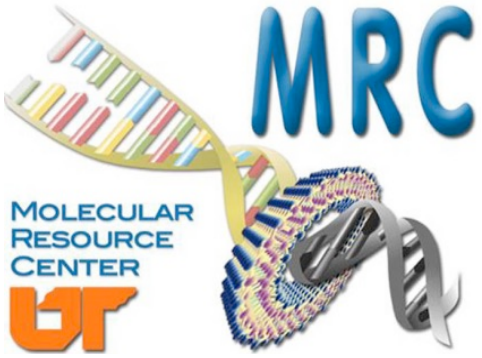


Molecular Resource Center of Excellence
2018–2019 Annual Report to the Tennessee Higher Education Commission

October 8, 2019

Tiffany N. Seagroves, Ph.D.
Executive Director and Associate Vice Chancellor for Research—Core Labs
tseagro1@uthsc.edu, 901-448-5018 (office)

William Taylor, Ph.D.
Director
wtaylor@uthsc.edu, 901-448-6165 (office)

Table of Contents

I. Executive Summary

The Molecular Resource Center (MRC) of Excellence is an essential and successful institutional core research service that was established in 1985. Dedicated to providing state-of-the-art molecular technologies, fostering collaborative and interdisciplinary research, and providing education relevant to advancing molecular technologies, the MRC supports the research mission and prominence of the State of Tennessee. The successful accomplishment of this mission has been a result of continuous funding from the Tennessee Higher Education Commission (THEC) for a significant portion of the MRC operations and continuous matching funds support from the University of Tennessee Health Science Center (UTHSC). MRC's services are essential for our investigators to maintain their research programs in spite of continuing constraints in federal funding levels. Over the past five fiscal periods, we have met our goals to provide high quality DNA sequencing, whole genome, or next-generation sequencing (NGS), microarray-based gene expression analysis and nucleic acid amplification by polymerase chain reaction (PCR) services to our core customers.

In FY19, the MRC generated slightly less total recovery than in FY18 ($247,232 vs. $264,401, respectively). In general, since FY15, core revenues have been declining or have been flat, year over year. As availability of extramural grant funding has continued to decrease or to plateau over this five-year period, the volume of samples processed has also decreased. In addition, as observed for FY18, the majority of investigators we serve now select commercial vendors for performing their whole-genome, next-generation sequencing (NGS) projects. These decisions are primarily based on cost sensitivity as there is reduced per

sample pricing widely available commercially. Commercial vendors operate high-throughput sequencers as opposed to the mid-throughput instruments housed in the MRC. Commercial vendors continue to compete with each other for academic business by offering “new customer” bulk order discount pricing, in addition to lower overall per sample prices. The type of MRC customers who have decided to send their NGS samples to commercial vendors do not typically need extensive experimental design consultation, or local expert advice on how to troubleshoot sample preparation, or assistance with downstream raw data analysis (they analyze their own data). In FY19, those customers with small to moderate sample sizes who rely on the MRC for the above expertise and services have continued to use the MRC to support their research program. In addition, we continue to serve customers who require rapid turnaround time; these investigators are time-sensitive rather than price-sensitive. To meet the budget constraints of our price-sensitive core users, we recently negotiated with Novogene to set up a blanket PO to offer their tier of discounted rates to all UTHSC investigators. This contract was approved in October of 2019. Novogene is one of the commercial vendors that absorbed our prior MRC NGS customers, including Dr. Rob Williams. Our goal will be to facilitate consultations with clients, advise on the pros and cons of staying in-house or choosing Novogene. Each research group will decide if it is better to use the MRC to take advantage of rapid turnaround time or to send out samples at a reduced per sample price, albeit with a 4-6 week turnaround time.

In FY19, relative to FY18, the revenues generated from NGS increased by ~16% ($58,908 to $69,511, respectively). The largest volume user of NGS services was Dr. Neil Hayes during this period. In FY19, 389 library preps and 52 Proton and Illumina sequencing runs were completed versus 139 library preps and 51 Proton

and Illumina sequencing runs completed in FY19, a 53.5% decrease in overall sample number. Note that more libraries can be sequenced on an individual “run” on a NextSeq instrument since higher capacity cartridges are available for this platform versus the Proton. For the first time since acquiring the Illumina NextSeq, more samples were processed on the NextSeq instrument than the Proton (41 Illumina runs vs. 10 Proton runs). In FY19, the number of “runs” was similar, but fewer library preps were requested, likely because the Hayes laboratory at UTHSC generates their own library preps prior to sequencing in the MRC. The MRC customers who no longer use the MRC for NGS services are concentrated in the Department of Genomics, Genetics & Informatics, including one of our prior top five core users, Dr. Rob Williams (GGI Chair). When Dr. Williams began sending the majority of his group’s whole-genome NGS projects to outside vendors, external customers he had referred to the MRC followed suit, including his collaborator, Dr. Klaus Schugart (Helmholtz Center for Infectious Diseases, who also has a joint appointment in the MIB department).

In terms of volume and/or recovery, the demand for Agilent Bioanalyzer services decreased from 312 processed samples in FY18 to 257 processed samples in FY19, leading to decreased revenues. Although recoveries from Affymetrix microarrays decreased by 43% (FY18: $79,167 to FY19: $44,818), arrays continue to be an important method for generating differential gene expression data for our customers, particularly those customers with constrained budgets that cannot afford to use NGS methods.

In FY19, revenues from Sanger sequencing significantly increased (FY18: $17,530 to FY19: $42,967). The demand for Qiagen QIACube automated nucleic acid

preparation was stable from FY18 to FY19, whereas the demand for real-time PCR services and reagents for the Roche LC480 platform decreased by 16% as compared to FY18 (FY19: $34,989 to FY18: $41,723). Overall, FY19 ended with a net income of $54,197, similar to FY18, which ended with a net income of $31,338.

In FY19, MRC processed >19,500 service units on behalf of 111 total investigators (94 internal and 17 external users) across 18 departments and five Colleges at UTHSC, and seven unique external academic institutions (including University of Memphis, Christian Brothers University, University of Nebraska and Boston University) and one local commercial entity, Silver Bullet Lab, Bartlett, TN. In FY19, the MRC contributed to >240 unique peer-reviewed publications and review articles. The Director, Dr. Taylor, provided >80 consultations to core users and multiple letters of support for grant applications. Dr. Taylor also provided core facility tours to 14 prospective faculty members and to VIP campus visitors.

Due to continuing increased costs of personnel (routine salary increases) and service contracts projected for FY20, compounded by decreased demand for NGS and microarray services, we do not anticipate that any THEC funds will be used to purchase new major equipment (>$10,000) in FY20; therefore, equipment needs will need to be subsidized directly by the UTHSC campus. Equipment needs will be re-evaluated in Q3 and Q4 of FY20 to determine if there are sufficient funds to support equipment upgrades or purchases. It is predicted that MRC total recoveries will remain flat in FY20 relative to FY19.

In FY20, there remains interest in purchasing the 10X Genomics Q3 instrument for single cell sequencing applications. The MRC and Dr. Seagroves will continue to work closely with Dr. Steven Goodman, the Vice Chancellor for Research, to manage investments in emerging molecular technologies. A primary mission of the Executive Director, the Associate Vice Chancellor for Research—Core Labs, and the Office of Research senior administration going forward will also be to ensure that matching funds are available to supplement the portion of the MRC operating budget provided by the THEC.

The MRC continues to enhance its services with tools and procedures to increase productivity, as well as increasing the user's understanding of MRC services, as key components in investigator-initiated research. The MRC's investment in state-of-the-art analytical tools and procedures provides researchers with a competitive advantage for new and renewal grant applications, providing a clear return on investment (ROI). In order for all UTHSC campus investigators to take advantage of the THEC's investment in the MRC, we also support educational programs about current and emerging technologies. In FY19, the MRC leveraged the support of the State of Tennessee to provide services to the UTHSC research community with value in excess of $3.0M, which is conservatively estimated based upon "street-value" of services provided, particularly for our microarray profiling services. The UTHSC MRC is one of the few remaining academic core centers in the country that provides microarray services. Microarrays continue to be a high-throughput alternative to NGS, particularly for researchers who are primarily interested in differential gene expression of moderate to highly expressed mRNAs, but not low abundance mRNAS, miRNAs or differential isoforms of the same gene.

In 2015, MRC expanded its services to include a new, “in-house” research bioinformatics core for molecular informatics (Molecular Bioinformatics, mBIO) that was initially formally housed under the MRC umbrella. The core is directed by Dr. Daniel Johnson, who was recruited to campus in May 2015. The mBIO core successfully addressed a prior unmet need on our campus, which is the analysis of large-scale data generated in the MRC from microarray and NGS-based profiling studies at a subsidized rate. The mBIO unit provides pre-experimental design consultation (at no charge) and post-experiment data analysis (at a subsidized hourly rate) to all UTHSC campus investigators, including statistical analysis support after the raw data are generated by the MRC. In February 2016, Dr. Goodman accepted the Vice Chancellor for Research Cabinet’s recommendation to reassign the mBIO core a separate institutional core facility that is distinct from the MRC. Since the mBIO core is directly managed by the Office of Research, its activities are not included in the MRC THEC report. However, because the mBIO core resides in the same physical footprint as the MRC, this allows seamless generation and analysis of NGS and microarray data. The mBIO and MRC Core Directors and staff work closely together to assist investigators in execution of their research programs by jointly participating in all initial experimental design consultations. When the mBIO core advertises its services through Spring and Fall intensive workshops, the demand for NGS and array services at the MRC increases concordantly.

II. Mission Statement

The mission of the Molecular Resource Center of Excellence (MRC) at The University of Tennessee Health Science Center is to extend and to enhance the molecular and cellular research capabilities of the research community by providing access to the latest technologies for exploring the molecular basis of health and disease. To provide these technologies, the MRC invests in equipment, trained personnel, and education. In addition, because the MRC is allied to all basic science and clinical science research units throughout the state, a component of this mission is to serve as a nucleus for collaboration and interdisciplinary research within the State of Tennessee.

*Tools for Success***.** A fundamental objective of the MRC is to provide the research community with molecular tools that are essential for successful research. This is a dynamic process of assessment and anticipation to provide the intellectual and physical infrastructure that is responsive to the needs of the research community. With this objective in mind, the MRC has developed a staff of a faculty-level Director, three research staff and one administrative/support staff member to help researchers obtain the greatest value from their interactions with the MRC. The MRC and its staff have invested significantly in tools and facilities to provide high throughput sequencing of nucleic acids, large-scale analyses of the genes expressed in healthy and diseased organisms, ranging from bacteria to human, analyses of the genome of organisms, computational tools to analyze complex data, and the use of unique models of human disease. This intellectual and physical infrastructure that has developed around the MRC allows researchers to be nimble in their research and to move forward at a pace that sets a benchmark for competitiveness in biomedical research. Moreover, the MRC is listed as an

essential core facility and institutional resource on the majority of grant proposals submitted by our users, including investigators with multiple R01 or similar extramural awards, such as Dr. Philip (Dave) Rogers, Department of Clinical Pharmacy, Dr. Gadiparthi Rao, Department of Physiology and Dr. Subhash Chauhan, Department of Pharmaceutical Sciences. Therefore, the MRC is an essential component of research infrastructure on the UTHSC campus. The MRC also serves several external principal investigators through contracts negotiated with external universities located in the Memphis area (Rhodes College and Christian Brothers University), the Mid-South region, across the United States and around the world.

Expert Staff. The focus of MRC activities is to stimulate the development and dissemination of new methodologies and procedures as they become available to the scientific community. To stay abreast of current and emerging technologies, the MRC staff actively participates in professional development activities. These include formal activities such as scientific or professional development meetings and seminars. Other development activities are unstructured, such as reading journals and one-on-one or small group interaction with other scientific and technical personnel. In addition, the MRC staff devotes considerable time to developing novel protocols, scaling established protocols to minimize reagent costs and refining techniques, analyses, and processes.

The Associate Vice Chancellor for Research—Core Labs, Dr. Tiffany Seagroves, is also a user of MRC resources. She has been consistently extramurally funded as a cancer researcher since 2005. In addition to “wet bench” research and laboratory management skills, she brings additional management and operating

expertise to the institutional core facilities through her M.B.A. training. Dr. Seagroves has attended the Association for Biomolecular Research Facilities (ABRF) annual national meeting since 2015 to remain informed about core management best practices and strategies, including federal fiscal policies related to core operations. In 2018, Dr. Seagroves was elected to the executive board of the ABRF's regional chapter for core facilities, the Southeastern Association of Shared Resources (SEASR), and she will serve a four-year term on the board. Dr. Seagroves currently serves as the chapter President-Elect and she will help plan all annual SEASR meetings for the SE region related to shared resources. In 2020-2021, she will serve as SEASR President and will be primarily responsible for planning the 2021 annual SEASR meeting. She will encourage core staff from the MRC, throughout UTHSC and the State of Tennessee to attend the upcoming SEASR annual meeting in June 2020 at the Emory Conference Center in Atlanta, GA in order to advertise the MRC, and other UTHSC institutional core services, and to provide career development opportunities to our core personnel. The mBIO and MRC cores were advertised at the 2019 annual SEASR meeting, and UTHSC was a gold level institutional sponsor of the meeting.

Dr. Seagroves also serves on both the Vice Chancellor for Research, Research Cabinet and the Operational Strategic Plan for Research (OSPR) committees. The Research Cabinet advises the VCR on all activities relevant to research and the OSPR committee is charged with developing and executing a 5-year plan to strengthen core facilities and other research infrastructure units on the UTHSC campus, with the goal of aligning projected research needs and priorities with core capabilities. The OSPR was developed over FY16 and was published in September 2016. We are currently in the third year of execution of the strategic

plan. Supporting core facilities on campus is a major initiative highlighted in this strategic plan. As the largest molecular core facility on campus, the MRC will be an integral stakeholder in executing this strategic plan.

Education and Training. Another important part of the MRC mission is to provide educational opportunities. In an academic institution at the cutting edge of biomedical research, investigators must stay abreast of the technologies available; the MRC serves to focus this continuing education on molecular and cellular technologies. Fulfillment of the education mission has three goals: 1) develop a skilled workforce in the biomedical sciences, 2) keep investigators abreast of current and advancing technologies, and 3) allow investigators to discover new avenues to propel their research programs that ultimately shape the MRC's investment in new technologies.

Workforce development is vital to the future of biomedical sciences research and industry in the State of Tennessee. For many of its functions, the MRC serves as a teaching laboratory for undergraduate and graduate students, technical staff, and investigators. The MRC staff instructs these users one-on-one at the benchtop and then provides guidance as new core users develop their skills. Because the MRC continually monitors advancing technologies to anticipate needs of investigators, it is in the best position to provide educational programs to investigators about the use of current technologies and technologies that are on the horizon. Each year, the MRC hosts seminars and workshops on topics designed to enhance progress in the UTHSC community by raising awareness of new molecular tools that are available. The investigators served by the MRC are always looking for improved strategies to answer their scientific questions.

Assessing Needs and Satisfaction. Through frequent dialog with the investigators we serve, and meetings of the core internal advisory board (IAB), the MRC also investigates specific investments in, or adaptation of, technologies to best meet investigator needs. Needs are also brought to the MRC's attention for consideration through individual principal investigators, the IAB and the Office of Research. Needs that cannot be currently met by MRC are referred to the Associate VCR, the Senior Associate VCR and/or the VCR for further consideration. Campus survey tools are in place to inquire about research needs on campus and to gauge the overall satisfaction with individual core services.

Collaboration. The MRC is an integrative unit that is egalitarian in its delivery of services across all units within the Tennessee research community. In this role, the MRC fosters collaboration and the development of interdisciplinary research. For example, the MRC sponsors seminars and workshops in genomics, bioinformatics, microarray technologies and other molecular technologies. In addition, the MRC has established an active participation in seminars/webinars offered by the ABRF or SEASR. In collaboration with the Center for Integrative and Translational Genomics (CITG), the MRC has underwritten and developed numerous collaborations that use state-of-the-art molecular technologies. Likewise, the MRC is playing a significant role in the development of large-scale collaborations to understand complex gene interactions through mouse models of human disease. These highly visible efforts have placed The University of Tennessee in a position whereby researchers may take fullest advantage of funding and research opportunities.

III. Center of Excellence Overview

a. **Center Name**: Molecular Resource Center of Excellence

b. **Center Location**:

i. Administrative Address –
University of Tennessee Health Science Center
Translational Science Research Building (TSRB)
71 S. Manassas St., Room 110
Memphis, TN 38163

Web address-
https://www.uthsc.edu/research/institutional-cores/mrc/index.php

ii. Laboratory Address –
Molecular Resource Center
Translational Science Research Building (TSRB)
71 S. Manassas St., Room 110
Memphis, TN 38163

c. **Name and Title of Person Responsible for Administering Center**:

Tiffany N. Seagroves, Ph.D.
Executive Director

Associate Vice Chancellor for Research—Core Labs
Professor of Pathology
College of Medicine
University of Tennessee Health Science Center

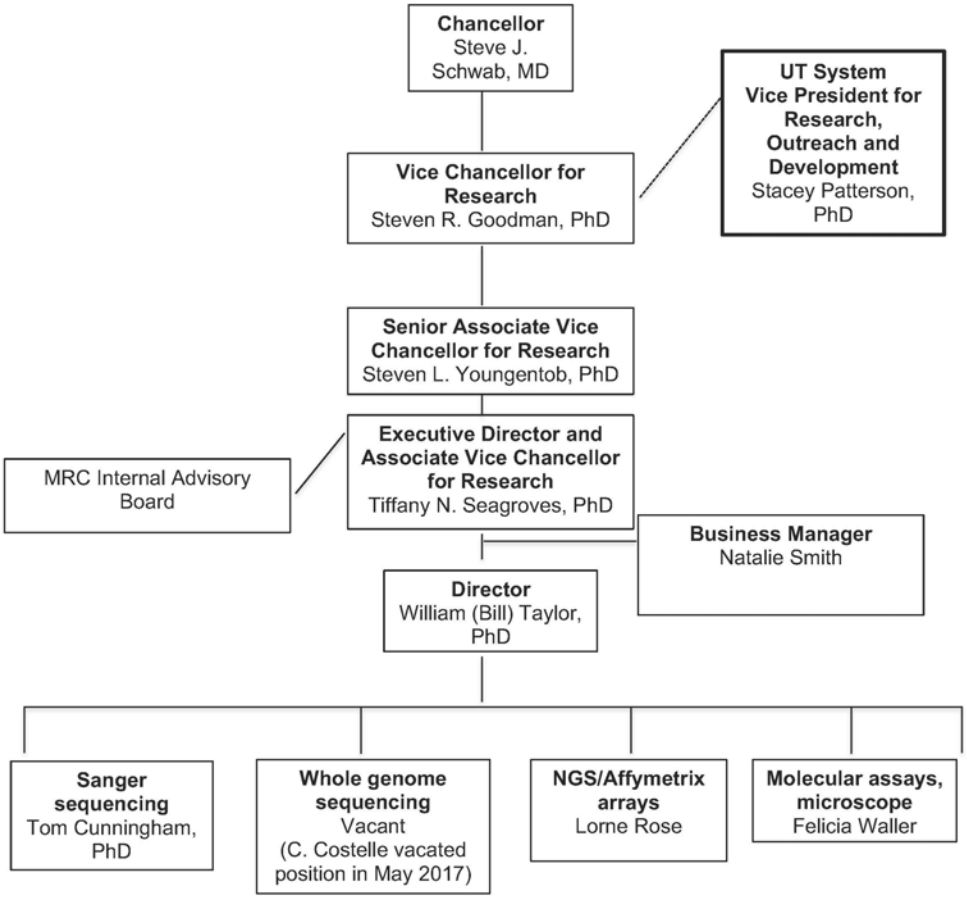
d. **Unit Which Houses Center**:

Office of Research
Vice Chancellor for Research
University of Tennessee Health Science Center

Steven R. Goodman, Ph.D.
Vice Chancellor for Research

Steven Y. Youngentob, Ph.D.
Senior Associate Vice Chancellor for Research

Organizational Structure. The Molecular Resource Center (MRC) is located within the organizational structure of the University of Tennessee system under the Office of Research, which is directed by the Vice Chancellor for Research. The center itself is under the supervision of the Executive Director, Dr. Tiffany Seagroves, and the Core Director, Dr. Bill Taylor. Dr. Seagroves is a professor in the Department of Pathology in the College of Medicine. As Executive Director of the MRC, Dr. Seagroves reports directly to the Senior Associate Vice Chancellor for Research, Dr. Steven Youngentob, who reports to the Vice Chancellor for Research, Dr. Steven Goodman. Dr. Goodman reports directly to the Chancellor of the UTHSC, Dr. Steve J. Schwab.



The day-to-day operations of the Center are supervised by the Director of the MRC, Dr. William (Bill) Taylor, a full-time faculty-level staff member of the Molecular Resource Center of Excellence, and Dr. Tom Cunningham, Instructor and Associate Director of the MRC. In FY16, a new Internal Advisory Board (IAB), comprised of faculty members representing campus departments that use the services of the MRC, was appointed by Dr. Goodman. The IAB advises the VCR how MRC funds should be used and makes recommendations related to new equipment requests for the MRC, although final decisions are made by the Executive Director in consultation with the Vice Chancellor for Research.

MRC Internal Advisory Board, FY19

PI:	**Department Affiliation:**
Ramesh Narayanan, Ph.D.	Medicine
Lawrence Reiter, Ph.D.	Neurology
Lu Lu, Ph.D.	Genetics, Genomics and Bioinformatics
P. David Rogers, Pharm.D., Ph.D.	Clinical Pharmacy (*IAB CHAIR*)

IV. Year End Review FY19

Receivables for core services decreased slightly in FY19 as compared to FY18. In FY19, the MRC processed >19,500 independent samples/supply requests (not including use of equipment available in the MRC at no charge). During this fiscal period, the MRC served 111 total investigators, of which 94 investigators were internal to UTHSC (84.7% of all investigators), representing the core of our currently extramurally funded investigators, and 17 were external users, representing seven academic institutions and one commercial vendor. The large number of faculty served is reflective of our continuing commitment in the MRC to providing excellence in molecular analyses, while promoting significant advances in our services related to nucleic acid sequencing, educational programs, and fostering collaboration and communication.

Over the past several years, the MRC committed itself to the rapidly evolving technologies of high-throughput, massively parallel nucleic acid sequencing (next-generation sequencing (NGS), also known as whole genome sequencing. To recapitulate the impact of these technologies, an individual investigator can now sequence nucleic acids on a scale far exceeding that of hundreds of investigators in the human genome project of the previous decade, and in a time frame of minutes and hours instead of weeks and months. Applying these technologies allow the rapid analysis of genomic DNA, expressed messenger RNA, active regions of chromosomes, regions of DNA coding for proteins, modification of DNA, and other, constantly evolving analyses.

Our first ABI Proton NGS instrument was installed and became functional in FY14. In FY15, based our status as a beta testing site for the next generation PII Proton chip, Thermo/Life Technologies provided a second ABI Proton instrument on permanent “loan” to the MRC through FY18. Currently, the MRC offers two tiers of analysis on the Life Technologies platform, the PGM and the Proton (PI) chips, depending on the complexity of the proposed sequencing project. In FY17, an Illumina NextSeq 500 NGS instrument was purchased by the UTHSC VC for Research for the MRC. The Illumina NextSeq500 instrument was installed in July 2016, which added a platform option for NGS. Adoption of use of the Illumina NextSeq 500 platform has been slower than anticipated; however, use increased in FY19 relative to FY18 due to increased demand by investigators seeking rapid turnaround time on NGS projects. Effective FY17, the pricing for whole genome sequencing services was set to be platform-agnostic, allowing users to choose the platform based on technology preferences or their throughput needs, rather than pricing. The NextSeq500 high-throughput chip has the capacity to sequence up to 230 million base pairs, whereas the typical output of the Proton P1 chip is 80-90 million reads, allowing more samples to be profiled simultaneously on a single run using the Illumina NextSeq cartridge.

To improve the efficiency and consistency of many operations, the MRC is heavily invested in robotic technologies. The most significant labor-intensive step in NGS lies in the bar-coded library preparation. In December 2016, we installed the Hamilton Starlet robot dedicated to NGS library preparation, which had become a bottleneck to sample processing, and, therefore, to rapidly invoicing processed NGS samples. Instead of producing 16 libraries per week using all manual labor liquid handling, the robot is capable of generating >100 libraries per week. As of

FY18, the Starlet is fully programmed to prepare most NGS libraries on a large-scale, decreasing manual sample manipulation.

