

Shared RESOURCES

NEWSLETTER

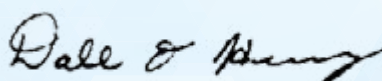
Message from the Chief Scientific Operations Officer

Dear Roswell Park Researchers,

I am proud to announce the semi-annual distribution of the Shared Resources newsletter. The goal of the newsletter will be to keep everyone up-to-date on new advances in our shared resources that will assist with your research projects. We currently have 24 shared resource facilities on campus. The mission of our directors and staff is to provide the most advanced technologies and services, while in alignment with Roswell Park's mission of combating cancer's impact on our lives. The Institute invests over \$10 million annually in support of these shared resources. This investment ensures that at a discounted price, you have the equipment and professional staff to meet your research support needs. Dr. Candace Johnson, President, and CEO, and I are very proud of the superior services our shared resources provide. I encourage you to reach out to the facility directors with any unmet needs, so we may ensure the shared resources continue to provide the best quality services. You may also contact me directly

with any issues or suggested new services you feel would enhance our shared resources.

Thank you for all your efforts towards our mission.



Dale O. Henry, MBA

Chief Scientific Operations Officer



"The goal of the newsletter will be to keep everyone up-to-date on new advances in our shared resources that will assist with your research projects."



Having problems putting together your research project? Don't know how to get samples and data?

The [Data Bank and Biorepository Shared Resource \(DBBR\)](#), [Pathology Shared Resource Network Shared Resource \(PNSR\)](#), the [Biomedical Research Informatics Shared Resource \(BRISR\)](#), our legal team, and the office of research subject protection can provide an overview of the BDR and Banks that we offer at Roswell Park.

Contact **Annmarie Nowak** (annmarie.nowak@roswellpark.org or 716-845-8295) to arrange a presentation on how to get a study started using these shared resources.

Roswell Park Shared Resources

- [ATLAS Studios Shared Resource \(ATLAS\)](#)
- [Bioanalytics, Metabolomics, and Pharmacokinetics Shared Resource \(BMPK\)](#)
- [Bioengineering Core Resource](#)
- [Bioinformatics Shared Resource \(BIOINF\)](#)
- [Biomedical Research Informatics Shared Resource \(BRISR\)](#)
- [Biostatistics and Statistical Genomics Shared Resource \(BSGSR\)](#)
- [Data Bank and BioRepository Shared Resource \(DBBR\)](#)
- [Experimental Tumor Models \(ETM\)](#)
- [Flow and Image Cytometry Shared Resource \(FICSR\)](#)
- [Gene Modulation Shared Resource \(GMSR\)](#)
- [Gene Targeting and Transgenic Shared Resource \(GeTT\)](#)
- [Genomics Shared Resource \(GSR\)](#)
- [Health Communications Shared Resource \(HCR\)](#)
- [Hematologic Procurement Shared Resource \(HPSR\)](#)
- [Immune Analysis Shared Resource \(IASR\)](#)
- [Investigational Drug Service Shared Resource \(IDS\)](#)
- [Laboratory Animal Shared Resource \(LASR\)](#)
- [Nicotine and Tobacco Product Assessment Shared Resource \(NICOTAR\)](#)
- [Onsite Research Supply Center Shared Resource \(ORSC\)](#)
- [Pathology Network Shared Resource \(PNSR\)](#)
- [Scientific Editing & Research Communications Core Resource \(SERCC\)](#)
- [Small Molecule Screening Shared Resource \(SMS\)](#)
- [Therapeutic Cell Production Shared Resource \(TCP\)](#)
- [Translational Imaging Shared Resource \(TISR\)](#)
- [Vector Development Production Facility \(VDPF\)](#)

HIGHLIGHTED SHARED RESOURCES

Bioanalytics, Metabolomics, and Pharmacokinetics Shared Resource (BMPK)

NEW TECHNOLOGY, EQUIPMENT & SERVICES

Targeted Metabolomics with Biocrates MxP® Quant 500 Kit

The BMPK Shared Resource at Roswell Park has launched a new service for comprehensive Targeted Metabolomics analysis to support the growing Omics research efforts in the Buffalo area. The assay uses the Biocrates MxP® Quant 500 assay, which combines liquid chromatography-tandem mass spectrometry (LC-MS/MS) and direct infusion mass spectrometry analysis (DI-MS), to quantify up to 630 metabolites spanning 26 biochemical classes (including those synthesized and modulated by microbiota). This allows comprehensive assessment of key metabolites from a broad range of metabolic pathways. The assay is performed in a high-throughput, 96-well plate format. The extensive calibration, internal, and QC standards included in each run renders the metabolite measurements with high analytical reliability and reproducibility,

which is advantageous to pool data sets for meta-analysis or longitudinal studies. A wide range of samples are suitable for analysis using this platform, including cell culture, biological fluid, tissue, and feces samples from various species, and as little as 10 µL of sample is required to achieve substantial sensitivity. Furthermore, the data generated from the assay is amenable for integration with other types of omics analysis. The Biocrates assay would be a valuable tool for metabolomics and multi-omics studies in your research to provide crucial insights into the pathological and physiological mechanisms of cancer and the therapies.

PSA CMIA Assay

BMPK has validated a highly sensitive chemiluminescent microparticle immunoassay (CMIA) for the analysis of prostate specific antigen (PSA) in human and mouse serum. The assay was validated using the Abbott Architect® auto immunoassay analyzer and its associated PSA kit system.

Sample analysis is performed by the robotic liquid handler, which accurately times each stage of sample preparation for each

In Other BMPK Dept. News

The BMPK would like to welcome our new Associate Director, Dr. Wenjuan Zha, who joined us in April 2021.



