



Genomics, Epigenomics and Sequencing Core

Last updated on 10/26/2024

Department of Environmental and Public Health Sciences, UC College of Medicine

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
- Twist/Agilent SureSelect targeted methyl-seq, oxBS-seq, exome-seq, targeted sequencing
- Shotgun metagenomics sequencing, 16S/18S/ITS sequencing
- WGS, NEB EM-seq, WGBS
- Precise library quantification and pooling
- Library sequencing
- CRISPR/gene editing NGS screening
- BaseSpace general data analysis for RNA-seq and metagenomics WGS
- NGS data submission to GEO

Single Cell Sequencing

- 10x Genomics platform: scRNA-seq, scATAC-seq, Single Cell Multiome ATAC + Gene Expression, etc.
- Manual approach: scWGS, scWGBS, scRNA-seq
- Other platforms such as Scale and Parse combinatorial barcoding technology (please inquire)

Real-Time qPCR

- TaqMan assays (gene expression, genotyping/SNP)
- TaqMan CNV assay, mtDNA CNV assay
- Absolute telomere length quantification
- qPCR/RT-qPCR/SYBR Green

Illumina Beadchip Assay

- MethylationEPIC/850K
- Genome-wide genotyping

RNA/DNA Extraction and QC

Collaboration and Support

- Grant application
- Manuscript preparation
- New method development
- Consultation (including Sanger sequencing)
- Supporting letter

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 single cell sequencing
6. LUNA-FL automated fluorescence cell counter
7. Automated gentleMACS Octo Dissociator with Heaters
8. Illumina iScan for Beadchip assay
9. Veriti/VeritiPro Thermal Cyclers (total 10)
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

Common Workflows

1. Pre-Service Consultation

Sample preparation; Method; Service quotation

2. Order Request via UC Stratocore

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

3. UC Stratocore account creation and order support

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

3. Data Generation

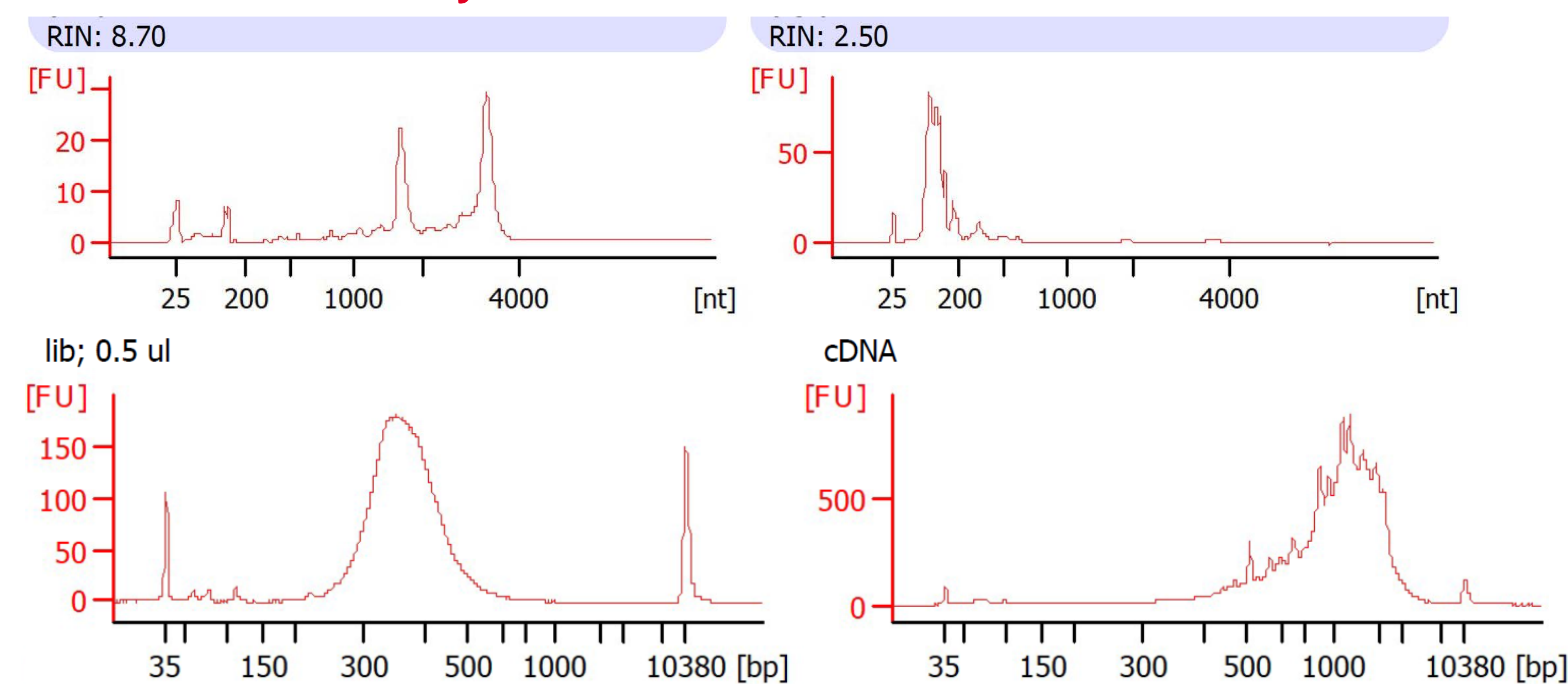
Sample QC; Key step QC (if applicable); Data QC and analysis (if applicable); Data transfer.