The expansion of NGS capabilities in the MRC, along with continued increased interest by investigators, has allowed the MRC to enhance its service delivery components. To educate potential users regarding use of the technology, the MRC continues to sponsor seminars to provide users with a starting point for experimental design. Dr. William Taylor, Director of the MRC and Dr. Daniel Johnson, Director of the Molecular Bioinformatics (mBIO) core are also critical assets to assist investigators with one-on-one planning of experimental design and subsequent interpretation of data. Consultation for project design and a general plan for statistical methods to be used for data analysis are provided at no charge to all core customers.

With the expansion of the Molecular Bioinformatics (mBIO) core, an independent institutional core facility located in the same physical footprint at the MRC, we have been able to reduce MRC's investment in some pre-packaged NGS analysis software tools, including the Partek platform, which previously allowed end-users to evaluate the quality of their NGS runs. The mBIO core also supports a local installation of the GALAXY tools for NGS data analysis, allowing PIs to use standardized workflows to analyze their data without investing in customized bioinformatics workflows. Therefore, we support a breadth of investigator needs and capabilities in raw data analysis.

The gap between price points and ease of data analysis between microarray technology and NGS is significant, so the MRC continues to provide array

platforms to allow the quantitation of gene expression at or near single transcript levels using microarrays (Affymetrix or Illumina iScan arrays). Of note, unlike microarrays, there are no standardized methods for NGS “runs” or downstream data analysis workflows for research on deidentified, exempt human clinical samples, which is another advantage of using arrays. The MRC is one of a few academic core facilities in the US that continues to offer microarray services for gene expression profiling, so it is possible that use of our core by external users may increase over time. Multiplexed PCR reactions (96 samples x 96 primer sets), and digital PCR are also expected to be increasingly popular to validate array and NGS experiments, using the Fluidigm Biomark instrument.

Conventional capillary (Sanger) sequencing of DNA continues to account for a large proportion of the total number of samples processed in MRC. This service, directed by Dr. Tom Cunningham, processed 8,684 samples in FY16, 7,979 samples in FY17, 7,394 samples in FY18, and 9,272 samples in FY19. In FY15, we also began offering direct shipping to an external sequencing vendor, GeneWiz. In FY19, 1,877 samples were sent to GeneWiz for Sanger sequencing, a significant increase over the FY18 volume of 417 samples. Competitive pricing for GeneWiz was fixed per the initial contract until December of 2017. In FY18, a three-year pricing contract with GeneWiz was renegotiated and signed at FY17 price levels, so that we could retain these services through 2021. If Sanger sequencing is ever sunsetted at MRC, then all samples could be easily transferred to the GeneWiz dropbox at the MRC for external processing at these negotiated prices.

In general, Sanger sequencing has become a commodity, and several other academic genomics cores nationwide have sunsetted this service, investing their personnel resources in NGS or other technically challenging molecular services. Throughout FY18-FY19, with the MRC unable to recruit for the advertised open position for NGS services that was vacated by Ms. Costelle, Dr. Cunningham has assisted with microarrays, allowing Lorne Rose to learn NGS protocols. If the MRC open position is not filled, it will be important to retain Dr. Cunningham to assist with MRC operations. Therefore, the decision regarding sunsetting Sanger sequencing is deferred until FY21.

Although sample numbers for microarray processing services decreased from FY18 to FY19 (1,056 to 264 samples), microarrays remain an important discovery tool for our researchers. The microarray services, managed by Mr. Lorne Rose, primarily use the Affymetrix platform. The iScan (Illumina) microarray system that is primarily used for genotyping, identification of SNPs and ethnicity profiling was installed in December 2015. Although there was no use of the iScan platform in FY16, 32 samples were processed in FY17, and 80 samples were processed in FY18 and 32 samples were processed in FY19 (processing fee only, since the end user purchased his own reagents directly from the vendor). From FY16-FY19, only the laboratory of Dr. Dave Shibata (Chair, Surgery) has used the iScan instrument. Therefore, in Q1 of FY19, the instrument was moved to his personal laboratory space. The instrument is not currently maintained under a maintenance service contract due to low volume usage.

The number of real-time polymerase chain reaction (qPCR) samples processed decreased in FY18 (from 541 runs in FY18 to 361 runs in FY19). Several PIs now

house their own benchtop qPCR instruments since the prices for these instruments have dropped over the past 5 years. The PCR operations, overseen by Ms. Felicia Waller, continue to have solid bookings, and several investigators also buy their PCR reagents (master mixes and PCR plates) directly from the MRC. For example, $31,299 in recoveries were generated in FY19 from the resale of qPCR reagents, whereas $3,690 in recoveries were generated for qPCR instrument use (plate run service fees).

Although there were 16 Fluidigm Biomark microfluidics real-time PCR epxeriments supported in FY19, this service generated no revenues since all users provided their own reagents and operated the instrument on their own. Several investigators are interested in single cell technologies and development of a single cell analysis institutional core is proposed in our new strategic plan for research. The Biomark system allows the robotic mixing of up to 96 sample with up to 96 primer pairs (i.e., 96 analyses of 96 samples), for a total of 9,216 analyses in a single run lasting just a couple of hours. We anticipate increased usage of the Biomark real-time PCR system for validation of “hits” identified from NGS of sequencing single cells processed on the Fluidigm C1 single cell analysis instrument currently housed in the GGI Department.

The business administration of MRC is led by Ms. Natalie Smith; she is responsible for a host of functions, ranging from contracts and invoicing core users, to seminar, workshop, and conference scheduling. To help facilitate sample tracking, investigator billing, and institutional research, in FY17 a major effort to move the accounting system to a more robust and easily supported software system was spearheaded by Dr. Seagroves. In March 2017, the Office of Research entered

into an agreement with iLab Solutions (Agilent) to develop a web-based core laboratory management system that will facilitate requesting orders by PIs, invoicing of PIs by the institutional cores' business managers and reporting on core usage by the Associate Vice Chancellor for Research. iLab users use single sign on authentication (NetID) for all active UTHSC investigators to provide access to services at all institutional core facilities. The MRC went live with iLab in January 2018. Since then, investigators have been able to request services, to track their project workflows, or to view their invoices within iLab. In addition, there is now financial integration of iLab with IRIS, such that only active funds may be selected by PIs to request core services. FY19 was the first full fiscal year that usage and revenues data could be easily analyzed for the MRC using the iLab software interface. Data may be classified and reported by individual service requester, the PI's lab group, department, month or individual service line, for example.

Beginning in July 2019, researcher funds will be automatically debited via IRIS through iLab after internal UTHSC and UTK approvals. This feature will mean that when the MRC business manager finalizes monthly invoices, funds will be debited immediately from a PIs designated account without the need to process internal transfer vouchers. Overall, adoption of iLab is expected to dramatically streamline the management of the MRC and to save hundreds of hours of labor per year related to processing invoices or to tracking down PIs to update incorrect information written on paper service request forms. Moreover, as of January 2018, after the iLab "go-live" date for MRC, paper service request forms were eliminated and all core service requests, all email communications sent via iLab and all invoices are permanently recorded in the iLab database, which is hosted in the cloud by Agilent.

In summary, the MRC touches many investigators at many institutions. The robust performance of MRC operations reflects a growth in the incorporation of new technologies and a steady user base in the State of Tennessee, the U.S., and abroad. This, in turn is a function of the dedicated and skilled staff as detailed in the organizational chart (Section III. Center of Excellence Overview).

V. Goals and objectives, FY20 (2019-2020)

The goals of the MRC in FY20 are to fulfill its mission to extend and enhance the molecular and cellular research capabilities of the Tennessee research community and to provide an education resource to that community. There are three objectives to meet these goals:

Expand the educational component of the MRC. With technological advances occurring daily, the MRC will continue to provide educational programs to researchers to keep them abreast of developments, both current and those anticipated in the near future. The MRC will continue to host vendor seminars on emerging technologies and inviting guest speakers with expertise in genomics and molecular biology to the campus. The MRC will also attempt to assist community K-12 education with exposure to molecular research technologies and research. For example, there may be opportunities for interacting with the newly opened Crosstown High School charter school, which is located less than one mile from the UTHSC campus. The MRC will continue to host interns from the Southwest Tennessee Community College Biotechnology Technician program for their 14-week practical experience. SWTCC is located directly across the street from the MRC. Together, these educational initiatives enhance the competitiveness of research associated with the MRC and assist in workforce development, leveraging state support to strengthen biomedical research and research training. Since FY16, MRC has participated in “Hot Topics in Research” seminars organized by the Office of Research; one of these seminars highlighted features of the Illumina iScan and NextSeq500 instruments, and the second seminar highlighted the exciting preliminary NGS data recently generated in the MRC by the

laboratories of two MRC IAB members, Dr. Lawrence Reiter and Dr. Dave Rogers. The MRC also participated in several faculty recruitment visits, visits to UTHSC by external Office of Research administrators to share ideas about core management, hosted graduate student candidates, and celebrated postdoc week with UTHSC postdocs by offering a tour of MRC facilities.

Expand awareness of MRC services to potential users throughout the State of Tennessee. Although the majority of MRC users are located on or in close proximity to the UTHSC campus in Memphis, the MRC has been successful in "spreading the word" about the resources available to other researchers in the State. The MRC will continue to assist investigators throughout the State with their projects and project development and will attempt to reach additional investigators throughout the State through direct contact or informational programs. Dr. Seagroves and Dr. Jonathan Phipps, Director of the Core Facilities Program on the UT-Knoxville campus, met at the 2016 national ABRF meeting and they interact throughout the year to share ideas about core operations and to share information about the availability of core services available on our respective campuses. The overall goal of these types of contacts will be to increase awareness of cost-effective services provided by the MRC at UTHSC in Memphis, TN.

Streamline new core management software use and improve core operations through enhanced metrics analysis. As discussed, the MRC onboarded the iLab web-based system as of January 2018 at the MRC to manage core facility service requests and to track requests for services and to invoice core users. This required a large investment of core personnel time and effort to custom build their iLab

page, to create custom workflows to request services and to ensure that pricing was correctly entered into the database.

As predicted, the use of core management software has alleviated some of the issues we previously encountered in managing core records, which were maintained predominantly on paper from 1985-2017. For example, analysis of service use was very easy using the iLab interface for services provided from January to June 2018, however, it was more difficult to accurately pull the same information from the SlimPrim database for Q1-Q2 of FY18. SlimPrim has since been taken offline and all data contained within are now warehoused by the Office of Research Electronic Research Administration (ERA) office by Mr. Steve Wills. Going forward, all data regarding MRC services and invoicing will be exclusively housed in the iLab database, which has very powerful built-in data analysis programs and graphing capabilities. In terms of invoicing core users, using iLab has also alleviated issues with mis-spelling of PI names, use of incorrect internal account numbers, use of outdated internal account numbers and has allowed PIs to “join” each other’s laboratories to share funds assigned to a single PI. Communications about project workflow are also conducted via iLab and all messages are permanently stored, which will be useful in case of a future dispute about projects completed in the MRC. iLab also supports creation of custom quotes that can be accepted or rejected by either the PI or the core facility. A one-page brochure has been developed for each institutional core, including the MRC, and can be downloaded from the UTHSC Institutional Cores website. These brochures have been collated into a full-color, printed booklet highlighting the Institutional Core facilities. This document is updated on a yearly basis and has been shared with internal PIs at several faculty events over the course of 2018-

2019 and with postdocs during postdoc appreciation week and with individual visiting faculty candidates. The MRC website was also re-designed and streamlined in FY17. The MRC annual reports will be posted going forward to the MRC website (https://uthsc.edu/research/institutional-cores/mrc/index.php).

VI. Sample Volume and Financial Summaries

Review of FY19 Sample Volumes and Core Recoveries by Application:

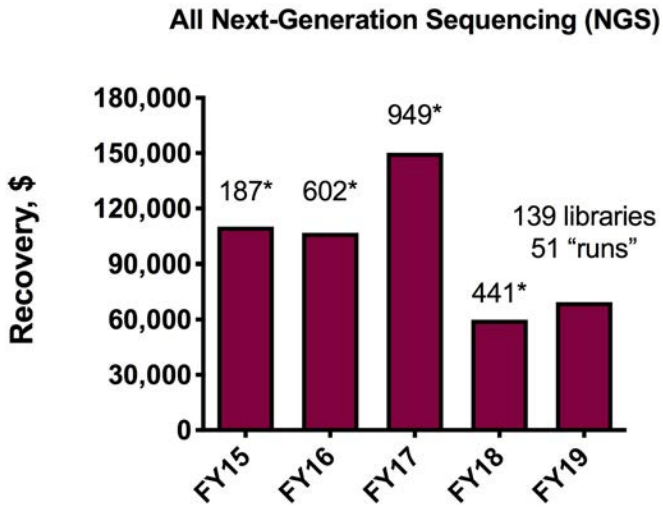


Figure 1: Five-year summary of recovery ($) and total NGS usage (sequencing run + NGS library prep sample numbers= total number of services, as listed above each bar) for the ABI Proton, ABI PGM or the Illumina NextSeq500 NGS platforms. The recoveries include all NGS platforms and use data includes the total of library preps plus the number of sequencing "runs". In FY17, library prep accounted for the majority of sample volume, whereas in FY19, fewer total libraries were prepared, but more high-throughput cartridge "runs" on the Illumina NextSeq were requested.

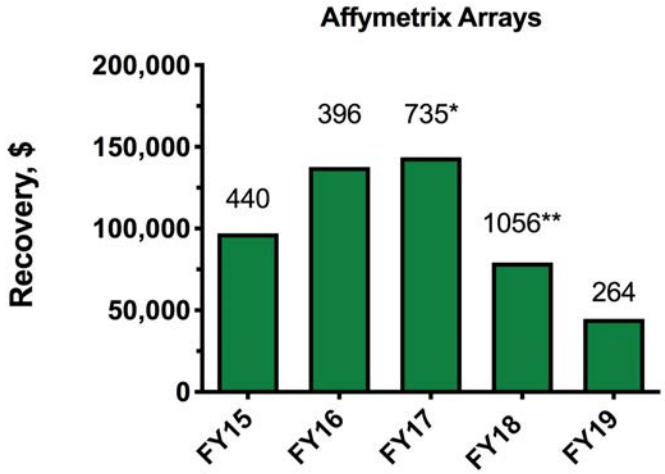


Figure 2: Five-year recovery ($) and usage (number of arrays processed is shown above each bar) for all Affymetrix microarray services. *In FY17 100 individual arrays were purchased, but were not yet processed, leading to apparent increases in sample number. In FY18, the arrays purchased in bulk in FY17 were processed, leading to high service volume, but lower overall revenues from array services.

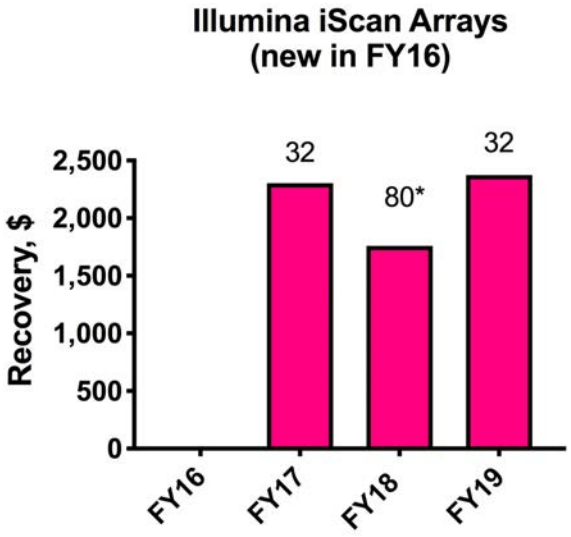


Figure 3: Five-year recovery ($) and usage (number of samples processed on iScan arrays is shown above each bar) for all Illumina iScan microarray services. In FY17, arrays and reagents were purchased from the MRC, but in FY18, the single investigator who has used the iScan purchased reagents directly from Illumina, and the investigator paid just the array processing fees to the MRC.

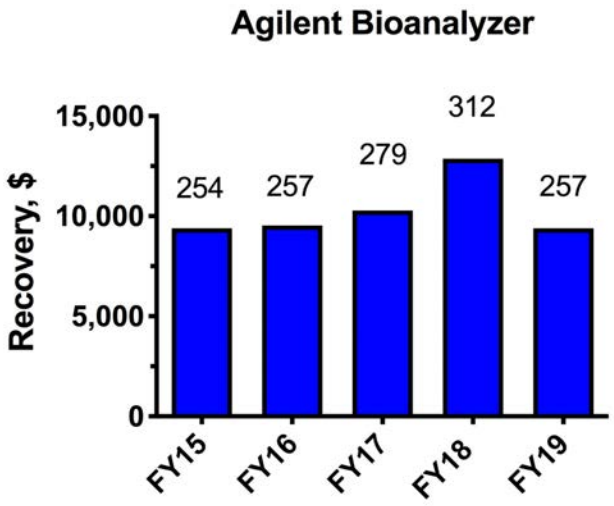


Figure 4: Five-year recovery ($) and usage (number of samples processed is shown above each bar) for the Agilent Bioanalyzer assays, which quantitate DNA and RNA and/or evaluate RNA integrity. These numbers do not include any Bioanalyzer runs that were part of our standard quality control (QC) assessment for NGS runs. Customers who use outside NGS vendors often use the Bioanalyzer services before sending out their samples for library preparation/sequencing runs.

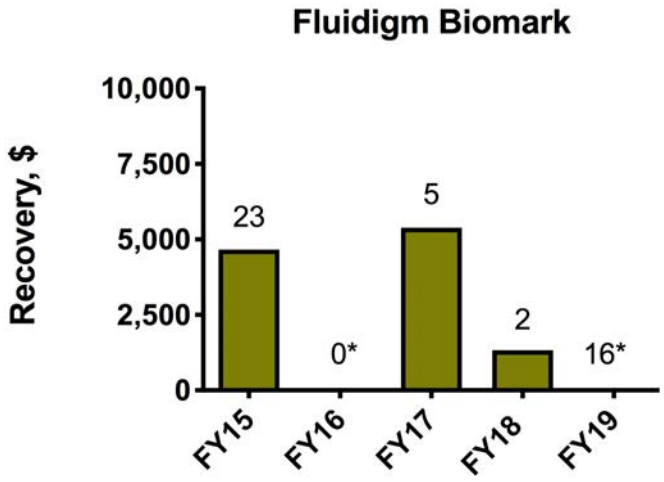


Figure 5: Five-year recovery ($) and usage (number of projects processed is shown above each bar) for the Fluidigm Biomark multiplex PCR equipment. As our investigators expand into single cell capture and NGS profiling of single cells, or as they validate microarray/NGS gene expression data, this instrument is likely to be more heavily used for validation, as it is optimal for low input samples and moderate throughput gene expression analyses.

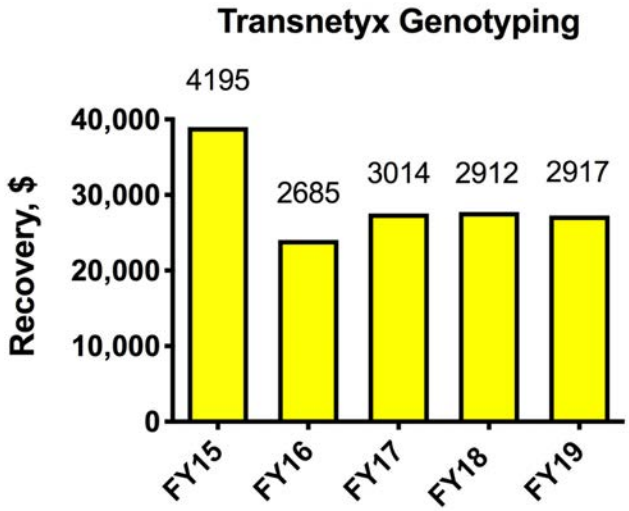


Figure 6: Five-year recovery ($) and usage (the number of samples processed is shown above each bar) for the Transnetyx genotyping service. Usage has remained steady since FY16.

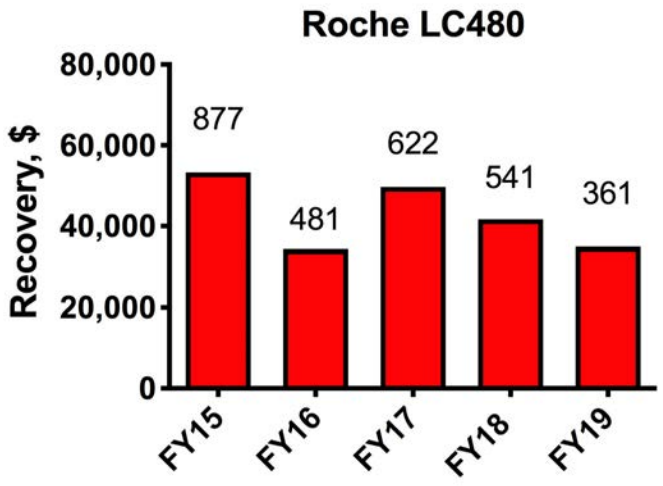


Figure 7: Five-year recovery ($) for all qPCR reagents and Roche LC480 real-time PCR plate "runs" (the number of instrument runs shown above each bar). As more investigators purchase their own qPCR instruments, and as users move towards the higher density 384-well format, the total number of plates processed, and the amount of reagents purchased has decreased from FY15 levels. In FY17, the price per plate run was increased by 100% (from $5/run to $10/run), leading to a significant increase in revenue relative to FY16. Instrument use has declined by almost 50% since FY17 as more investigators purchase their own benchtop qPCR instruments.

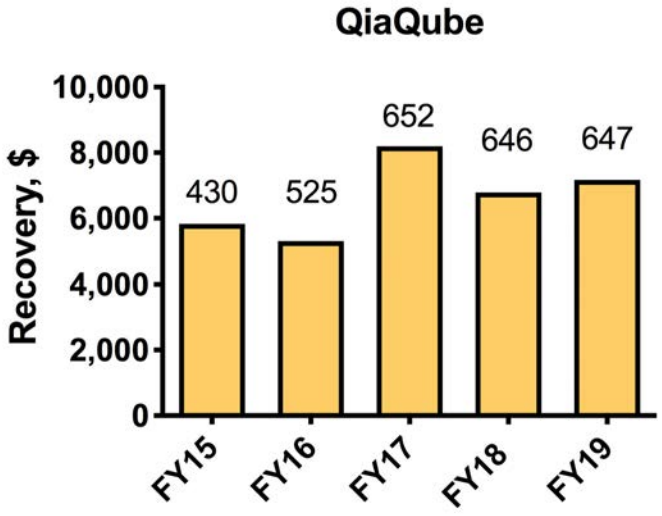


Figure 8: Five-year recovery ($) and usage (number of samples processed is shown above each bar) for the automated preparation of nucleic acids from cells, fluids or pulverized tissues using the Qiagen QiaQube instrument. For enhanced quality control prior to NGS library preparation for RNA-seq, investigators are encouraged by MRC staff to utilize the QiaQube for their preparations of DNase-treated RNA, which will be free of contaminants typically observed with other standard laboratory RNA extraction methods.

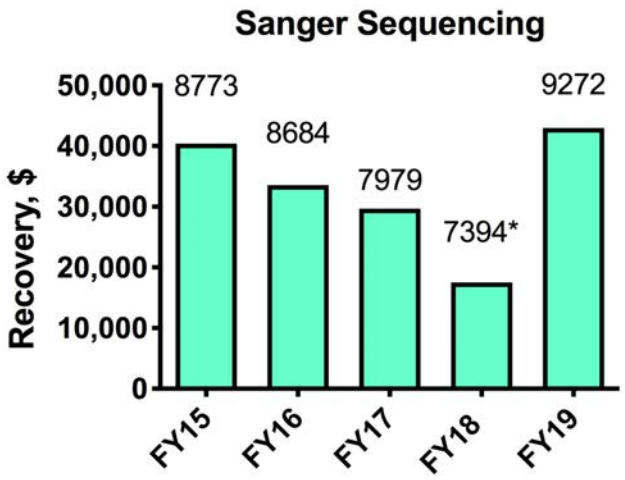


Figure 9: Five-year recovery ($) and usage (number of samples processed is shown above each bar) for Sanger sequencing. From FY15-FY18, sample number was slowly decreasing; however, sample volume increased in FY19. There is competition due to the option of external vendor provider (MRC is a also dropbox for GeneWiz), and due to the increasing commerical availability of fully-sequenced "ready to use" clones and artificial gene synthesis services, which reduce the need to sequence DNA to verify the correct orientation or sequence identity.

