



# Genomics, Epigenomics and Sequencing Core

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## Service and Collaboration

**GES Core** provides a wide range of genomics, epigenomics and the next generation sequencing service and collaboration to researchers from UC, CCHMC and other institutions.

### NGS (Illumina platform)

- RNA-seq, miRNA/small RNA-seq, amplicon-seq, ChIP-seq/Cut&Run
- Whole mitochondrial genome sequencing
- SureSelect methyl-seq, oxBS-seq, exome-seq, RRBS, targeted sequencing
- Shotgun metagenomics sequencing, 16S/18S/ITS sequencing
- WGS, WGBS
- Library sequencing
- BaseSpace general data analysis for RNA-seq
- CRISPR/gene editing NGS screening
- And more

### Single Cell Sequencing

- 10x Genomics platform: scRNA-seq, scATAC-seq, Single Cell Multiome ATAC + Gene Expression, etc.
- Manual approach: scMethyl-seq, scRNA-seq

### Real-Time qPCR

- TaqMan assays (gene expression, genotyping/SNP, CNV assay, etc.)
- Telomere length quantification

### Illumina Beadchip Assay

- MethylationEPIC
- Genome-wide genotyping

### RNA/DNA Extraction and QC

### Collaboration and Support

- Grant application
- New method development
- Consultation
- Supporting letter
- Manuscript preparation

**Other Service and Collaboration:** Please inquire.

## Major Equipment

1. Illumina NextSeq 2000 sequencer
2. QuantStudio 5 Real-Time PCR system
3. Bioanalyzer for RNA/DNA/library QC
4. Nanodrop and Qubit for DNA/RNA quantification
5. 10x Genomics Chromium platform for single cell sequencing
6. LUNA-FL automated fluorescence cell counter
7. Automated gentleMACS Octo Dissociator with Heaters
8. Illumina iScan system for Beadchip assay
9. Veriti/VeritiPro Thermal Cyclers (total 9)
10. MPBio FastPrep-24 5G homogenizer
11. Covaris S2 Focus Ultrasonicator for DNA/chromatin fragmentation
12. Labconco entrivap micro IR Vacuum Concentrator
13. Labnet ENDURO GDS Touch Gel Documentation System
14. Computer servers for data storage and management
15. Integra automated liquid handling platform and lab automation systems

## Common Workflows

### 1. Pre-Service Consultation

Sample preparation; Method; Service quotation

### 2. Service Request

UC researchers: via UC Stratocore. Please provide a manifest file.

- <https://ppms.us/uc/start/>

CCHMC and other researchers: Submit Sample Form with PO# included

- <https://med.uc.edu/depart/eh/cores/genomics/services-and-form>

### 3. Data Generation

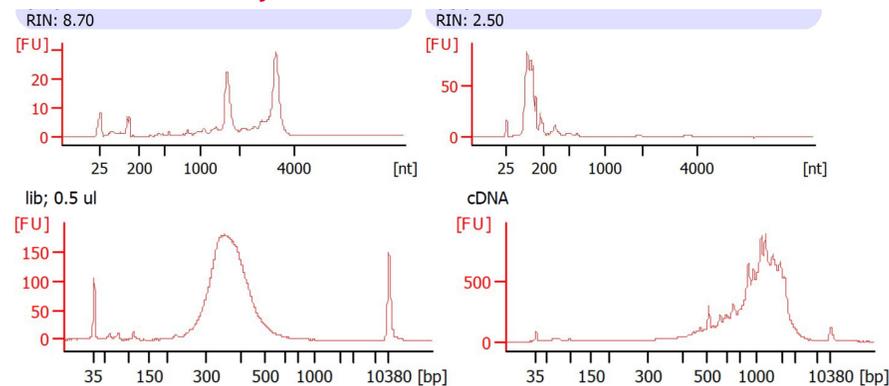
Sample QC; Key step QC (if applicable); Data QC and analysis (if applicable); Data transfer.

### 4. Post-Service Support

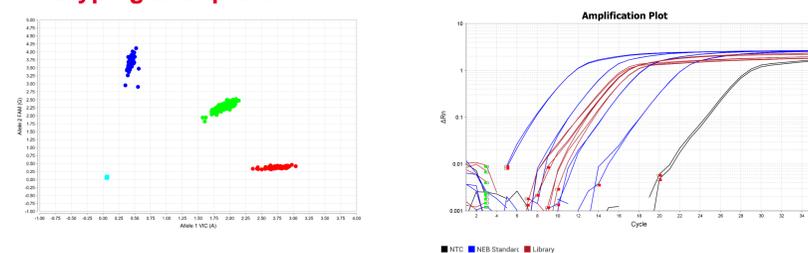
Q&A; Invoicing; Materials and methods for manuscript.

