



Integrated Genomics Laboratory

Gene Profiling Shared Resource
 Massively Parallel Sequencing Shared Resource
 DNA Services Core

Included topics:

- Holiday Hours
- Transition in IGL Leadership
- New Staff
- New NIH rules for data retention, sharing, and access
- Operations Update
 - Gene Profiling Shared Resource (We are hiring!)
 - Massively Parallel Sequencing Shared Resource
 - DNA Services Core
- Joint Services: Single Cell Analysis
- Share ideas for new services and technologies
- Shared resource acknowledgement
- Genomics Advisory Committee

HOLIDAY HOURS

The Integrated Genomics Laboratory will be open on a regular schedule through the afternoon of Thursday, December 22nd with limited hours on Dec 23.

- **Closed** on OHSU holidays of **December 26th** and **January 2nd**.
- GPSR and the MPSSR will operate with **reduced staffing from December 27th through December 30th**.
- If you wish to drop off samples between December 21st and December 31st, please contact the core well ahead of time to make sure someone is available to work with you and accept samples.

TRANSITION IN IGL LEADERSHIP

Effective July 1, 2022, Bob Searles assumed the role of IGL Director, adding it to his role as Director of the MPSSR. To accommodate increased responsibility with the Knight Cancer Institute as their Associate Director of Shared Resources, Chris Harrington shifted to Associate Director of the IGL with a focus on campus outreach. Chris retains her role as Director of the GPSR and DNA Services.

NEW NIH RULES - for data retention, sharing, and access

NIH has been updating its requirements for implementation of FAIR principles of data management (Findable, Accessible, Interoperable, Reusable). IGL is working closely with OHSU to help implement the new rules as well as to help identify and codify the role of shared resources in data management going forward. As many are aware, the MPSSR maintains an off-line archive of sequence files going back to 2010. We are finding it difficult to keep up with the data output from the NovaSeq 6000, so we are investigating options while keeping the new data management rules in mind.

NEW STAFF

We are pleased to announce the recent hiring of two new members for the IGL team.

Jacob Buitrago, B.S., joined the IGL as a Research Assistant 2 in May, 2022, in support of the Knight Healthy Oregon Project (HOP). HOP sample processing and testing is a collaboration between the IGL and the Knight Diagnostics Lab with fiscal support from CEDAR, the Knight Cancer Institute, and a grant from NCI.

Dr. Jinah Kim, Ph.D., joined the GPSR as a Core Scientist in September. Jinah received her PhD in Cell Biology and has 14 years of breast and pediatric cancer

research experience that she brings to the core lab.

Please join us in welcoming both Jake and Jinah to our team.

IGL OPERATIONS UPDATE

Gene Profiling Shared Resource

The GPSR provides support for single cell analysis, RNA and DNA isolation and quality assessment, real-time PCR applications, and access to NanoString Profiler technology.

- RNA and DNA Isolation
 - We offer services for DNA and RNA isolation from a variety of sample types, including blood, plasma, frozen tissues, and FFPE specimens, with automation systems that allow up to 96 samples to be isolated at a time.
 - The core supports RNA and DNA co-isolation protocols from both QIAGEN and Zymo Research.
 - We are available to work with you in optimizing methods for collecting and processing samples for nucleic acid isolation in the core
 - For further information or experiment planning, please contact [Chris Harrington](#) or [Britt Daughtry](#).
- More information about real-time PCR, arrays and NanoString technology services can be found on the [GPSR website](#).
- The core collaborates with the MPSSR to offer support for single cell and nuclei analysis on the 10x Genomics Chromium Controller system.

The IGL is experiencing steady demand for all core services. Due to staffing limitations in the GPSR, turnaround times for many of its services have increased. Thank you for your patience as we work through the current service load and expand our staff to accommodate OHSU research support needs.

We are hiring! The GPSR is seeking a scientist with molecular biology experience and familiarity with GPSR technologies to join our team at the Associate Core Scientist level. Please contact Chris Harrington for more information.

Massively Parallel Sequencing Shared Resource

The MPSSR provides a wide range of library preparation services. We provide sequencing on the NovaSeq 6000 or the NextSeq 500.

- **New service: RNA and DNA evaluations independent of sequencing projects.** As of mid-November, the MPSSR has assumed responsibility for the IGL RNA and DNA evaluation service, formerly provided by the GPSR. Access to evaluations is available through the same iLab application process as other

services in the MPSSR.