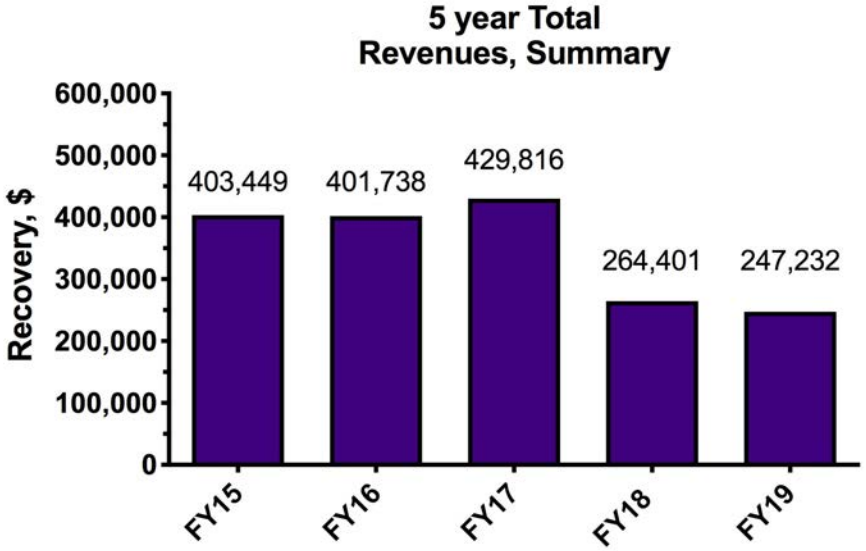


Figure 10: Total recovery ($) for the MRC since FY15. Overall, revenues have were stable from FY15-FY17. Recoveries significantly decreased in FY18 over prior FY periods as more customers selected commercial vendors for NGS services while the use of microarrays also declined. NGS vendors are able to compete with academic cores using aggressive discounted pricing per sample because they use of higher throughput sequencing platforms than the MRC (economy of scale).

VII. MRC Assisted Investigators FY19, July 2018-June 2019

Principal Investigator:	Department:	College:
Armstrong, William E	Anatomy & Neurobiology	Medicine
Chizhikov, Viktor V.	Anatomy & Neurobiology	
Fletcher, Max	Anatomy & Neurobiology	
Foehring, Robert	Anatomy & Neurobiology	
Hamre, Kristin M.	Anatomy & Neurobiology	
Heck, Detlef H.	Anatomy & Neurobiology	
Reiner, Anton	Anatomy & Neurobiology	
Youngentob, Steven L.	Anatomy & Neurobiology	
Zhang, Yanhui	Bioscience Research	Dentistry
Fortwendel, Jarrod	Clinical Pharmacy	Pharmacy
Palmer, Glen	Clinical Pharmacy	
Peters, Brian	Clinical Pharmacy	
Rogers, P. David	Clinical Pharmacy	
Freeman, Kevin	Genetics, Genomics and Informatics	Medicine
Jones, Byron	Genetics, Genomics and Informatics	
Lu Lu	Genetics, Genomics and Informatics	
Mulligan, Megan	Genetics, Genomics and Informatics	
Simpson, Claire	Genetics, Genomics and Informatics	
Starland-Davenport, Athena	Genetics, Genomics and Informatics	
Williams, Robert W.	Genetics, Genomics and Informatics	
Gerling, Ivan	Medicine	Medicine
Hayes, David Neil	Medicine	
Kang, Andrew	Medicine	
Makowski, Liza	Medicine	
Miranda-Carboni, Gustavo	Medicine	
Narayanan, Ramesh	Medicine	
Quarles, Leigh D.	Medicine	
Reed, Guy L.	Medicine	
Roslonicc, Edward	Medicine	
Cooper, Terry	Microbiology, Immunology and Biochemistry (MIB)	Medicine
Dale, James	MIB	
Fitzpatrick, Elizabeth	MIB	
Gomes-Solecki, Maria	MIB	
Guntaka, Ramareddy	MIB	
Hori, Roderick	MIB	
Jonsson, Colleen	MIB	
Kong, Ying	MIB	
Marion, Tony	MIB	
Radic, Marko	MIB	
Schughart, Klaus	MIB	

Khan, Mohammad	Neurology	Medicine
LeDoux, Mark S.	Neurology	
McDonald, Michael	Neurology	
Reiter, Lawrence	Neurology	
Tsao, Jack	Neurology	
Stanfill, Ansley Grimes	Nursing	Nursing
Gangaraju, Raja	Ophthalmology	Medicine
Jablonski, Monica	Opthalmology	
Morales-Tirado, Vanessa	Ophthalmology	
Cho, Hongsik	Orthopaedic Surgery	Medicine
Miranda (Krum), Susan	Orthopaedic Surgery	
Laribee, Ronald	Pathology	Medicine
Pfeffer, Lawrence	Pathology	
Seagroves, Tiffany N.	Pathology	
Wu, Zhaohui	Pathology	
Astreinidis, Aristotelis	Pediatrics	Medicine
Bissler, John	Pediatrics	
Brown, Chester	Pediatrics	
Chen, Guoyun	Pediatrics	
Han, Joan	Pediatrics	
Mroczkowski, Henry	Pediatrics	
Pierre, Joseph F.	Pediatrics	
Purevjav, Enkhsaikhan	Pediatrics	
Ryder, Alex	Pediatrics	
Samarasinghe, Amali	Pediatrics	
Towbin, Jeffrey A.	Pediatrics	
Zhang, Weiqiang	Pediatrics	
Chauhan, Subhash	Pharmaceutical Sciences	Pharmacy
Hevener, Kirk	Pharmaceutical Sciences	
Jiang, Jianxiong	Pharmaceutical Sciences	
Kurosu, Michio	Pharmaceutical Sciences	
Li, Wei	Pharmaceutical Sciences	
Petkov, Georgi	Pharmaceutical Sciences	
Yallapu, Murali	Pharmaceutical Sciences	
Bahouth, Suleiman	Pharmacology	Medicine
Bukiya, Anna	Pharmacology	
Chen, Hao	Pharmacology	
Dopico, Alex	Pharmacology	
Jee, Chang Hoon	Pharmacology	
Liao, Francesca-Fang	Pharmacology	
Malik, Kafait U.	Pharmacology	
Park, Ed	Pharmacology	
Raghow, Rajendra	Pharmacology	
Tavalin, Steve	Pharmacology	

Carson, James	Physical Therapy	Allied Health
Cordero-Morales, Julio	Physiology	Medicine
Jaggar, Jonathan	Physiology	
Mancarella, Salvatore	Physiology	
Rao, G.N.	Physiology	
Sun, Zhongjie	Physiology	
Tigyi, Gabor	Physiology	
Vasquez, Valeria	Physiology	
Mozhui, Khyobeni	Preventive Medicine	Medicine
Gosain, Ankush	Surgery	Medicine
Mas, Valeria	Surgery	

MRC-Assisted External Investigators

Principal Investigator:	**Entity:**
Abell, Amy	University of Memphis, Memphis, TN
Baker, Daniel L.	University of Memphis, Memphis, TN
Brown, Shawn	University of Memphis, Memphis, TN
Ciobanu, Daniel	University of Nebraska, Lincoln, NE
Fitzgerald, Jonathan	Rhodes College, Memphis, TN
Frawley, Elaine	Rhodes College, Memphis, TN
Gabai, Vladimir	Boston University, Boston, MA
Jackson-Hayes, Loretta	Rhodes College, Memphis, TN
LeDoux, Mark	University of Memphis, Memphis, TN
Mandel, Jennifer	University of Memphis, Memphis, TN
Olgivie, Mary	Christian Brothers University
Pandey, Udai	University of Pittsburgh, Pittsburgh, PA
Sherman, Michael	Vanderbilt University, Nashville, TN
Silver Bullet Biology	Bartlett, TN
Sutter, Claire	University of Memphis, Memphis, TN
Thompson-Jaeger, Sandra	Christian Brothers University, Memphis, TN
Wheeler, Bayly	Rhodes College, Memphis, TN

VIII. Publications Supported by the MRC in FY19 (published July 1, 2018 to June 30, 2019)

There were >240 unique publications supported by the MRC in FY19. Individual users of the MRC are bolded in the citations.

Astreinidis, Aristotelis

Valianou M, Filippidou N, Johnson DL, Vogel P, Zhang EY, Liu X, Lu Y, Yu JJ, Bissler JJ, **Astrinidis A**. Rapalog resistance is associated with mesenchymal-type changes in Tsc2-null cells. Sci Rep. 2019 Feb 28;9(1):3015. doi: 10.1038/s41598-019-39418-5. PubMed PMID: 30816188; PubMed Central PMCID: PMC6395747.

Bahouth, Suleiman

Nooh MM, Kale A, **Bahouth SW**. Involvement of PDZ-SAP97 interactions in regulating AQP2 translocation in response to vasopressin in LLC-PK(1) cells. Am J Physiol Renal Physiol. 2019 Aug 1;317(2):F375-F387. doi:10.1152/ajprenal.00228.2018. Epub 2019 May 29. PubMed PMID: 31141395.

Nooh MM, Mancarella S, **Bahouth SW**. Novel Paradigms Governing β(1)-Adrenergic Receptor Trafficking in Primary Adult Rat Cardiac Myocytes. Mol Pharmacol. 2018 Aug;94(2):862-875. doi: 10.1124/mol.118.112045. Epub 2018 May 30. PubMed PMID: 29848777; PubMed Central PMCID: PMC6022806.

Bissler, John

Valianou M, Filippidou N, Johnson DL, Vogel P, Zhang EY, Liu X, Lu Y, Yu JJ, **Bissler JJ**, Astrinidis A. Rapalog resistance is associated with mesenchymal-type changes in Tsc2-null cells. Sci Rep. 2019 Feb 28;9(1):3015. doi:10.1038/s41598-019-39418-5. PubMed PMID: 30816188; PubMed Central PMCID: PMC6395747.

Bissler JJ, Zadjali F, Bridges D, Astrinidis A, Barone S, Yao Y, Redd JR, Siroky BJ, Wang Y, Finley JT, Rusiniak ME, Baumann H, Zahedi K, Gross KW, Soleimani M. Tuberous sclerosis complex exhibits a new renal cystogenic mechanism. Physiol Rep. 2019 Jan;7(2):e13983. doi: 10.14814/phy2.13983. PubMed PMID: 30675765; PubMed Central PMCID: PMC6344348.

Bissler JJ, Christopher Kingswood J. Renal manifestation of tuberous sclerosis complex. Am J Med Genet C Semin Med Genet. 2018 Sep;178(3):338-347. doi:10.1002/ajmg.c.31654. Epub 2018 Oct 11. Review. PubMed PMID: 30307110.

Bissler JJ, Nonomura N, Budde K, Zonnenberg BA, Fischereder M, Voi M, Louveau AL, Herbst F, Bebin EM, Curatolo P, Zonta A, Belousova E. Angiomyolipoma rebound tumor growth after discontinuation of everolimus in patients with tuberous sclerosis complex or sporadic lymphangioleiomyomatosis. PLoS One. 2018 Sep 7;13(9):e0201005. doi: 10.1371/journal.pone.0201005. eCollection 2018. PubMed PMID: 30192751; PubMed Central PMCID: PMC6128468.

Atherton JG, Hains DS, **Bissler J**, Pendley BD, Lindner E. Generation, clearance, toxicity, and monitoring possibilities of unaccounted uremic toxins for improved dialysis prescriptions. Am J Physiol Renal Physiol. 2018 Oct 1;315(4):F890-F902. doi: 10.1152/ajprenal.00106.2017. Epub 2018 Mar 14. PubMed PMID: 29537310.

Brown, Chester

Bu Y, Okunishi K, Yogosawa S, Mizuno K, Irudayam MJ, **Brown CW**, Izumi T. Insulin Regulates Lipolysis and Fat Mass by Upregulating Growth/Differentiation Factor 3 in Adipose Tissue Macrophages. Diabetes. 2018 Sep;67(9):1761-1772. doi: 10.2337/db17-1201. Epub 2018 Jun 26. PubMed PMID: 29945891.

Bukiya, Anna

North K, Bisen S, Dopico AM, **Bukiya AN**. Tyrosine 450 in the Voltage- and Calcium-Gated Potassium Channel of Large Conductance Channel Pore-Forming (slo1) Subunit Mediates Cholesterol Protection against Alcohol-Induced Constriction of Cerebral Arteries. J Pharmacol Exp Ther. 2018 Nov;367(2):234-244. doi:10.1124/jpet.118.250514. Epub 2018 Aug 16. PubMed PMID: 30115756; PubMed Central PMCID: PMC6170972.

Carson, James

Fix DK, VanderVeen BN, Counts BR, **Carson JA**. Regulation of Skeletal Muscle DRP-1 and FIS-1 Protein Expression by IL-6 Signaling. Oxid Med Cell Longev. 2019 Feb 21;2019:8908457. doi 10.1155/2019/8908457. eCollection 2019. PubMed PMID: 30918582; PubMed Central PMCID: PMC6408992.

VanderVeen BN, Fix DK, Montalvo RN, Counts BR, Smuder AJ, Murphy EA, Koh HJ, **Carson JA**. The regulation of skeletal muscle fatigability and mitochondrial function by chronically elevated interleukin-6. Exp Physiol. 2019 Mar;104(3):385-

397. doi: 10.1113/EP087429. Epub 2019 Jan 15. PubMed PMID: 30576589.

Chauhan, Subhash

Massey AE, Sikander M, Chauhan N, Kumari S, Setua S, Shetty AB, Mandil H, Kashyap VK, Khan S, Jaggi M, Yallapu MM, Hafeez BB, **Chauhan SC**. Next-generation paclitaxel-nanoparticle formulation for pancreatic cancer treatment. Nanomedicine. 2019 Aug;20:102027. doi: 10.1016/j.nano.2019.102027. Epub 2019 Jun 4. PubMed PMID: 31170509; PubMed Central PMCID: PMC6705422.

2: Khan S, Setua S, Kumari S, Dan N, Massey A, Hafeez BB, Yallapu MM, Stiles ZE, Alabkaa A, Yue J, Ganju A, Behrman S, Jaggi M, Chauhan SC. Superparamagnetic iron oxide nanoparticles of curcumin enhance gemcitabine therapeutic response in pancreatic cancer. Biomaterials. 2019 Jul;208:83-97. doi:10.1016/j.biomaterials.2019.04.005. Epub 2019 Apr 8. PubMed PMID: 30999154.

Sikander M, Malik S, Chauhan N, Khan P, Kumari S, Kashyap VK, Khan S, Ganju A, Halaweish FT, Yallapu MM, Jaggi M, **Chauhan SC**. Cucurbitacin D Reprograms Glucose Metabolic Network in Prostate Cancer. Cancers (Basel). 2019 Mar 14;11(3). pii: E364. doi: 10.3390/cancers11030364. PubMed PMID: 30875788; PubMed Central PMCID: PMC6469021.

Romero LO, Massey AE, Mata-Daboin AD, Sierra-Valdez FJ, **Chauhan SC**, Cordero-Morales JF, Vásquez V. Dietary fatty acids fine-tune Piezo1 mechanical response. Nat Commun. 2019 Mar 13;10(1):1200. doi: 10.1038/s41467-019-09055-7. PubMed PMID: 30867417; PubMed Central PMCID: PMC6416271.

Hatami E, Mu Y, Shields DN, **Chauhan SC**, Kumar S, Cory TJ, Yallapu MM.Mannose-decorated hybrid nanoparticles for enhanced macrophage targeting. Biochem Biophys Rep. 2019 Jan 25;17:197-207. doi: 10.1016/j.bbrep.2019.01.007.eCollection 2019 Mar. PubMed PMID: 30723809; PubMed Central PMCID: PMC6351286.

Kashyap VK, Wang Q, Setua S, Nagesh PKB, Chauhan N, Kumari S, Chowdhury P, Miller DD, Yallapu MM, Li W, Jaggi M, Hafeez BB, **Chauhan SC**. Therapeutic efficacy of a novel βIII/βIV-tubulin inhibitor (VERU-111) in pancreatic cancer. J Exp Clin Cancer Res. 2019 Jan 23;38(1):29. doi: 10.1186/s13046-018-1009-7. PubMed PMID: 30674344; PubMed Central PMCID: PMC6343279.

Chowdhury P, Nagesh PKB, Hatami E, Wagh S, Dan N, Tripathi MK, Khan S, Hafeez BB, Meibohm B, **Chauhan SC**, Jaggi M, Yallapu MM. Tannic acid-inspired paclitaxel nanoparticles for enhanced anticancer effects in breast cancer cells. J Colloid Interface Sci. 2019 Feb 1;535:133-148. doi: 10.1016/j.jcis.2018.09.072. Epub 2018 Sep 22. PubMed PMID: 30292104.

Tripathi MK, Zacheaus C, Doxtater K, Keramatnia F, Gao C, Yallapu MM, Jaggi M, **Chauhan SC**. Z Probe, An Efficient Tool for Characterizing Long Non-Coding RNA in FFPE Tissues. Noncoding RNA. 2018 Sep 5;4(3). pii: E20. doi:10.3390/ncrna4030020. PubMed PMID: 30189670; PubMed Central PMCID: PMC6162476.

Nagesh PKB, Chowdhury P, Hatami E, Boya VKN, Kashyap VK, Khan S, Hafeez BB, **Chauhan SC**, Jaggi M, Yallapu MM. miRNA-205 Nanoformulation Sensitizes Prostate Cancer Cells to Chemotherapy. Cancers (Basel). 2018 Aug 25;10(9). pii: E289. doi:10.3390/cancers10090289. PubMed PMID: 30149628; PubMed Central PMCID: PMC6162422.

Stiles ZE, Khan S, Patton KT, Jaggi M, Behrman SW, **Chauhan SC**. Transmembrane mucin MUC13 distinguishes intraductal papillary mucinous neoplasms from non-mucinous cysts and is associated with high-risk lesions. HPB (Oxford). 2019Jan;21(1):87-95. doi: 10.1016/j.hpb.2018.07.009. Epub 2018 Aug 14. PubMed PMID:30115565; PubMed Central PMCID: PMC6349495.

Chowdhury P, Nagesh PKB, Khan S, Hafeez BB, **Chauhan SC**, Jaggi M, Yallapu MM. Development of polyvinylpyrrolidone/paclitaxel self-assemblies for breast cancer. Acta Pharm Sin B. 2018 Jul;8(4):602-614. doi: 10.1016/j.apsb.2017.10.004. Epub 2017 Dec 10. PubMed PMID: 30109184; PubMed Central PMCID: PMC6090082.

Tripathi MK, Doxtater K, Keramatnia F, Zacheaus C, Yallapu MM, Jaggi M, **Chauhan SC**. Role of lncRNAs in ovarian cancer: defining new biomarkers for therapeutic purposes. Drug Discov Today. 2018 Sep;23(9):1635-1643. doi:10.1016/j.drudis.2018.04.010. Epub 2018 Apr 23. Review. PubMed PMID: 29698834; PubMed Central PMCID: PMC6139057.

Chen, Hao

Zhao Q, Yang J, **Chen H**, Li J, Que L, Zhu G, Liu L, Ha T, Chen Q, Li C, Xu Y, Li Y. Peli1 induction impairs cardiac microvascular endothelium through Hsp90 dissociation from IRE1α. Biochim Biophys Acta Mol Basis Dis. 2019 Oct 1;1865(10):2606-2617. doi: 10.1016/j.bbadis.2019.06.017. Epub 2019 Jun 29. PubMedPMID: 31260751.

DiCarlo GE, Aguilar JI, Matthies HJ, Harrison FE, Bundschuh KE, West A, Hashemi P, Herborg F, Rickhag M, **Chen H**, Gether U, Wallace MT, Galli A. Autism-linked dopamine transporter mutation alters striatal dopamine neurotransmission and dopamine-dependent behaviors. J Clin Invest. 2019 May 16;129(8):3407-3419. doi: 10.1172/JCI127411. PubMed PMID: 31094705; PubMed Central PMCID: PMC6668686.

Wang T, Han W, Chitre AS, Polesskaya O, Solberg Woods LC, Palmer AA, **Chen H**. Social and anxiety-like behaviors contribute to nicotine self-administration in adolescent outbred rats. Sci Rep. 2018 Dec 24;8(1):18069. doi:10.1038/s41598-018-36263-w. PubMed PMID: 30584246; PubMed Central PMCID: PMC6305389.

Lim PH, Shi G, Wang T, Jenz ST, Mulligan MK, Redei EE, **Chen H**. Genetic Model to Study the Co-Morbid Phenotypes of Increased Alcohol Intake and Prior Stress-Induced Enhanced Fear Memory. Front Genet. 2018 Nov 27;9:566. doi:10.3389/fgene.2018.00566. eCollection 2018. PubMed PMID: 30538720; PubMed Central PMCID: PMC6277590.

Chizhikov, Viktor

Iskusnykh IY, Buddington RK, **Chizhikov VV**. Preterm birth disrupts cerebellar development by affecting granule cell proliferation program and Bergmann glia. Exp Neurol. 2018 Aug;306:209-221. doi: 10.1016/j.expneurol.2018.05.015. Epub 2018 May 14. PubMed PMID: 29772246; PubMed Central PMCID: PMC6291230.

Glover JC, Elliott KL, Erives A, **Chizhikov VV**, Fritzsch B. Wilhelm His' lasting insights into hindbrain and cranial ganglia development and evolution. Dev Biol. 2018 Dec 1;444 Suppl 1:S14-S24. doi: 10.1016/j.ydbio.2018.02.001. Epub 2018 Feb 12. Review. PubMed PMID: 29447907; PubMed Central PMCID: PMC6087689.

Cho, Hongsik

Bhatti FUR, Hasty KA, **Cho H**. Anti-inflammatory role of TPCA-1 encapsulated nanosomes in porcine chondrocytes against TNF-α stimulation. Inflammopharmacology. 2019 Jan 1. doi: 10.1007/s10787-018-0542-5. [Epub ahead of print] PubMed PMID: 30600473.

Bhatti FUR, Kim SJ, Yi AK, Hasty KA, **Cho H**. Cytoprotective role of vitamin E in porcine adipose-tissue-derived mesenchymal stem cells against hydrogen-peroxide-induced oxidative stress. Cell Tissue Res. 2018 Oct;374(1):111-120. doi: 10.1007/s00441-018-2857-3. Epub 2018 Jun 27. PubMed PMID: 29951700.

Cordero-Morales, Julio

Romero LO, Massey AE, Mata-Daboin AD, Sierra-Valdez FJ, Chauhan SC, **Cordero-Morales JF**, Vásquez V. Dietary fatty acids fine-tune Piezo1 mechanical response. Nat Commun. 2019 Mar 13;10(1):1200. doi: 10.1038/s41467-019-09055-7. PubMed PMID: 30867417; PubMed Central PMCID: PMC6416271.

Li D, Zou XY, El-Ayachi I, Romero LO, Yu Z, Iglesias-Linares A, **Cordero-Morales JF**, Huang GT. Human Dental Pulp Stem Cells and Gingival Mesenchymal Stem Cells Display Action Potential Capacity In Vitro after Neuronogenic Differentiation. Stem Cell Rev Rep. 2019 Feb;15(1):67-81. doi:10.1007/s12015-018-9854-5. PubMed PMID: 30324358; PubMed Central PMCID: PMC6358481.

Sierra-Valdez F, Azumaya CM, Romero LO, Nakagawa T, **Cordero-Morales JF**. Structure-function analyses of the ion channel TRPC3 reveal that its cytoplasmic domain allosterically modulates channel gating. J Biol Chem. 2018 Oct 12;293(41):16102-16114. doi: 10.1074/jbc.RA118.005066. Epub 2018 Aug 23. PubMed PMID: 30139744; PubMed Central PMCID: PMC6187627.

Sierra-Valdez FJ, Stein RA, Velissety P, Vasquez V, **Cordero-Morales JF**. Purification and Reconstitution of TRPV1 for Spectroscopic Analysis. J Vis Exp. 2018 Jul 3;(137). doi: 10.3791/57796. PubMed PMID: 30035769; PubMed Central PMCID: PMC6102038.