## Example Data

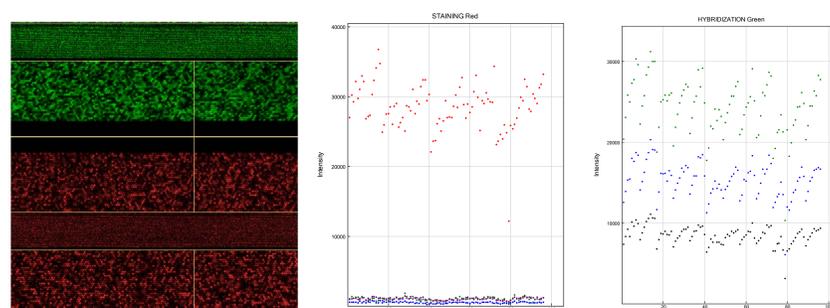
### 1. RNA/cDNA/Library QC



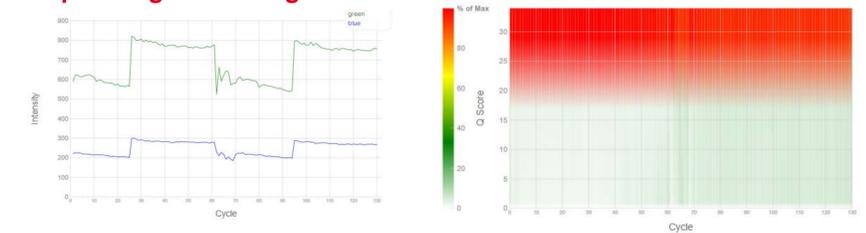
### 2. Genotyping and qPCR



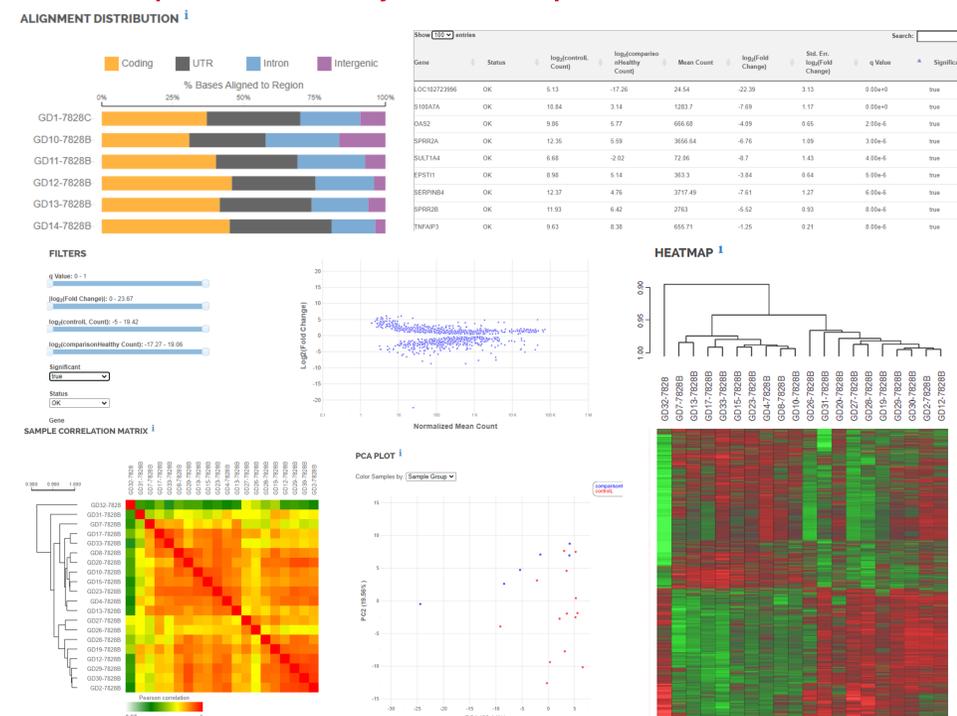
### 3. MethylationEPIC QC Report



### 4. Sequencing Monitoring and QC



### 5. RNA-seq Data QC and Analysis via BaseSpace



## Publications

### Recent Publications in High-Impact Journals

Journal	Impact factor	Publication year	PMID
ACS Nano	18.03	2023	36848459
Allergy	14.71	2022/2021	36004497, 33326617
J Clin Invest	19.46	2021	32970633
N Engl J Med	176.08	2020	32997916

### Bibliography (total 63)

<https://www.ncbi.nlm.nih.gov/myncbi/1Xci6hpXFh5v/bibliography/public/>

## Location/Contact

### Location/shipping/meeting

160 Panzeca Way, Kettering Building Room 336, Cincinnati, OH 45267

### Contact

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Urgent call only (thanks).

