June 2022 - Issue 53

Looking for more research stories? Visit Discovery Digest online.

***Discovery Digest* is a glimpse into how University of Saskatchewan research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world. Curated by the Research Profile and Impact unit, Office of the Vice-President Research. Feedback welcome!**

This Month's Stories

Welcome to the new Discovery Digest!

Discovery Digest - a monthly newsletter offering a glimpse into how USask research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world - is now offered in a new format that makes finding the latest research news easier than ever before.

The new format will feature snapshots of the latest research news, with a digital online version providing a full overview of the ground-breaking, record-smashing discoveries University of Saskatchewan (USask) researchers have made in the past month. Questions? Comments? Submit feedback on Discovery Digest to research.communications@usask.ca. **Visit the online version of Discovery Digest here.**

USask hosts the Prime Minister of Canada

Prime Minister **Justin Trudeau** paid tribute to the contributions USask has made to scientific discovery, as he wrapped up his visit to campus on May 25.

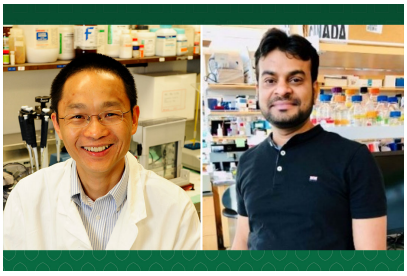
The prime minister met with top students and toured innovative spaces and unique research facilities throughout the day, including the Gordon Oakes Red Bear Student Centre, the Crop Development Centre research plots and the Vaccine and Infectious Disease Organization (VIDO). Students were given the opportunity to share research insights and ask questions. **The full story**.

A recipe for success: USask researchers champion improved MS care with a 'local flavour'

Multiple sclerosis (MS), which affects one in 3,000 Saskatchewan residents, is an unpredictable disease of the central nervous system that disrupts how information flows from the brain to the rest of the body. With World MS Day on May 30 focusing on connections – both to others and to quality care – USask researchers Dr. **Katherine Knox** (MD) and Dr. **Sarah Donkers** (PhD) are working to bring physical rehabilitation for those living with MS closer to home.

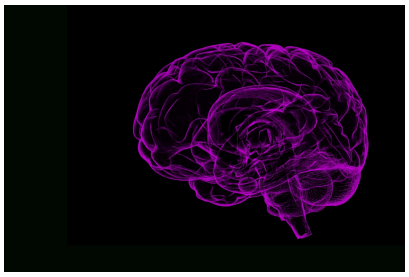
Developed using patient-focused research and launched at the start of the pandemic, the successful two-year NeuroSask program brings physical activity interventions, social connection and evidence-based education to those living with neurological conditions. **The full story.**

USask researcher examines link of genetic mutation and immune systems to blood cancers



USask research findings published in the journal Cell Reports examine how a genetic mutation affects the body's immune system response to viruses and its link to the development of two types of blood cancers. Dr. **Yuliang Wu** (PhD) from USask's College of Medicine and his team are investigating how a gene known as DDX41 contributes to this immune system function, and how mutations in the gene can lead to two potentially fatal blood cancers.

The results provide a starting point to understanding the ties between the immune system, genetics and the two types of cancer. Wu's goal is to find drugs that target the DDX41 gene as potential treatment for the two blood cancers. **The full story**.



Cutting-edge imaging yields new insights into stroke

Hemorrhagic stroke, where a weakened vessel in the brain ruptures, can lead to permanent disability or death. Across the globe, over 15 million people are coping with its effects.

Led by USask neurosurgeon Dr. **Lissa Peeling** (MD), a study by researchers from USask and Curtin University in Australia has moved us one step closer to identifying when the bleeding associated with a hemorrhagic stroke starts – critical information for improving patient outcomes. **The full story.**

USask co-leads $3.2 M research project focused on carbon sequestration for mitigating climate change

A team led by Dr. **Angela Bedard-Haughn** (PhD), dean and professor in USask's College of Agriculture and Bioresources, and Dr. **Cameron Carlyle** (PhD) from the University of Alberta has been awarded $3.2 million in funding through the Saskatchewan Strategic Research Initiative for research on carbon sequestration in perennial forage and pastures.

The five-year project will examine soil carbon stocks in perennial forage systems across Saskatchewan and investigate the link between producer management practices and carbon stores to identify practices that promote carbon sequestration. One of the outcomes of the project will be maps providing an accurate estimate of carbon in Saskatchewan's pasture and rangelands. **The full story**. **Watch a USask Research Minute video**.

Looking for more research stories? Visit Discovery Digest online.

USask leads national team in creating the next generation of food and water security leaders

The newly funded Food-Water Nexus Education and Training (FWNET) program will foster a new wave of professionals primed to lead Canada through future agricultural and climate-related challenges. The program

will provide interdisciplinary training in hydrology, agriculture, technology, innovation, and policy to reduce global inequities in food security.

A national team, led by Dr. **Jay Famiglietti** (PhD), USask professor and executive director of the Global Institute for Water Security, has been awarded a prestigious Natural Sciences and Engineering Council of Canada (NSERC) Collaborative Research and Training Experience (CREATE) grant valued at $1.65 million over six years to support the development of this initiative. **The full story**.