Cormier, Stephania

Vu LD, Siefker D, Jones TL, You D, Taylor R, DeVincenzo J, **Cormier SA**. Elevated Levels of Type 2 Respiratory Innate Lymphoid Cells in Human Infants with Severe RSV Bronchiolitis. Am J Respir Crit Care Med. 2019 Jun 25.

doi:10.1164/rccm.201812-2366OC. [Epub ahead of print] PubMed PMID: 31237777.

Immanuel CN, Teng B, Dong B, Gordon EM, Kennedy JA, Luellen C, Schwingshackl A, **Cormier SA**, Fitzpatrick EA, Waters CM. Apoptosis signal-regulating kinase-1 promotes inflammasome priming in macrophages. Am J Physiol Lung Cell Mol Physiol. 2019 Mar 1;316(3):L418-L427. doi: 10.1152/ajplung.00199.2018. Epub 2019 Jan 10. PubMed PMID: 30628485; PubMed Central PMCID: PMC6459294.

Hijano DR, Siefker DT, Shrestha B, Jaligama S, Vu LD, Tillman H, Finkelstein D, Saravia J, You D, **Cormier SA**. Type I Interferon Potentiates IgA Immunity to Respiratory Syncytial Virus Infection During Infancy. Sci Rep. 2018 Jul 23;8(1):11034. doi: 10.1038/s41598-018-29456-w. PubMed PMID: 30038294; PubMed Central PMCID: PMC6056463.

Kimura D, Saravia J, Jaligama S, McNamara I, Vu LD, Sullivan RD, Mancarella S, You D, **Cormier SA**. New mouse model of pulmonary hypertension induced by respiratory syncytial virus bronchiolitis. Am J Physiol Heart Circ Physiol. 2018 Sep 1;315(3):H581-H589. doi: 10.1152/ajpheart.00627.2017. Epub 2018 Jun 15. PubMed PMID: 29906223; PubMed Central PMCID: PMC6172644.

Liu H, Osterburg AR, Flury J, Huang S, McCormack FX, **Cormier SA**, Borchers MT. NKG2D Regulation of Lung Pathology and Dendritic Cell Function Following Respiratory Syncytial Virus Infection. J Infect Dis. 2018 Oct 20;218(11):1822-1832. doi: 10.1093/infdis/jiy151. PubMed PMID: 29554301; PubMed Central PMCID: PMC6195658.

Dale, James

Salehi S, Hohn CM, Penfound TA, **Dale JB**. Development of an Opsonophagocytic Killing Assay Using HL-60 Cells for Detection of Functional Antibodies against Streptococcus pyogenes. mSphere. 2018 Dec 19;3(6). pii: e00617-18. doi:10.1128/mSphere.00617-18. PubMed PMID: 30567901; PubMed Central PMCID: PMC6300688.

Devincenzo, John

Vu LD, Siefker D, Jones TL, You D, Taylor R, **DeVincenzo J**, Cormier SA. Elevated Levels of Type 2 Respiratory Innate Lymphoid Cells in Human Infants with Severe RSV Bronchiolitis. Am J Respir Crit Care Med. 2019 Jun 25. doi:10.1164/rccm.201812-2366OC. [Epub ahead of print] PubMed PMID: 31237777.

Dopico, Alejandro

Simakova M, Tobiasz A, Sullivan RD, Bisen S, Duncan J, Sullivan JP, Davison S, Tate DL, Barnett S, Mari G, **Dopico AM**, Bukiya AN. Gestational Age-Dependent Interplay between Endocannabinoid Receptors and Alcohol in Fetal Cerebral Arteries. J Drug Alcohol Res. 2019;8. pii: 236068. doi: 10.4303/jdar/236068. PubMed PMID: 31057979; PubMed Central PMCID: PMC6497414.

North KC, Chang J, Bukiya AN, **Dopico AM**. Extra-endothelial TRPV1 channels participate in alcohol and caffeine actions on cerebral artery diameter. Alcohol. 2018 Dec;73:45-55. doi: 10.1016/j.alcohol.2018.04.002. Epub 2018 Apr 26. PubMed PMID: 30268908; PubMed Central PMCID: PMC6417832.

Bisen S, Simakova MN, **Dopico AM**, Bukiya AN. Large conductance voltage- and calcium-gated potassium channels (BK) in cerebral artery myocytes of perinatal fetal primates share several major characteristics with the adult phenotype. PLoS One. 2018 Sep 13;13(9):e0203199. doi: 10.1371/journal.pone.0203199. eCollection 2018. PubMed PMID: 30212531; PubMed Central PMCID: PMC6136719.

North K, Bisen S, **Dopico AM**, Bukiya AN. Tyrosine 450 in the Voltage- and Calcium-Gated Potassium Channel of Large Conductance Channel Pore-Forming (slo1) Subunit Mediates Cholesterol Protection against Alcohol-Induced Constriction of Cerebral Arteries. J Pharmacol Exp Ther. 2018 Nov;367(2):234-244. doi:10.1124/jpet.118.250514. Epub 2018 Aug 16. PubMed PMID: 30115756; PubMed Central PMCID: PMC6170972.

Tobiasz AM, Duncan JR, Bursac Z, Sullivan RD, Tate DL, **Dopico AM**, Bukiya AN, Mari G. The Effect of Prenatal Alcohol Exposure on Fetal Growth and Cardiovascular Parameters in a Baboon Model of Pregnancy. Reprod Sci. 2018 Jul;25(7):1116-1123. doi: 10.1177/1933719117734317. Epub 2017 Oct 5. PubMed PMID: 28982294; PubMed Central PMCID: PMC6346348.

Fan, Meiyun

Wang W, Chapman NM, Zhang B, Li M, **Fan M**, Laribee RN, Zaidi MR, Pfeffer LM, Chi H, Wu ZH. Upregulation of PD-L1 via HMGB1-Activated IRF3 and NF-κB Contributes to UV Radiation-Induced Immune Suppression. Cancer Res. 2019 Jun 1;79(11):2909-2922. doi: 10.1158/0008-5472.CAN-18-3134. Epub 2019 Feb 8. PubMed PMID: 30737234; PubMed Central PMCID: PMC6548650.

Sethuraman A, Brown M, Krutilina R, Wu ZH, Seagroves TN, Pfeffer LM, **Fan M**. BHLHE40 confers a pro-survival and pro-metastatic phenotype to breast cancer cells by modulating HBEGF secretion. Breast Cancer Res. 2018 Oct 1;20(1):117. doi: 10.1186/s13058-018-1046-3. PubMed PMID: 30285805; PubMed Central PMCID: PMC6167787.

Ganguly D, Sims M, Cai C, **Fan M**, Pfeffer LM. Chromatin Remodeling Factor BRG1 Regulates Stemness and Chemosensitivity of Glioma Initiating Cells. Stem Cells. 2018 Dec;36(12):1804-1815. doi: 10.1002/stem.2909. Epub 2018 Nov 12. PubMed PMID: 30171737.

Datta U, Martini M, **Fan M**, Sun W. Compulsive sucrose- and cocaine-seeking behaviors in male and female Wistar rats. Psychopharmacology (Berl). 2018 Aug;235(8):2395-2405. doi: 10.1007/s00213-018-4937-1. Epub 2018 Jun 15. PubMed PMID: 29947917; PubMed Central PMCID: PMC6061959.

Fitzpatrick, Elizabeth

Jonsson CB, Cao X, Lee J, Gabbard JD, Chu YK, **Fitzpatrick EA**, Julander J, Chung DH, Stabenow J, Golden JE. Efficacy of a ML336 derivative against Venezuelan and eastern equine encephalitis viruses. Antiviral Res. 2019 Jul;167:25-34. doi: 10.1016/j.antiviral.2019.04.004. Epub 2019 Apr 7. PubMed PMID: 30970271.

Immanuel CN, Teng B, Dong B, Gordon EM, Kennedy JA, Luellen C, Schwingshackl A, Cormier SA, **Fitzpatrick EA**, Waters CM. Apoptosis signal-regulating kinase-1 promotes inflammasome priming in macrophages. Am J Physiol Lung Cell Mol Physiol. 2019 Mar 1;316(3):L418-L427. doi: 10.1152/ajplung.00199.2018. Epub 2019 Jan 10. PubMed PMID: 30628485; PubMed Central PMCID: PMC6459294.

Fletcher, Max

Ross JM, Bendahmane M, **Fletcher ML**. Olfactory Bulb Muscarinic Acetylcholine Type 1 Receptors Are Required for Acquisition of Olfactory Fear Learning. Front Behav Neurosci. 2019 Jul 19;13:164. doi: 10.3389/fnbeh.2019.00164. eCollection 2019. PubMed PMID: 31379534; PubMed Central PMCID: PMC6659260.

Ohla K, Yoshida R, Roper SD, Di Lorenzo PM, Victor JD, Boughter JD, **Fletcher M**, Katz DB, Chaudhari N. Recognizing Taste: Coding Patterns Along the Neural Axis in Mammals. Chem Senses. 2019 Apr 15;44(4):237-247. doi: 10.1093/chemse/bjz013. PubMed PMID: 30788507; PubMed Central PMCID: PMC6462759.

Ross JM, **Fletcher ML**. Aversive learning-induced plasticity throughout the adult mammalian olfactory system: insights across development. J Bioenerg Biomembr. 2019 Feb;51(1):15-27. doi: 10.1007/s10863-018-9770-z. Epub 2018 Aug 31. Review. PubMed PMID: 30171506; PubMed Central PMCID: PMC6382525.

Foehring, Robert

Armstrong WE, **Foehring RC**, Kirchner MK, Sladek CD. Electrophysiological properties of identified oxytocin and vasopressin neurones. J Neuroendocrinol. 2019 Mar;31(3):e12666. doi: 10.1111/jne.12666. Epub 2019 Feb 14. Review. PubMed PMID: 30521104.

Kirchner MK, **Foehring RC**, Callaway J, Armstrong WE. Specificity in the interaction of high-voltage-activated Ca(2+) channel types with Ca(2+)-dependent afterhyperpolarizations in magnocellular supraoptic neurons. J Neurophysiol. 2018 Oct 1;120(4):1728-1739. doi: 10.1152/jn.00285.2018. Epub 2018 Jul 18. PubMed PMID: 30020842; PubMed Central PMCID: PMC6230773.

Guan D, Pathak D, **Foehring RC**. Functional roles of Kv1-mediated currents in genetically identified subtypes of pyramidal neurons in layer 5 of mouse somatosensory cortex. J Neurophysiol. 2018 Aug 1;120(2):394-408. doi: 10.1152/jn.00691.2017. Epub 2018 Apr 11. PubMed PMID: 29641306; PubMed Central PMCID: PMC6139458.

Fortwendel, Jarrod

Rybak JM, Ge W, Wiederhold NP, Parker JE, Kelly SL, Rogers PD, **Fortwendel JR**. Mutations in hmg1, Challenging the Paradigm of Clinical Triazole Resistance in Aspergillus fumigatus. MBio. 2019 Apr 2;10(2). pii: e00437-19. doi: 10.1128/mBio.00437-19. PubMed PMID: 30940706; PubMed Central PMCID: PMC6445940.

Martin-Vicente A, Souza ACO, Al Abdallah Q, Ge W, **Fortwendel JR**. SH3-class Ras guanine nucleotide exchange factors are essential for Aspergillus fumigatus invasive growth. Cell Microbiol. 2019 Jun;21(6):e13013. doi: 10.1111/cmi.13013. Epub 2019 Feb 15. PubMed PMID: 30698898; PubMed Central PMCID: PMC6522298.

Rybak JM, **Fortwendel JR**, Rogers PD. Emerging threat of triazole-resistant Aspergillus fumigatus. J Antimicrob Chemother. 2019 Apr 1;74(4):835-842. doi:10.1093/jac/dky517. PubMed PMID: 30561652; PubMed Central PMCID: PMC6657284.

Butts A, Reitler P, Ge W, **Fortwendel JR**, Palmer GE. Commonly Used Oncology Drugs Decrease Antifungal Effectiveness against Candida and Aspergillus Species. Antimicrob Agents Chemother. 2018 Jun 26;62(7). pii: e00504-18. doi:10.1128/AAC.00504-18. Print 2018 Jul. PubMed PMID: 29712657; PubMed Central PMCID: PMC6021626.

Gangaraju, Raja Shekhar

Jha KA, Pentecost M, Lenin R, Klaic L, Elshaer SL, Gentry J, Russell JM, Beland A, Reiner A, Jotterand V, Sohl N, **Gangaraju R**. Concentrated Conditioned Media from Adipose Tissue Derived Mesenchymal Stem Cells Mitigates Visual Deficits and Retinal Inflammation Following Mild Traumatic Brain Injury. Int JMol Sci. 2018 Jul 11;19(7). pii: E2016. doi: 10.3390/ijms19072016. PubMed PMID: 29997321; PubMed Central PMCID: PMC6073664

Gerling, Ivan

Peravali R, Gunnels L, Dhanabalan K, Ariganjoye F, **Gerling IC**, Dokun AO. In experimental peripheral arterial disease, type 2 diabetes alters post-ischemic gene expression. J Clin Transl Endocrinol. 2019 May 31;17:100199. doi:10.1016/j.jcte.2019.100199. eCollection 2019 Sep. PubMed PMID: 31293900; PubMed Central PMCID: PMC6595134.

Peravali R, Gunnels L, Alleboina S, **Gerling IC**, Dokun AO. Type 1 diabetes alters ischemia-induced gene expression. J Clin Transl Endocrinol. 2018 Nov 22;15:19-24. doi: 10.1016/j.jcte.2018.11.003. eCollection 2019 Mar. PubMed PMID: 30555789; PubMed Central PMCID: PMC6279996.

Holm LJ, Krogvold L, Hasselby JP, Kaur S, Claessens LA, Russell MA, Mathews CE, Hanssen KF, Morgan NG, Koeleman BPC, Roep BO, **Gerling IC**, Pociot F, Dahl-Jørgensen K, Buschard K. Abnormal islet sphingolipid metabolism in type 1diabetes. Diabetologia. 2018 Jul;61(7):1650-1661. doi: 10.1007/s00125-018-4614-2. Epub 2018 Apr 18. PubMed PMID: 29671030; PubMed Central PMCID: PMC6445476.

Giorgianni, Francesco

Parks C, **Giorgianni F**, Jones BC, Beranova-Giorgianni S, Moore Ii BM, Mulligan MK. Comparison and Functional Genetic Analysis of Striatal Protein Expression Among Diverse Inbred Mouse Strains. Front Mol Neurosci. 2019 May 24;12:128. doi: 10.3389/fnmol.2019.00128. eCollection 2019. PubMed PMID: 31178692; PubMed Central PMCID: PMC6543464.

Kansal R, Richardson N, Neeli I, Khawaja S, Chamberlain D, Ghani M, Ghani QU, Balazs L, Beranova-Giorgianni S, **Giorgianni F**, Kochenderfer JN, Marion T, Albritton LM, Radic M. Sustained B cell depletion by CD19-targeted CAR T cells is a highly effective treatment for murine lupus. Sci Transl Med. 2019 Mar 6;11(482). pii: eaav1648. doi: 10.1126/scitranslmed.aav1648. PubMed PMID: 30842314.

Hollingsworth TJ, Radic MZ, Beranova-Giorgianni S, **Giorgianni F**, Wang Y, Iannaccone A. Murine Retinal Citrullination Declines With Age and is Mainly Dependent on Peptidyl Arginine Deiminase 4 (PAD4). Invest Ophthalmol Vis Sci. 2018 Aug 1;59(10):3808-3815. doi: 10.1167/iovs.18-24118. PubMed PMID: 30073354; PubMed Central PMCID: PMC6074612.

Gosain, Ankush

Medrano G, Cailleux F, Guan P, Kuruvilla K, Barlow-Anacker AJ, **Gosain A**. B-lymphocyte-intrinsic and -extrinsic defects in secretory immunoglobulin A production in the neural crest-conditional deletion of endothelin receptor B model of Hirschsprung-associated enterocolitis. FASEB J. 2019 Jun;33(6):7615-7624. doi: 10.1096/fj.201801913R. Epub 2019 Mar 25. PubMed PMID: 30908942; PubMed Central PMCID: PMC6529339.

Johnson CD, Barlow-Anacker AJ, Pierre JF, Touw K, Erickson CS, Furness JB, Epstein ML, **Gosain A**. Deletion of choline acetyltransferase in enteric neurons results in postnatal intestinal dysmotility and dysbiosis. FASEB J. 2018 Sep;32(9):4744-4752. doi: 10.1096/fj.201701474RR. Epub 2018 Mar 23. PubMed PMID: 29570391; PubMed Central PMCID: PMC6103169.

Dasgupta R, Renaud E, Goldin AB, Baird R, Cameron DB, Arnold MA, Diefenbach KA, **Gosain A**, Grabowski J, Guner YS, Jancelewicz T, Kawaguchi A, Lal DR, Oyetunji TA, Ricca RL, Shelton J, Somme S, Williams RF, Downard CD. Ovarian torsion in pediatric and adolescent patients: A systematic review. J Pediatr Surg. 2018 Jul;53(7):1387-1391. doi: 10.1016/j.jpedsurg.2017.10.053. Epub 2017 Nov 16. Review. PubMed PMID: 29153467.

Gu, Weikuan

Cui J, Li J, Lu H, Yu H, Wei D, Jiao Y, Jablonski MM, **Gu W**, Chen H. Data sets of eQTL loci, correlation analysis, and overlapped genes among gene sets that their expression levels are closely related to genes of Vegf family. Data Brief. 2018 Sep 8;20:1854-1860. doi: 10.1016/j.dib.2018.09.004. eCollection 2018 Oct. PubMed PMID: 30294635; PubMed Central PMCID: PMC6169370.

Cao Y, Wang L, Wang CY, Ye J, Wang Y, Li T, Garcia-Godoy F, Sun D, **Gu W**, Postlethwaite AE. Sex Differences in Correlation with Gene Expression Levels between Ifi200 Family Genes and Four Sets of Immune Disease-Relevant Genes. J Immunol Res. 2018 Aug 28;2018:1290814. doi: 10.1155/2018/1290814. eCollection 2018. PubMed PMID: 30246031; PubMed Central PMCID: PMC6136564.

Cui J, Liu L, Lu H, Wei D, Jiao Y, Jablonski MM, Williams RW, **Gu W**, Chen H.Potential effect on molecular pathways in different targeted genes in the VEGF family in retina - From the genomic point of view. Exp Eye Res. 2018 Nov;176:78-87. doi: 10.1016/j.exer.2018.06.024. Epub 2018 Jun 23. PubMed PMID: 29944851.

Hamilton, David

Al-Hashimi S, Donaldson K, Davidson R, Dhaliwal D, Jackson M, Kieval JZ, Patterson L, Stonecipher K, **Hamilton DR**; ASCRS Refractive Cataract Surgery Subcommittee. Medical and surgical management of the small pupil during

cataract surgery. J Cataract Refract Surg. 2018 Aug;44(8):1032-1041. doi:10.1016/j.jcrs.2018.02.027. Epub 2018 Jul 19. Review. PubMed PMID: 30033113.

Hamre, Kristin

Théberge ET, Baker JA, Dubose C, Boyle JK, Balce K, Goldowitz D, **Hamre KM**. Genetic Influences on the Amount of Cell Death in the Neural Tube of BXD Mice Exposed to Acute Ethanol at Midgestation. Alcohol Clin Exp Res. 2019 Mar;43(3):439-452. doi: 10.1111/acer.13947. Epub 2019 Feb 12. PubMed PMID: 30589433; PubMed Central PMCID: PMC6410727.

Zhou D, Zhao Y, Hook M, Zhao W, Starlard-Davenport A, Cook MN, Jones BC, **Hamre KM**, Lu L. Ethanol's Effect on Coq7 Expression in the Hippocampus of Mice. Front Genet. 2018 Dec 4;9:602. doi: 10.3389/fgene.2018.00602. eCollection 2018. PubMed PMID: 30564271; PubMed Central PMCID: PMC6288283.

Han, Joan

Sapio MR, Iadarola MJ, LaPaglia DM, Lehky T, Thurm AE, Danley KM, Fuhr SR, Lee MD, Huey AE, Sharp SJ, Tsao JW, Yanovski JA, Mannes AJ, **Han JC**. Haploinsufficiency of the brain-derived neurotrophic factor gene is associated with reduced pain sensitivity. Pain. 2019 May;160(5):1070-1081. doi:10.1097/j.pain.0000000000001485. PubMed PMID: 30855519; PubMed Central PMCID: PMC6476691.

McAllan L, Maynard KR, Kardian AS, Stayton AS, Fox SL, Stephenson EJ, Kinney CE, Alshibli NK, Gomes CK, Pierre JF, Puchowicz MA, Bridges D, Martinowich K, **Han JC**. Disruption of brain-derived neurotrophic factor production from individual promoters generates distinct body composition phenotypes in mice. Am J Physiol Endocrinol Metab. 2018 Dec 1;315(6):E1168-E1184. doi: 10.1152/ajpendo.00205.2018. Epub 2018 Sep 25. PubMed PMID: 30253111; PubMed Central PMCID: PMC6336959.

Delahaye LB, Bloomer RJ, Butawan MB, Wyman JM, Hill JL, Lee HW, Liu AC, McAllan L, **Han JC**, van der Merwe M. Time-restricted feeding of a high-fat diet in male C57BL/6 mice reduces adiposity but does not protect against increased systemic inflammation. Appl Physiol Nutr Metab. 2018 Oct;43(10):1033-1042. doi: 10.1139/apnm-2017-0706. Epub 2018 May 2. PubMed PMID: 29717885.

Heck, Detlef

McAfee SS, Liu Y, Sillitoe RV, **Heck DH**. Cerebellar Lobulus Simplex and Crus I Differentially Represent Phase and Phase Difference of Prefrontal Cortical and Hippocampal Oscillations. Cell Rep. 2019 May 21;27(8):2328-2334.e3. doi:10.1016/j.celrep.2019.04.085. PubMed PMID: 31116979; PubMed Central PMCID: PMC6538275.

McAfee SS, Liu Y, Dhamala M, **Heck DH**. Thalamocortical Communication in the Awake Mouse Visual System Involves Phase Synchronization and Rhythmic Spike Synchrony at High Gamma Frequencies. Front Neurosci. 2018 Nov 22;12:837. doi:10.3389/fnins.2018.00837. eCollection 2018. PubMed PMID: 30524224; PubMed Central PMCID: PMC6262025.

Dhanushkodi A, Xue Y, Roguski EE, Ding Y, Matta SG, **Heck D**, Fan GH, McDonald MP. Lentiviral-mediated knock-down of GD3 synthase protects against MPTP-induced motor deficits and neurodegeneration. Neurosci Lett. 2019 Jan 23;692:53-63. doi: 10.1016/j.neulet.2018.10.038. Epub 2018 Nov 1. PubMed PMID: 30391320; PubMed Central PMCID: PMC6372990.

Lackey EP, **Heck DH**, Sillitoe RV. Recent advances in understanding the mechanisms of cerebellar granule cell development and function and their contribution to behavior. F1000Res. 2018 Jul 26;7. pii: F1000 Faculty Rev-1142. doi: 10.12688/f1000research.15021.1. eCollection 2018. Review. PubMed PMID: 30109024; PubMed Central PMCID: PMC6069759.

Hevener, Kirk

Jones JA, Prior AM, Marreddy RKR, Wahrmund RD, Hurdle JG, Sun D, **Hevener KE**. Small-Molecule Inhibition of the C. difficile FAS-II Enzyme, FabK, Results in Selective Activity. ACS Chem Biol. 2019 Jul 19;14(7):1528-1535. doi: 10.1021/acschembio.9b00293. Epub 2019 Jun 26. PubMed PMID: 31184849; PubMed Central PMCID: PMC6642025.

Luna-Tapia A, DeJarnette C, Sansevere E, Reitler P, Butts A, **Hevener KE**, Palmer GE. The Vacuolar Ca(2+) ATPase Pump Pmc1p Is Required for Candida albicans Pathogenesis. mSphere. 2019 Feb 6;4(1). pii: e00715-18. doi: 10.1128/mSphere.00715-18. PubMed PMID: 30728284; PubMed Central PMCID: PMC6365616.

