iTHRIV

integrated Translational Health Research Institute of Virginia

December 2021

In this Issue

A message from iTHRIV Principal Investigator Dr. Karen Johnston

Dear iTHRIV Community,

With the approaching new year, I would like to thank you for your commitment to iTHRIV and take some time to reflect on what we have accomplished together in 2021. I also want to take a moment to express my great excitement for our plans for growth in 2022 as we continue to work in service to the clinical and translational research community to benefit the residents of Virginia.

We made great strides in 2021. We have launched the first version of the iTHRIV Research Data Commons. Though it is only currently available to a small group of users and testers at UVA, we have distributed the APIs and the code to all partner sites to begin the process of installing the landing services that will allow us to expand to all partners. This is a big step forward in the implementation of this innovative platform that has the potential to change the way we use and share data.

We developed and deployed multiple new training and support programs; from simple workshops and seminars all the way up to large multi-week courses. Team members have highlighted our work in local, regional, and national forums including at the CTSA Annual Meeting. Our Inspiring Diverse Researchers in Virginia (iDRIV) program provided education and mentorship to a diverse cohort of early career researchers. Our iTHRIV Scholars Program welcomed its fifth cohort of early career researchers. All of this work contributes to growing the next generation of translational researchers and we should all be proud of what we have accomplished and continue to do.

The Pilot Translational and Clinical Studies Program grants provided insight into celiac disease, epilepsy, Parkinson's disease, as well as advancing several pediatric fields. Our Community Partnership grants focused on the benefits of greenspace for seniors as well as breaking down barriers of Medicare access for noncitizen families. These projects represent an incredibly broad and exciting future for iTHRIV research programs and potential translation to improve the health of our local communities and beyond.

In addition to our remarkable accomplishments this year, I'd like to add a personal favorite event of 2021. On December 6th, the iTHRIV core team gathered to appreciate each other and to make blankets which were donated to the UVA Pediatric Intensive Care Unit for hospitalized children and their families.

This iTHRIV team is a remarkable group of bright, supportive and kind people. If you haven't met them yet, I encourage you to reach out to these amazing colleagues. I feel lucky to work with them every day.

We are excited about our next steps in 2022 including further expansion of many programs and numerous new initiatives. We are thrilled to strengthen our relationships with community groups and place an increased focus on community engaged research as well as promote health equity research projects. iTHRIV wants to learn from community perspectives. We look forward to working with our broad iTHRIV family across Virginia to facilitate innovations, community partnered research, and health related discovery.

On behalf of all of iTHRIV, I wish you a joyous holiday season and a happy and healthy New Year.

- Karen Johnston, MD, MSc,

iTHRIV Principal Investigator

Meet an iTHRIV Affiliate, the University of Virginia Licensing & Ventures Group

The University of Virginia Licensing & Ventures Group

The University of Virginia Licensing & Ventures Group (LVG) is the intellectual property management and innovation commercialization organization for the University's research enterprise. Founded in 1977, its mission is to maximize the intellectual, societal, and economic impact of UVA discoveries via commercialization to enrich and improve lives for the University, the Commonwealth of Virginia, and the world.

Supporting the University community and translational research efforts, LVG offers the following technology transfer services to faculty, staff and students:

- Invention Disclosure Evaluation
- Prior Art Searching
- Patent Preparation/Prosecution
- Federal/Sponsor Compliance
- Research Development
- Experimental Design (for patentability)
- Business Development
- Licensing/Contracting
- New Venture Creation
- Entrepreneurs in Residence
- Business Advisory Services
- Open Incubator Workspace

The LVG Seed Fund I & II are evergreen seed-stage funds that are uniquely positioned to launch and support new ventures emerging from the UVA research portfolio. Managed by LVG, the Funds are governed by an oversight committee comprised of leaders in early-stage investing and startup development who are all UVA alumni.

Researcher check-in

iTHRIV Pilot Grant recipients Peter Apel, orthopaedic surgeon for Carilion Clinic, and Miguel Perez, data engineering director at the Virginia Tech Transportation Institute, are studying pre- and post-operation driving fitness to develop safer return-to-drive recommendations after rotator cuff surgery. Check out this video to learn about their work and iTHRIV's role.

