retention, applying for federal awards as well as funds to support faculty between extramural funding cycles. Over the past year, our office has initiated new support mechanisms for recruitment and retention of faculty to Enhance Workforce Diversity, for faculty to work in Outcomes/Health Disparities research and to those who have been negatively impacted by the COVID-19 pandemic, jeopardizing their research endeavors.

uab.edu/medicine/home/research/faculty-support

Faculty Recruitment and Retention Program to Enhance Workforce Diversity (EWD)

EWD Faculty Recruitment and Retention awards are intended to augment recruitment and retention packages for outstanding, highly funded faculty underrepresented in biomedical research in the Heersink SOM ranked at the Assistant Professor level or higher. The funds are distributed over a three-year period based on rank- \$450,000 for Professors; \$375,000 for Associate Professors; and \$225,000 for Assistant Professors. These monies are intended to foster growth as assessed by increased extramural support to UAB and by an increase in research employees who are supported, in part or whole, by extramural resources. An important goal of these resources is to increase the number of faculty underrepresented in biomedical research in the Heersink SOM and provide a support structure for their success. This program was implemented in February 2021, and to date, funds have been utilized to successfully recruit 12 new faculty (5 males, 7 females; 5 African Americans, 7 Hispanics) and retain six faculty (4 males, 2 females; 5 African Americans, 1 Hispanic).

apps.medicine.uab.edu/funding/EWDInfo.asp

Outcomes/Health Disparities Faculty Recruitment and Retention Program

Outcomes/Health Disparities Faculty Recruitment and Retention awards are intended to augment recruitment and retention packages for outstanding, highly funded Outcomes/Health Disparities faculty ranked at the Assistant Professor level

or higher. The funds are distributed over a three-year period based on rank- \$450,000 for Professors; \$375,000 for Associate Professors; and \$225,000 for Assistant Professors. These monies are intended to foster growth as assessed by increased extramural support to UAB and by an increase in research employees who are supported, in part or whole, by extramural resources. An important goal of these resources is to increase the number of Outcomes/Health Disparities faculty in the Heersink School of Medicine and provide a support structure for their success. This program was implemented in August 2021, and to date, these funds have been used to recruit five new faculty (2 males, 3 females) with two decisions pending and retain two faculty (1 male, 1 female).

apps.medicine.uab.edu/funding/OutcomesInfo.asp

COVID-19 Bridge Funding

The COVID-19 pandemic has greatly affected the UAB academic community in many ways, including decreased research productivity, resulting in fewer new projects being initiated as well as hampering the progress of existing projects. To provide additional support to faculty who are facing gaps in sponsored funding, the Heersink School of Medicine has launched the COVID-19 Bridge Funding Program, which provides support for one year for up to \$75,000. The RFA was released on September 29, 2022, with applications due on November 10, 2022.

apps.medicine.uab.edu/funding/COVID19BridgeInfo.asp

Featured Discovery Publications

Featured Discovery celebrates the impressive scientific findings and innovations taking place in the Heersink SOM. This initiative is a way to highlight unique discoveries by our faculty and research staff, while demonstrating UAB's national leadership in research. The nominations are submitted to SOMresearch@uab.edu and the AMC21 executive research steering committee will choose awardees based on select criteria. This achievement is highlighted in the HSOM weekly Newsletter with an interview with the senior investigator and a link to the featured publication. The list of Featured Discovery awardees can be found in

uab.edu/medicine/home/research/featured-discovery

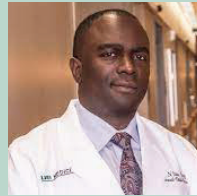
Heersink/Triton Endowments

As a testament to the remarkable growth of UAB in extramural funding, talent, and philanthropy for the past decade, the university received a \$100 million gift in 2021 to name the school, and to make a considerable scientific impact to improve the health of those we serve. A part of this gift is utilized to recruit and/or retain faculty whose scholarly activities in research, service and education have propelled UAB to the forefront of national and international stage, by naming them Endowed Chairs or Professors.