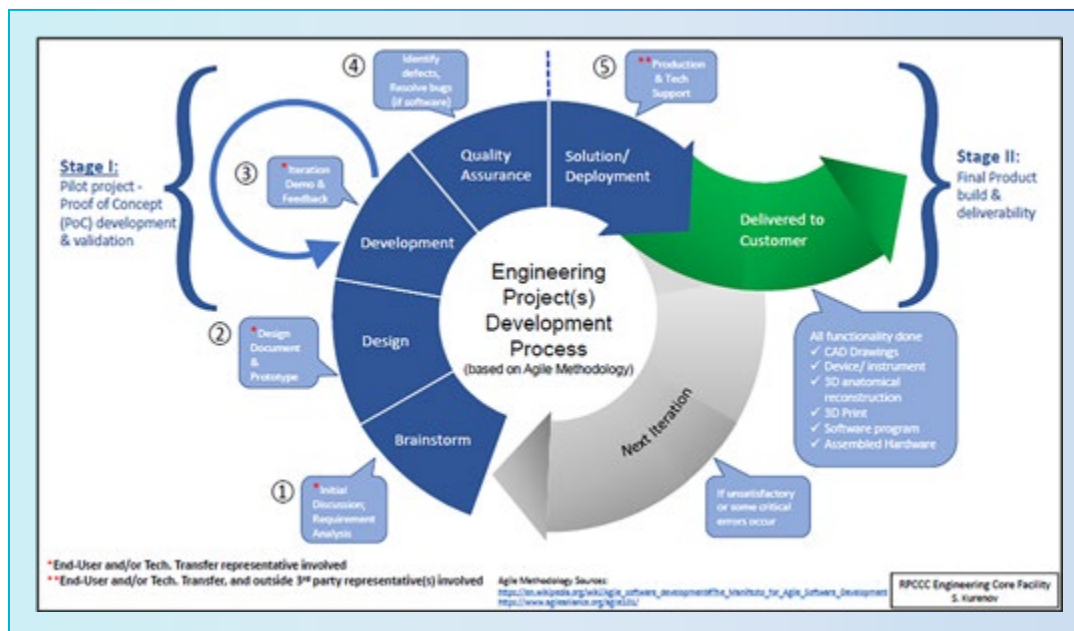
sample, eliminating the variability associated with time-dependent manual pipetting that can affect overall accuracy and precision. While PSA levels in men may vary, common PSA testing procedures can be used to detect the onset of prostate cancer. Assay requires 100 μ L of human or mouse serum with a calibration range of 0.100 ng/mL – 100 ng/mL.

Busulfan Assay and Application for NYS Clinical Laboratory Permit (on-going)

BMPK has developed and validated an LC-MS/MS assay for the quantitation of the chemotherapeutic busulfan in human plasma. This assay will be used for therapeutic drug monitoring (TDM) of busulfan at Roswell Park's Bone Marrow

Transplantation (BMT) program. Busulfan has a narrow therapeutic range, therefore TDM is needed to prevent under- or overdosing. The work to obtain a Clinical Laboratory Permit from the New York State Department of Health is ongoing and is expected to be completed in the next 4-6 months. After obtaining the Permit, BMPK will expand its clinical testing platform. ■

Bioengineering Core Resource



The Bioengineering Core at Roswell Park provides service and support to investigators utilizing advanced engineering to develop new technologies for both translational and clinical research. The facility includes a dedicated engineer that specializes in biomedical software and device development intended for use in clinical care of patients with cancer. This includes support for the development of new technologies, state-of-the-art surgical devices, bioengineering analysis, quality assurance, and computer simulations. The Bio Engineering Core can provide complex organ-based computer simulations and 3D printing, including liver, kidney, pancreas and lung to aid in the development of devices or surgical procedures to treat malignancies associated with these organs. Past and active projects include development of interstitial Photodynamic Therapy (PDT) models as well as simulations of thermal ablation such as microwave or laser therapy. The bioengineering service has provided

support in the development of several novel medical devices by our faculty.

The facility works closely in partnership with physicians, and scientists at Roswell Park. Past and current efforts include projects with Drs. Kuvshinoff, Shafirstein, Demmy, Ivanick, Hochwald and Kauffman, all forming the basis for the future expansion of work. Currently, the facility is planning to initiate and expand its roster of collaborative projects to help other physicians and researchers at Roswell Park by providing dedicated engineering support and innovation. Additionally, the team will work with the Department of Technology Transfer to provide in-house engineering services.

Recent Projects

- Liver surgery preoperative planning using a computerized simulation system (PI-Kuvshinoff). Patient specific computer aided virtual reality surgery planning system

that uses conventional CT cross-sectional imaging of liver tumors converted to 3-dimensional anatomic visualization. Incorporation of patient, tumor and liver-specific variables with the surgical planning model to predict short-term and long-term operative and cancer-related outcomes.

- Attachment for EBUS device (Ivanick; PI-Shafirstein). Design, development and creation a prototype of surgical apparatus for light delivery during the Endobronchial Ultrasound Guided Interstitial Photodynamic Therapy to treat patients with locally advanced cancer in the airway.
- CAD drawings for the patent application "System for in vivo deconstruction of large organs to enhance their minimally invasive removal and selectively process their components". (PI-Demmy)
- A working prototype, CAD drawing, and a custom injection molding have been created for the patent application "Jejunostomy tube and method" (PI-Hochwald). ■

Biomedical Research Informatics Shared Resource (BRISR)

The mission of the BRISR is to ensure quality clinical data for Roswell Park researchers. We are here to assist with cohort selection, database design and development, and clinical data delivery for research purposes. BRISR staff are knowledgeable in clinical data sources at Roswell and are Certified Honest Brokers which ensures all data is properly distributed and utilized for research purposes.