Zhang M, Prior AM, Maddox MM, Shen WJ, **Hevener KE**, Bruhn DF, Lee RB, Singh AP, Reinicke J, Simmons CJ, Hurdle JG, Lee RE, Sun D. Pharmacophore Modeling, Synthesis, and Antibacterial Evaluation of Chalcones and Derivatives. ACS Omega. 2018 Dec 31;3(12):18343-18360. doi: 10.1021/acsomega.8b03174. Epub 2018 Dec 26. PubMed PMID: 30613820; PubMed Central PMCID: PMC6312637.

Marreddy RKR, Wu X, Sapkota M, Prior AM, Jones JA, Sun D, **Hevener KE**, Hurdle JG. The Fatty Acid Synthesis Protein Enoyl-ACP Reductase II (FabK) is a Target for Narrow-Spectrum Antibacterials for Clostridium difficile Infection. ACS Infect Dis. 2019 Feb 8;5(2):208-217. doi: 10.1021/acsinfecdis.8b00205. Epub 2018 Dec 13. PubMed PMID: 30501172.

Jablonski, Monica

Janga KY, Tatke A, Dudhipala N, Balguri SP, Ibrahim MM, Maria DN, **Jablonski MM**, Majumdar S. Gellan Gum Based Sol-to-Gel Transforming System of Natamycin Transfersomes Improves Topical Ocular Delivery. J Pharmacol Exp Ther. 2019 Sep;370(3):814-822. doi: 10.1124/jpet.119.256446. Epub 2019 Mar 14. PubMed PMID: 30872389.

Tatke A, Dudhipala N, Janga KY, Balguri SP, Avula B, **Jablonski MM**, Majumdar S. In Situ Gel of Triamcinolone Acetonide-Loaded Solid Lipid Nanoparticles for Improved Topical Ocular Delivery: Tear Kinetics and Ocular Disposition Studies. Nanomaterials (Basel). 2018 Dec 27;9(1). pii: E33. doi: 10.3390/nano9010033. PubMed PMID: 30591688; PubMed Central PMCID: PMC6358857.

Chekuri A, Sahu B, Chavali VRM, Voronchikhina M, Soto-Hermida A, Suk JJ, Alapati AN, Bartsch DU, Ayala-Ramirez R, Zenteno JC, Dinculescu A, **Jablonski MM**, Borooah S, Ayyagari R. Long-Term Effects of Gene Therapy in a Novel Mouse Model of Human MFRP-Associated Retinopathy. Hum Gene Ther. 2019 May;30(5):632-650. doi:10.1089/hum.2018.192. Epub 2019 Jan 16. PubMed PMID: 30499344; PubMed Central PMCID: PMC6534092.

Cui J, Li J, Lu H, Yu H, Wei D, Jiao Y, **Jablonski MM**, Gu W, Chen H. Data sets of eQTL loci, correlation analysis, and overlapped genes among gene sets that their expression levels are closely related to genes of Vegf family. Data Brief. 2018 Sep 8;20:1854-1860. doi: 10.1016/j.dib.2018.09.004. eCollection 2018 Oct. PubMed PMID: 30294635; PubMed Central PMCID: PMC6169370.

Cui J, Liu L, Lu H, Wei D, Jiao Y, **Jablonski MM**, Williams RW, Gu W, Chen H. Potential effect on molecular pathways in different targeted genes in the VEGF family in retina - From the genomic point of view. Exp Eye Res. 2018 Nov;176:78-87. doi: 10.1016/j.exer.2018.06.024. Epub 2018 Jun 23. PubMed PMID: 29944851.

Janga KY, Tatke A, Shukla S, Lamichhane SP, Avula B, Wang X, **Jablonski MM**, Khan IA, Majumdar S. Retina Compatible Interactions and Effective Modulation of Blood Ocular Barrier P-gp Activity by Third-Generation Inhibitors Improve the Ocular Penetration of Loperamide. J Pharm Sci. 2018 Aug;107(8):2128-2135. doi:10.1016/j.xphs.2018.04.008. Epub 2018 Apr 17. PubMed PMID: 29678592.

Jaggar, Jonathan

Zawieja SD, Castorena JA, Gui P, Li M, Bulley SA, **Jaggar JH**, Rock JR, Davis MJ. Ano1 mediates pressure-sensitive contraction frequency changes in mouse lymphatic collecting vessels. J Gen Physiol. 2019 Apr 1;151(4):532-554. doi:10.1085/jgp.201812294. Epub 2019 Mar 12. PubMed PMID: 30862712; PubMed Central PMCID: PMC6445586.

Bulley S, Fernández-Peña C, Hasan R, Leo MD, Muralidharan P, Mackay CE, Evanson KW, Moreira-Junior L, Mata-Daboin A, Burris SK, Wang Q, Kuruvilla KP, **Jaggar JH**. Arterial smooth muscle cell PKD2 (TRPP1) channels regulate systemic blood pressure. Elife. 2018 Dec 4;7. pii: e42628. doi: 10.7554/eLife.42628. PubMed PMID: 30511640; PubMed Central PMCID: PMC6281320.

Leo MD, Zhai X, Yin W, **Jaggar JH**. Impaired Trafficking of β1 Subunits Inhibits BK Channels in Cerebral Arteries of Hypertensive Rats. Hypertension. 2018 Sep;72(3):765-775. doi: 10.1161/HYPERTENSIONAHA.118.11147. PubMed PMID: 30012867; PubMed Central PMCID: PMC6202242.

Jones, Byron

Parks C, Giorgianni F, **Jones BC**, Beranova-Giorgianni S, Moore Ii BM, Mulligan MK. Comparison and Functional Genetic Analysis of Striatal Protein Expression Among Diverse Inbred Mouse Strains. Front Mol Neurosci. 2019 May 24;12:128. doi: 10.3389/fnmol.2019.00128. eCollection 2019. PubMed PMID: 31178692; PubMed Central PMCID: PMC6543464.

Terenina EE, Cavigelli S, Mormede P, Zhao W, Parks C, Lu L, **Jones BC**, Mulligan MK. Genetic Factors Mediate the Impact of Chronic Stress and Subsequent Response to Novel Acute Stress. Front Neurosci. 2019 May 21;13:438. doi:10.3389/fnins.2019.00438. eCollection 2019. PubMed PMID: 31164799; PubMed Central PMCID: PMC6536627.

Mulligan MK, Lu L, Cavigelli SA, Mormède P, Terenina E, Zhao W, Williams RW, **Jones BC**. Impact of Genetic Variation on Stress-Related Ethanol Consumption. Alcohol Clin Exp Res. 2019 Jul;43(7):1391-1402. doi: 10.1111/acer.14073. Epub 2019 May 21. PubMed PMID: 31034606.

Hook M, Xu F, Terenina E, Zhao W, Starlard-Davenport A, Mormede P, **Jones BC**, Mulligan MK, Lu L. Exploring the involvement of Tac2 in the mouse hippocampal stress response through gene networking. Gene. 2019 May 15;696:176-185. doi:10.1016/j.gene.2019.02.013. Epub 2019 Feb 12. PubMed PMID: 30769143.

Zhou D, Zhao Y, Hook M, Zhao W, Starlard-Davenport A, Cook MN, **Jones BC**, Hamre KM, Lu L. Ethanol's Effect on Coq7 Expression in the Hippocampus of Mice. Front Genet. 2018 Dec 4;9:602. doi: 10.3389/fgene.2018.00602. eCollection 2018. PubMed PMID: 30564271; PubMed Central PMCID: PMC6288283.

Mulligan MK, Zhao W, Dickerson M, Arends D, Prins P, Cavigelli SA, Terenina E, Mormede P, Lu L, **Jones BC**. Genetic Contribution to Initial and Progressive Alcohol Intake Among Recombinant Inbred Strains of Mice. Front Genet. 2018 Sep 25;9:370. doi:10.3389/fgene.2018.00370. eCollection 2018. PubMed PMID: 30319684; PubMed Central PMCID: PMC6167410.

Jonsson, Colleen

Jonsson CB, Cao X, Lee J, Gabbard JD, Chu YK, Fitzpatrick EA, Julander J, Chung DH, Stabenow J, Golden JE. Efficacy of a ML336 derivative against Venezuelan and eastern equine encephalitis viruses. Antiviral Res. 2019 Jul;167:25-34. doi: 10.1016/j.antiviral.2019.04.004. Epub 2019 Apr 7. PubMed PMID: 30970271.

Wongsurawat T, Jenjaroenpun P, Taylor MK, Lee J, Tolardo AL, Parvathareddy J, Kandel S, Wadley TD, Kaewnapan B, Athipanyasilp N, Skidmore A, Chung D, Chaimayo C, Whitt M, Kantakamalakul W, Sutthent R, Horthongkham N, Ussery

DW, **Jonsson CB**, Nookaew I. Rapid Sequencing of Multiple RNA Viruses in Their Native Form. Front Microbiol. 2019 Feb 25;10:260. doi: 10.3389/fmicb.2019.00260. eCollection 2019. PubMed PMID: 30858830; PubMed Central PMCID: PMC6398364.

Eastwood G, Camp JV, Chu YK, Sawyer AM, Owen RD, Cao X, Taylor MK, Valdivieso-Torres L, Sage RD, Yu A, Goodin DG, Martinez Bruyn VJ, McAllister RC, Rodriguez L, William EP, **Jonsson CB**. Habitat, species richness and hantaviruses of sigmodontine rodents within the Interior Atlantic Forest, Paraguay. PLoS One. 2018 Aug 1;13(8):e0201307. doi: 10.1371/journal.pone.0201307. eCollection 2018. PubMed PMID: 30067840; PubMed Central PMCID: PMC6070238.

Khan, Mohammad Moshahid

Khan MM, Xiao J, Hollingsworth TJ, Patel D, Selley DE, Ring TL, LeDoux MS. Gnal haploinsufficiency causes genomic instability and increased sensitivity to haloperidol. Exp Neurol. 2019 Aug;318:61-70. doi:10.1016/j.expneurol.2019.04.014. Epub 2019 Apr 26. PubMed PMID: 31034808.

Xiao J, **Khan MM**, Vemula S, Tian J, LeDoux MS. Consequences of Cre-mediated deletion of Ciz1 exon 5 in mice. FEBS Lett. 2018 Sep;592(18):3101-3110. doi:10.1002/1873-3468.13221. Epub 2018 Aug 29. PubMed PMID: 30098009; PubMed Central PMCID: PMC6275157.

Kurosu, Michio

Kurosu M. Structure-based drug discovery by targeting N-glycan biosynthesis, dolichyl-phosphate N-acetylglucosaminephosphotransferase. Future Med Chem. 2019 May;11(9):927-933. doi: 10.4155/fmc-2018-0405. Epub 2019 Mar 25. PubMed PMID: 30907628; PubMed Central PMCID: PMC6587103.

Mitachi K, Kurosu SM, Eslamimehr S, Lemieux MR, Ishizaki Y, Clemons WM Jr, **Kurosu M**. Semisynthesis of an Anticancer DPAGT1 Inhibitor from a Muraymycin Biosynthetic Intermediate. Org Lett. 2019 Feb 15;21(4):876-879. doi:10.1021/acs.orglett.8b03716. Epub 2019 Jan 30. PubMed PMID: 30698984; PubMed Central PMCID: PMC6447083.

Lemieux MR, Siricilla S, Mitachi K, Eslamimehr S, Wang Y, Yang D, Pressly JD, Kong Y, Park F, Franzblau SG, **Kurosu M**. An antimycobacterial pleuromutilin analogue effective against dormant bacilli. Bioorg Med Chem. 2018 Sep 15;26(17):4787-4796. doi: 10.1016/j.bmc.2018.07.034. Epub 2018 Aug 18. PubMed PMID: 30145051; PubMed Central PMCID: PMC6154393.

Laribee, Ronald Nick

Chen, H, Sirupangi, T., **Wu, ZH**, Johnson, DL, RN Laribee. The conserved RNA recognition motif and C3H1 domain of the Not4 ubiquitin ligase regulate in vivo ligase function. Scientific Reports 8(1): 1 December 2018. doi: PubMed PMID: 29802328.

Ledoux, Mark

Khan MM, Xiao J, Hollingsworth TJ, Patel D, Selley DE, Ring TL, **LeDoux MS**. Gnal haploinsufficiency causes genomic instability and increased sensitivity to haloperidol. Exp Neurol. 2019 Aug;318:61-70. doi:10.1016/j.expneurol.2019.04.014. Epub 2019 Apr 26. PubMed PMID: 31034808.

Xiao J, Khan MM, Vemula S, Tian J, **LeDoux MS**. Consequences of Cre-mediated deletion of Ciz1 exon 5 in mice. FEBS Lett. 2018 Sep;592(18):3101-3110. doi:10.1002/1873-3468.13221. Epub 2018 Aug 29. PubMed PMID: 30098009; PubMed Central PMCID: PMC6275157.

Li, Wei

Arnst KE, Wang Y, Lei ZN, Hwang DJ, Kumar G, Ma D, Parke DN, Chen Q, Yang J, White SW, Seagroves TN, Chen ZS, Miller DD, **Li W**. Colchicine Binding Site Agent DJ95 Overcomes Drug Resistance and Exhibits Antitumor Efficacy. Mol Pharmacol. 2019 Jul;96(1):73-89. doi: 10.1124/mol.118.114801. Epub 2019 May 1. PubMed PMID: 31043459; PubMed Central PMCID: PMC6553560.

Yang R, Chen H, Guo D, Dong Y, Miller DD, **Li W**, Mahato RI. Polymeric Micellar Delivery of Novel Microtubule Destabilizer and Hedgehog Signaling Inhibitor for Treating Chemoresistant Prostate Cancer. J Pharmacol Exp Ther. 2019Sep;370(3):864-875. doi: 10.1124/jpet.119.256628. Epub 2019 Apr 17. PubMed PMID: 30996033.

Kashyap VK, Wang Q, Setua S, Nagesh PKB, Chauhan N, Kumari S, Chowdhury P, Miller DD, Yallapu MM, **Li W**, Jaggi M, Hafeez BB, Chauhan SC. Therapeutic efficacy of a novel βIII/βIV-tubulin inhibitor (VERU-111) in pancreatic cancer. J Exp Clin Cancer Res. 2019 Jan 23;38(1):29. doi: 10.1186/s13046-018-1009-7. PubMed PMID: 30674344; PubMed Central PMCID: PMC6343279.

Mangoni AA, Guillou C, Vanden Eynde JJ, Hulme C, Jampilek J, **Li W**, Prokai-Tatrai K, Rautio J, Collina S, Tuccinardi T, Sousa ME, Sabatier JM, Galdiero S, Karaman R, Kokotos G, Torri G, Luque FJ, Vasconcelos MH, Hadjipavlou-Litina D, Siciliano C, Gütschow M, Ragno R, Gomes PAC, Agrofoglio LA, Muñoz-Torrero D. Breakthroughs in Medicinal Chemistry: New Targets and Mechanisms, New Drugs, New Hopes¯4. Molecules. 2018 Dec 31;24(1). pii: E130. doi:10.3390/molecules24010130. PubMed PMID: 30602690; PubMed Central PMCID: PMC6337331.

Wang B, Li X, Zhao G, Yan H, Dong P, Watari H, Sims M, **Li W**, Pfeffer LM, Guo Y, Yue J. miR-203 inhibits ovarian tumor metastasis by targeting BIRC5 and attenuating the TGFβ pathway. J Exp Clin Cancer Res. 2018 Sep 21;37(1):235. doi:10.1186/s13046-018-0906-0. PubMed PMID: 30241553; PubMed Central PMCID: PMC6150978.

Xiao M, Xue Y, Wu Z, Lei ZN, Wang J, Chen ZS, **Li W**. Design, synthesis and biological evaluation of selective survivin inhibitors. J Biomed Res. 2019 Apr 22;33(2):82-100. doi: 10.7555/JBR.31.20160173. PubMed PMID: 30174320; PubMed Central PMCID: PMC6477172.

Wang Q, Arnst KE, Wang Y, Kumar G, Ma D, Chen H, Wu Z, Yang J, White SW, Miller DD, **Li W**. Structural Modification of the 3,4,5-Trimethoxyphenyl Moiety in the Tubulin Inhibitor VERU-111 Leads to Improved Antiproliferative Activities. J Med Chem. 2018 Sep 13;61(17):7877-7891. doi: 10.1021/acs.jmedchem.8b00827. Epub 2018 Aug 30. PubMed PMID: 30122035; PubMed Central PMCID: PMC6637749.

Bumbaca B, **Li W**. Taxane resistance in castration-resistant prostate cancer: mechanisms and therapeutic strategies. Acta Pharm Sin B. 2018 Jul;8(4):518-529. doi: 10.1016/j.apsb.2018.04.007. Epub 2018 Apr 30. Review. PubMed PMID: 30109177; PubMed Central PMCID: PMC6089846.

Wang W, Zhang B, Mani AM, Wu Z, Fan Y, **Li W**, Wu ZH. Survivin Inhibitors Mitigate Chemotherapeutic Resistance in Breast Cancer Cells by Suppressing Genotoxic Nuclear Factor-κB Activation. J Pharmacol Exp Ther. 2018 Jul;366(1):184-193. doi: 10.1124/jpet.118.249151. Epub 2018 May 7. PubMed PMID: 29735611; PubMed Central PMCID: PMC6038029.

Liao, Francesca-Fang

Li L, Ismael S, Nasoohi S, Sakata K, **Liao FF**, McDonald MP, Ishrat T. Thioredoxin-Interacting Protein (TXNIP) Associated NLRP3 Inflammasome Activation in Human Alzheimer's Disease Brain. J Alzheimers Dis. 2019;68(1):255-265. doi:10.3233/JAD-180814. PubMed PMID: 30741672.

Lu, Lu

Hirono K, Saito K, Munkhsaikhan U, Xu F, Wang C, **Lu L**, Ichida F, Towbin JA, Purevjav E. Familial Left Ventricular Non-Compaction Is Associated With a Rare p.V407I Variant in Bone Morphogenetic Protein 10. Circ J. 2019 Jul 25;83(8):1737-1746. doi: 10.1253/circj.CJ-19-0116. Epub 2019 Jun 26. PubMed PMID: 31243186.

Mulligan MK, **Lu L**, Cavigelli SA, Mormède P, Terenina E, Zhao W, Williams RW, Jones BC. Impact of Genetic Variation on Stress-Related Ethanol Consumption. Alcohol Clin Exp Res. 2019 Jul;43(7):1391-1402. doi: 10.1111/acer.14073. Epub 2019 May 21. PubMed PMID: 31034606.

Terenina EE, Cavigelli S, Mormede P, Zhao W, Parks C, **Lu L**, Jones BC, Mulligan MK. Genetic Factors Mediate the Impact of Chronic Stress and Subsequent Response to Novel Acute Stress. Front Neurosci. 2019 May 21;13:438. doi:10.3389/fnins.2019.00438. eCollection 2019. PubMed PMID: 31164799; PubMed Central PMCID: PMC6536627.

Hook M, Xu F, Terenina E, Zhao W, Starlard-Davenport A, Mormede P, Jones BC, Mulligan MK, **Lu L**. Exploring the involvement of Tac2 in the mouse hippocampal stress response through gene networking. Gene. 2019 May 15;696:176-185. doi: 10.1016/j.gene.2019.02.013. Epub 2019 Feb 12. PubMed PMID: 30769143.

Lu Y, Zhou D, Lu H, Xu F, Yue J, Tong J, **Lu L**. Investigating a downstream gene of Gpnmb using the systems genetics method. Mol Vis. 2019 Apr 23;25:222-

236.eCollection 2019. PubMed PMID: 31057322; PubMed Central PMCID: PMC6478243.

Mulligan MK, Abreo T, Neuner SM, Parks C, Watkins CE, Houseal MT, Shapaker TM,Hook M, Tan H, Wang X, Ingels J, Peng J, **Lu L**, Kaczorowski CC, Bryant CD, Homanics GE, Williams RW. Identification of a Functional Non-coding Variant in the GABA (A) Receptor α2 Subunit of the C57BL/6J Mouse Reference Genome: Major Implications for Neuroscience Research. Front Genet. 2019 Mar 29;10:188. doi:10.3389/fgene.2019.00188. eCollection 2019. PubMed PMID: 30984232; PubMed Central PMCID: PMC6449455.

Chen Y, Zhu L, Ji L, Yang Y, **Lu L**, Wang X, Zhou G. Silencing the ACAT1 Gene in Human SH-SY5Y Neuroblastoma Cells Inhibits the Expression of Cyclo-Oxygenase 2 (COX2) and Reduces β-Amyloid-Induced Toxicity Due to Activation of Protein Kinase C (PKC) and ERK. Med Sci Monit. 2018 Dec 12;24:9007-9018. doi:10.12659/MSM.912862. PubMed PMID: 30541014; PubMed Central PMCID: PMC6299791. Zhou D, Zhao Y, Hook M, Zhao W, Starlard-Davenport A, Cook MN, Jones BC, Hamre KM, Lu L. Ethanol's Effect on Coq7 Expression in the Hippocampus of Mice. Front Genet. 2018 Dec 4;9:602. doi: 10.3389/fgene.2018.00602. eCollection 2018. PubMed PMID: 30564271; PubMed Central PMCID: PMC6288283.

Wilson CL, Howell CR, Partin RE, **Lu L**, Kaste SC, Mulrooney DA, Pui CH, Lanctot JQ, Srivastava DK, Robison LL, Hudson MM, Ness KK. Influence of fitness on health status among survivors of acute lymphoblastic leukemia. Pediatr Blood Cancer. 2018 Nov;65(11):e27286. doi: 10.1002/pbc.27286. Epub 2018 Jul 29. PubMed PMID: 30058279; PubMed Central PMCID: PMC6150801.

Zhang FF, Hudson MM, Huang IC, Bhakta N, Ness KK, Brinkman TM, Klosky J, **Lu L**, Chen F, Ojha RP, Lanctot JQ, Robison LL, Krull KR. Lifestyle factors and health-related quality of life in adult survivors of childhood cancer: A report from the St. Jude Lifetime Cohort Study. Cancer. 2018 Oct 1;124(19):3918-3923. doi: 10.1002/cncr.31647. Epub 2018 Sep 11. PubMed PMID: 30204245; PubMed Central PMCID: PMC6226352.

Mulligan MK, Zhao W, Dickerson M, Arends D, Prins P, Cavigelli SA, Terenina E, Mormede P, **Lu L**, Jones BC. Genetic Contribution to Initial and Progressive Alcohol Intake Among Recombinant Inbred Strains of Mice. Front Genet. 2018 Sep 25;9:370. doi: 10.3389/fgene.2018.00370. eCollection 2018. PubMed PMID:

30319684; PubMed Central PMCID: PMC6167410.

Hook M, Roy S, Williams EG, Bou Sleiman M, Mozhui K, Nelson JF, **Lu L**, Auwerx J, Williams RW. Genetic cartography of longevity in humans and mice: Currentlandscape and horizons. Biochim Biophys Acta Mol Basis Dis. 2018 Sep;1864(9 PtA):2718-2732. doi: 10.1016/j.bbadis.2018.01.026. Epub 2018 Feb 2. Review. PubMed PMID: 29410319; PubMed Central PMCID: PMC6066442.

Geng H, Bu HF, Liu F, Wu L, Pfeifer K, Chou PM, Wang X, Sun J, **Lu L**, Pandey A, Bartolomei MS, De Plaen IG, Wang P, Yu J, Qian J, Tan XD. In Inflamed Intestinal Tissues and Epithelial Cells, Interleukin 22 Signaling Increases Expression of H19 Long Noncoding RNA, Which Promotes Mucosal Regeneration. Gastroenterology. 2018 Jul;155(1):144-155. doi: 10.1053/j.gastro.2018.03.058. Epub 2018 Apr 3. PubMed PMID: 29621481; PubMed Central PMCID: PMC6475625.

Makowski, Liza

Freemerman AJ, Zhao L, Pingili AK, Teng B, Cozzo AJ, Fuller AM, Johnson AR, Milner JJ, Lim MF, Galanko JA, Beck MA, Bear JE, Rotty JD, Bezavada L, Smallwood HS, Puchowicz MA, Liu J, Locasale JW, Lee DP, Bennett BJ, Abel ED, Rathmell JC, **Makowski L**. Myeloid Slc2a1-Deficient Murine Model Revealed Macrophage Activation and Metabolic Phenotype Are Fueled by GLUT1. J Immunol. 2019 Feb 15;202(4):1265-1286. doi: 10.4049/jimmunol.1800002. Epub 2019 Jan 18. PubMed PMID: 30659108; PubMed Central PMCID: PMC6360258.