Watch the video here:

https://youtu.be/4zYHTWhDDus

Center for Open Science Releases Final Findings from the Reproducibility Project

The iTHRIV affiliate's findings demonstrate that, while not always easy, reproducibility is vital.

In early December, eLife published the final outputs of the Reproducibility Project: Cancer Biology, an 8-year effort to replicate experiments from 53 high-impact papers published between 2010 and 2012. The purpose of the project was to transparently assess the extent to which there are challenges for conducting replications and obtaining similar evidence of published findings in cancer biology research.

Launched in 2013, the Reproducibility Project: Cancer Biology was a collaboration led by Timothy Errington, Director of Research of the Center for Open Science and Science Exchange, the world's first online R&D marketplace whose mission is to accelerate scientific discovery. The team conducted a systematic process to select high-impact cancer research papers published between 2010 and 2012. Based on the selection criteria, most of the papers came from high-profile journals such as Nature, Science, and Cell. A total of 193 experiments were selected for replication.

"Challenges for Assessing Replicability in Preclinical Cancer Biology" reports on the challenges confronted when preparing and conducting replications of 193 experiments from 53 papers. None of the experiments were described in sufficient detail to design a replication without seeking clarifications from the original authors. Some authors (26%) were 'extremely helpful' and generous with feedback, and some authors (32%) were 'not at all helpful' or did not respond to requests. During experimentation, about two-thirds of the experiments required some modification to the protocols because, for example, model systems behaved differently than originally reported. Ultimately, 50 replication experiments from 23 papers were completed, a small proportion of what were planned.

The second paper, "Investigating the Replicability of Preclinical Cancer Biology", reports that replications provided much weaker evidence for the findings compared to the original experiments. For example, for original positive results, replication effect sizes were 85% smaller than the original effect sizes on average. "Of the replication experiments we were able to complete, the evidence was much weaker on average than the original findings even though all the replications underwent peer review before conducting the experiments to maximize their quality and rigor. Our findings suggest that there is room to improve replicability in preclinical cancer research," noted Errington.

Brian Nosek, Executive Director of the Center for Open Science added, "Science is making substantial progress in addressing global health challenges. The evidence from this project suggests that we could be doing even better. There is unnecessary friction in the research process that is interfering with advancing knowledge, solutions, and treatments. Investing in improving transparency, sharing, and rigor of preclinical research could yield huge returns on investment by removing sources of friction and accelerating science. For example, open sharing of data, materials, and code will make it easier to understand, critique, and build upon each other's work. And, preregistration of experiments and analysis plans will reduce the negative effects of publication bias and distinguish between planned tests and unplanned discoveries."

These papers identify substantial challenges for cancer research, but they occur amid a reformation in science to address dysfunctional incentives, improve the research culture, increase transparency and sharing, and improve rigor in design and conduct of research. Science is at its best when it confronts itself and identifies ways to improve the quality and credibility of research findings. The Reproducibility Project: Cancer Biology is just one contribution in an ongoing self-examination of research practices and opportunities for improvement.

For more information about this project, visit http://cos.io/rpcb.

iTHRIV Under the Microscope

Kristina Cooper is the Clinical Regulatory Affairs Manager for Carilion Clinic. Kristina joined Carilion in September 2016 as a Senior Compliance Specialist in the Organizational Integrity and Compliance department before joining the Research and Development department in August 2019. Prior to joining Carilion, Kristina worked for the Colorado Multiple Institutional Review Board (COMIRB) at the University of Colorado Anschutz Medical Campus. Kristina has a combined 12 years of experience in clinical research regulations and compliance. As part of the iTHRIV Research Concierge Portal, she is a resource for regulatory submissions of clinical trials for Carilion and other collaborating iTHRIV sites.

Kristina is from Arvada, Colorado and completed her undergraduate studies at Metropolitan State University of Denver. She has been a Certified IRB Professional (CIP) since 2014 and Certified in Healthcare Research Compliance (CHRC) since 2016. In her spare time she enjoys travel and spending time with her rescue German Shepherd, Fritz.