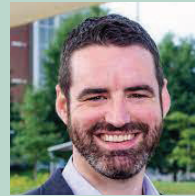
Faculty conferred the Heersink Chair or Professorship and Triton Professorship over the past year.



Nita Limdi, Ph.D., Pharm.D.
Professor, Department of Neurology;
Ray L. Watts, MD, - Heersink
Endowed Chair in Neurology



Alan Tita, M.D., Ph.D., MPH
Professor, Department of OB/GYN; Mary
Heersink Endowed Chair in Global Health



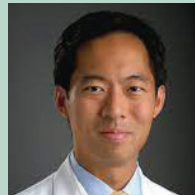
Jeremy Day, Ph.D.
Associate Professor, Department of
Neurobiology; Michael Friedlander,
PhD-Heersink Endowed Professor



Andrea Cherrington, M.D.
Professor, Department of Medicine, Division of
Preventive Medicine; Triton Endowed
Professorship



Michael Niederweis, Ph.D.
Professor, Department of Microbiology; Triton
Endowed Professorship



Daniel Chu, M.D., MSPH
Associate Professor, Department of Surgery;
Selwyn M. Vickers, M.D., Endowed Chair in
Surgery



David Schneider, Ph.D.
Professor, Department of Biochemistry and
Molecular Genetics; Louis T. Chow, Ph.D.- Heersink
Endowed Chair in Biochemistry and Molecular
Genetics

Strategic Research Recruitments

Strategic recruitment has been shown to result in increased and sustained research productivity¹. Currently, the Heersink SOM is leading three Strategic Recruitment Initiatives in Neurosciences; Cancer; and Diabetes to build on a strong portfolio across basic, translational, clinical, and population science research. This is being done in conjunction with the Office of Strategic Recruitment, Dr. Josh Carter, Executive Director.

Strategic Recruitment in Neurosciences

The first round of strategic recruitment was conducted in 2018 and six highly accomplished candidates were recruited in the Departments of Neurology; Psychiatry and Behavioral Neurobiology; Cell, Developmental and Integrative Biology; and Neurosurgery. Because of the success of the initial round, a second round was initiated in 2021 and is currently ongoing. To date, 13 faculty have been successfully recruited in the Departments of Medicine; Pathology; Neurobiology; Cell, Developmental and Integrative Biology; Neurology; Radiology; and Psychiatry and Behavioral Neurobiology.

Strategic Recruitment in Cancer

This initiative started in 2021 as a collaboration between the O'Neal Comprehensive Cancer Center, the Heersink SOM, and a number of departments. Eight faculty have joined as a result of this effort and have been recruited in the Departments of Medicine; Genetics; Radiology; and Neurosurgery.

Strategic Recruitment in Diabetes

This is a collaboration between the UAB Comprehensive Diabetes Center, the Heersink SOM and several departments. This initiative was started in April 2022 and recruitment is ongoing.

1. Strategic faculty recruitment increases research productivity within an academic university division. Chung S.W., Clifton, J.S., Rowe A.J., Finley R.J., and Warnock G.L. *Canadian Journal of Surgery*; 2009; 52(5); 401-406



Tika Benveniste, Ph.D.
Senior Vice Dean for Research
Associate Vice President for Medicine and Basic Sciences

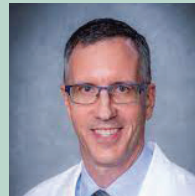


Josh Carter, Ph.D.
Executive Director, Office of Strategic Recruitment

Neurosciences Chairs



David Standaert, M.D., Ph.D.
Chair, Department of Neurology

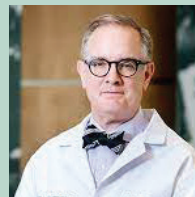


Erik Roberson, M.D., Ph.D.
Professor, Department of Neurology

Cancer Chairs

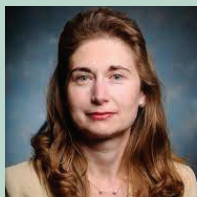


Ravi Bhatia, M.D.
Professor, Department of Medicine, Division of
Hematology and Oncology