In Other BRISR Dept. News

The BRISR would like to welcome our new Associate Director, Dr. Tao Liu, and our new Data Management Director, Kelly Jans, who both joined our team in December 2020. ■



Bioinformatics Shared Resource (BIOINF)

The BIOINF provides state-of-art bioinformatics expertise for the design, analysis, and interpretation of genomics, proteomics, and other high-resolution, high-throughput studies for better understanding of cancer biology, thereby facilitating translation of cancer omics discoveries to cancer treatment. At the heart of our service is the design of multi-omics study, analysis of multi-omics data and interpretation of multi-omics results.

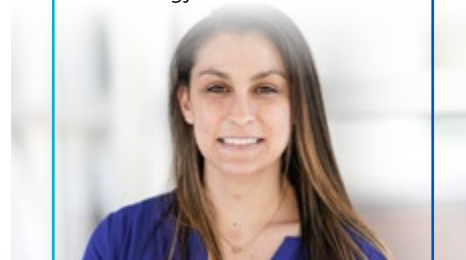
Upcoming Seminars

Dr. Song Liu was appointed as the co-chair of Big Data & Data Sharing Committee at Society for Immunotherapy of Cancer (SITC). In that role he and Dr. Alan Hutson direct the inaugural [SITC-NCI Computational Immunology Webinar Series](#).



In Other BIOINF Dept. News

The BIOINF would like to welcome [Dr. Spencer Rosario](#) who joined the faculty of the Biostatistics & Bioinformatics Department as an Assistant Professor of Oncology in March 2021. ■



Biostatistics and Statistical Genomics Shared Resource (BSGSR)

The BSGSR provides biostatistical support for clinical trials (protocol development and analysis), grants (preliminary data analysis and sample size calculations), and local and national databases; as well as providing statistical education. The resource is available to all Roswell Park faculty, staff, and students. Our 6 faculty and 6 staff members have a wide range of expertise and familiarity with a variety of statistical software packages.



NEW TECHNOLOGY, EQUIPMENT & SERVICES

We are currently testing a server-based SAS product that may improve our capacity for "big data" projects. Additional information will be available as we move through the testing phase.

Dr. Qian Liu has been developing R packages associated with her methods research:

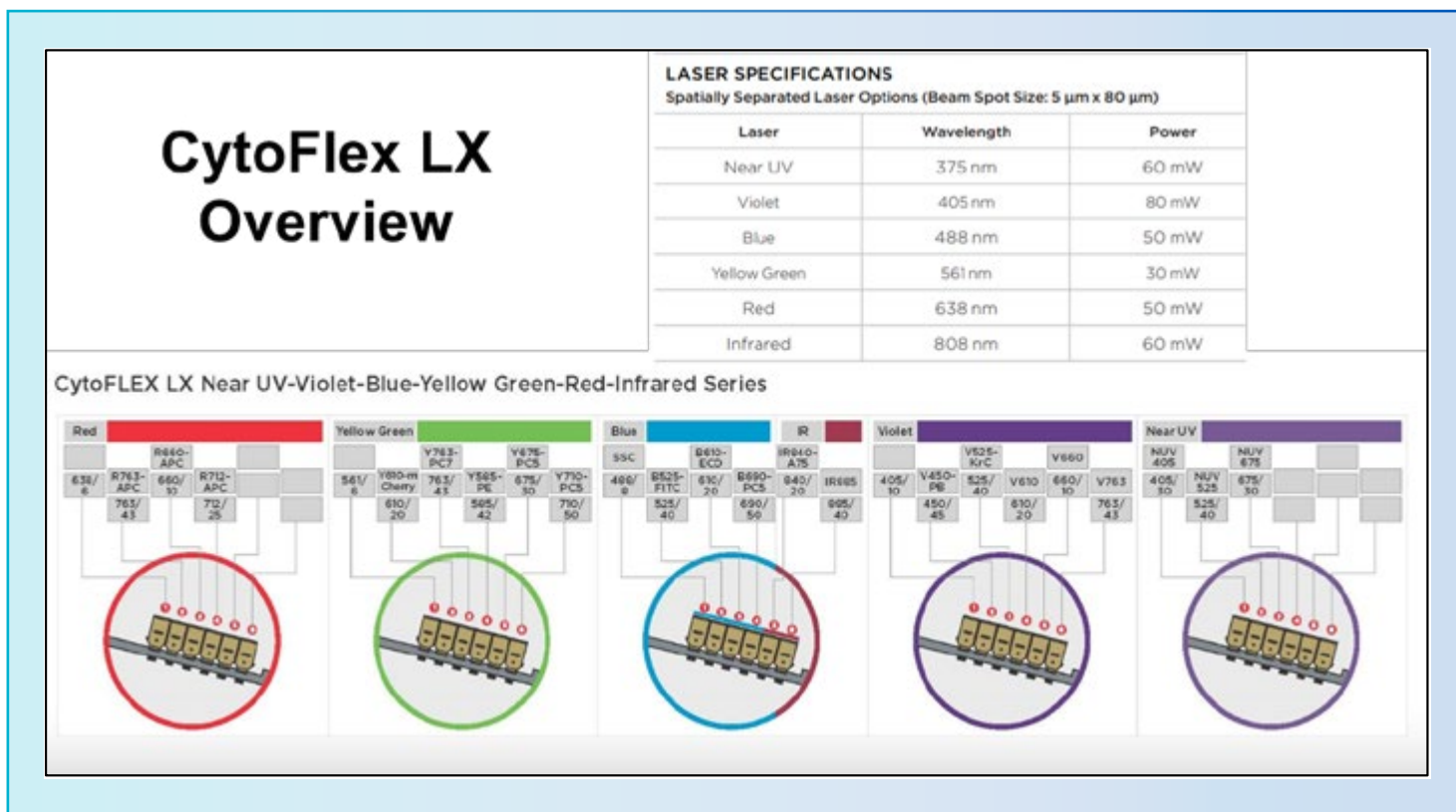
1. Rowl: <https://bioconductor.org/packages/Rowl/>
2. Rowl Pipelines: <https://bioconductor.org/packages/RowlPipelines/>

