Advanced Research and Diagnostics Laboratory

PI: Bharat Thyagarajan | University of Minnesota

Specimens

- Whole blood
- plasma
- serum
- buffy coat
- PBMCs, dried blood spots
- saliva
- urine
- stool
- CSF
- tissue samples

Assay Capacity

Routine (at scale)

Inflammatory markers / cytokines; sex hormones; cardiometabolic biomarkers; plasma AD biomarkers; proteomics; DNA genotyping; DNA methylation; RNA / transcriptomics; telomere length; epigenetic clocks; stress biomarkers; environmental chemical assays

Limited/Additional Capacity

- Metabolomics
- Hair and nails as specimen types

Platforms

• Simoa • ELISA • Olink • NuLISA assays • Clinical Chemistry assays • mass spectrometry • DNA/RNA extraction • RNA-seq • qPCR • targeted genotyping • Long read sequencing (Nanopore) • Illumina GWAS and DNAm arrays (via UMN Genomics Center)

Population Study Experience

Supported >100 epidemiologic studies, including NHANES, HRS, EdShare, ARIC, CARDIA, HCHS/SOL, LLFS, SPRINT, EDIC etc.

Emerging/Pilot Work

Metagenomics sequencing; Immunophenotyping/ functional immune response; renal function; active development of new methods relevant to population studies

Laboratory for Human Biology Research

PI: Thom McDade| Northwestern University

Specimens

- Whole blood
- plasma
- serum
- dried blood spots
- saliva
- hair (for cortisol)

Assay Capacity

Routine (at scale)

- Inflammatory markers / Cytokines
- Stress biomarkers

Antibodies against EBV, HSV, CMV, H Pylori

- Portable cell culture

Limited/Additional Capacity

- Sex hormones
- Cardiometabolic biomarkers
- Environmental assays (e.g., Pb and other heavy metals)
- Exploratory work in plasma AD biomarkers and DNA methylation

Platforms

- ELISA
- Multiplex Bead Arrays
- Meso Scale Discovery (MSD)

Population Study Experience

- HRS
- NSHAP
- Add Health
- CLHNS
- MTO
- IFLS
- MxFLS
- SAGE

Emerging/Pilot Work

- ADRD biomarkers in DBS
- Comparability and validity of capillary blood collection platforms (#903 DBS, Tasso, Capitainer)

Foundations of Health Research Center

PI: Greg Miller | Northwestern University

Specimens

- Whole blood
- plasma
- serum
- buffy coat
- PBMCs

Assay Capacity

Routine (at scale)

- Inflammatory markers / Cytokines
- Cardiometabolic biomarkers
- Plasma AD biomarkers

Limited/Additional Capacity

- In vitro stimulation experiments (lab- and field-based)

Platforms

- ELISA
- Multiplex Bead Arrays

Population Study Experience

- Multiple U.S. cohort studies

Emerging/Pilot Work

Kobor Lab

PI: Michael S. Kobor | BC Children's Hospital Research Institute
Lab Representative: Hilary Brewis

Specimens

Whole blood • plasma • serum • buffy coat • PBMCs • dried blood spots • saliva • CSF • buccal • FFPE

Assay Capacity

Routine (at scale)

- DNA genotyping
- DNA methylation
- Epigenetic clocks

Limited/Additional Capacity

- Proteomics
- RNA/transcriptomics
- Exploratory work in inflammatory assays

Platforms

- Illumina DNA methylation arrays (EPICv2, MSA, mouse, mammalian)
- Illumina GSA v3/v4

RNA-seq

Population Study Experience

• HRS • CRELES • CHILD • CLSA • MLSFH • CANDLE • other population cohorts

Emerging/Pilot Work

Illumina 5-base DNA library prep for whole-genome and genome-wide methylation sequencing; Olink Reveal proteomics panel

UCLA Social Genomics Core Laboratory

PI: Steve Cole | University of California, Los Angeles

Specimens

• Whole blood • plasma • serum • buffy coat • PBMCs
• dried blood spots • saliva • CSF • solid tissues

Assay Capacity

Routine (at scale)

- Inflammatory markers / Cytokines
- Cardiometabolic biomarkers
- Proteomics
- DNA genotyping
- DNA methylation
- RNA / transcriptomics
- Telomere length
- Epigenetic clocks
- Stress biomarkers

Limited/Additional Capacity

- Proteomics
- RNA-seq
- Flow cytometry
- Single-cell RNA-seq
- Ex vivo cell stimulation / culture

Platforms

- ELISA
- SNP arrays
- BD Cytometry
- RNA-seq
- qPCR
- Multiplex bead arrays
- DNA methylation arrays
- 10X Genomics scRNA-seq

Population Study Experience

• Add Health • MIDUS • HRS • CHASRS • STAR • SOAR • Harvard Study of Adult Development • MacArthur Aging

Emerging/Pilot Work

• Single-cell and ex vivo cellular phenotyping approaches relevant to population-based biospecimen studies

Microsampling Laboratory

PI: Andy Hoofnagle & Mark Wener | University of Washington
Lab Representative: Alan Potter & Jake Cofferen

Specimens

• Whole blood • plasma • serum • dried blood spots • Tasso microsampling devices • dried plasma

Assay Capacity

Routine (at scale)

- Inflammatory markers / Cytokines
- Cardiometabolic biomarkers
- Stress biomarkers

Limited/Additional Capacity

- Sex hormones
- Plasma AD biomarkers
- Proteomics
- Environmental assays

Platforms

- Simoa
- Multiplex bead arrays
- Simoa
- LC-MS/MS
- qPCR
- Luminex
- MSD; Quanterix
- Beckman/Roche
- QuantStudio

Population Study Experience

• ENRICH • CROS • Oregon Health Study
• HRS • Add Health • LASI • IFLS • KLPS
• NSHAP • NHATS • MIDUS • MHAS
• LAFANS • MTO

Emerging/Pilot Work

Dried plasma separator devices (Telimmune, AdX); Olink proteomics platform (pending funding); apolipoproteins A1, B, E; nutrition biomarkers (carotenoids)