### Investigational Clinical Microbiology Core - Facilities and Resources

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**Updated: 06 June 2022**

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**Fields Relevant for the Investigational Clinical Microbiology Core (ICMC)**

**Other**

The Investigational Clinical Microbiology Core (ICMC), one of the Emory Integrated Core Facilities (EICF), was set up for banking and characterization of antibiotic resistant clinical isolates, environmental samples, and microbiome samples to support the Emory Antibiotic Resistance Center (ARC) collaborative research program. The ICMC has the capacity to perform detailed classification of antibiotic resistant clinical isolates such as but not limited to, sophisticated susceptibility testing procedures not routinely available in clinical laboratories, studies of synergies between combinations of antibiotics, techniques to identify heteroresistance (looking for subpopulations with resistance), molecular fingerprinting, qPCR, and genomic sequencing and analysis. The ICMC assists investigators with collection and obtaining clinical specimens and isolates through the ICMC biorepository.

**Investigational Clinical Microbiology Core Biorepository**: The ICMC biorepository contains a large collection of bacterial samples isolated by the Emory University Hospital (EUH) microbiology laboratory as part of standard patient care, environmental samples and microbiome samples. These normally discarded clinical samples and specimens are processed and stored in the ICMC biorepository and made available to investigators for the purpose of subsequent evaluation, mechanistic studies, clinical correlation or novel assay development. A corresponding database of all phenotypic laboratory characteristics of each isolate and important patient medical data is available. Currently there are over 17000 bacterial isolates from approximately 9500 unique patients. The majority of these isolates are from blood infections.

The ICMC located in a laboratory located on the 1st floor of the Health Sciences Research Building I, with approximately 400 square feet of dedicated wet-lab space and two procedure rooms that rooms include biosafety cabinets, one CO2 incubator and two non-,CO2 shaking incubators. The ICMC has a state-of-the-art BioMerieux eMag® and a ThermoFisher’s KingFisher Apex for automated nucleic acid extraction system from various sample types, a BioSwiss PetriSwiss PS200 carrousel and Proficlave PC10 media prep for rapid automated petri dish preparation. In addition to larger items of equipment listed separately, the lab contains small equipment necessary for molecular genetics and microbiology experiments (microcentrifuges, thermocyclers etc.). Typical workflows in the lab include banking and characterization of clinical bacterial isolates; growth of bacterial culture and DNA extraction; PCR, and preparation of MiSeq sequenicng libraries. The lab uses a Zebra 110 barcode printer for sample labeling and OpenSpecimen Laboratory Information Management System (LIMS). The lab uses the BioNumerics software platform for integrated analysis of all major applications in Bioinformatics: 1D electrophoresis gels, phenotype characters, and sequences. BioNumerics allows the lab to combine information from various genomic and phenotypic sources into one global database and conduct conclusive analyses. Technicians have custom-designed space for workstations in the lab and cubical office space. Dr Satola has a 100 sq ft office next door to the lab with a printer, scanner and a Dell computer with 16 GB RAM and Intel®, Core™ i7-490 CPU @3.6oGHz. All research assistants have similar computers and the lab has a designated laptop for the LIMS. Network acces is avialbe to the Emory Computer network. Dr. Satola and Dr. Babiker have access to the EUH’s Clinical Data Warehouse and Cerner Millennium (EUH electronic medical records) and Dr. Read (Co-I for ICMC) has three Linux compute clusters dedicated to analysis of genome data from his research projects. The servers are housed in the first floor of the HSRB.

The ICMC located in a laboratory located on the 1st floor of the Health Sciences Research Building I, with approximately 200 square feet of dedicated wet-lab space and two procedure rooms that rooms include biosafety cabinets, one CO2 incubator and two non-,CO2 shaking incubators. The ICMC has a state-of-the-art BioMerieux eMag® automated nucleic acid extraction system from various sample types. In addition to larger items of equipment listed separately, the lab contains small equipment necessary for molecular genetics and microbiology experiments (microcentrifuges, thermocyclers etc.). Typical workflows in the lab include banking and characterization of clinical bacterial isolates; growth of bacterial culture and DNA extraction; PCR, and preparation of MiSeq sequenicng libraries. The lab uses a Zebra 110 barcode printer for sample labeling and Nautilus Laboratory Information Management System (LIMS). The lab uses the BioNumerics software platform for integrated analysis of all major applications in Bioinformatics: 1D electrophoresis gels, phenotype characters, and sequences. BioNumerics allows the lab to combine information from various genomic and phenotypic sources into one global database and conduct conclusive analyses. Technicians have custom-designed space for workstations in the lab and cubical office space. Dr Satola has a 100 sq ft office next door to the lab with a printer, scanner and a Dell computer with 16 GB RAM and Intel®, Core™ i7-490 CPU @3.6oGHz. All research assistants have similar computers and the lab has a designated laptop for the LIMS. Network acces is avialbe to the Emory Computer network. Dr. Satola has access to the EUH’s Clinical Data Warehouse and Cerner Millennium (EUH electronic medical records) and Dr. Read (Co-I for ICMC) has three Linux compute clusters dedicated to analysis of genome data from his research projects. The servers are housed in the first floor of the HSRB.