4. Post-Service Support

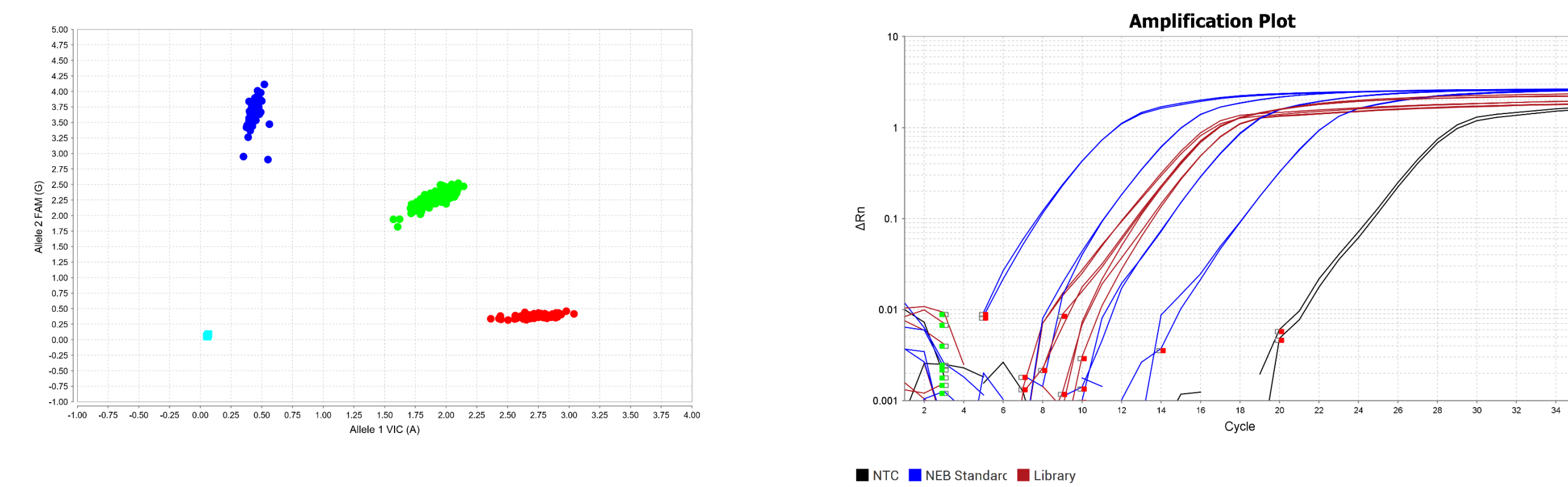
Q&A; Invoicing; Materials and methods for manuscript, etc.

