

GENOMICS CORE

BLDG. 37





Genomics Core Bldg. 37 Room 2135

Providing open
access to multiple
genomics platforms

Personnel:

Liz Conner, Manager

Val Bliskovsky

Steve Shema

Qin Wei





CORE STATISTICS

808 Registered iLab Members

260 Principal Investigators/Lab groups

10 ICs (NIAID, NHLBI, NIDDK, NEI, NIAMS, NIMH, NINDS, NIAAA, NIA, NICHD)

54, 468 Samples processed/year across all platforms



Platforms:

NGS:

MiSeq (2012)

NextSeq500 (2015)

NGS-related:

Tape Station (2012)

BioRad ddPCR QX200 (2014)

Agilent Bravo (2014)

SAGE Sci Pippin HT (2015)

Fluidigm C1 (2014)

Keyence BZX700 (2016)

Illumina NeoPrep (2016)

Others:

Sanger Sequencing (1997)

Nanostring (2009)



Next-Generation Sequencing – 2 platforms



MiSeq

25 M max paired reads

Up to 2x300 bp

- Applications:**
- RNASeq, including single cell RNAseq
 - targeted custom cancer panels
 - whole bacterial genome
 - Phage sequencing
 - amplicon sequencing
 - T-cell and B-cell receptor sequencing
 - viral profiling multiple sample types

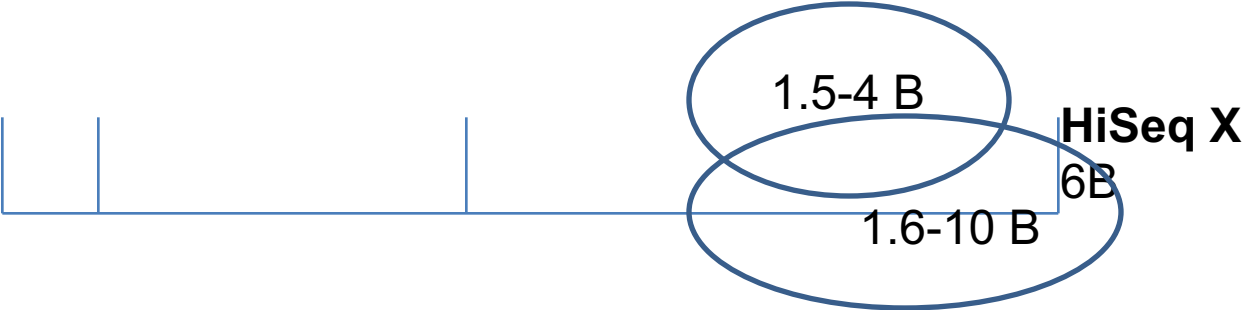


NextSeq

400 M max paired reads

Up to 2x150 bp

- Cost recovery service
- OSTR Subsidy available (50%)