Dr. Han Yu has published R packages corresponding to his methodology papers:

1. Permutation test for the concordance correlation: <https://github.com/hyu-ub/perk>
2. Correlation graph: <https://github.com/hyu-ub/bootcluster>. ■

Flow and Image Cytometry Shared Resource (FICSR)

NEW TECHNOLOGY, EQUIPMENT & SERVICES



Cytek Aurora Spectral Flow Cytometry Analyzer - Spectral unmixing is an alternative approach to solving overlap of emission spectra when cells are labeled with a panel of fluorescent markers. Whereas conventional flow cytometry uses filter sets to only capture relatively narrow sections of the emission spectra with the goal of minimizing spectral overlap of the combined fluorescent markers in a staining panel, the spectral analyzer captures the full spectrum of each and uses mathematical deconvolution to 'unmix' the captured emission and separate it into its contributing individual fluors. This approach enables using staining panels of 32+ parameters simultaneously. For more training and more information contact Paul Wallace x8415

A Beckman Coulter CytoFlex LX flow cytometry analyzer has been added to the Flow cytometry user room. This cytometer is configured with 6 lasers and is capable of 21 color detection + 2 scatters (488nm and 405nm) as summarized below.

The CytoFlex is also equipped with a 96-well plate format autosampler. The

use of so-called Avalanche Photo Diodes (APDs) as detectors (as opposed to the more common Photomultiplier tubes or PMTs) results in higher sensitivity of detection especially in the higher (red) wavelengths ranges. It also means however getting used to different instrument / experiment set ups compared to the other PMT based analyzers available in the user room. At the time of this publication the facility operators are finalizing training and a formal training/ instruction module will be offered for the FICSR user base.

Upcoming Seminars

A webinar is planned with ONI Bio to assess the interest in pursuing the acquisition of a high resolution (single molecule level) nanoimager able to visualize and count single receptors on the surface of cells and tissue. It can characterize CAR-Ts and their targets to a single-molecule level and probe the spatial organization of surface markers allowing to probe the quality of the immunological synapse. An announcement will be sent out to everyone with the webinar registration information.

In Other FICSR Dept. News

This summer, flow cytometry faculty (Drs. Wallace, Minderman, Maguire, Tario, Conway) will be teaching a course on the Principles in Flow and Image Cytometry for the Manipal Institute of Regenerative Medicine (MIRM), Manipal Academy of Higher Education (MAHE) Allalsandra, Yellahanka, Bangalore 560065, India. Our faculty will be joined by Drs. Wade Sigurdson from UB and Kathy Fuller from the University of Western Australia who will be teaching units on confocal microscopy and immune-flowFISH, respectively.

Paul Wallace presented a virtual lecture/ workshop/lab for ISAC's Live Education in Kathmandu, two virtual talks for the INDO-US Flow cytometry Workshop, 2021 and at a virtual conference for the International Society for Laboratory Hematology. ■

Gene Targeting and Transgenic Shared Resource (GeTT)

The GeTT has several exciting things to share with our research community. We are expanding our genome editing capabilities to include cell line CRISPR editing services. We are currently collaborating with labs to work on cell line knockout projects and have been successful in knocking out the following genes: p53, NSD2, GATA4, STAG2, CREB3L1, PVR in multiple cell lines such as human cell lines, lung fibrosarcoma HT1080 and normal human diploid fibroblasts (NDF), C2 prostate cells, MCF10A, mouse ovarian epithelial cell line ID8R, T24, amongst others. If you need cell line genome editing, please contact Aimee Stablewski (aimee.stablewski@roswellpark.org or 716-845-5843) to initiate a plan.

In addition, the GeTT and the Experimental Tumor Model Shared Resource (ETM) have combined some of our services. As such, genotyping will still be part of the GeTT (investigators please contact Aimee Stablewski for genotyping needs). However, ETM's Ellen Karasik, will perform your genotyping services. PI's should initialize the genotyping with Aimee and notify Ellen by email prior to dropping off the tails for screening. Plates with tail samples should be dropped off in the -20 freezer in the Medical Research Complex (MRC) Room 258 and the sample submission forms should be sent to Ellen via email (ellen.karasik@roswellpark.org).

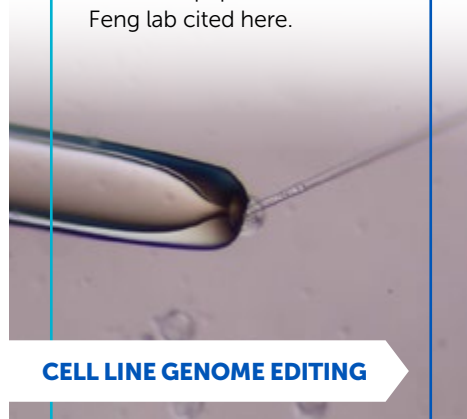
Chromosomal rearrangements, such as deletions and inversions, are hallmarks of cancer cells; therefore, developing

mouse models carrying these types of chromosomal rearrangements with the predetermined endpoints is essential for mechanistic and therapeutic studies. For more than a decade, mouse mutants carrying defined chromosomal rearrangements were developed based on Cre/loxP-mediated recombination in mouse embryonic stem (ES) cells. However, the ES cell-based technology is an extensive effort, which involves three elaborate genome alteration steps. Recently, the GeTT has been trying to develop CRISPR-mediated chromosome engineering technology. After overcoming a number of obstacles, we finally succeeded in the generation of a number of the desired mouse mutants using CRISPR-based technique, which include those carrying a 150-Kb deletion or 150-Kb inversion. Our recent preliminary data showed that we may have also generated the mouse mutants carrying about a 500-Kb deletion. These developments indicate that it may be feasible to efficiently generate mouse mutants with defined chromosomal rearrangements using CRISPR-mediated genome editing.