- Turnaround times for many projects have declined dramatically as pandemic-related supply issues have diminished. We are particularly pleased with the turnarounds on unshared flow cells – flow cells purchased to run with just one project. These generally have been able to run within three working days, with delays only when there are instrument or inventory issues. The success of the dedicated flow cells has affected turnaround times on our shared S4 flow cells since fewer projects are now opting for the shared runs. We are aware of this and we're working to resolve it since the shared S4 runs provide the most economical platform for sequencing.
- We recently discontinued two offerings on our library services menu: 16s rRNA and mRNA. Both services were discontinued because no one requested them.
- We have been informed by 10x Genomics that they will be increasing prices by about 8% on all reagents and supplies for single cell work. These price increases go into effect on January 1, so new pricing for those services will go into effect at that time. Illumina price increases are expected in March.

DNA Services Core

This core provides support for cell line authentication, custom oligo synthesis, and DNA normalization and plating.

Please visit the [DNA Services website](#) or contact [Chris Harrington](#) or [Britt Daughtry](#) for more details.

Joint Services: Single Cell Analysis

The IGL offers a complete service for analysis of single cells and nuclei using the 10x Genomics platform through a coordinated pipeline between the GPSR and MPSSR. Single cells and nuclei suspensions (day one) are processed in the GPSR and then transferred to the MPSSR for library preparation and sequencing. During times of extreme demand, MPSSR staff will provide back-up support for day-one operations. Please request the full service by placing a service request on the MPSSR iLab page. Assistance for optimizing sample preparation prior to core submission is available. Access to the IGL Chromium controller system is also available for self-service by trained users.

Are you working with single cell sequence data? Would you like to partner with OHSU colleagues to grow your analysis skills and get help with trouble-shooting? Consider joining the RNA Omics Club – an independent user group (not affiliated with the IGL cores):

The RNA Omics Club (ROC)

ROC is a diverse group of scientists (at all levels of coding skill) that are interested in improving their ability to process and analyze single cell RNA sequencing datasets. The group meets virtually once a month for 90 minutes. After a short introduction and group check-in, a presenter shares on a topic of interest (usually pertaining to a project they are working on). Past topics have included data integration, doublet removal, ambient RNA removal, data normalization, understanding file structure, ggplot2, and pathways analysis. Club members believe strongly in open science and will make any code shared at the club available to all the participants.

Please contact Jonathan Nelson at nelsonjo@ohsu.edu to learn more. All levels of scientists are welcome from undergraduates to professors.

!!! Share ideas for new services and technologies!

We welcome input on new technologies or core services for RNA and DNA processing and analysis that OHSU researchers would like to see offered through the IGL cores. Please contact [Bob](#) or [Chris](#) with your suggestions.

SHARED RESOURCE ACKNOWLEDGEMENT

The ability of shared resources to compete for funding, such as shared equipment grants, relies upon a robust record of publications that acknowledge core use. Please remember to acknowledge use of the GPSR, MPSSR, and DNA Services Core in talks, posters, and publications that include data generated in the core lab. The use of data generated in an OHSU core facility in a grant application, progress report or publication contains the implicit understanding that the PI or authors will acknowledge the use of the OHSU core facility. The use of universally-established identifiers, such as the Research Resource ID (RRID), can help search engines uniquely identify shared resources that are cited in publications.

Suggested acknowledgement text:

MPSSR

DNA/RNA evaluations, library preparation, and/or sequencing were performed by the OHSU Massively Parallel Sequencing Shared Resource (RRID: SCR_009984). This core is supported by the OHSU Knight Cancer Institute NCI Cancer Center Support Grant P30CA069533 and by funding from the M.J. Murdock Charitable Trust.

GPSR

(Insert appropriate service or platform) were performed in the OHSU Gene Profiling Shared Resource (RRID: SCR_009975). This core receives partial support from the OHSU Knight Cancer Institute NCI Cancer Center Support Grant P30CA069533.

GPSR Services/Platforms: Microarray, qPCR, or NanoString assays, DNA or RNA isolation services, DNA or RNA quality assessments

DNA Services Core

STR profiling for human cell line authentication was performed in the OHSU DNA Services Core (RRID: SCR_12599); this work utilized a 3730xl DNA Analyzer purchased with funding from NIH SIG grant S10 OD010609

GENOMICS ADVISORY COMMITTEE

The Integrated Genomics Laboratory cores are reviewed and advised by an institutional core advisory committee.

Current members:

- Laura Heiser, Ph.D. (Committee Chair)
- Andrew Adey, Ph.D.
- Donald Conrad, Ph.D.
- Arpiar Saunders, Ph.D.
- Ted Braun, M.D., Ph.D.

Emeritus members:

- Chris Corless, M.D., Ph.D.
- Paul Spellman, Ph.D.
- Lucia Carbone, Ph.D.

Best wishes for the holidays, and a healthy and happy 2023!

Learn more about the Integrated Genomics Laboratory cores:

- [Gene Profiling Shared Resource](#)
- [Massively Parallel Sequencing Shared Resource](#)
- [DNA Services Core](#)

The Integrated Genomics Laboratory cores are located in Richard T. Jones (RJH) Hall 5330 and 5390