BioRad QX200 Droplet Digital PCR System

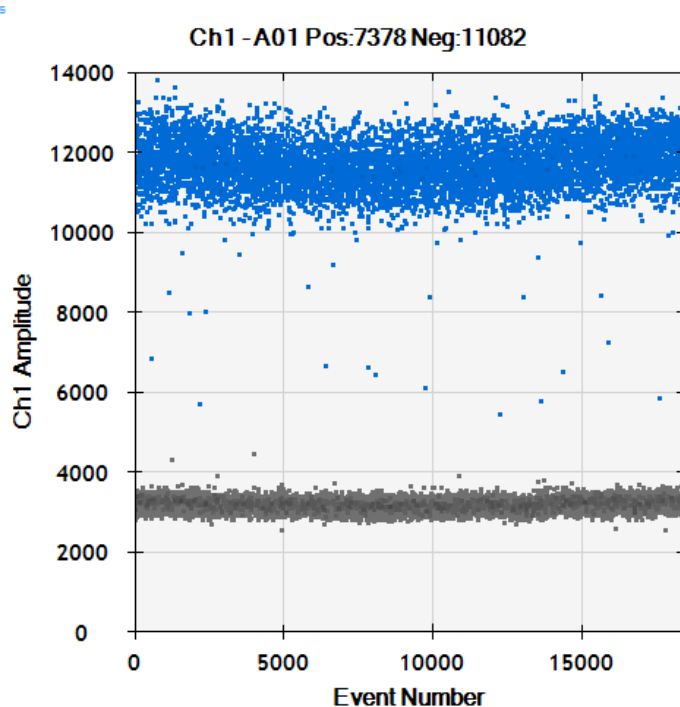


Automated Droplet Generator



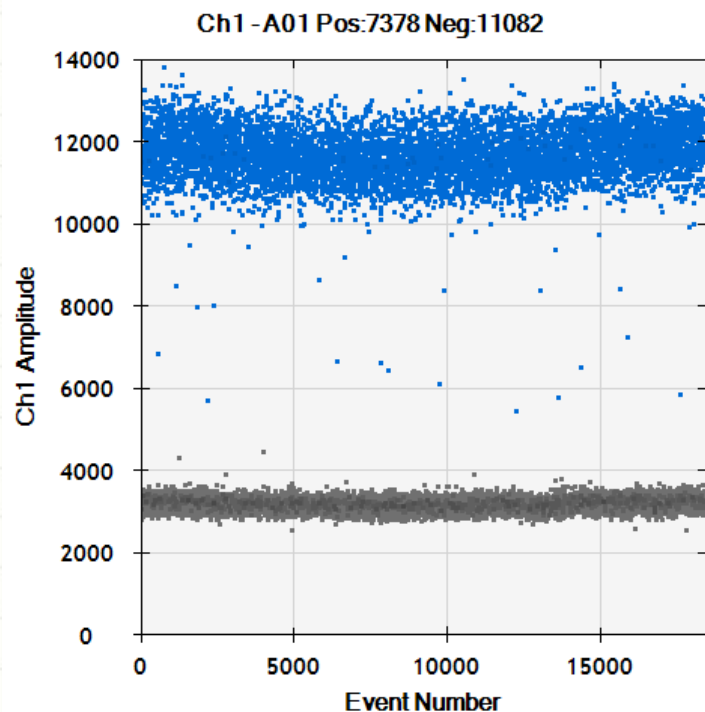
QX200 Droplet Reader

- Provides absolute quantification of target molecules without the use of standard curves
- PCR becomes “digital” through sample partitioning and the subsequent statistical analysis of target detection across the partitions
- Advanced microfluidics technology to generate 20,000 nanoliter-sized droplets per sample

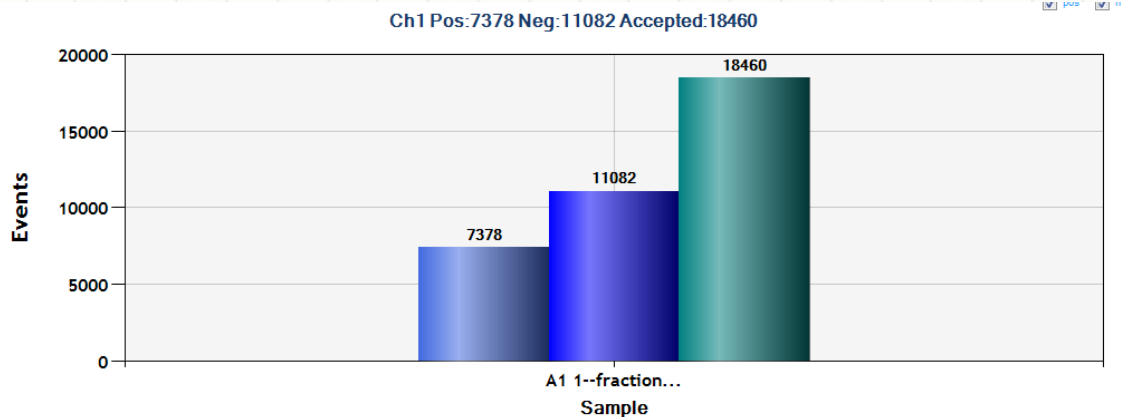




BioRad QX200 Droplet Digital PCR System



- Chemistries:
 - EvaGreen
 - Probe
- Common applications:
 - Expression
 - Mutation
 - Copy number variation



- Cost recovery service (\$5/sample)