Malik, Kafait

Sahan-Firat S, Temiz-Resitoglu M, Guden DS, Senol SP, Sari AN, Cil M, Unsal D, Korkmaz B, Tunctan B, **Malik KU**, Buharalioglu CK. NF-κB activation mediates LPS-or zymosan-induced hypotension and inflammation reversed by BAY61-3606, a selective Syk inhibitor, in rat models of septic and non-septic shock. Clin Exp Pharmacol Physiol. 2019 Feb;46(2):173-182. doi: 10.1111/1440-1681.13045. PubMed PMID:30347478.

Mukherjee K, Song CY, Estes AM, Dhodi AN, Ormseth BH, Shin JS, Gonzalez FJ, **Malik KU**. Cytochrome P450 1B1 Is Critical for Neointimal Growth in Wire-Injured Carotid Artery of Male Mice. J Am Heart Assoc. 2018 Sep 18;7(18):e010065. doi:10.1161/JAHA.118.010065. PubMed PMID: 30371217; PubMed Central PMCID: PMC6222936.

Mancarella, Salvatore

Kimura D, Saravia J, Jaligama S, McNamara I, Vu LD, Sullivan RD, **Mancarella S**, You D, Cormier SA. New mouse model of pulmonary hypertension induced by respiratory syncytial virus bronchiolitis. Am J Physiol Heart Circ Physiol. 2018 Sep 1;315(3):H581-H589. doi: 10.1152/ajpheart.00627.2017. Epub 2018 Jun 15. PubMed PMID: 29906223; PubMed Central PMCID: PMC6172644.

Nooh MM, **Mancarella S**, Bahouth SW. Novel Paradigms Governing β(1)-Adrenergic Receptor Trafficking in Primary Adult Rat Cardiac Myocytes. Mol Pharmacol. 2018 Aug;94(2):862-875. doi: 10.1124/mol.118.112045. Epub 2018 May 30. PubMed PMID: 29848777; PubMed Central PMCID: PMC6022806.

Mas, Valeria

Traitanon O, Mathew JM, Shetty A, Bontha SV, Maluf DG, El Kassis Y, Park SH, Han J, Ansari MJ, Leventhal JR, **Mas V**, Gallon L. Mechanistic analyses in kidney transplant recipients prospectively randomized to two steroid free regimen-Low dose Tacrolimus with Everolimus versus standard dose Tacrolimus with Mycophenolate Mofetil. PLoS One. 2019 May 28;14(5):e0216300. doi:10.1371/journal.pone.0216300. eCollection 2019. PubMed PMID: 31136582; PubMed Central PMCID: PMC6538151.

McDonald, Michael

Dhanushkodi A, Xue Y, Roguski EE, Ding Y, Matta SG, Heck D, Fan GH, **McDonald MP**. Lentiviral-mediated knock-down of GD3 synthase protects against MPTP-induced motor deficits and neurodegeneration. Neurosci Lett. 2019 Jan 23;692:53-63. doi:10.1016/j.neulet.2018.10.038. Epub 2018 Nov 1. PubMed PMID: 30391320; PubMedCentral PMCID: PMC6372990.

Li L, Ismael S, Nasoohi S, Sakata K, Liao FF, **McDonald MP**, Ishrat T. Thioredoxin-Interacting Protein (TXNIP) Associated NLRP3 Inflammasome Activation in Human Alzheimer's Disease Brain. J Alzheimers Dis. 2019;68(1):255-265. doi:10.3233/JAD-180814. PubMed PMID: 30741672.

Kulas JA, Hettwer JV, Sohrabi M, Melvin JE, Manocha GD, Puig KL, Gorr MW, Tanwar V, **McDonald MP**, Wold LE, Combs CK. In utero exposure to fine particulate matter results in an altered neuroimmune phenotype in adult mice. Environ Pollut. 2018 Oct;241:279-288. doi: 10.1016/j.envpol.2018.05.047. Epub 2018 May 22. PubMed PMID: 29843010; PubMed Central PMCID: PMC6082156.

Meibohm, Bernd

Chowdhury P, Nagesh PKB, Hatami E, Wagh S, Dan N, Tripathi MK, Khan S, Hafeez BB, **Meibohm B**, Chauhan SC, Jaggi M, Yallapu MM. Tannic acid-inspired paclitaxel nanoparticles for enhanced anticancer effects in breast cancer cells. J Colloid Interface Sci. 2019 Feb 1;535:133-148. doi: 10.1016/j.jcis.2018.09.072. Epub 2018 Sep 22. PubMed PMID: 30292104.

Miranda, Susan (Krum)

Lillo Osuna MA, Garcia-Lopez J, El Ayachi I, Fatima I, Khalid AB, Kumpati J, Slayden AV, Seagroves TN, Miranda-Carboni GA, **Krum SA**. Activation of Estrogen Receptor Alpha by Decitabine Inhibits Osteosarcoma Growth and Metastasis. Cancer Res. 2019 Mar 15;79(6):1054-1068. doi: 10.1158/0008-5472.CAN-18-1255. Epub 2018 Dec 28. PubMed PMID: 30593524; PubMed Central PMCID: PMC6420872.

El Ayachi I, Fatima I, Wend P, Alva-Ornelas JA, Runke S, Kuenzinger WL, Silva J, Silva W, Gray JK, Lehr S, Barch HC, Krutilina RI, White AC, Cardiff R, Yee LD, Yang L, O'Regan RM, Lowry WE, Seagroves TN, Seewaldt V, **Krum SA**, Miranda-Carboni GA. The WNT10B Network Is Associated with Survival and Metastases in Chemoresistant Triple-Negative Breast Cancer. Cancer Res. 2019 Mar 1;79(5):982-993. doi: 10.1158/0008-5472.CAN-18-1069. Epub 2018 Dec 18. PubMed PMID: 30563890.

Khalid AB, Slayden AV, Kumpati J, Perry CD, Berryhill SB, Crawford JA, Fatima I, Morselli M, Pellegrini M, Miranda-Carboni GA, **Krum SA**. GATA4 represses RANKL in osteoblasts via multiple long-range enhancers to regulate osteoclast differentiation. Bone. 2018 Nov;116:78-86. doi: 10.1016/j.bone.2018.07.014. Epub 2018 Jul 19. PubMed PMID: 30031905; PubMed Central PMCID: PMC6158087.

Miranda-Carboni, Gustavo

Lillo Osuna MA, Garcia-Lopez J, El Ayachi I, Fatima I, Khalid AB, Kumpati J, Slayden AV, Seagroves TN, **Miranda-Carboni GA**, Krum SA. Activation of Estrogen Receptor Alpha by Decitabine Inhibits Osteosarcoma Growth and Metastasis. Cancer Res. 2019 Mar 15;79(6):1054-1068. doi: 10.1158/0008-5472.CAN-18-1255. Epub 2018 Dec 28. PubMed PMID: 30593524; PubMed Central PMCID: PMC6420872.

El Ayachi I, Fatima I, Wend P, Alva-Ornelas JA, Runke S, Kuenzinger WL, Silva J, Silva W, Gray JK, Lehr S, Barch HC, Krutilina RI, White AC, Cardiff R, Yee LD,

Yang L, O'Regan RM, Lowry WE, Seagroves TN, Seewaldt V, Krum SA, **Miranda-Carboni GA**. The WNT10B Network Is Associated with Survival and Metastases in Chemoresistant Triple-Negative Breast Cancer. Cancer Res. 2019 Mar1;79(5):982-993. doi: 10.1158/0008-5472.CAN-18-1069. Epub 2018 Dec 18. PubMed PMID: 30563890.

Khalid AB, Slayden AV, Kumpati J, Perry CD, Berryhill SB, Crawford JA, Fatima I, Morselli M, Pellegrini M, **Miranda-Carboni GA**, Krum SA. GATA4 represses RANKL in osteoblasts via multiple long-range enhancers to regulate osteoclast differentiation. Bone. 2018 Nov;116:78-86. doi: 10.1016/j.bone.2018.07.014. Epub 2018 Jul 19. PubMed PMID: 30031905; PubMed Central PMCID: PMC6158087.

Morales-Tirado, Vanessa

Jones NM, Yang H, Zhang Q, **Morales-Tirado VM**, Grossniklaus HE. Natural killer cells and pigment epithelial-derived factor control the infiltrative and nodular growth of hepatic metastases in an Orthotopic murine model of ocular melanoma. BMC Cancer. 2019 May 22;19(1):484. doi: 10.1186/s12885-019-5712-3. PubMed PMID: 31117965; PubMed Central PMCID: PMC6532210.

Mozhui, Khyobeni

Bartlett AH, Liang JW, Sandoval-Sierra JV, Fowke JH, Simonsick EM, Johnson KC, **Mozhui K**. Longitudinal study of leukocyte DNA methylation and biomarkers for cancer risk in older adults. Biomark Res. 2019 May 28;7:10. doi:10.1186/s40364-019-0161-3. eCollection 2019. PubMed PMID: 31149338; PubMed Central PMCID: PMC6537435.

Reidy KJ, Hjorten RC, Simpson CL, Rosenberg AZ, Rosenblum SD, Kovesdy CP, Tylavsky FA, Myrie J, Ruiz BL, Haque S, **Mozhui K**, Nelson GW, David VA, Yang X, Suzuki M, Jacob J, Reznik SE, Kaskel FJ, Kopp JB, Winkler CA, Davis RL. Fetal-Not Maternal-APOL1 Genotype Associated with Risk for Preeclampsia in Those with African Ancestry. Am J Hum Genet. 2018 Sep 6;103(3):367-376. doi:10.1016/j.ajhg.2018.08.002. Epub 2018 Aug 30. PubMed PMID: 30173819; PubMed Central PMCID: PMC6128247.

Mulligan, Megan

Mulligan MK, Lu L, Cavigelli SA, Mormède P, Terenina E, Zhao W, Williams RW, Jones BC. Impact of Genetic Variation on Stress-Related Ethanol Consumption. Alcohol Clin Exp Res. 2019 Jul;43(7):1391-1402. doi: 10.1111/acer.14073. Epub 2019 May 21. PubMed PMID: 31034606.

Nowak TS Jr, **Mulligan MK**. Impact of C57BL/6 substrain on sex-dependent differences in mouse stroke models. Neurochem Int. 2019 Jul;127:12-21. doi:10.1016/j.neuint.2018.11.011. Epub 2018 Nov 15. Review. PubMed PMID: 30448566.

Parks C, Giorgianni F, Jones BC, Beranova-Giorgianni S, Moore Ii BM, **Mulligan MK**. Comparison and Functional Genetic Analysis of Striatal Protein Expression Among Diverse Inbred Mouse Strains. Front Mol Neurosci. 2019 May 24;12:128. doi:10.3389/fnmol.2019.00128. eCollection 2019. PubMed PMID: 31178692; PubMed Central PMCID: PMC6543464.

Terenina EE, Cavigelli S, Mormede P, Zhao W, Parks C, Lu L, Jones BC, **Mulligan MK**. Genetic Factors Mediate the Impact of Chronic Stress and Subsequent Response to Novel Acute Stress. Front Neurosci. 2019 May 21;13:438. doi:10.3389/fnins.2019.00438. eCollection 2019. PubMed PMID: 31164799; PubMed Central PMCID: PMC6536627.

Hook M, Xu F, Terenina E, Zhao W, Starlard-Davenport A, Mormede P, Jones BC, **Mulligan MK**, Lu L. Exploring the involvement of Tac2 in the mouse hippocampal stress response through gene networking. Gene. 2019 May 15;696:176-185. doi:10.1016/j.gene.2019.02.013. Epub 2019 Feb 12. PubMed PMID: 30769143.

Mulligan MK, Abreo T, Neuner SM, Parks C, Watkins CE, Houseal MT, Shapaker TM, Hook M, Tan H, Wang X, Ingels J, Peng J, Lu L, Kaczorowski CC, Bryant CD, Homanics GE, Williams RW. Identification of a Functional Non-coding Variant in the GABA (A) Receptor α2 Subunit of the C57BL/6J Mouse Reference Genome: Major Implications for Neuroscience Research. Front Genet. 2019 Mar 29;10:188. doi:10.3389/fgene.2019.00188. eCollection 2019. PubMed PMID: 30984232; PubMed Central PMCID: PMC6449455.

Zhao L, **Mulligan MK**, Nowak TS Jr. Substrain- and sex-dependent differences in stroke vulnerability in C57BL/6 mice. J Cereb Blood Flow Metab. 2019 Mar;39(3):426-438. doi: 10.1177/0271678X17746174. Epub 2017 Dec 20. PubMed PMID: 29260927; PubMed Central PMCID: PMC6421252.

Bryant CD, Bagdas D, Goldberg LR, Khalefa T, Reed ER, Kirkpatrick SL, Kelliher JC, Chen MM, Johnson WE, **Mulligan MK**, Imad Damaj M. C57BL/6 substrain differences in inflammatory and neuropathic nociception and genetic mapping of a major quantitative trait locus underlying acute thermal nociception. Mol Pain. 2019 Jan-Dec;15:1744806918825046. doi: 10.1177/1744806918825046. PubMed PMID: 30632432; PubMed Central PMCID: PMC6365993.

Babbs RK, Kelliher JC, Scotellaro JL, Luttik KP, **Mulligan MK**, Bryant CD. Genetic differences in the behavioral organization of binge eating, conditioned food reward, and compulsive-like eating in C57BL/6J and DBA/2J strains. Physiol Behav. 2018 Dec 1;197:51-66. doi: 10.1016/j.physbeh.2018.09.013. Epub 2018 Sep 24. PubMed PMID: 30261172; PubMed Central PMCID: PMC6333425.

Lim PH, Shi G, Wang T, Jenz ST, **Mulligan MK**, Redei EE, Chen H. Genetic Model to Study the Co-Morbid Phenotypes of Increased Alcohol Intake and Prior Stress-Induced Enhanced Fear Memory. Front Genet. 2018 Nov 27;9:566. doi:10.3389/fgene.2018.00566. eCollection 2018. PubMed PMID: 30538720; PubMed Central PMCID: PMC6277590.

Farris SP, Riley BP, Williams RW, **Mulligan MK**, Miles MF, Lopez MF, Hitzemann R, Iancu OD, Colville A, Walter NAR, Darakjian P, Oberbeck DL, Daunais JB, Zheng CL, Searles RP, McWeeney SK, Grant KA, Mayfield RD. Cross-species molecular dissection across alcohol behavioral domains. Alcohol. 2018 Nov;72:19-31. doi:10.1016/j.alcohol.2017.11.036. Epub 2017 Dec 6. Review. PubMed PMID: 30213503; PubMed Central PMCID: PMC6309876.

Mulligan MK, Zhao W, Dickerson M, Arends D, Prins P, Cavigelli SA, Terenina E, Mormede P, Lu L, Jones BC. Genetic Contribution to Initial and Progressive Alcohol Intake Among Recombinant Inbred Strains of Mice. Front Genet. 2018 Sep 25;9:370. doi: 10.3389/fgene.2018.00370. eCollection 2018. PubMed PMID: 30319684; PubMed Central PMCID: PMC6167410.

Narayanan, Ramesh

Ulm M, Ramesh AV, McNamara KM, Ponnusamy S, Sasano H, **Narayanan R**. Therapeutic advances in hormone-dependent cancers: focus on prostate, breast and ovarian cancers. Endocr Connect. 2019 Feb 1;8(2):R10-R26. doi: 10.1530/EC-18-0425. Review. PubMed PMID: 30640710; PubMed Central PMCID: PMC6365668.

Hwang DJ, He Y, Ponnusamy S, Mohler ML, Thiyagarajan T, McEwan IJ, **Narayanan R**, Miller DD. New Generation of Selective Androgen Receptor Degraders: Our Initial Design, Synthesis, and Biological Evaluation of New Compounds with Enzalutamide-Resistant Prostate Cancer Activity. J Med Chem. 2019 Jan 24;62(2):491-511. doi: 10.1021/acs.jmedchem.8b00973. Epub 2018 Dec 26. PubMed PMID: 30525603.

Palmer, Glen

Tournu H, Butts A, **Palmer GE**. Titrating Gene Function in the Human Fungal Pathogen Candida albicans through Poly-Adenosine Tract Insertion. mSphere. 2019 May 22;4(3). pii: e00192-19. doi: 10.1128/mSphere.00192-19. PubMed PMID: 31118301; PubMed Central PMCID: PMC6531883.

Butts A, Reitler P, Nishimoto AT, DeJarnette C, Estredge LR, Peters TL, Veve MP, Rogers PD, **Palmer GE**. A Systematic Screen Reveals a Diverse Collection of Medications That Induce Antifungal Resistance in Candida Species. Antimicrob Agents Chemother. 2019 Apr 25;63(5). pii: e00054-19. doi: 10.1128/AAC.00054-19. Print 2019 May. PubMed PMID: 30858206; PubMed Central PMCID: PMC6496105.

Rybak JM, Doorley LA, Nishimoto AT, Barker KS, **Palmer GE**, Rogers PD. Abrogation of Triazole Resistance upon Deletion of CDR1 in a Clinical Isolate of Candida auris. Antimicrob Agents Chemother. 2019 Mar 27;63(4). pii: e00057-19. doi: 10.1128/AAC.00057-19. Print 2019 Apr. PubMed PMID: 30718246; PubMed Central PMCID: PMC6437491.

Luna-Tapia A, DeJarnette C, Sansevere E, Reitler P, Butts A, Hevener KE, **Palmer GE**. The Vacuolar Ca(2+) ATPase Pump Pmc1p Is Required for Candida albicans Pathogenesis. mSphere. 2019 Feb 6;4(1). pii: e00715-18. doi:10.1128/mSphere.00715-18. PubMed PMID: 30728284; PubMed Central PMCID: PMC6365616.

Luna-Tapia A, Butts A, **Palmer GE**. Loss of C-5 Sterol Desaturase Activity in Candida albicans: Azole Resistance or Merely Trailing Growth? Antimicrob Agents Chemother. 2018 Dec 21;63(1). pii: e01337-18. doi: 10.1128/AAC.01337-18. Print 2019 Jan. PubMed PMID: 30323044; PubMed Central PMCID: PMC6325228.

Willems HME, Lowes DJ, Barker KS, **Palmer GE**, Peters BM. Comparative Analysis of the Capacity of the Candida Species To Elicit Vaginal Immunopathology. Infect Immun. 2018 Nov 20;86(12). pii: e00527-18. doi: 10.1128/IAI.00527-18. Print 2018 Dec. PubMed PMID: 30249743; PubMed Central PMCID: PMC6246903.

Butts A, Reitler P, Ge W, Fortwendel JR, **Palmer GE**. Commonly Used Oncology Drugs Decrease Antifungal Effectiveness against Candida and Aspergillus Species. Antimicrob Agents Chemother. 2018 Jun 26;62(7). pii: e00504-18. doi:10.1128/AAC.00504-18. Print 2018 Jul. PubMed PMID: 29712657; PubMed Central PMCID: PMC6021626.

Park, Edwards

Yu H, Dilbaz S, Coßmann J, Hoang AC, Diedrich V, Herwig A, Harauma A, Hoshi Y, Moriguchi T, Landgraf K, Körner A, Lucas C, Brodesser S, Balogh L, Thuróczy J, Karemore G, Kuefner MS, **Park EA**, Rapp C, Travers JB, Röszer T. Breast milk alkylglycerols sustain beige adipocytes through adipose tissue macrophages. J Clin Invest. 2019 May 13;129(6):2485-2499. doi: 10.1172/JCI125646. eCollection 2019 May 13. PubMed PMID: 31081799; PubMed Central PMCID: PMC6546455.

Kuefner MS, Deng X, Stephenson EJ, Pham K, **Park EA**. Secretory phospholipase A(2) group IIA enhances the metabolic rate and increases glucose utilization in response to thyroid hormone. FASEB J. 2019 Jan;33(1):738-749. doi:10.1096/fj.201800711R. Epub 2018 Jul 18. PubMed PMID: 30020829.

Dong Q, Kuefner MS, Deng X, Bridges D, **Park EA**, Elam MB, Raghow R. Sex-specific differences in hepatic steatosis in obese spontaneously hypertensive (SHROB) rats. Biol Sex Differ. 2018 Sep 10;9(1):40. doi:10.1186/s13293-018-0202-x. PubMed PMID: 30201044; PubMed Central PMCID: PMC6131947.

Peters, Brian

Todd OA, Fidel PL Jr, Harro JM, Hilliard JJ, Tkaczyk C, Sellman BR, Noverr MC, **Peters BM**. Candida albicans Augments Staphylococcus aureus Virulence by Engaging the Staphylococcal agr Quorum Sensing System. MBio. 2019 Jun

4;10(3). pii:e00910-19. doi: 10.1128/mBio.00910-19. PubMed PMID: 31164467; PubMed Central PMCID: PMC6550526.

Willems HME, Lowes DJ, Barker KS, Palmer GE, **Peters BM**. Comparative Analysis of the Capacity of the Candida Species To Elicit Vaginal Immunopathology. Infect Immun. 2018 Nov 20;86(12). pii: e00527-18. doi: 10.1128/IAI.00527-18. Print 2018 Dec. PubMed PMID: 30249743; PubMed Central PMCID: PMC6246903.

Liu J, Yang L, Hou Y, Soteyome T, Zeng B, Su J, Li L, Li B, Chen D, Li Y, Wu A, Shirtliff ME, Harro JM, Xu Z, **Peters BM**. Transcriptomics Study on Staphylococcus aureus Biofilm Under Low Concentration of Ampicillin. Front Microbiol. 2018 Oct 30;9:2413. doi: 10.3389/fmicb.2018.02413. eCollection 2018. PubMed PMID: 30425687; PubMed Central PMCID: PMC6218852.

Liu J, Deng Y, Soteyome T, Li Y, Su J, Li L, Li B, Shirtliff ME, Xu Z, **Peters BM**. Induction and Recovery of the Viable but Nonculturable State of Hop-Resistance Lactobacillus brevis. Front Microbiol. 2018 Oct 15;9:2076. doi:10.3389/fmicb.2018.02076. eCollection 2018. PubMed PMID: 30374332; PubMed Central PMCID: PMC6196290.

Liu J, Xie J, Yang L, Chen D, **Peters BM**, Xu Z, Shirtliff ME. Identification of the KPC plasmid pCT-KPC334: New insights on the evolutionary pathway of epidemic plasmids harboring fosA3-bla(KPC-2) genes. Int J Antimicrob Agents. 2018 Oct;52(4):510-511. doi: 10.1016/j.ijantimicag.2018.04.013. Epub 2018 Apr 21.PubMed PMID: 29684435.

Liu J, Deng Y, Li L, Li B, Li Y, Zhou S, Shirtliff ME, Xu Z, **Peters BM**. Discovery and control of culturable and viable but non-culturable cells of a distinctive Lactobacillus harbinensis strain from spoiled beer. Sci Rep. 2018 Jul 30;8(1):11446. doi: 10.1038/s41598-018-28949-y. PubMed PMID: 30061572; PubMed Central PMCID: PMC6065415.

Petkov, Georgi

Yarotskyy V, Malysz J, **Petkov GV**. Properties of single-channel and whole cell Cl(-) currents in guinea pig detrusor smooth muscle cells. Am J Physiol Cell Physiol. 2019 May 1;316(5):C698-C710. doi: 10.1152/ajpcell.00327.2018. Epub 2018 Dec 19. PubMed PMID: 30566392; PubMed Central PMCID: PMC6580156.

Pfeffer, Lawrence

Wang W, Chapman NM, Zhang B, Li M, Fan M, Laribee RN, Zaidi MR, **Pfeffer LM**, Chi H, Wu ZH. Upregulation of PD-L1 via HMGB1-Activated IRF3 and NF-κB Contributes to UV Radiation-Induced Immune Suppression. Cancer Res. 2019 Jun 1;79(11):2909-2922. doi: 10.1158/0008-5472.CAN-18-3134. Epub 2019 Feb 8. PubMed PMID: 30737234; PubMed Central PMCID: PMC6548650.

Sethuraman A, Brown M, Krutilina R, Wu ZH, Seagroves TN, **Pfeffer LM**, Fan M. BHLHE40 confers a pro-survival and pro-metastatic phenotype to breast cancer cells by modulating HBEGF secretion. Breast Cancer Res. 2018 Oct 1;20(1):117. doi:10.1186/s13058-018-1046-3. PubMed PMID: 30285805; PubMed Central PMCID: PMC6167787.