USask part of NSERC-funded training program to decolonize Canada's medical device industry

USask mechanical and biomedical engineering professor Dr. **Wenjun (Chris) Zhang** (PhD) and a team of university faculty and community partners will work to develop a program – dubbed UnLIMITED: Uniting for Leading Indigenous and non-Indigenous Medical Instrumentation, Technology, Entrepreneurship, and Design – that will be the first in Canada to incorporate both engineering and Indigenous perspectives while training grad students in medical device design and innovation.

The program provides opportunities for both Indigenous and non-Indigenous medical specialists to use the insight of multiple perspectives to develop equitable innovations to increase user satisfaction with the devices. The team will receive $1.65 million over six years from the federal government's NSERC CREATE grant program. **The full story**.

Time is money: rapid diagnostic testing for bovine respiratory disease

A multidisciplinary research team is working to develop rapid genomic testing methods that will change the way feedlots make decisions about antimicrobial use and ultimately improve antimicrobial stewardship.

Through their $5.6-million Genomic ASSETS (Antimicrobial Stewardship Systems from Evidence-Based Treatment Strategies) for Livestock project, researchers Dr. **Cheryl Waldner** (DVM, PhD), a Western College of Veterinary Medicine professor and the NSERC/BCRC Beef Cattle Research Council Senior Industrial Research Chair and Dr. **Simon Otto** (DVM, PhD) from the University of Alberta School of Public Health, are developing rapid testing technology that can identity respiratory pathogens and any antimicrobial resistance in calves entering feedlots. **The full story**.

USask researcher finds wheat byproduct in feed may cut methane emissions

As the human population grows, so does the demand for food. **Agbee Kpogo**, a doctoral student in USask's College of Agriculture and Bioresources, investigated whether the western Canadian pork industry could be expanded while minimizing the environmental impact of pork production.

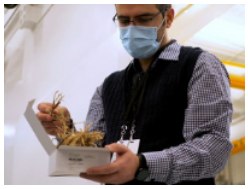
Under the supervision of assistant professor Dr. **Denise Beaulieu** (PhD), Kpogo and his research team analyzed how feeding pigs a diet based on wheat millrun affected methane emissions. Results determined that the millrun diet did not increase greenhouse gas emissions from pigs, but actually reduced emissions by approximately 25 per cent. **The full story**.

USask PhD graduate earns national recognition for her research focused on leadership in Ukrainian higher education

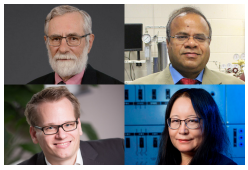
Dr. **Nataliia Zakharchuk** (PhD), a graduate from the College of Education, has received the Thomas B Greenfield Award from the Canadian Association for the Study of Educational Administration for her thesis exploring the post-Soviet era transformation of university governance in Ukraine.

Zakharchuk studied three Ukrainian universities which had recently elected their first leadership in a democratic collegial process without government involvement. She found that Europeanization had become a change-promoting force that was in conflict with inherited Soviet structures that persisted as professional values and invoked conformity. With the ongoing Russian invasion of Ukraine, the dissertation vividly depicts the perspectives of university administrators and will impact the development of higher education policies and practices in the country's rebuilding. **The full story**.

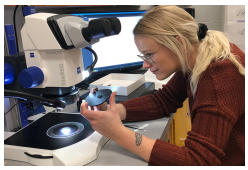
Social program investments affect disease incidence rates: USask research



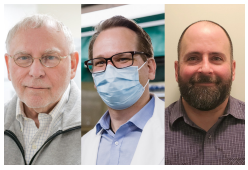
[How a researcher is using waste to provide drinkable water to the world]



[Major USask awards honour researchers for significant contributions]

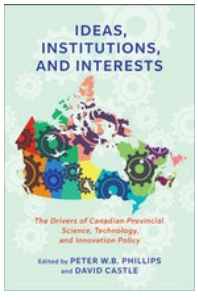


[USask Plant Sciences graduate advocates for bees via research]



[USask honours Wastewater Surveillance Team for public engagement]

[AgBio undergraduate researcher receives Governor General's Silver Medal]



[USask Johnson Shoyama School of Public Policy distinguished professor authors new book exploring how policy influences economy]

[National Geographic's "Something Bit Me" mini-series episodes 6 and 11 feature USask researcher Dr. Douglas Clark (PhD)]

[USask partners on AgTech robotic platform]

[USask researchers advancing agricultural water management research]

THE CONVERSATION

USask is a founding partner of national academic newswire, The Conversation Canada, which provides independent, high-quality journalism. Get in touch with Research Profile and Impact if you are interested in submitting a story or opinion piece.

To discover more research stories and past newsletter editions, visit Discovery Digest online.