Illumina NeoPrep™ Automated Library Preparation System



illumina®

 sage science

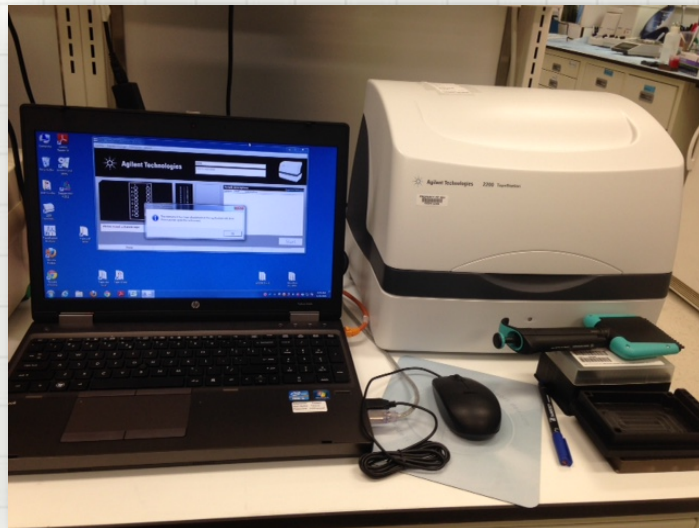
PippinHT

High Throughput Sizing for
Next-Gen Sequencing

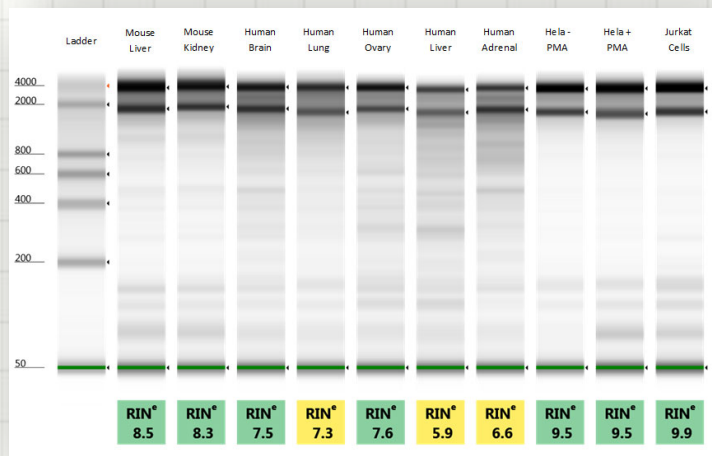




Agilent 2200 TapeStation



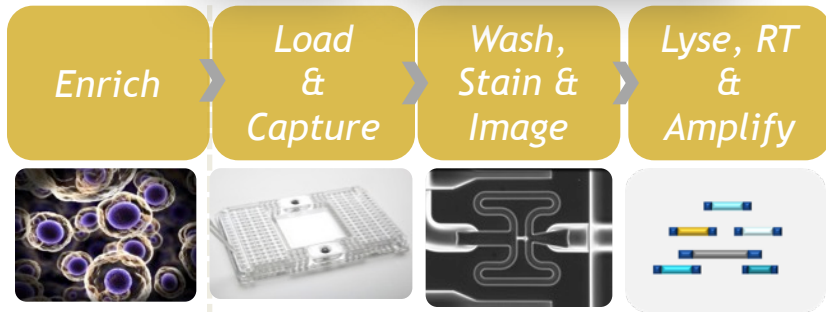
- QC platform for quality/quantity assessment of RNA and DNA as well as NGS library preparations
- Obtain size distribution and concentration estimates



• Cost recovery service (\$3-4.00/sample)



Fluidigm C₁ Single-Cell Auto Prep System



Fluidigm C₁ Single-Cell Auto Prep System

Chips optimized to isolate cells by cell size:

- 5-10 micron: stem cells and WBC
- 10-17 micron: iPS, progenitor cells, and others
- 17-25 micron: fibroblasts, keratinocytes, and others



Gene Expression Profiling: BioMark System

- Self-service following training
- OSTR Subsidy available (50%)



How to obtain our services:

iLab website: <https://nci.corefacilities.org/account/login>

iLab Solutions

A part of **Agilent Technologies**


Internal NCI user :

Click [here](#) to login or register using your institute login and password.

Not a NCI user?

Login using iLab credentials

If you don't have an account, please [register](#) for an iLab account.

-  home
 - communications (3619)
-  core facilities
 - CCR Genomics Core
 - my reservations
 - view requests
 - my centers
 - list all cores
-  reporting
-  manage groups
 - my labs
 - my core
 - National Cancer Institute
 - people search
 - Purchase Orders

CCR Genomics Core

- About Our Core
- Schedule Equipment
- Request Services
- View All Requests
- Reservations

ANNOUNCEMENTS

LAST Core billing for FY16 will be Tuesday, August 23.