Wang B, Li X, Zhao G, Yan H, Dong P, Watari H, Sims M, Li W, **Pfeffer LM**, Guo Y, Yue J. miR-203 inhibits ovarian tumor metastasis by targeting BIRC5 and attenuating the TGFβ pathway. J Exp Clin Cancer Res. 2018 Sep 21;37(1):235. doi: 10.1186/s13046-018-0906-0. PubMed PMID: 30241553; PubMed Central PMCID: PMC6150978.

Pierre, Joseph

McAllan L, Maynard KR, Kardian AS, Stayton AS, Fox SL, Stephenson EJ, Kinney CE, Alshibli NK, Gomes CK, **Pierre JF**, Puchowicz MA, Bridges D, Martinowich K, Han JC. Disruption of brain-derived neurotrophic factor production from individual promoters generates distinct body composition phenotypes in mice. Am J Physiol Endocrinol Metab. 2018 Dec 1;315(6):E1168-E1184. doi: 10.1152/ajpendo.00205.2018.Epub 2018 Sep 25. PubMed PMID: 30253111; PubMed Central PMCID: PMC6336959.

Johnson CD, Barlow-Anacker AJ, **Pierre JF**, Touw K, Erickson CS, Furness JB, Epstein ML, Gosain A. Deletion of choline acetyltransferase in enteric neurons results in postnatal intestinal dysmotility and dysbiosis. FASEB J. 2018 Sep;32(9):4744-4752. doi: 10.1096/fj.201701474RR. Epub 2018 Mar 23. PubMed PMID: 29570391; PubMed Central PMCID: PMC6103169.

Purevjav, Enkhsaikhan

Hirono K, Saito K, Munkhsaikhan U, Xu F, Wang C, Lu L, Ichida F, Towbin JA, **Purevjav E**. Familial Left Ventricular Non-Compaction Is Associated With a Rare p.V407I Variant in Bone Morphogenetic Protein 10. Circ J. 2019 Jul25;83(8):1737-

1746. doi:10.1253/circj.CJ-19-0116. Epub 2019 Jun 26. PubMed PMID: 31243186.

Quarles, Leigh Darryl

Laszczyk AM, Nettles D, Pollock TA, Fox S, Garcia ML, Wang J, **Quarles LD**, King GD. FGF-23 Deficiency Impairs Hippocampal-Dependent Cognitive Function. eNeuro. 2019 Mar 22;6(2). pii: ENEURO.0469-18.2019. doi: 10.1523/ENEURO.0469-18.2019. eCollection 2019 Mar-Apr. PubMed PMID: 30911673.

Ye R, Pi M, Nooh MM, Bahout SW, **Quarles LD**. Human GPRC6A Mediates Testosterone-Induced Mitogen-Activated Protein Kinases and mTORC1 Signaling in Prostate Cancer Cells. Mol Pharmacol. 2019 May;95(5):563-572. doi: 10.1124/mol.118.115014. Epub 2019 Mar 20. PubMed PMID: 30894404.

Han Z, Xiao Z, Kalantar-Zadeh K, Moradi H, Shafi T, Waikar SS, **Quarles LD**, Yu Z, Tin A, Coresh J, Kovesdy CP. Validation of a Novel Modified Aptamer-Based Array Proteomic Platform in Patients with End-Stage Renal Disease. Diagnostics (Basel). 2018 Oct 8;8(4). pii: E71. doi: 10.3390/diagnostics8040071. PubMed PMID: 30297602.

Pi M, Ye R, Han X, Armstrong B, Liu X, Chen Y, Sun Y, **Quarles LD**. Cardiovascular Interactions between Fibroblast Growth Factor 23 and Angiotensin II. Sci Rep. 2018 Aug 17;8(1):12398. doi: 10.1038/s41598-018-30098-1. PubMed PMID: 30120363.

Radic, Marko

Kansal R, Richardson N, Neeli I, Khawaja S, Chamberlain D, Ghani M, Ghani QU, Balazs L, Beranova-Giorgianni S, Giorgianni F, Kochenderfer JN, Marion T, Albritton LM, **Radic M**. Sustained B cell depletion by CD19-targeted CAR T cells is a highly effective treatment for murine lupus. Sci Transl Med. 2019 Mar 6;11(482). pii: eaav1648. doi: 10.1126/scitranslmed.aav1648. PubMed PMID: 30842314.

Bendorius M, Neeli I, Wang F, Bonam SR, Dombi E, Buron N, Borgne-Sanchez A, Poulton J, **Radic M**, Muller S. The Mitochondrion-lysosome Axis in Adaptive and Innate Immunity: Effect of Lupus Regulator Peptide P140 on Mitochondria

Autophagy and NETosis. Front Immunol. 2018 Sep 26;9:2158. doi: 10.3389/fimmu.2018.02158. eCollection 2018. PubMed PMID: 30319621; PubMed Central PMCID: PMC6168670.

Hollingsworth TJ, **Radic MZ**, Beranova-Giorgianni S, Giorgianni F, Wang Y, Iannaccone A. Murine Retinal Citrullination Declines With Age and is Mainly Dependent on Peptidyl Arginine Deiminase 4 (PAD4). Invest Ophthalmol Vis Sci. 2018 Aug 1;59(10):3808-3815. doi: 10.1167/iovs.18-24118. PubMed PMID: 30073354; PubMed Central PMCID: PMC6074612.

Raghow, Rajendra

Raghow R, Dong Q, Elam MB. Phosphorylation dependent proteostasis of sterol regulatory element binding proteins. Biochim Biophys Acta Mol Cell Biol Lipids. 2019 Aug;1864(8):1145-1156. doi: 10.1016/j.bbalip.2019.04.015. Epub 2019 May 5. Review. PubMed PMID: 31067497.

Dong Q, Kuefner MS, Deng X, Bridges D, Park EA, Elam MB, **Raghow R**. Sex-specific differences in hepatic steatosis in obese spontaneously hypertensive (SHROB) rats. Biol Sex Differ. 2018 Sep 10;9(1):40. doi: 10.1186/s13293-018-0202-x. PubMed PMID: 30201044; PubMed Central PMCID: PMC6131947.

Rao, Gadiparthi

Govatati S, Pichavaram P, Janjanam J, Zhang B, Singh NK, Mani AM, Traylor JG Jr, Orr AW, **Rao GN**. NFATc1-E2F1-LMCD1-Mediated IL-33 Expression by Thrombin IsRequired for Injury-Induced Neointima Formation. Arterioscler Thromb Vasc Biol.2019 Jun;39(6):1212-1226. doi: 10.1161/ATVBAHA.119.312729. PubMed PMID: 31043075; PubMed Central PMCID: PMC6540998.

Pichavaram P, Mani AM, Singh NK, **Rao GN**. Cholesterol crystals promote endothelial cell and monocyte interactions via H(2)O(2)-mediated PP2A inhibition, NFκB activation and ICAM1 and VCAM1 expression. Redox Biol. 2019 Jun;24:101180.doi: 10.1016/j.redox.2019.101180. Epub 2019 Apr 3. PubMed PMID: 31022672; PubMed Central PMCID: PMC6477634.

Raghavan S, Singh NK, Gali S, Mani AM, **Rao GN**. Protein Kinase Cθ Via Activating Transcription Factor 2-Mediated CD36 Expression and Foam Cell Formation of Ly6C(hi) Cells Contributes to Atherosclerosis. Circulation. 2018 Nov

20;138(21):2395-2412. doi: 10.1161/CIRCULATIONAHA.118.034083. PubMed PMID: 29991487; PubMed Central PMCID: PMC6309268.

Mani AM, Chattopadhyay R, Singh NK, **Rao GN**. Cholesterol crystals increase vascular permeability by inactivating SHP2 and disrupting adherens junctions. Free Radic Biol Med. 2018 Aug 1;123:72-84. doi:10.1016/j.freeradbiomed.2018.05.068. Epub 2018 May 19. PubMed PMID: 29782988; PubMed Central PMCID: PMC6333100.

Raghavan S, Singh NK, Mani AM, **Rao GN**. Protease-activated receptor 1 inhibits cholesterol efflux and promotes atherogenesis via cullin 3-mediated degradation of the ABCA1 transporter. J Biol Chem. 2018 Jul 6;293(27):10574-10589. doi:10.1074/jbc.RA118.003491. Epub 2018 May 18. PubMed PMID: 29777060; PubMed Central PMCID: PMC6036195.

Reiner, Anton

Sen S, Parishar P, Pundir AS, **Reiner A**, Iyengar S. The expression of tyrosine hydroxylase and DARPP-32 in the house crow (Corvus splendens) brain. J Comp Neurol. 2019 Aug 1;527(11):1801-1836. doi: 10.1002/cne.24649. Epub 2019 Feb 19. PubMed PMID: 30697741.

Guley NM, Del Mar NA, Ragsdale T, Li C, Perry AM, Moore BM, Honig MG, **Reiner A**. Amelioration of visual deficits and visual system pathology after mild TBI with the cannabinoid type-2 receptor inverse agonist SMM-189. Exp Eye Res. 2019 May;182:109-124. doi: 10.1016/j.exer.2019.03.013. Epub 2019 Mar 26. PubMed PMID: 30922891; PubMed Central PMCID: PMC6504571.

Li C, Fitzgerald MEC, Del Mar N, Haughey C, **Reiner A**. Defective Choroidal Blood Flow Baroregulation and Retinal Dysfunction and Pathology Following Sympathetic Denervation of Choroid. Invest Ophthalmol Vis Sci. 2018 Oct 1;59(12):5032-5044. doi: 10.1167/iovs.18-24954. PubMed PMID: 30326072; PubMed Central PMCID: PMC6190756.

Jha KA, Pentecost M, Lenin R, Klaic L, Elshaer SL, Gentry J, Russell JM, Beland A, **Reiner A**, Jotterand V, Sohl N, Gangaraju R. Concentrated Conditioned Media from Adipose Tissue Derived Mesenchymal Stem Cells Mitigates Visual Deficits and Retinal Inflammation Following Mild Traumatic Brain Injury. Int J Mol Sci. 2018 Jul 11;19(7). pii: E2016. doi: 10.3390/ijms19072016. PubMed PMID: 29997321;

PubMed Central PMCID: PMC6073664.

Reiter, Lawrence

Hope KA, Flatten D, Cavitch P, May B, Sutcliffe JS, O'Donnell J, **Reiter LT**. The Drosophila Gene Sulfateless Modulates Autism-Like Behaviors. Front Genet. 2019 Jun 19;10:574. doi: 10.3389/fgene.2019.00574. eCollection 2019. PubMed PMID: 31316544; PubMed Central PMCID: PMC6611434.

Hope KA, McGinn A, **Reiter LT**. A genome-wide enhancer/suppressor screen for Dube3a interacting genes in Drosophila melanogaster. Sci Rep. 2019 Feb 20;9(1):2382. doi: 10.1038/s41598-019-38663-y. PubMed PMID: 30787400; PubMed Central PMCID: PMC6382765.

Rogers, P. David

Nishimoto AT, Whaley SG, Wiederhold NP, Zhang Q, Yates CM, Hoekstra WJ, Schotzinger RJ, Garvey EP, **Rogers PD**. Impact of the major *Candida glabrata* triazole resistance determinants on the activity of the novel investigational tetrazoles VT-1598 and VT-1161. Antimicrob Agents Chemother. 2019 Aug 5. pii: AAC.01304-19. doi: 10.1128/AAC.01304-19. [Epub ahead of print] PMID: 31383660.

Rybak JM, Ge W, Wiederhold NP, Parker JE, Kelly SL, **Rogers PD**, Fortwendel JR. Mutations in hmg1, Challenging the Paradigm of Clinical Triazole Resistance in *Aspergillus fumigatus*. MBio. 2019 Apr 2;10(2). pii: e00437-19. doi: 10.1128/mBio.00437-19. PMID: 30940706.

Nishimoto AT, Wiederhold NP, Flowers SA, Zhang Q, Kelly SL, Morschhäuser J, Yates CM, Hoekstra WJ, Schotzinger RJ, Garvey EP, **Rogers PD**. In Vitro Activities of the Novel Investigational Tetrazoles VT-1161 and VT-1598 Compared to the Triazole Antifungals against Azole-Resistant Strains and Clinical Isolates of *Candida albicans*. Antimicrob Agents Chemother. 2019 May 24;63(6). pii: e00341-19. doi: 10.1128/AAC.00341-19. Print 2019 Jun. PMID: 30910896.

Butts A, Reitler P, Nishimoto AT, DeJarnette C, Estredge LR, Peters TL, Veve MP, **Rogers PD**, Palmer GE. A SystematicS Reveals a Diverse Collection of Medications That Induce Antifungal Resistance in *Candida* Species. Antimicrob Agents Chemother. 2019 Apr 25;63(5). pii: e00054-19. doi: 10.1128/AAC.00054-

19. Print 2019 May. PMID: 30858206.

Nishimoto AT, Zhang Q, Hazlett B, Morschhäuser J, **Rogers PD**. Contribution of Clinically Derived Mutations in the Gene Encoding the Zinc Cluster Transcription Factor Mrr2 to Fluconazole Antifungal Resistance and *CDR1* Expression in *Candida albicans*. Antimicrob Agents Chemother. 2019 Apr 25;63(5). pii: e00078-19. doi: 10.1128/AAC.00078-19. Print 2019 May. PMID: 30833425.

Warrilow AG, Nishimoto AT, Parker JE, Price CL, Flowers SA, Kelly DE, **Rogers PD**, Kelly SL. The Evolution of Azole Resistance in *Candida albicans* Sterol 14α-Demethylase (CYP51) through Incremental Amino Acid Substitutions. Antimicrob Agents Chemother. 2019 Apr 25;63(5). pii: e02586-18. doi: 10.1128/AAC.02586-18. Print 2019 May. PMID: 30783005.

Rybak JM, Doorley LA, Nishimoto AT, Barker KS, Palmer GE, **Rogers PD**. Abrogation of Triazole Resistance upon Deletion of *CDR1* in a Clinical Isolate of *Candida auris*. Antimicrob Agents Chemother. 2019 Mar 27;63(4). pii: e00057-19. doi: 10.1128/AAC.00057-19. Print 2019 Apr. PMID: 30718246.

Whaley SG, Zhang Q, Caudle KE, **Rogers PD**. Relative Contribution of the ABC Transporters Cdr1, Pdh1, and Snq2 to Azole Resistance in Candida glabrata. Antimicrob Agents Chemother. 2018 Sep 24;62(10). pii: e01070-18. doi: 10.1128/AAC.01070-18. Print 2018 Oct. PMID: 30038038.

Rosloniec, Edward

Park JE, Majumdar S, Brand DD, **Rosloniec EF**, Yi AK, Stuart JM, Kang AH, Myers LK. The role of Syk in peripheral T cells. Clin Immunol. 2018 Jul;192:50-57. doi:10.1016/j.clim.2018.04.007. Epub 2018 Apr 16. PubMed PMID: 29673901; PubMed Central PMCID: PMC6350940.

Samarasinghe, Amali

Palipane M, Snyder JD, LeMessurier KS, Schofield AK, Woolard SN, **Samarasinghe AE**. Macrophage CD14 impacts immune defenses against influenza virus in allergic hosts. Microb Pathog. 2019 Feb;127:212-219. doi: 10.1016/j.micpath.2018.12.008. Epub 2018 Dec 5. PubMed PMID: 30529429.

Hatami E, Nagesh PKB, Chowdhury P, Chauhan SC, Jaggi M, **Samarasinghe AE**, Yallapu MM. Tannic Acid-Lung Fluid Assemblies Promote Interaction and Delivery

of Drugs to Lung Cancer Cells. Pharmaceutics. 2018 Aug 1;10(3). pii: E111. doi:10.3390/pharmaceutics10030111. PubMed PMID: 30071698; PubMed Central PMCID: PMC6161105.

Schughart, Klaus

Lambertz RLO, Gerhauser I, Nehlmeier I, Leist SR, Kollmus H, Pöhlmann S, **Schughart K**. Tmprss2 knock-out mice are resistant to H10 influenza A virus pathogenesis. J Gen Virol. 2019 Jul;100(7):1073-1078. doi: 10.1099/jgv.0.001274. Epub 2019 May 17. PubMed PMID: 31099738.

Kollmus H, Pilzner C, Leist SR, Heise M, Geffers R, **Schughart K**. Of mice and men: the host response to influenza virus infection. Mamm Genome. 2018 Aug;29(7-8):446-470. doi: 10.1007/s00335-018-9750-y. Epub 2018 Jun 15. PubMed PMID: 29947965; PubMed Central PMCID: PMC6132725.

Seagroves, Tiffany

Arnst KE, Wang Y, Lei ZN, Hwang DJ, Kumar G, Ma D, Parke DN, Chen Q, Yang J, White SW, **Seagroves TN**, Chen ZS, Miller DD, Li W. Colchicine Binding Site Agent DJ95 Overcomes Drug Resistance and Exhibits Antitumor Efficacy. Mol Pharmacol.2019 Jul;96(1):73-89. doi: 10.1124/mol.118.114801. Epub 2019 May 1. PubMed PMID: 31043459; PubMed Central PMCID: PMC6553560.

Lillo Osuna MA, Garcia-Lopez J, El Ayachi I, Fatima I, Khalid AB, Kumpati J, Slayden AV, **Seagroves TN**, Miranda-Carboni GA, Krum SA. Activation of Estrogen Receptor Alpha by Decitabine Inhibits Osteosarcoma Growth and Metastasis. Cancer Res. 2019 Mar 15;79(6):1054-1068. doi: 10.1158/0008-5472.CAN-18-1255. Epub 2018Dec 28. PubMed PMID: 30593524; PubMed Central PMCID: PMC6420872.

El Ayachi I, Fatima I, Wend P, Alva-Ornelas JA, Runke S, Kuenzinger WL, Silva J, Silva W, Gray JK, Lehr S, Barch HC, Krutilina RI, White AC, Cardiff R, Yee LD, Yang L, O'Regan RM, Lowry WE, **Seagroves TN**, Seewaldt V, Krum SA, Miranda-Carboni GA. The WNT10B Network Is Associated with Survival and Metastases in Chemoresistant Triple-Negative Breast Cancer. Cancer Res. 2019 Mar 1;79(5):982-993. doi: 10.1158/0008-5472.CAN-18-1069. Epub 2018 Dec 18. PubMed PMID: 30563890.

Regan Anderson TM, Ma S, Perez Kerkvliet C, Peng Y, Helle TM, Krutilina RI, Raj GV, Cidlowski JA, Ostrander JH, Schwertfeger KL, **Seagroves TN**, Lange CA. Taxol Induces Brk-dependent Prosurvival Phenotypes in TNBC Cells through an AhR/GR/HIF-driven Signaling Axis. Mol Cancer Res. 2018 Nov;16(11):1761-1772. doi:10.1158/1541-7786.MCR-18-0410. Epub 2018 Jul 10. PubMed PMID: 29991529; PubMed Central PMCID: PMC6214723.

Sethuraman A, Brown M, Krutilina R, Wu ZH, **Seagroves TN**, Pfeffer LM, Fan M. BHLHE40 confers a pro-survival and pro-metastatic phenotype to breast cancer cells by modulating HBEGF secretion. Breast Cancer Res. 2018 Oct 1;20(1):117.doi: 10.1186/s13058-018-1046-3. PubMed PMID: 30285805; PubMed Central PMCID: PMC6167787.

Tavalin, Steven

Summers KC, Bogard AS, **Tavalin SJ**. Preferential generation of Ca(2+)-permeable AMPA receptors by AKAP79-anchored protein kinase C proceeds via GluA1 subunit phosphorylation at Ser-831. J Biol Chem. 2019 Apr 5;294(14):5521-5535. doi:10.1074/jbc.RA118.004340. Epub 2019 Feb 8. PubMed PMID: 30737285; PubMed Central PMCID: PMC6462506.

Tigyi, Gabor

Flammier S, Peyruchaud O, Bourguillault F, Duboeuf F, Davignon JL, Norman DD, Isaac S, Marotte H, **Tigyi G**, Machuca-Gayet I, Coury F. Osteoclast-derived Autotaxin, a distinguishing factor for inflammatory bone loss. Arthritis Rheumatol. 2019 Jun 4. doi: 10.1002/art.41005. [Epub ahead of print] PubMed PMID: 31162832.

Morstein J, Hill RZ, Novak AJE, Feng S, Norman DD, Donthamsetti PC, Frank JA, Harayama T, Williams BM, Parrill AL, **Tigyi GJ**, Riezman H, Isacoff EY, Bautista DM, Trauner D. Optical control of sphingosine-1-phosphate formation and function. Nat Chem Biol. 2019 Jun;15(6):623-631. doi: 10.1038/s41589-019-0269-7. Epub 2019 Apr 29. PubMed PMID: 31036923.

Mathew D, Kremer KN, Strauch P, **Tigyi G**, Pelanda R, Torres RM. LPA(5) Is an Inhibitory Receptor That Suppresses CD8 T-Cell Cytotoxic Function via Disruption of Early TCR Signaling. Front Immunol. 2019 May 28;10:1159. doi:10.3389/fimmu.2019.01159. eCollection 2019. PubMed PMID: 31231367; PubMed Central PMCID: PMC6558414.

Tigyi GJ, Johnson LR, Lee SC, Norman DD, Szabo E, Balogh A, Thompson K, Boler A, McCool WS. Lysophosphatidic acid type 2 receptor agonists in targeted drug development offer broad therapeutic potential. J Lipid Res. 2019 Mar;60(3):464-474. doi: 10.1194/jlr.S091744. Epub 2019 Jan 28. PubMed PMID: 30692142; PubMed Central PMCID: PMC6399510.

Tigyi GJ, Yue J, Norman DD, Szabo E, Balogh A, Balazs L, Zhao G, Lee SC. Regulation of tumor cell - Microenvironment interaction by the autotaxin-lysophosphatidic acid receptor axis. Adv Biol Regul. 2019 Jan;71:183-193. doi: 10.1016/j.jbior.2018.09.008. Epub 2018 Sep 16. Review. PubMed PMID: 30243984; PubMed Central PMCID: PMC6433480.

Kuo B, Szabó E, Lee SC, Balogh A, Norman D, Inoue A, Ono Y, Aoki J, **Tigyi G**. The LPA(2) receptor agonist Radioprotectin-1 spares Lgr5-positive intestinal stem cells from radiation injury in murine enteroids. Cell Signal. 2018 Nov;51:23-33. doi: 10.1016/j.cellsig.2018.07.007. Epub 2018 Jul 29. PubMed PMID: 30063964; PubMed Central PMCID: PMC6163127.

Lee D, Suh DS, Lee SC, **Tigyi GJ**, Kim JH. Role of autotaxin in cancer stem cells. Cancer Metastasis Rev. 2018 Sep;37(2-3):509-518. doi:10.1007/s10555-018-9745-x. Review. PubMed PMID: 29926310; PubMed Central PMCID: PMC6309296.

Thompson KE, Ray RM, Alli S, Ge W, Boler A, Shannon McCool W, Meena AS, Shukla PK, Rao R, Johnson LR, Miller MA, **Tigyi GJ**. Prevention and treatment of secretory diarrhea by the lysophosphatidic acid analog Rx100. Exp Biol Med (Maywood). 2018 Sep;243(13):1056-1065. doi: 10.1177/1535370218803349. Epub 2018 Sep 25. PubMed PMID: 30253666; PubMed Central PMCID: PMC6434456.

Tsao, Jack

Sapio MR, Iadarola MJ, LaPaglia DM, Lehky T, Thurm AE, Danley KM, Fuhr SR, Lee MD, Huey AE, Sharp SJ, **Tsao JW**, Yanovski JA, Mannes AJ, Han JC. Haploinsufficiency of the brain-derived neurotrophic factor gene is associated with reduced pain sensitivity. Pain. 2019 May;160(5):1070-1081. doi:10.1097/j.pain.0000000000001485. PubMed PMID: 30855519; PubMed Central PMCID: PMC6476691.

Vasquez, Valeria

Romero LO, Massey AE, Mata-Daboin AD, Sierra-Valdez FJ, Chauhan SC, Cordero-Morales JF, **Vásquez V**. Dietary fatty acids fine-tune Piezo1 mechanical response. Nat Commun. 2019 Mar 13;10(1):1200. doi: 10.1038/s41467-019-09055-7. PubMed PMID: 30867417; PubMed Central PMCID: PMC6416271.