From the Office of the Vice-President Research

USask remains in top 1.8% of universities worldwide

The University of Saskatchewan remains in the top 1.8% of universities worldwide and has tied for #473 out of a total of 1,422 universities, according to the Quacquarelli Symonds (QS) 2023 World University Rankings. USask ranked strongly in engagement with international faculty (#259) and students (#280), as well as showed an improved standing with publication success, ranking #329 when considering citations obtained per faculty member. USask also ranks in the top 10 for the institution's faculty-student ratio and for citations per faculty member amongst Canada's U15 research universities. The QS Rankings are established using a

scoring methodology which is most heavily weighted on the results of the QS Global Academic Survey, used to gather perceptions on university research activities and reputation.

Awards and Recognition

Find out if there are any upcoming awards deadlines or let us know about awards in your discipline that should be added to our **external awards list**. If you are interested in pursuing a potential nomination, please reach out to **research.communications@usask.ca** to discuss what support is available.

Research Intersections - Special Event

Research doesn't happen in isolation. Join us on June 28 for the Research Intersections event, a celebration and demonstration of how one starting point can lead to discovery the world needs.

A panel of engaged USask researchers and scholars have come together to explore the unique ways seemingly divergent pursuits and interests may align, intersect, and come together. Following 10 weeks of open and deeply generous exchanges, the working group will now share the processes and potentials of invested attention to one another's work in an in-person panel discussion. As a group, we will work to unlearn divisive methodologies and begin to understand how expertise is not threatened by close examination and true connection with others. This event uniquely embodies all three of USask's 2025 plan commitments: courageous curiosity, boundless collaboration, and inspired communities.

Please join us on **June 28 from 2-4 PM CST at Gordon Snelgrove Gallery**. This event is open to the entire USask community. **Register here**.

USask participates in One Health Collaboration event

USask Vice-President Research Dr. Baljit Singh had the opportunity to give the opening remarks and present on behalf of USask at the One Health Collaboration event held at the Vaccine and Infectious Disease Organization on June 3. Representatives from top academic institutions as well as from the Public Health Agency of Canada and the Canadian Institutes of Health Research participated in an exciting

discussion of how research and policy can be better integrated to fulfill emerging and evolving health needs in Canada.

One Health is a signature area of research at USask, with our researchers working to develop scientific, public health and policy approaches that integrate human, animal and ecosystem health.

USask Misiwêskamik International Postdoctoral Fellowship

Funded through the USask International Blueprint for Action, Connecting with the World, the competitive Misiwêskamik International Postdoctoral Fellowship brings international postdoctoral fellows to USask. This year's recipients include:

Rhiannon Boselely, awarded a two-year fellowship, will work with supervisor Dr. **Michael Kelly** (MD, PhD) in the Department of Surgery. Boselely will look at using synchrotron based multimodal imaging to visualize animal stroke lesions in 3D. Boselely is completing her PhD in Chemistry at Curtin University in Australia.

Aswin Kumar Ilango, awarded a one-year fellowship, will work with supervisor Dr. **Lee Wilson** (PhD) in the Department of Chemistry. Ilango will look at the valorization of plastic waste as industrial adsorbents for sustainable mineral recovery and water security. Ilango obtained his PhD in Environmental Chemistry at Anna University in India.

Stay connected with research news

Click the icon to the left to follow the USask Research **Twitter page** to stay in-the-know, with exciting research news delivered right to your newsfeed. Don't forget to follow **USask Research on LinkedIn**, **@VPR_USask** and **@USask** on Twitter for more of the latest research and university news.

Use the hashtag **#USaskResearch** when sharing about USask-related research findings, publications or achievements on social media.

Upcoming events

Upcoming events are featured in the USask Office of the Vice-President Research website event calendar for your convenience in finding events of interest to attend. **Visit the full**

calendar here. Upcoming events include:

June 22 - **VIDO Community Liaison Committee Public Meeting**

June 23 - **An unbeelievable WCVM announcement**

June 28 - **USask Research Intersections event**

June 29 - **Social Media for Researchers workshop**

In the news

- Other USask research has also been featured in:
  - May 19 – *The Globe and Mail* - **Research and innovation powering momentum toward sustainable development goals**
  - May 21 – *CJWW Radio* - **New materials making quantum computers even more evolved**
  - May 22 – *CBC News* - **I thought I understood what happens to your body in frigid water. Then I fell in**
  - May 24 – *The New York Times* - **Would Your Pet Make a Good Therapy Animal?**
  - May 25 – *The New York Times* - **The Anti-Vaccine Movement's New Frontier**
  - May 25 – *CBC Listen* - **Changing climate poses a threat to treasured Saskatoon trees**
  - May 28 – *Saskatoon StarPhoenix* - **We have always been here: Historians search for LGBTQ2S+ stories in rural Sask.**
  - May 28 – *The New York Times* – **How Serious Is Monkeypox?**
  - June 3 – *Saskatoon StarPhoenix* - **VIDO: Saskatchewan's gift to global health**
  - June 10 – *Engineering & Technology Magazine* - **Mining the bonepile of precious rubbish**
  - June 13 - *Phys.org* - **Pea and lentils invest in root system development differently**

UNIVERSITY OF SASKATCHEWAN

BE WHAT THE WORLD NEEDS

We want your feedback! **What do you think of Discovery Digest?**

You are receiving this email because you are a student, faculty or staff at USask. Questions? Comments? Send an email to **Research Profile and Impact.**