cogentech

Genomic Unit

Instruments

Illumina NovaSeq 6000 System (Catania Site)

- High-throughput system
- Four flow-cell types (SP, S1, S2, S4) Output range: 65 – 3 000 Gb
- Single-end reads per run: 800 M – 10 B
- Maximum read length: 500 bp
- Key applications: Whole-genome sequencing (WGS), Targeted resequencing, Whole-exome sequencing (WES)

Illumina NextSeq 2000 instrument (Catania Site)

- Output range: 10 – 540 Gb
- Single-end reads per run: 100 M – 1.8 B
- Maximum read length: 600 bp
- Key applications: Small-scale WGS, WES, Total RNA-seq

Illumina NextSeq550Dx instrument

- Maximum output: 120 Gb
- Single-end reads per run: 130 M – 400 M
- Read length: 75 – 300 bp
- Accuracy: 99.9 %
- Applications: Exome sequencing, Whole-transcriptome sequencing, Targeted gene panels, mRNA-Seq gene expression profiling, miRNA/small RNA analysis, DNA–protein interaction assays, Methylation sequencing

Illumina MiSeqDx instrument

- Maximum output: 15 Gb
- Single end reads per run: 1 M – 25 M
- Read length: 50 – 600 bp
- Accuracy: 99.9 %
- Key applications: Microbial/viral WGS, Targeted gene panels, 16S metagenomic sequencing

Oxford Nanopore MinION

- Output: 10–30 Gb of DNA sequence data Ultra-long read lengths (>100Kb)
- Accuracy: ~92–97% single read Nanopore-based reader allowing the sequencing of single molecule DNA and RNA fragments, can detect methylated nucleotides. Best suited for RNA isoform identification, genome assembly purposes and long sequencing reads into repetitive DNA regions

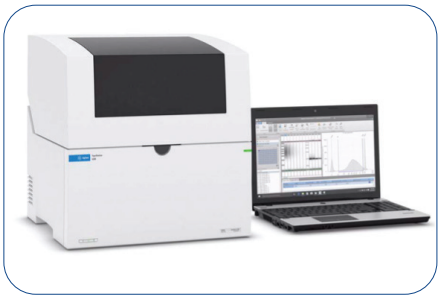
10X Genomics Chromium Controller

- The Chromium X Series is the advaced system for multiomic analysis of hundreds to millions to cells.
- Compared to the Chromium Controller, the Chromium X Series has:
- Additional sensors, more accurate pressure, and tray temperature control.
- Ability to run an assay with low throughput (LT) or high throughput (HT).
- Low throughput: 100–1,000 cells per channel
- High throughput: 2,000–20,000 cells per channel, 2,000–60,000 cells per channel with CellPlex
- Standard assay: 500-10,000 cells per channel, 500-30,000 cells per channelwith CellPlex

Covaris E220evolution Focused-ultrasonicator

- Capable of processing a wide range of sample types and volumes, it can process multiple samples in parallel.
- Supports DNA and RNA Extraction fromFFPE Samples, Chromatin Shearing for ChIP and DNA and RNA Shearing for Next-Generation Sequencing applications

Agilent 4200 Tape Station System



- For sizing, quantitation and quality control of DNA and RNA, proteins and cells
- Reliable integrity standards for RNA (RNA integrity number equivalent, RINe), genomic DNA (DNA integrity number, DIN), cell-free DNA (%cfDNA)
- No risk of cross contamination with individual ScreenTape lanes. Full sample scalability from 1 to 96 samples with constant cost-per-sample

NanoDrop® ND-1000 Spectrophotometer

- Measure nucleic acid concentrations using only 1µL of sample
- Quickly and easily quantify and assess purity of different type
- of samples
- No need for extra reagents

Agilent 2100 Bioanalyzer

- For sizing, quantitation and quality control of DNA and RNA, proteins and cells
- Quickly and easily quantify and assess purity of different type of samples
- No need for extra reagents

Qubit™ 4 Fluorometer

- Accurate measurement of DNA or RNA for rare and difficult-to-process samples
- The fluorescent dyes are specific to the target of interest
- Uses as little as 1 µL of sample