Hu Z, Li H, Jiang H, Ren Y, Yu X, Qiu J, Stablewski AB, Zhang B, Buck MJ, Feng J. Transient inhibition of mTOR in human pluripotent stem cells enables robust formation of mouse-human chimeric embryos. *Sci Adv.* 2020 May 13;6(20):eaaz0298. doi: 10.1126/sciadv.aaz0298. PMID: 32426495; PMCID: PMC7220352. ■

Congratulations

Congratulations to Aimee Stablewski and Dawn Barnas! They have an ongoing collaboration with Dr. Jian Feng, a Professor at the University at Buffalo, and recently had a paper accepted into *Nature Protocols*. Aimee and Dawn will be recognized for the image below, which will be highlighted as the cover photo in an upcoming issue of *Nature Protocols*. The *Nature Protocols* article will detail the methodology behind their 2020 *Science Advances* paper with the Feng lab cited here.



CELL LINE GENOME EDITING

Genomics Shared Resource (GSR)

The GSR offers sample-to-data services, with an expert technical staff performing all aspects of sample preparation, QC, assay design and analysis. GSR provides state-of-the-art instrumentation and expertise that enables its users to acquire and analyze genomic data sets across basic, translational, clinical and population studies. The GSR offers a full spectrum of services, including Next Generation sequencing (NGS), Single cell sequencing, Sanger sequencing, Illumina microarray (SNP and methylation), NanoString and nucleic acid extraction. The facility houses an Illumina iScan system, two Applied Biosystems QuantStudio 6 Real-Time PCR System,

two Applied Biosystems 3500 Genetic Analyzers, 10x Genomics Chromium system and NanoString nCounter system, as well as Illumina (NovaSeq, NextSeq and MiSeq) and ION S5 sequencers. The GSR provides a full complement of NGS services, including Whole Genome Sequencing (WGS), Whole Exome-seq (WES), RNA-seq, WGBS (Methyl-seq), ChIP-Seq, metagenomics and targeted sequencing. Single-cell sequencing application (Gene expression, ImmunoSeq and ATAC-Seq) can also be performed within the GSR using the 10x Genomics Chromium.

Recent Grant Submission

S-10 resubmitted in May 2021 for NanoString GeoMx Digital Spatial profiler

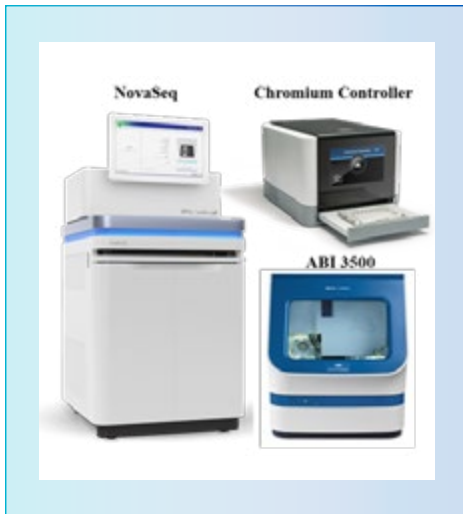
New technology, Equipment, Services

KEY EQUIPMENT

1. Illumina NovaSeq 6000
2. 10x Genomics Chromium Controller
3. Covaris E220 focused-ultrasonicator
4. Ion S5 next-generation sequencing system

SERVICES

1. Multiomic profiling: Single cell Single Cell Multiome ATAC + Gene Expression - 10x Genomics
2. Sample multiplexing (cell hashing) for single cell sequencing
3. RNA-seq and Whole exome sequencing form FFPE samples
4. Next Generation Sequencing: RNA-seq, WES, WGS, WGBS, RRBS etc.
5. Illumina methylation microarray (Human and Mouse)
6. Sanger sequencing and fragment analysis, cell line authentication



More News

GSR is designated CLIA certified space:

With the intent to maintain Roswell Park on the fore-front of genomic innovation the GSR laboratory has been certified as a designated CLIA laboratory. As part of this initiative a newly created Molecular HemePath laboratory focused on innovative diagnostic testing in the field of genomics, with a primary focus on NGS capabilities, has been integrated into the shared GSR clinical space. The certification of the GSR as a CLIA laboratory will also help proffer innovation in the development of clinically-based genomics assays for future diagnostic testing and provide support to clinical trial initiatives across the entire institute. Under the leadership of Dr. Carl Morrison, who oversees the Molecular HemePath initiatives as Laboratory Director, Dr. Sean Glenn will support the design and implementation of all clinical initiatives within the Molecular Hemepath Lab as the Assistant laboratory Director. Dr. Glenn will also focus on clinical collaborations including innovation of new technologies and supporting clinical trial development as the Director of Clinical Genomics within the GSR; with direct oversight of the CLIA laboratory and clinical staff members.

In Other GSR Dept. News

GSR leadership change: Dr. Prashant Singh was appointed as the Director of the Genomics Shared Resource (GSR) in November 2020. He played a pivotal role in the growth and development of the GSR by implementing several new technologies including an upgrade of the Next Generation Sequencing Facility, which includes the NextSeq and NovaSeq sequencers, 10x Genomics platform for single cell sequencing, and ABI 3500 for sanger sequencing.



