UAB Informatics
Across the Spectrum of Biomedicine

CCTS

INFORMATICS INSTITUTE

Fundamental Science ⟷ **Human Mechanisms Diagnosis–Treatment--Outcomes** ⟷ **Populations and Health**

Domains of Expertise

Bioinformatics
- Computational technologies for data analysis.
- Development of analytical pipelines and tools.
- Data management.
- Education: Courses, Workshops, Seminars.

-Omics / Clin Research Informatics
- Next Generation Sequencing analytics
- Study design.
- Training in the use of data and analytical tools.

Clinical Research Informatics
Clinical research study design and implementation.
- Assistance with research subject enrollment.
- Support for clinical data collection and access.
- Reuse of existing data to answer new research questions.

Capacities

Consultation and Analytics
Analysis of Next Generation Sequencing data
- Microbiome and Metagenomic analysis
- Whole genome assembly: Eukaryotic, Prokaryotic, and Virus
- Grant preparation assistance

Consultation, Analytics, Data Access
- Analysis of Next Generation Sequencing data
- WGS, RNA-Seq, Methyl-Seq
- Access to clinical phenotypic data
- EDW, i2b2
- Cohort identification and development.
- Genome Phenome Workbench (GPS)

Computational Resources
Partnership:UAB Informatics / Research Computing.
- Data storage
- Software tools
- High Performance Computing (Cheaha)
- Training

Collaborative Platforms, Data, and Tools

Public -omic Data
- Genomics: UCSC Genome Browser; ENSEMBL; ENCODE; 1000 Genomes
- Pathways: KEGG; Reactome
- Variation (NCBI): dbSNP; dbVar; ClinVar; OMIM
- Phenotypes (NCBI): dbGaP
- Expression (NCBI): Gene Expression Omnibus
- Immunology (NIAID): ImmPort
- Structure (NIGMS): Protein Data Bank

Clinical Data
The Enterprise Data Warehouse supports data access for translational and clinical research.
- Informatics for Integrating Biology & the Bedside (i2b2), - web based
  - Self Service cohort estimation
  - De-identified patient data download
- PheDRS: Phenotype detection and Registry Management System
- UAB Foundational Ontology (UFO)

Administrative & PRO data
- Patient reported outcomes (PRO) data
- Cancer registries
- Administrative databases

Study Design

Bringing it all together: The Informatics Gateway
The Informatics Gateway is a forum for project development, study design and implementation. Informaticians, Biostatisticians, Methodologists and Biomedical/Clinical Scientists foster scholarly partnerships and collaboration to explore potential new directions and cutting-edge analytics that can bring added value to research projects (contact: **jcroker@uab.edu**)

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CENTER FOR CLINICAL AND TRANSLATIONAL SCIENCE