Geron M, Kumar R, Zhou W, Faraldo-Gómez JD, **Vásquez V**, Priel A. TRPV1 pore turret dictates distinct DkTx and capsaicin gating. Proc Natl Acad Sci U S A. 2018 Dec 11;115(50):E11837-E11846. doi: 10.1073/pnas.1809662115. Epub 2018 Nov 21. PubMed PMID: 30463948; PubMed Central PMCID: PMC6294906.

Sierra-Valdez FJ, Stein RA, Velissety P, **Vasquez V**, Cordero-Morales JF. Purification and Reconstitution of TRPV1 for Spectroscopic Analysis. J Vis Exp. 2018 Jul 3;(137). doi: 10.3791/57796. PubMed PMID: 30035769; PubMed Central PMCID: PMC6102038.

Williams, Robert

Mulligan MK, Lu L, Cavigelli SA, Mormède P, Terenina E, Zhao W, **Williams RW**, Jones BC. Impact of Genetic Variation on Stress-Related Ethanol Consumption. Alcohol Clin Exp Res. 2019 Jul;43(7):1391-1402. doi: 10.1111/acer.14073. Epub 2019 May 21. PubMed PMID: 31034606.

Mulligan MK, Abreo T, Neuner SM, Parks C, Watkins CE, Houseal MT, Shapaker TM, Hook M, Tan H, Wang X, Ingels J, Peng J, Lu L, Kaczorowski CC, Bryant CD, Homanics GE, **Williams RW**. Identification of a Functional Non-coding Variant in the GABA (A) Receptor α2 Subunit of the C57BL/6J Mouse Reference Genome: Major Implications for Neuroscience Research. Front Genet. 2019 Mar 29;10:188. doi:10.3389/fgene.2019.00188. eCollection 2019. PubMed PMID: 30984232; PubMed Central PMCID: PMC6449455.

Roy S, Zaman KI, **Williams RW**, Homayouni R. Evaluation of Sirtuin-3 probe quality and co-expressed genes using literature cohesion. BMC Bioinformatics. 2019 Mar 14;20(Suppl 2):104. doi: 10.1186/s12859-019-2621-z. PubMed PMID: 30871457; PubMed Central PMCID: PMC6419539.

Ashbrook DG, Roy S, Clifford BG, Riede T, Scattoni ML, Heck DH, Lu L, **Williams RW**. Born to Cry: A Genetic Dissection of Infant Vocalization. Front Behav Neurosci. 2018 Oct 29;12:250. doi: 10.3389/fnbeh.2018.00250. eCollection 2018. PubMed PMID: 30420800; PubMed Central PMCID: PMC6216097.

O'Brien MA, Weston RM, Sheth NU, Bradley S, Bigbee J, Pandey A, **Williams RW**, Wolstenholme JT, Miles MF. Ethanol-Induced Behavioral Sensitization Alters the Synaptic Transcriptome and Exon Utilization in DBA/2J Mice. Front Genet. 2018 Sep 24;9:402. doi: 10.3389/fgene.2018.00402. eCollection 2018. PubMed PMID: 30319688; PubMed Central PMCID: PMC6166094.

Cui J, Liu L, Lu H, Wei D, Jiao Y, Jablonski MM, **Williams RW**, Gu W, Chen H. Potential effect on molecular pathways in different targeted genes in the VEGF family in retina - From the genomic point of view. Exp Eye Res. 2018 Nov;176:78-87. doi: 10.1016/j.exer.2018.06.024. Epub 2018 Jun 23. PubMed PMID: 29944851.

Wu, Zhao-Hui

Xiao M, Xue Y, Wu Z, Lei ZN, Wang J, Chen ZS, **Li W**. Design, synthesis and biological evaluation of selective survivin inhibitors. J Biomed Res. 2019 Apr 22;33(2):82-100. doi: 10.7555/JBR.31.20160173. PubMed PMID: 30174320; PubMed Central PMCID: PMC6477172.

Wang W, Chapman NM, Zhang B, Li M, Fan M, Laribee RN, Zaidi MR, Pfeffer LM, Chi H, **Wu ZH**. Upregulation of PD-L1 via HMGB1-Activated IRF3 and NF-κB Contributes to UV Radiation-Induced Immune Suppression. Cancer Res. 2019 Jun 1;79(11):2909-2922. doi: 10.1158/0008-5472.CAN-18-3134. Epub 2019 Feb 8. PubMed PMID: 30737234; PubMed Central PMCID: PMC6548650.

Chen, H, Sirupangi, T., **Wu, ZH**, Johnson, DL, RN Laribee. The conserved RNA recognition motif and C3H1 domain of the Not4 ubiquitin ligase regulate in vivo ligase function. Scientific Reports 8(1): 1 December 2018. doi: PubMed PMID: 29802328.

Sethuraman A, Brown M, Krutilina R, **Wu ZH**, Seagroves TN, Pfeffer LM, Fan M. BHLHE40 confers a pro-survival and pro-metastatic phenotype to breast cancer cells by modulating HBEGF secretion. Breast Cancer Res. 2018 Oct 1;20(1):117. doi: 10.1186/s13058-018-1046-3. PubMed PMID: 30285805; PubMed Central PMCID: PMC6167787.

Xiao, Jianfeng

Xiao J, Khan MM, Vemula S, Tian J, LeDoux MS. Consequences of Cre-mediated deletion of Ciz1 exon 5 in mice. FEBS Lett. 2018 Sep;592(18):3101-3110. doi:10.1002/1873-3468.13221. Epub 2018 Aug 29. PubMed PMID: 30098009; PubMed Central PMCID: PMC6275157.

Cen Z, Jiang Z, Chen Y, Zheng X, Xie F, Yang X, Lu X, Ouyang Z, Wu H, Chen S, Yin H, Qiu X, Wang S, Ding M, Tang Y, Yu F, Li C, Wang T, Ishiura H, Tsuji S, Jiao C, Liu C, **Xiao J**, Luo W. Intronic pentanucleotide TTTCA repeat insertion in the SAMD12 gene causes familial cortical myoclonic tremor with epilepsy type 1. Brain. 2018 Aug 1;141(8):2280-2288. doi: 10.1093/brain/awy160. PubMed PMID: 29939203.

Yallapu, Murali

Massey AE, Sikander M, Chauhan N, Kumari S, Setua S, Shetty AB, Mandil H, Kashyap VK, Khan S, Jaggi M, **Yallapu MM**, Hafeez BB, Chauhan SC. Next-generation paclitaxel-nanoparticle formulation for pancreatic cancer treatment. Nanomedicine. 2019 Aug;20:102027. doi:10.1016/j.nano.2019.102027. Epub 2019 Jun PubMed PMID: 31170509; PubMed Central PMCID: PMC6705422.

Varaprasad K, **Yallapu MM**, Núñez D, Oyarzún P, López M, Jayaramudu T, Karthikeyan C. Generation of engineered core-shell antibiotic nanoparticles. RSC Adv. 2019 Mar 14;9(15):8326-8332. doi: 10.1039/c9ra00536f. Epub 2019 Mar 13. PubMed PMID: 31131098; PubMed Central PMCID: PMC6472438.

Khan S, Setua S, Kumari S, Dan N, Massey A, Hafeez BB, **Yallapu MM**, Stiles ZE, Alabkaa A, Yue J, Ganju A, Behrman S, Jaggi M, Chauhan SC. Superparamagnetic iron oxide nanoparticles of curcumin enhance gemcitabine therapeutic response in pancreatic cancer. Biomaterials. 2019 Jul;208:83-97. doi:10.1016/j.biomaterials.2019.04.005. Epub 2019 Apr 8. PubMed PMID: 30999154.

Gong Y, Haque S, Chowdhury P, Cory TJ, Kodidela S, **Yallapu MM**, Norwood JM, Kumar S. Pharmacokinetics and pharmacodynamics of cytochrome P450 inhibitors for HIV treatment. Expert Opin Drug Metab Toxicol. 2019 May;15(5):417-427. doi:10.1080/17425255.2019.1604685. Epub 2019 Apr 20. Review. PubMed PMID: 30951643; PubMed Central PMCID: PMC6497396.

Sikander M, Malik S, Chauhan N, Khan P, Kumari S, Kashyap VK, Khan S, Ganju A, Halaweish FT, **Yallapu MM**, Jaggi M, Chauhan SC. Cucurbitacin D Reprograms Glucose Metabolic Network in Prostate Cancer. Cancers (Basel). 2019 Mar 14;11(3). pii:E364. doi: 10.3390/cancers11030364. PubMed PMID: 30875788; PubMed Central PMCID: PMC6469021.

Hatami E, Mu Y, Shields DN, Chauhan SC, Kumar S, Cory TJ, **Yallapu MM**. Mannose-decorated hybrid nanoparticles for enhanced macrophage targeting. Biochem Biophys Rep. 2019 Jan 25;17:197-207. doi: 10.1016/j.bbrep.2019.01.007. eCollection 2019 Mar. PubMed PMID: 30723809; PubMed Central PMCID: PMC6351286.

Kashyap VK, Wang Q, Setua S, Nagesh PKB, Chauhan N, Kumari S, Chowdhury P, Miller DD, **Yallapu MM**, Li W, Jaggi M, Hafeez BB, Chauhan SC. Therapeutic efficacy of a novel βIII/βIV-tubulin inhibitor (VERU-111) in pancreatic cancer. J Exp Clin Cancer Res. 2019 Jan 23;38(1):29. doi: 10.1186/s13046-018-1009-7. PubMed PMID: 30674344; PubMed Central PMCID: PMC6343279.

Chowdhury P, Nagesh PKB, Hatami E, Wagh S, Dan N, Tripathi MK, Khan S, Hafeez BB, Meibohm B, Chauhan SC, Jaggi M, **Yallapu MM**. Tannic acid-inspired paclitaxel nanoparticles for enhanced anticancer effects in breast cancer cells. J Colloid Interface Sci. 2019 Feb 1;535:133-148. doi: 10.1016/j.jcis.2018.09.072. Epub 2018 Sep 22. PubMed PMID: 30292104.

Tripathi MK, Zacheaus C, Doxtater K, Keramatnia F, Gao C, **Yallapu MM**, Jaggi M, Chauhan SC. Z Probe, An Efficient Tool for Characterizing Long Non-Coding RNA in FFPE Tissues. Noncoding RNA. 2018 Sep 5;4(3). pii: E20. doi:10.3390/ncrna4030020. PubMed PMID: 30189670; PubMed Central PMCID: PMC6162476.

Nagesh PKB, Chowdhury P, Hatami E, Boya VKN, Kashyap VK, Khan S, Hafeez BB, Chauhan SC, Jaggi M, **Yallapu MM**. miRNA-205 Nanoformulation Sensitizes Prostate Cancer Cells to Chemotherapy. Cancers (Basel). 2018 Aug 25;10(9). pii: E289. doi:10.3390/cancers10090289. PubMed PMID: 30149628; PubMed Central PMCID: PMC6162422.

Chowdhury P, Nagesh PKB, Khan S, Hafeez BB, Chauhan SC, Jaggi M, **Yallapu MM**. Development of polyvinylpyrrolidone/paclitaxel self-assemblies for breast

cancer. Acta Pharm Sin B. 2018 Jul;8(4):602-614. doi: 10.1016/j.apsb.2017.10.004. Epub 2017 Dec 10. PubMed PMID: 30109184; PubMed Central PMCID: PMC6090082.

Hatami E, Nagesh PKB, Chowdhury P, Chauhan SC, Jaggi M, Samarasinghe AE, **Yallapu MM**. Tannic Acid-Lung Fluid Assemblies Promote Interaction and Delivery of Drugs to Lung Cancer Cells. Pharmaceutics. 2018 Aug 1;10(3). pii: E111. doi:10.3390/pharmaceutics10030111. PubMed PMID: 30071698; PubMed Central PMCID: PMC6161105.

Almabadi HM, Nagesh PKB, Sahay P, Bhandari S, Eckstein EC, Jaggi M, Chauhan SC, **Yallapu MM**, Pradhan P. Optical study of chemotherapy efficiency in cancer treatment via intracellular structural disorder analysis using partial wave spectroscopy. J Biophotonics. 2018 Dec;11(12):e201800056. doi:10.1002/jbio.201800056. Epub 2018 Sep 26. PubMed PMID: 29869394.

Kumar BNP, Puvvada N, Rajput S, Sarkar S, Mahto MK, **Yallapu MM**, Pathak A, Emdad L, Das SK, Reis RL, Kundu SC, Fisher PB, Mandal M. Targeting of EGFR, VEGFR2, and Akt by Engineered Dual Drug Encapsulated Mesoporous Silica-Gold Nanoclusters Sensitizes Tamoxifen-Resistant Breast Cancer. Mol Pharm. 2018 Jul2;15(7):2698-2713. doi: 10.1021/acs.molpharmaceut.8b00218. Epub 2018 May 30. PubMed PMID: 29787277.

Tripathi MK, Doxtater K, Keramatnia F, Zacheaus C, **Yallapu MM**, Jaggi M, Chauhan SC. Role of lncRNAs in ovarian cancer: defining new biomarkers for therapeutic purposes. Drug Discov Today. 2018 Sep;23(9):1635-1643. doi:10.1016/j.drudis.2018.04.010. Epub 2018 Apr 23. Review. PubMed PMID: 29698834; PubMed Central PMCID: PMC6139057.

Youngentob, Steven

Tang J, **Youngentob SL**, Glendinning JI. Postnatal Exposure to Ethanol Increases Its Oral Acceptability to Adolescent Rats. Chem Senses. 2018 Sep 22;43(8):655-664. doi: 10.1093/chemse/bjy056. PubMed PMID: 30169758; PubMed Central PMCID: PMC6150777.

Lu Y, Zhou D, Lu H, Xu F, **Yue J**, Tong J, Lu L. Investigating a downstream gene of Gpnmb using the systems genetics method. Mol Vis. 2019 Apr 23;25:222-236. eCollection 2019. PubMed PMID: 31057322; PubMed Central PMCID: PMC6478243.

Khan S, Setua S, Kumari S, Dan N, Massey A, Hafeez BB, Yallapu MM, Stiles ZE, Alabkaa A, **Yue J**, Ganju A, Behrman S, Jaggi M, Chauhan SC. Superparamagnetic iron oxide nanoparticles of curcumin enhance gemcitabine therapeutic response in pancreatic cancer. Biomaterials. 2019 Jul;208:83-97. doi:10.1016/j.biomaterials.2019.04.005. Epub 2019 Apr 8. PubMed PMID: 30999154.

Ji L, Zhao G, Zhang P, Huo W, Dong P, Watari H, Jia L, Pfeffer LM, **Yue J**, Zheng J. Knockout of MTF1 Inhibits the Epithelial to Mesenchymal Transition in Ovarian Cancer Cells. J Cancer. 2018 Nov 11;9(24):4578-4585. doi:10.7150/jca.28040. eCollection 2018. PubMed PMID: 30588241; PubMed Central PMCID: PMC6299381.

Tigyi GJ, **Yue J**, Norman DD, Szabo E, Balogh A, Balazs L, Zhao G, Lee SC. Regulation of tumor cell - Microenvironment interaction by the autotaxin-lysophosphatidic acid receptor axis. Adv Biol Regul. 2019 Jan;71:183-193. doi: 10.1016/j.jbior.2018.09.008. Epub 2018 Sep 16. Review. PubMed PMID: 30243984; PubMed Central PMCID: PMC6433480.

Wang B, Li X, Zhao G, Yan H, Dong P, Watari H, Sims M, Li W, Pfeffer LM, Guo Y, **Yue J**. miR-203 inhibits ovarian tumor metastasis by targeting BIRC5 and attenuating the TGFβ pathway. J Exp Clin Cancer Res. 2018 Sep 21;37(1):235. doi:10.1186/s13046-018-0906-0. PubMed PMID: 30241553; PubMed Central PMCID: PMC6150978.

Dong P, Xiong Y, Yu J, Chen L, Tao T, Yi S, Hanley SJB, **Yue J**, Watari H, Sakuragi N. Control of PD-L1 expression by miR-140/142/340/383 and oncogenic activation of the OCT4-miR-18a pathway in cervical cancer. Oncogene. 2018 Sep;37(39):5257-5268. doi: 10.1038/s41388-018-0347-4. Epub 2018 May 31. PubMed PMID: 29855617; PubMed Central PMCID: PMC6160397.

Zhang, Yanhui

Huang C, Fu C, Wren JD, Wang X, Zhang F, **Zhang YH**, Connel SA, Chen T, Zhang XA. Tetraspanin-enriched microdomains regulate digitation junctions. Cell Mol Life Sci. 2018 Sep;75(18):3423-3439. doi: 10.1007/s00018-018-2803-2. Epub 2018 Mar 27. Erratum in: Cell Mol Life Sci. 2018 Nov;75(21):4077. PubMed PMID: 29589089; PubMed Central PMCID: PMC6615572.

Schedule 7

CENTERS OF EXCELLENCE ACTUAL, PROPOSED, AND REQUESTED BUDGET

Institution: UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER **Center:** MOLECULAR RESOURCE CENTER

	FY 2018-19 Actual			FY 2019-20 Proposed			FY 2020-21 Requested		
	Matching	Appropr.	Total	Matching	Appropr.	Total	Matching	Appropr.	Total
Expenditures									
Salaries									
Faculty	$0	$0	**$0**	$0	$0	**$0**	$0	$0	**$0**
Other Professional	76,670	152,061	**228,731**	48,668	155,102	**203,770**	51,101	160,000	**211,101**
Clerical/ Supporting	65,827	242,940	**308,767**	52,985	247,799	**300,784**	55,635	250,000	**305,635**
Assistantships	0	0	**0**	0	0	**0**	0	0	**0**
Total Salaries (Excluding Longevity)	**$142,497**	**$395,001**	**$537,498**	**$101,653**	**$402,901**	**$504,554**	**$106,736**	**$410,000**	**$516,736**
Longevity (Exclude from Salaries)	$1,350	$11,337	**$12,687**	$1,418	$10,000	**$11,418**	$1,488	$10,000	**$11,488**
Fringe Benefits	21,006	126,616	**147,622**	22,056	130,148	**152,204**	23,159	135,000	**158,159**
Total Personnel	**$164,853**	**$532,954**	**$697,807**	**$125,127**	**$543,049**	**$668,176**	**$131,383**	**$555,000**	**$686,383**
Non-Personnel									
Travel	$0	$2,414	**$2,414**	$0	$3,000	**$3,000**	$0	$3,100	**$3,100**
Software	0	0	**0**	0	0	**0**	0	0	**0**
Books & Journals	0	0	**0**	0	0	**0**	0	0	**0**
Other Supplies	820,000	149,237	**969,237**	861,000	13,045	**874,045**	904,050	14,985	**919,035**
Equipment	313,000	0	**313,000**	328,650	0	**328,650**	345,083	0	**345,083**
Maintenance	0	41,129	**41,129**	0	40,000	**40,000**	0	0	**0**
Scholarships	0	0	**0**	0	0	**0**	0	0	**0**
Consultants	0	0	**0**	0	0	**0**	0	0	**0**
Renovation	0	0	**0**	0	0	**0**	0	0	**0**
Other (Specify):									
Media Processing	0	1,136	**1,136**	0	1,100	**1,100**	0	1,000	**1,000**
Communication	0	4,825	**4,825**	0	5,000	**5,000**	0	5,000	**5,000**
Professional Services & Memberships	30,000	110,276	**140,276**	31,500	90,000	**121,500**	33,075	94,000	**127,075**
Rentals & Insurance	0	360	**360**	0	370	**370**	0	350	**350**
Contractual & Special Services	0	-232,674	**-232,674**	0	0	**0**	0	0	**0**
Total Non-Personnel	**$1,163,000**	**$76,703**	**$1,239,703**	**$1,221,150**	**$152,515**	**$1,373,665**	**$1,282,208**	**$118,435**	**$1,400,643**
GRAND TOTAL	**$1,327,853**	**$609,657**	**$1,937,510**	**$1,346,277**	**$695,564**	**$2,041,841**	**$1,413,591**	**$673,435**	**$2,087,026**
Revenue									
New State Appropriation	$0	$632,516	**$632,516**	$0	$641,367	**$641,367**	$0	$673,435	**$673,435**
Carryover State Appropriation	0	31,338	**31,338**	0	54,197	**54,197**	0	0	**0**
New Matching Funds	1,327,853	0	**1,327,853**	1,346,277	0	**1,346,277**	1,413,591	0	**1,413,591**
Carryover from Previous Matching Funds	0	0	**0**	0	0	**0**	0	0	**0**
Total Revenue	**$1,327,853**	**$663,854**	**$1,991,707**	**$1,346,277**	**$695,564**	**$2,041,841**	**$1,413,591**	**$673,435**	**$2,087,026**

Molecular Resource Center of Excellence Personnel, FY19 (2018-2019)

Institution:	The University of Tennessee Health Science Center, Memphis, TN
Center:	Molecular Resource Center
Tiffany Seagroves, Ph.D.	Executive Director
William Taylor, Ph.D.	Director; Microarray, Whole Genome Sequencing and RNA analysis
Tom Cunningham, Ph.D.	Associate Director; DNA sequencing, genotyping, general molecular biology
Felicia Waller	Specialist; Fluorescence microscopy, sample quality control, DNA sequencing, RT PCR, assist with invoicing customers
Lorne Rose	Senior Research Specialist; Microarrays technician/analyst and NGS assistance
Vacant	Senior Research Assistant; Whole Genome sequencing (position vacated April 2017 and reclassified December 2017)
Natalie Smith	Business Manager (January 2017-present)

Personnel Summary

Appropriated costs for 2018-2019	$532,954
Matching funds for 2018-2019	$164,853
Total costs for 2018-2019	**$697,807**

Molecular Resource Center of Excellence
Proposed Core Personnel, FY20 (2019-2020)

Institution:	The University of Tennessee Health Science Center, Memphis, TN
Center:	Molecular Resource Center
Tiffany Seagroves, Ph.D.	Executive Director and Associate Vice Chancellor for Research-Core Labs
William Taylor, Ph.D.	Director; Microarray, Whole Genome Sequencing and RNA analysis
Tom Cunningham, Ph.D.	Associate Director; DNA sequencing, genotyping, general molecular biology
Vacant	Senior Research Assistant, Microarrays
Lorne Rose	Senior Research Specialist; Microarrays technician/analyst and NGS assistance
Felicia Waller	Specialist; Fluorescence microscopy, sample quality control, DNA sequencing, RT-PCR, assist with billing
Natalie Smith	Business Manager

Personnel Summary

Appropriated funds for 2019-2020	$543,049
Matching funds for 2019-2020	$125,127
Total funds for 2019-2020	**$668,176**

Molecular Resource Center of Excellence
Non-Personnel Actual and Proposed Budget Summaries
and Actual Appropriated Funds and Matching Funds Summary

Actual 2018-2019 Non-Personnel Total Budget

Travel	$ 2,414
Software	$ 0
Supplies	$ 969,237
Equipment	$ 313,000
Maintenance	$ 41,129
Contract/Special Services	$ (232,674)
Prof Services and Membership	$ 140,276
Communications	$ 4,825
Media	$ 1,136
Rentals	$ 360
Total	**$1,239,703**

Non-Personnel Summary	
Appropriated funds for 2018-2019	$ 76,703
Matching funds for 2018-2019	$1,163,000
Total funds for 2018-2019	**$1,239,703**

Proposed 2019-2020 FY20 Non-Personnel Budget

Travel	$ 3,000
Software	$ 0
Supplies	$ 874,045
Equipment	$ 328,650
Maintenance	$ 40,000
Contract/Special Service	$ ……0
Prof Services and Membership	$ 121,500
Communication	$ 5,000
Media	$ 1,100
Rentals	$ 370
Other	$ 0
Total	**$1,373,665**

Non-Personnel Summary, Proposed	
Appropriated funds for 2019-2020	$ 152,515
Matching funds for 2019-2020	$1,221,150
Total funds for 2018-2019	**$1,373,665**

Actual 2018-2019 Appropriated Funds and Matching Funds

Total Appropriated Funds 2018-2019	$ 632,516
Carry Over of 2017-2018 funds	$ 31,338
Total Appropriation 2018-2019	$ 663,854
Total Matching funds 2018-2019	$1,327,853
Total Operating Budget, 2018-2019	**$1,991,707**