Example Data

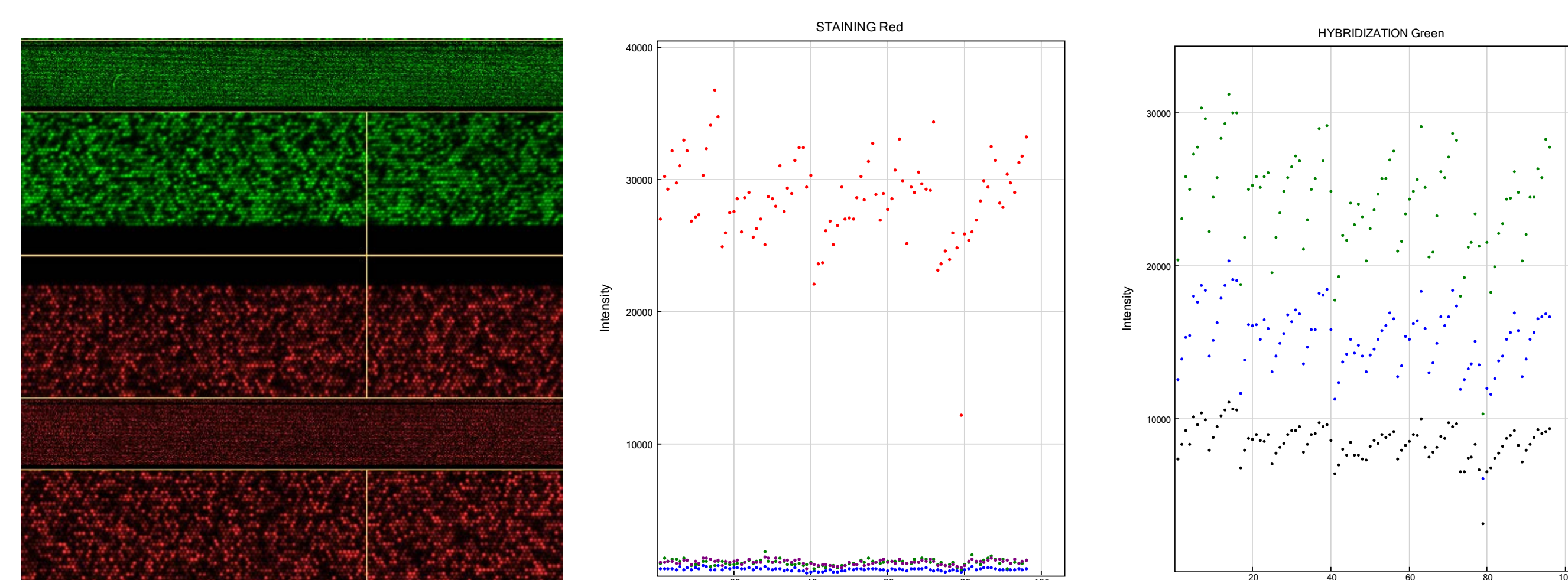
1. RNA/cDNA/Library QC



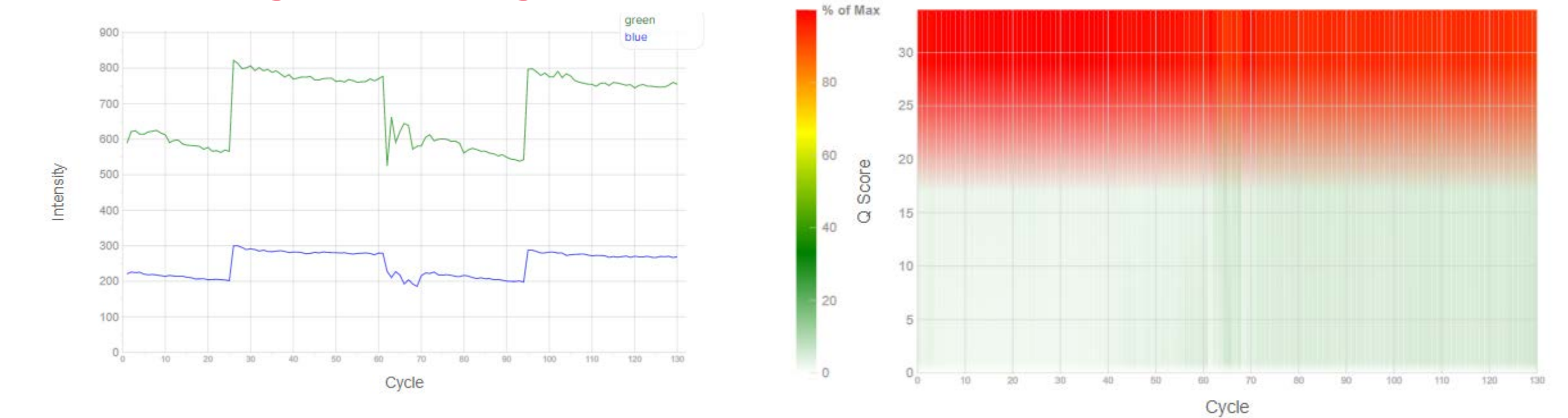
2. Genotyping and qPCR



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 70)

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

Location/Contact

Shipping and meeting location

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Contact

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