### Emory Health Sciences Research Building (HSRB)

### HSRB I

The Health Sciences Research Building (HSRB) opened its doors in April 2013. This state-of-the-art research space is located directly adjacent to the Emory-Children’s Center and connected via a two-story bridge. This four-story building includes 190,000 ft2, with over half the space (115,000 ft2) dedicated to research within the Emory Department of Pediatrics. An open lab concept features natural light in labs and corridors. The building features a 160-seat auditorium and a cafe dining area with an outdoor seating option. The building houses 500 people, including 74 faculty researchers and their teams of postdoctoral fellows, graduate students, and staff.

 The building includes biosafety level 2 and 3 labs. The BSL-3 Laboratory is located on the 4th floor. This specialized facility is a total of 425 ft2 of shared BSL3 laboratory space. The BSL3 laboratory consists of 6 separate rooms including a doffing and donning area with included shower and sink, PPE storage, common storage including a flammable cabinet and autoclave, and two designated work suits of 100 ft2 each (E-499-A/B) which house the needed equipment. The dedicated equipment for this space is two -80C freezers, centrifuges, water bath, scopes, a pass through autoclave, flammable cabinets, and a dedicated computer.

 Research in HSRB is designed to facilitate multidisciplinary child health research collaborations with space dedicated to drug discovery, immunology and vaccines, neurosciences, cancer, gastroenterology, transplant immunology, nephrology, biomedical engineering, and human genetics. The two-story working bridge that connects HSRB to ECC houses researchers dedicated to informatics, outcomes research, public health research, and clinical research.

HSRB Animal Space

An IACUC-approved 13,944 ft2 animal vivarium is located in the basement of the HSRB Building. This animal facility is designed on a single corridor concept and contains rodents and fish with the intent to maintain rodents at a higher health standard than the convention for the campus (i.e. free of Murine Norovirus, Mouse Parvovirus, Helicobacter species, and fur mites enzootic to varying degrees in Emory mouse colonies). It includes microisolator ventilated cages for housing mice, surgical, and procedure rooms. This is Emory University’s first virus antibody free (VAF) animal facility. Under this new and elevated level of animal health maintenance there are special training, access, and traffic control measures. A gnotobiotic facility is being established in a portion of the HSRB vivarium and currently houses 6 isolator units.

Veterinarians and care staff are available for consultation on routine and special procedures, and on call after work hours and on holidays. Investigators using rodents of a lesser health status use the ECC animal research facility immediately across the street and accessible by bridge.

**HSRB II**

#### Overview

HSRB II incorporates 1,200 biomedical researchers from neurology, pediatrics, cardiology, vaccinology, and oncology across eight stories and 350,000 square feet. Its open experimental spaces are designed to foster collaboration and innovation among fundamental, translational, and clinical researchers from across the medical sciences.

#### Laboratory Facilities

The eight-story building includes over 120,000 feet of experimental and computational space. Open labs and workspaces with soft barriers are designed to facilitate rapid discovery. The building’s first floor is dedicated to an innovation center that includes an accelerator space for startups and entrepreneurial research to pair research with industry. Labs include an Innovation Center for biomedical engineering; a Radiochemistry lab and Radiopharmacy for cancer research and treatment; and an Animal/Biosafety Level 3 Lab (A/BSL3) for animal studies.

##### Innovation Center

Located on the first floor of HSRB II and serving as part of the biomedical engineering program shared by Emory and Georgia Tech, the Innovation Center provides four core services in biomedical engineering: 3D-printing and 3D-BioPrinting; Micromachining; Extended Reality (XR); and Education and Networking in Bioentrepreneurship. These core services grant researchers access and training in eight different 3D printers; a laser engraver; plasma and ultrasound cleaners; a vacuum oven; soft lithography and microfluidics workspaces; four different types of VR headsets and clinical study support for extended reality applications in the medical sciences; and regular educational programming and networking opportunities to assist researchers with bringing medical technologies to the market. In addition, the Center also provides manufacturing, project feasibility and follow up consultations, and metrology and culture tools for early-career researchers who are interested in engineering biomedical interventions.

##### Radiochemistry Lab and Radiopharmacy

The CSIC’s radiochemistry lab and radiopharmacy are located in approximately 4,200 square feet on the G2 level of HSRB II. Included in this suite is a General Electric PETrace 880 18MeV self-shield cyclotron. This cyclotron allows the production of Fluorine-18, Carbon-11 (carbon dioxide), Nitrogen-13 (ammonia), Oxygen-15, and Gallium-68. The cyclotron includes the PROCAB processing system for Carbon-11 and a processing system for conversion of Oxygen-15 into [O-15]Water.  The high energy cyclotron allows for single bombardment production of energies up to 100uA or dual bombardment up to 130uA, and also has the capability of Deuteron beam at 8.4MeV for production of Oygen-15 without enriched target material. The transfer of radioisotopes from the cyclotron to the Radiopharmacy and Radiochemistry Labs is via a Von Gahlen Active Distribution System providing the delivery of isotopes to a variety of locations within the labs.

#### Core Facilities

Core facilities include advanced imaging, flow cytometry, a biorepository, genomics, and other technologies. Spreading these core functions throughout the building encourages interaction among experimentalists, computationalists, and core service providers.

##### Center for Systems Imaging Core (CSIC) at Emory University

The Center for Systems Imaging Core (CSIC) is an Emory University School of Medicine core lab dedicated to providing state-of-the art human and pre-clinical imaging, as well as radiopharmaceutical development to the Emory community. CSIC is the cross-disciplinary scientific, administrative, and educational home for imaging sciences at Emory University. The goals of this center are to: (1) support the advancement of scientific research focused on the development of imaging biomarkers, (2) promote the development and application of biomedical imaging technology particularly magnetic resonance imaging, (3) provide core services for human and animal imaging studies, and (4) to build cross-cutting educational and training programs.

The CSI Core is housed in approximately 22,600 square feet across the Emory campus. This total includes a 18,700 square foot facility (G1 10,950, G2 RP 4230, G2 MR 3520) in the Health Sciences Research Building, 800 square feet in Emory University Hospital (EUH), 400 square feet in the Whitehead Biomedical Research Building (WBRB), 2,000 square feet in the Brain Health Center at Emory ‘s Executive Park Campus Building 12 (EP12), and 700 square feet of shared clinical/research space at The Emory Clinic building C (TEC). The director of CSIC is John Oshinski, PhD (jnoshin@emory.edu) and the Medical Director is Jason Allen, MD, PhD (jason.w.allen@emory.edu).  Co-directors are Shella Keilholtz, PhD (pre-clinical MRI), Deqiang Qiu, PhD (MRI), Steven Liang, PhD (PET and Radiochemistry). There are 11 staff members including MRI and PET Technologists, Radiopharmacists, and scientists to provide computer, MRI physics, and small animal support services.