Health Communications Shared Resource (HCR)

The HCR worked with the Roswell Park's Center for Indigenous Cancer Research (CICR), on a cancer care continuum project that looked into resiliencies and gaps in the cancer journey within Native American and

Rural communities in NY State and in border reserves and communities in Quebec and Ontario, Canada. Paul Hage, the Director of the HCR, produced the film "Two Row" which features the CICR team as they seek

answers about cancer health disparities and guidance to improve cancer care across Indian Health Services and adjacent rural providers.



The information gathered from this project provided support for Roswell's recent grant from Bristol Myers foundation on this topic. <https://vimeo.com/438892830>



The HCR also produced a video featuring Roswell Park's state-of-the-art Mobile Laboratory (BioBus), and CICR's effort to provide education on clinical trials and biospecimen related research in diverse communities. <https://vimeo.com/503774141>

Laboratory Animal Shared Resource (LASR) NEW TECHNOLOGY, EQUIPMENT & SERVICES

The LASR is excited to feature new equipment and services that will enhance and facilitate the research activities of our scientists. The LASR will be updating the X-Ray irradiation services for the researchers at Roswell Park with a self-contained X-Ray system the XRAD 320 from Precision® (<https://precisionxray.com/x-rad/xrad-320/>). This system will be available in the fall of 2021.

Other News

A new business management system, Key Solutions, which will facilitate the integration of the LASR operations and IACUC/ Bio-Safety Committees, will be implemented soon. It is meant to allow our researchers to easily complete and submit their IACUC protocols, amendments which will be integrated with the census, technical services, as well as billing. It operates with Workday and implementation is expected to begin this summer!

LASR is now offering NSG mice to all Roswell Park Researchers. The NSG mouse carry two mutations on the NOD/ShiLtJ genetic background: severe combined immune deficiency (scid) and a complete null allele of the IL2 receptor common gamma chain (IL2rgnull). Our facilities are well equipped to provide the colony management for this extremely immunodeficient mouse model, as well as the proper housing, husbandry needs, and care once they are transferred to your research protocols.

To obtain your mice from the LASR colony please submit the LASR mouse Purchase Requisition form to Venessa Bazinet or contact our Shared Resource for information on how to set your standing orders or one-time orders.

LASR is now providing a **NEW** Single Dose Buprenorphine Extended Release **Ethiq XR** (https://ethiqxr.com/wp-content/uploads/2020/08/fid-eth-001_sales_aid_mech_v5_low_rez_single_pages.pdf) recommended for your major surgical procedures. ■



Small Molecule Screening Shared Resource (SMS)

The SMS provides investigators with the possibility of screening chemical libraries in a variety of readout systems for new prospective diagnostic and therapeutic compounds and research tools.

NEW TECHNOLOGY, EQUIPMENT & SERVICES

Recent acquisition of a Cytation 5 imaging multi-mode reader with BioSpa 8 automated incubator by BioTek and digital drug dispenser Tecan D3000e allowed SMS to introduce wide range of cell-based assays to existing list of services.

- Cell proliferation/cell viability assays – Cell proliferation assays using automated live cell imaging of fluorescently labeled or label free cells. Proliferation can be multiplexed with end point data using our free, house-made resazurin reagent. Resazurin cell viability assay has been tested in multiple screenings and cell viability experiments.

More information about this assay can be found at: <https://www.sciencedirect.com/topics/medicine-and-dentistry/resazurin-assay>. Experiments can be performed in 96-well or high density 384-well format. Automated cell plating by sterile dispenser ensures high accuracy and reproducibility of readings between the wells.

- Resorufin/Resazurin Cell Viability Assay
- Compound Dose Response analysis, IC50/EC50 experiments and drug synergism/antagonism experiments.
- Wound healing/cell migration assays using Ibidi Culture Inserts or traditional scratch assay. Ibidi culture chambers allow for very high reproducibility in creating wound experiments. The insert fits in a 24 well plate and creates a regular 500um gap. Each well in use is then monitored with our automated microscope. Continuous imaging allows us to obtain kinetic and end point data. Onboard software outputs charts and Excel data. This is the

ideal solution for the comparison of genetically modified or treated cells and obtaining publication quality images and data.

- Cell invasion assay using Corning® FluoroBlok™ Cell Culture Inserts – Invasion assays using chamber inserts with light-tight polyethylene terephthalate (PET) membrane. Chambers are available in different formats (single well, 24- or 96-well plate) with 3 or 8 mm pore sizes. Different pore densities accommodate different cell types. Continuous, automated imaging allows for kinetics and end-point data output.

<https://www.corning.com/worldwide/en/products/life-sciences/products/permeable-supports/fluoro-blok.html> ■



Translational Imaging Shared Resource (TISR)

The TISR was recently awarded a \$2 million Shared Instrumentation Grant to purchase a state-of-the-art, 7 Tesla research MRI from Bruker Biospin, scheduled for installation in early 2022. The new system features the latest imaging platform, ParaVision® 360, providing full anatomical and functional imaging capabilities. The new MRI will feature multi-channel array coils for high sensitivity on specialized applications, as well as broadband capabilities for interrogating X-nuclei. A range of volumetric and surface coils will be available

for optimized imaging of numerous anatomical regions.