Overview of Services

Welcome to the CCR Genomics Core

The mission of the CCR Genomics Core is to provide CCR investigators with "open access" to genomic technologies, with the goal of providing efficiency and quality of a centralized facility with the speed and convenience of dedicate facility has been in operation since 1997, primarily as a DNA sequencing facility averaging over 200 samples per day with the usual time between submission of samples and delivery of data typically less than one day. Since 2008, it and Technology Resources (OSTR) to acquire and make available new genomic technologies and instrumentation.

Key technologies:

- Sanger Sequencing
- NanoString Technologies nCounter® Analysis System
- Illumina Next Generation Sequencing
- Fluidigm C1 Single-cell Autoprep System
- BioRad Qx200 Digital Droplet PCR System
- Agilent TapeStation 2200 for quantitate and qualitative nucleic acid analysis



Sanger Sequencing Request

- Rapid and accurate sequencing of DNA samples
- Expertise in the use of software for sequencing data
- Troubleshooting sequencing reactions

Samples are accepted in which sequencing reactions are completed by the user, as well as samples in which the sequencing reaction and clean-up are performed by the core.

Data will be transferred to a data destination folder on group drive, NCI GP-DNACore-Access (\\nciis-p001.nci.nih.gov/dnacore). If you are unable to map the group drive to your computer please contact NIH Help Desk for support. [The files transferred from the Genetic analyzer to your data destination folder on the DNACore group drive are read-only and deleted after 4 weeks. You are responsible for copying your data to storage of your own.](#) The data generated by the Genetic Analyzers is backed up and kept indefinitely.

NOTE: iLab charges per sample so BULK-AS-IS sample requests (96 well MicroAmp plates completely ready to be placed on capillary sequencer) costs will be modified by Core Staff to reflect the correct pricing.

Sanger Request Types

ELECTROPHORESIS ONLY \$2.00/sample

SEQUENCING RX And Electrophoresis \$7.00/sample

SEQ REACTIONS, CLN-UP & ELECTROPHORESIS (96 SBP) \$440.00

Bulk capillary As-Is Run (SEQ RX & CLN-UP performed by customer):

(0-16 samples) \$22.00

(16-32 samples) \$44.00

(33-48 samples) \$66.00

(49-64 samples) \$88.00

(65-80 samples) \$110.00

(81-96 samples) \$132.00

Agilent 2200 TapeStation

Automates RNA, DNA and protein sample QC, including sample loading, separation, and imaging.

1. **What is it?** It is an automatic electrophoresis system that provides qualitative and quantitative characteristics of the sample

1. **Why would I want to use it?**

How to obtain an Office of Science and Technology Resources (OSTR) subsidy:

<https://ostr.cancer.gov/STARS>

The total amount of subsidy available to each principal investigator for each fiscal year is capped at \$10,000.

General Information	Subsidy For
PI * <input type="text" value="- Select -"/>	Service Type * <input type="text" value="Digital Gene Expression Profi"/>
PI Email Address * <input type="text"/>	Service Company * <input type="text" value="NanoString Technologies"/>
Lab/Branch * <input type="text" value="- Select -"/>	<input type="checkbox"/> NCI Internal Core
Lab Location * <input type="text" value="- Select -"/>	Items Ordered * <input type="text"/>
CAN/PID * <input type="text"/>	
AO	Totals
Email Address * <input type="text"/>	Total Cost of Order * <input type="text"/>
First Name * <input type="text"/>	Calculated Subsidy * <input type="text"/>
Last Name * <input type="text"/>	<input type="button" value="Submit"/>



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or, stop by Bldg. 37/Rm 2135

Please remember to.....

- Acknowledge the CCR Genomics Core in all publications that include data derived from the facility
- Provide us with a PDF of any publications in which the CCR Genomics Core is acknowledged

thank you!

Method	\$ system	\$ per cells	No. cells	Doublets	Transcript type	UMIs
DROP-seq	\$50000	\$0.65	up to 50000	0.36-11.3%	3' mRNA	Yes
Fluidigm C1	\$150,000	\$1.5-10	96, 800 (10k?)	10-23%	mRNA	No
10X Genomics	\$125,000	\$0.20-1.00	1000-6000	1-5%	3' mRNA	Yes
Wafergen	\$200,000	\$1.5-2.5	~1800	1-5%?	3' mRNA	Yes

