

Resource Summary Report

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UChicago IGSB Next Generation Sequencing Core

RRID:SCR_011063

Type: Tool

Proper Citation

UChicago IGSB Next Generation Sequencing Core (RRID:SCR_011063)

Resource Information

URL: <http://www.scienceexchange.com/facilities/next-generation-sequencing-ngs-core>

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Description: THIS RESOURCE IS NO LONGER IN SERVICE. Documented on May 15, 2024. Laboratory: The Institute for Genomics and Systems Biology's Next Generation Sequencing Core (IGSB-NGS) is a state-of-the-art facility for ultra-high throughput sequencing. The core was established in 2007 at Argonne National Laboratory and is housed in Argonne's Computing, Environment and Life Sciences (CELS) directorate, providing world class computation power, software, and expertise critical to the acquisition, analysis, and interpretation of the unprecedented volume of genetic information being generated on next generation DNA sequencing platforms. The core provides resources and services to Argonne National Laboratory users, University of Chicago users, and to the broader scientific community. NGS is involved in a broad range of scientific research from the sequencing of metagenomic samples to both 16S and 18S rRNA amplicon sequencing for microbial community analysis using next generation sequencing. The NGS laboratory space at Argonne is approximately 1,200 square feet and is supplemented by 140 square feet of office space for the technical director, Ms. Sarah Owens, as well as two additional 140 square foot spaces for technicians. Equipment: The NGS maintains the following workflows: Illumina HiSeq2000 and MiSeq next generation DNA sequencing. The Illumina HiSeq2000 generates over 6 billion reads at 150 bp in length per read resulting in over 600 Gb worth of data across sixteen lanes available per run. The Illumina MiSeq generates over 24 million reads at 150 bp in length per read resulting in over 4.5 Gb worth of data available per run (over a single lane). Applications on both the Illumina HiSeq2000 and MiSeq include: shotgun metagenome sequencing; rRNA-based amplicon library sequencing; and genome sequencing and resequencing. All major equipment is housed within the main laboratory space including three 96-well PCR machines (Applied Biosystems), water baths, analytical balances, refrigerator/freezers (including a large-capacity -80 degree C freezer), incubators, and high and low speed centrifuges (table-top and floor models). Basic equipment and supplies for all advanced molecular techniques (deionized water (Millipore Milli-Q

Advantage A10 system), multiple electrophoresis units and digital photographic documentation system) are housed here including equipment for high precision quantitation of nucleic acids (Agilent Bioanalyzer, NanoDrop, and Invitrogen Qubit). The facility also has a Covaris for sample shearing. Any additional equipment needed is located in or near by the NGS laboratory space including a real-time PCR machine (Roche LightCycler 480 with capabilities for both 96-well and 384-well plates) and a liquid handler, the Eppendorf epMotion 5075 robot. Some equipment (autoclaves, ice machine) is located in a common equipment room. Various instruments and methods have been implemented in the NGS's standard procedures to maximize quality. These include the use of the Roche Lightcycler 480 II, Agilent Bioanalyzer 2100, Invitrogen Qubit Fluorometer, and barcoding of libraries destined for sequencing. (The latter allows for a test sequencing run of each library to be performed to optimize sequencing lane loading density prior to each library's final sequencing run). Personnel overview. NGS operations are managed by Technical Director Sarah Owens. Ms. Owens has a Masters in Molecular Biology and Genetics, and 2 years experience working in high throughput facilities, with over 6 years of molecular biology experience. Ms. Owens was instrumental in trouble-shooting the application of rRNA-based amplicon sequencing for the Illumina HiSeq2000 and MiSeq, developing reproducible protocols in collaboration with Illumina. Under the guidance of the Technical Director, the NGS team helps users to determine the most efficient and cost effective approach to meet their research needs.

Abbreviations: IGSB-NGS, UChicago IGSB-NGS

Synonyms: Institute for Genomics & Systems Biology Next Generation Sequencing (NGS) Core, UChicago IGSB Next Generation Sequencing (NGS) Core, University of Chicago Institute for Genomics and Systems Biology Next Generation Sequencing (NGS) Core, University of Chicago Institute for Genomics and Systems Biology Next Generation Sequencing Core, Institute for Genomics and Systems Biology Next Generation Sequencing Core, University of Chicago Institute for Genomics & Systems Biology Next Generation Sequencing (NGS) Core

Resource Type: access service resource, core facility, service resource

Keywords: next generation sequencing

Availability: THIS RESOURCE IS NO LONGER IN SERVICE

Resource Name: UChicago IGSB Next Generation Sequencing Core

Resource ID: SCR_011063

Alternate IDs: SciEx_9915

Record Creation Time: 20220129T080302+0000

Record Last Update: 20260912T200332+0000

Ratings and Alerts

No rating or validation information has been found for UChicago IGSB Next Generation Sequencing Core.

No alerts have been found for UChicago IGSCB Next Generation Sequencing Core.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 1 mentions in open access literature.

Listed below are recent publications. The full list is available at [SPARC SAWG](#) .

Hernández-López R, et al. (2022) Mitochondrial Function Differences between Tumor Tissue of Human Metastatic and Premetastatic CRC. *Biology*, 11(2).