Dr. Mukund Seshadri was recently awarded an NIH R01 grant entitled, "Radiogenomic Credentialing of Head and Neck Cancer Models". Dr. Joseph Sperryak was recently awarded two

NIH subcontracts with multiple collaborators at the University at Buffalo developing (a) novel cancer drug delivery/imaging platforms and (b) preclinical models of progressive supranuclear palsy. ■

The TISR was recently awarded a \$2 million Shared Instrumentation Grant to purchase a state-of-the-art, 7 Tesla research MRI from Bruker Biospin, scheduled for installation in early 2022.

Translational Immuno-Oncology Shared Resource (TIO-SR)

We would like to welcome Joanna Stanson and Dr. Per Basse as the new Members of the TIO-SR, which combines the previous Shared Resources of the former Center for Immunotherapy: Immune Analysis, Therapeutic Cell Production, and Vector Production. We also welcome Tracy Durski, as the Administrator of the TIO-SR. The combined continues to provide the members of the Roswell Park community and our collaborations with cGMP cell and viral vector production facilities for early phase clinical trials, as well

as the means to monitor the activation of the immune system in patients on clinical trials and in preclinical experiments. Joanna Stanson will provide the overall cGMP and logistic oversight of

the TIO-SR operations. Dr. Basse will provide scientific oversight of the immunomonitoring aspects working closely with Courtney Ryan to assure the highest level of services. The Scientific and Programmatic oversight of the TIO-SR is provided by Dr. Pawel Kalinski. ■

The combined continues to provide the members of the Roswell Park community and our collaborations with cGMP cell and viral vector production facilities for early phase clinical trials, as well as the means to monitor the activation of the immune system in patients on clinical trials and in preclinical experiments.

Scientific Editing and Research Communications Core Resource (SERCC)

The Faculty Development Program has established a Scientific Editing and Research Communications Core (SERCC) Resource, with the goal of helping Roswell Park faculty succeed in their funding efforts and scholarship.

SERCC can provide editing services for both grant proposals and manuscripts. These services include content editing (i.e., substantive editing), copy editing (i.e., light editing work), and preparation support for responding to reviewers' comments (i.e., language polishing). Additionally, educational resources will be

provided to help faculty improve their writing skills.

If you would like to use this new resource, please review the SERCC program description on i2, which can be found on the Faculty Development main page, <https://i2.roswellpark.org/#/pages/read/bbe10ee6-2497-425e-b9a1-7bcf5e8f6f33>. The program

description contains important information on fees and turn-around times, as well as instructions for submitting work requests.

These services include content editing (i.e., substantive editing), copy editing (i.e., light editing work), and preparation support for responding to reviewers' comments (i.e., language polishing). Additionally, educational resources will be provided to help faculty improve their writing skills.

The editing services are free to assistant professors with active mentoring committees. A fee schedule for other faculty is available on our internal site (linked above). ■

Personnel Changes

Biomedical Research Informatics Shared Resource (BRISR)



Kelly Jans is the new Data Management Director in the BRISR. She has 11 years of experience in cancer research that consists of laboratory research as well as data

management. Kelly joined Roswell Park in 2010 as a laboratory technician in the Urology department. She later moved to the BRISR (formerly Clinical Data Network) as a Data Manager in 2015. She received her Bachelor's in Marine Science and Biology in 2006 from the University of Tampa and received her Master's in Ecology, Evolution and Behavior from UB in 2009.

Kelly is responsible for managing all research projects and staff within the shared resource. Kelly works closely with the BRISR Director and Associate Director to develop the BRISR strategic plan and work towards making all potential clinical data sources available to Roswell Park researchers. She has worked with a large variety of clinical and basic researchers to understand their oncology clinical data needs and download/abstract/ manipulate data as needed.



Dr. Tao Liu has expertise and extensive experience with developing and applying bioinformatics approaches for gene regulation studies. As a postdoctoral fellow at

Dana-Farber Cancer Institute, he developed widely used open-source algorithms, including MACS (cited over 10,000 times according to Google Scholar) to analyze ChIP-seq data, which is supported by Chan-Zuckerberg Initiative. His current research focus is to develop methodologies for analyzing single-cell data, and he just published an integrative scRNA-seq and scATAC-seq pipeline named MAESTRO. Dr. Liu has built many bioinformatics databases and analysis platforms. In his PhD lab, he participated in building one of the first non-coding RNA

knowledge bases (NONCODE). At Dana-Farber, he led a team to make an integrative web-based platform for comprehensive analyses on cis-regulatory elements, which has over 3,000 users. He worked with the ENCODE and modENCODE members to build data analysis standard, and uniformly processed and collected genomics datasets for the Data Coordination Center. Currently, at Roswell Park Comprehensive Cancer Center, Dr. Liu is a technology development lead of the NCI Cancer Moonshot Immuno-Oncology Translational Network (IOTN) Data Management and Resource-Sharing Center, and the Drug Resistance and Sensitivity Network (DRSN) Coordination Center. His team has built the Data Sharing Catalog, Model Sharing Catalog, Software Sharing Catalog, and Clinical Trial Catalog for both IOTN and DRSN. As the Associate Director of the Biomedical Research Informatics Shared Resource, he will oversee the technical development in the shared resource and will lead the effort to forge a data common for Roswell Park researchers.

Translational Immuno-Oncology (TIO) Shared Resources



Joanna Stanson is joining Roswell Park as the Director of Operations, Translational Immuno-Oncology Shared Resources in the Department of

Immunology, which is directed by Dr. Pawel Kalinski. Joanna has 15 years of experience related to the cGMP manufacturing of biological products in academic and biopharma settings, process development, virus production, and pharmaceutical quality and regulatory standards. She previously served as Director of Contract Manufacturing Relations and Process Development and as an independent consultant for cell and gene therapy. Her career is distinguished by her work on multiple new INDs for investigational advanced therapy products and her deep knowledge of academic research. She has held management positions overseeing international clinical trials and was instrumental in establishing

initial cell therapy manufacturing capability at multiple companies.