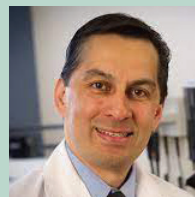


Barry Sleckman, M.D., Ph.D.
Director, O'Neal Comprehensive Cancer Center

Diabetes Chairs



Anath Shalev, M.D.
Director, UAB Comprehensive Diabetes Center



Fernando Ovalle, M.D.
Professor and Director, Department of Medicine,
Division of Endocrinology, Diabetes and Metabolism

SPACE MANAGEMENT

HSOM Space Committee

Research is a key mission of the Heersink SOM, and research space is one of the key resources needed for success. However, space is a limited resource and as such, must be managed responsibly and in a way that promotes advancement and fulfills the HSOM mission. The HSOM Space Management Committee was formed in 2016 to manage approximately 2,000,000 assignable square feet spread over 50 buildings, being the primary occupant in over 20 of those buildings. The committee meets weekly to ensure space is allocated fairly and utilized optimally based on program quality, institutional goals, demonstrated need, and availability of sponsored research support. In addition, each department undergoes an annual space utilization meeting.



Tika Benveniste, Ph.D.

Senior Vice Dean for Research

Associate Vice President for Medicine and Basic Sciences



Victor Darley-USmar, Ph.D.

Senior Associate Dean for Research Compliance and Administration



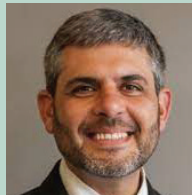
LaKisha Mack, MBA

Senior Associate Dean, Administration and Finance



Alex Boles, MBA

Assistant Dean, Administration and Finance



Kevin Bell, M.Eng

Executive Director, Office of Project Management



Shaila Handattu, Ph.D., MBA

Executive Director, HSOM Office of Research

CURRENT PROJECTS

MCLM Phase 3- Lobby, Floors 2, 3 & 4

The McCallum (MCLM) Basic Health Science Building renovation was undertaken in 2017 to create state-of-the-art wet lab space for research teams from various departments to work collaboratively, thus propelling research excellence to the next level. Phase 1 with renovations to floors 8 and 9 started in 2018 and was completed in 2020 and Phase 2 with renovations to floors 5, 6 and 7 was recently completed in October 2022. Phase 3 construction is scheduled to start in January 2023 with an estimated completion date of April-June 2024.



Exterior of the McCallum (MCLM)
Basic Health Science Building



Interior of the McCallum (MCLM)
Basic Health Science Building

Altec-Styslinger Genomic Medicine and Data Sciences Building

The Altec-Styslinger Genomic Medicine and Data Sciences building is being renovated to satisfy the dry lab space needs across the school, providing modernized space for enhanced collaboration focused on genomics and data sciences. The project will enable recruitment of 50 additional leading researchers with an estimated employment of 300 additional research support staff and is expected to generate more funding from the National Institutes of Health and other private and public partners. Construction started in fall 2022 with an anticipated completion date of spring 2024.



Exterior of the Altec-Styslinger Genomic Medicine and Data Sciences building



Interior of the Altec-Styslinger Genomic Medicine and Data Sciences building

Heersink Biomedical Innovation Conference Center

The Heersink Biomedical Innovation Conference Center is a state-of-the-art conference center that will be built adjacent to Altec-Styslinger Genomic Medicine and Data Sciences building and will have three meeting rooms. The first floor large meeting room seats ~280 with chairs only, and seats ~140 with tables and chairs. The second floor event space seats 50 at seminar tables and chairs, and 120 with chairs only. The third floor meeting room seats 60 at seminar tables and chairs, and 120 with chairs only.



Exterior of the Heersink Biomedical Innovation Conference Center



Conference room inside the Heersink Biomedical Innovation Conference Center

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The University of Alabama at Birmingham