Joanna holds a MS in Human Genetics from the University of Pittsburgh and Business Essentials Certification for Bioscientists from Katz Graduate School of Business. Joanna's selected publications include:

- T-Cell Depleted HLA-Haploidentical Allogeneic Hematopoietic Stem Cell Transplantation (haplo-HSCT) Followed by Donor Lymphocyte Infusion with T Cells Transduced with the Inducible Caspase 9 (iC9) Suicide Gene in Children with Hematological Malignancies. Dec 2016; Blood 128(22):4683-4683
- Production of a dendritic cell-based vaccine containing inactivated autologous virus for therapy of patients with chronic human immunodeficiency virus type 1 infection. Clin Vaccine Immunol. 2009 Feb;16(2):233-40.
- A multicenter comparison study between the Endosafe PTS rapid-release testing system and traditional methods for detecting endotoxin in cell-therapy products. Cytotherapy. 2008;10(4):427-35.
- Human tumor-derived genomic DNA transduced into a recipient cell induces tumor-specific immune responses ex vivo. PNAS, 99: 9415-9420, 2002.

As the Director of Operations for the Translational Immuno-Oncology Shared Resources, her goal is to implement an effective collaboration between the cGMP facility including the virus, cell, and gene-therapy production, with the clinical investigators, scientists, the clinical team scheduling patient therapy, and others. She is excited about her new appointment and is looking forward to working with the talented teams and executives at Roswell Park to deliver cell and gene-based products to cancer patients.

Bioengineering Service and Support



Mr. Sergei Kurenov is the primary engineer in the Bioengineering Service and Support resource, and the Director of Surgical Simulation in the Department of

Surgical Oncology at Roswell Park. He has expertise in virtual reality-based systems for laparoscopic scenarios of minimally invasive surgeries and rapid prototyping. He also has expertise in developing custom surgical instruments and systems for image guided surgery and robotics.

Genomics Shared Resource (GSR)



Dr. Prashant Singh was appointed as the Director of the GSR in November 2020. Dr. Singh joined Roswell Park as a Postdoctoral Associate in 2010 and subsequently he was

appointed Assistant Director of the GSR in August 2015. Dr. Singh completed his PhD in 2010 from the Institute of Genomics and Integrative Biology, Delhi, India. He has over 15 years of research experience in the fields of population genetics, genomics, and epigenomics. He has published over 30 research articles in high impact journals, and presented several abstracts and invited talks in various national and international conferences.



Dr. Sean Glenn has over 15 years of experience in the field of genomics, including six years as the Director of the GSR and holds a NYS Clinical License as well as a Certificate of

Qualification in Molecular Tumor Markers with NYS, allowing him to act as lab director and sign out clinical molecular assays. In his new role as the Assistant Laboratory Director in the Molecular Hemepath Lab, he will oversee all clinical initiatives.

Bioanalytics, Metabolomics and Pharmacokinetics Shared Resource (BMPK)



Dr. Wenjuan Zha joined the BMPK Shared Resource as the Associate Director of Metabolomics and Bioanalytics in late April 2021. She received her B.S. in Biology from the

University of Science and Technology of China and her Ph.D. in Chemical and Biomolecular Engineering from the University of Illinois at Urbana-Champaign under the guidance of Dr. Huimin Zhao. Her graduate research focused on applying directed evolution, metabolic engineering, and synthetic biology tools to engineer cells to produce pharmaceuticals and other high-value products. After graduation, Dr. Zha worked in the biotechnology and pharmaceutical industry as R&D scientist and project leader in the USA, Singapore, and Switzerland. She holds multiple industrial patents, and the products that she developed that have been successfully brought into commercialization (sustainable API manufacturing, P450 platform for drug metabolism) and clinical trials (bi-specific fusion antibodies for treating inflammatory diseases and cancer). Following her deep interest in omics research, Dr. Zha later joined the Functional Genomics Centre in Zurich, Switzerland as senior scientist in the Metabolomics group, where she worked on the development and application of the state-of-the-art LC-MS technologies for targeted and untargeted metabolomics and lipidomics. Dr. Zha moved to Buffalo with her family in 2018 and shortly after, joined the Department of Biostatistics and Bioinformatics at Roswell Park to continue her research in the metabolomics and multi-omics data analysis. In addition to research, she served as the Scientific Coordinator for the NIH Cancer Moonshot Immuno-Oncology Translational Network (IOTN), a consortium coordinated by the Data Management and Resource-Sharing Center at Roswell Park. Dr. Zha's research interests revolve around the development of innovative and efficient metabolomics analysis methods and the application of metabolomics in basic and translational research.

Biostatistics & Bioinformatics Department



Dr. Spencer Rosario joined the faculty of the Biostatistics & Bioinformatics Department as an Assistant Professor of Oncology in March 2021. She began her training in bioinformatics at Georgetown University, where she received her Master's

degree in Tumor Biology with a System's Biology focus, in 2014. She came to Roswell Park in 2014 where she completed her PhD at the University at Buffalo Roswell Park division in the Molecular Pharmacology and Cancer Therapeutics program in April of 2020, and a post-doctoral research fellowship in the Department of Biostatistics and Bioinformatics. Her current work is based on understanding cancer and immune metabolism through a multi-omics integrative approach on several projects, spanning many disease sites. She is currently a Transdisciplinary Research on Energetics in Cancer (TREC) Fellow and a PEW Scholar Nominee. Further, she has a vested interest in teaching, and as such she is the unit coordinator and lecturer for the graduate school first year bioinformatics course, as well as a lecturer in several other courses on campus. ■