Discovery Digest

BE WHAT THE WORLD NEEDS

August 2021 - Issue 43

In this issue: USask researchers receive federal funding for innovative new equipment and to support exciting new projects, caterpillars battle wasps using viral defense mechanisms, a saliva study evaluates the oral health of Canadians, and much more!

Every month, USask Research Profile and Impact highlights research from across campus. *Discovery Digest* is a glimpse into how USask research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world. Feedback welcome!

Top Stories

New COVID-19 vaccination measures for fall term

Beginning Sept. 7, as a response to COVID-19 fourth wave, every member of the USask community—all students, faculty, and staff—will be required to show proof of at least one dose of a World Health Organization (WHO)-approved COVID-19 vaccine before coming onto campus. Proof of a second dose will be required by Oct. 18.

Individuals who are unable or who are unwilling to get vaccinated will be required to provide regular and frequent negative COVID-19 test results and to submit a daily symptom checklist in order to access USask campuses.

Whether on- or off-campus, researchers conducting in-person research with human participants are required to be vaccinated and to wear masks. Other researchers are strongly encouraged to wear masks, especially indoors, in any crowded areas, and in areas with poor ventilation.

Please refer to the **vaccination FAQs** for more details. Full details on how to provide proof of vaccination status and testing and other required protocols will be announced soon. **The full statement.**

USask research labs to get new, souped-up equipment, thanks to federal funding

Four USask research teams were awarded nearly

$678,000 by the Canada Foundation for Innovation John R. Evans Leaders Fund for equipment and labs to support leading-edge research in big data analytics, high-speed imaging of heart development, modernizing electrical networks, and expanding computer capacity to process huge volumes of historical data related to Indigenous sovereignty.

USask researchers and their respective teams awarded funding include Dr. **Michelle Collins** (PhD), Dr. **Chanchal Roy** (PhD), Dr. **C.Y. Chung** (PhD) and Dr. **Benjamin Hoy** (PhD).

The award will fund high-performance computing infrastructure, software analytics workstations, large interactive displays, mobile devices, and wearables such as eye-trackers. **The full story.**

Three USask students named 2021 Vanier Scholars, one awarded international post-doctoral fellowship

PhD students **Fidelia Anulika Orji**, **Jocelyn Peltier-Huntley**, and **Gabrielle Iakotennikonhrare Doreen** have been awarded the prestigious 2021 Vanier Canada Graduate Scholarship. The annual award recognizes researchers who demonstrate academic excellence, research potential and leadership ability. Orji, Peltier-Huntley, and Doreen will each receive $150,000 over three years to support their work.

Additionally, **Osiris González Romero**, a recent PhD graduate from Mexico who completed his doctoral work in the Netherlands, has been awarded the Misiwêskamik International Post-doctoral Fellowship, a competitive program mandated to bring international post-doctoral fellows to USask. The post-doctoral fellowship includes at least $88,000 in funding over two years. **The full story.**

COVID-19 Research

Infectious disease research bolstered by Hospitals of Regina Foundation

To help protect Saskatchewan residents from emerging disease threats, Hospitals of Regina Foundation (HRF) has invested $150,000 to help establish Canada's Centre for Pandemic Research at USask's Vaccine and Infectious Disease Organization (VIDO).

The Foundation's investment will support vaccine research and development to strengthen frontline health care and help reduce the impact of future infectious diseases and pandemics.

With support from Hospitals of Regina Foundation, other private donors and all levels of government, Canada's Centre for Pandemic Research will be established at VIDO in the next three years. **The full story.**

The coronavirus is rife in common US deer

One third of common white-tailed deer in the northeastern United States have been found to have antibodies to SARS-CoV-2, according to new preliminary research results from a team of leading virologists.

This is the first time there has been detection of widespread virus exposure among an animal herd, says USask virologist Dr. **Arinjay Banerjee** (PhD). It remains a mystery how the deer population could have come to be exposed to the virus, and implications for future virus spread and vaccine efficacy. **Read the full *Nature* article.**

COVID-19 Research

USask researchers in a wide range of fields are undertaking critical research to help combat COVID-19. Read other stories.

Health research

Number of First Nations people living with IBD in Saskatchewan has doubled

The number of First Nations people in Saskatchewan living with inflammatory bowel disease (IBD) more than doubled from 1999 to 2016, according to new research from the USask IBD among Indigenous Peoples Research Team, led by Dr. **Juan-Nicolas Peña-Sánchez** (MD, PhD) and Dr. **Derek Jennings** (PhD).

Peña-Sánchez said there is a misconception that IBD is extremely uncommon among Indigenous peoples--potentially delaying diagnoses for Indigenous patients when presenting with symptoms and delaying access to treatment.

The results of the study were recently published in the journal ***Inflammatory Bowel Diseases***. **The full story.**

Grant funds community-engaged diabetes research

A USask College of Medicine research team led by Dr. **Stuart Skinner** (MD) aims to improve health care for individuals with diabetes in Regina and nearby First Nation communities, thanks to a Research Connections grant from the Saskatchewan Health Research Foundation.

The team will recruit highly-engaged community members as "peer champions," who will connect with their peers to identify current needs, gaps and strengths when accessing diabetes care. This community-engaged approach will allow the team to hear directly from affected individuals.

The goal is to build a peer-engaged, community and patient-centred model to provide targeted education and care to those in affected communities. **The full story.**

Research reveals extraordinary rates of rare neuromuscular disorder in Indigenous people in Saskatchewan

An interprovincial research team including USask College of Medicine researchers, Dr. **Alexandra King** (MD), Dr. **Kerri Schellenberg** (MD), and Dr. **Malcolm King** (PhD), have found that among people of Indigenous descent in Saskatchewan, the rate of Kennedy's Disease is 14.7/100,000, compared with the average rate of one to two per 100,000.

Kennedy's Disease is a rare hereditary disease that affects motor neurons in the face, throat, arms, legs, and lungs. The study identified markers of a genetic mutation that are the root cause of the high Kennedy's Disease rates in Indigenous populations. The origin of the genetic mutation likely occurred around 250 years ago and has now spread as population numbers have risen over time.

Current research findings have been published in the journal ***Neurology Genetics***. **The full story.**

Understanding patient and health care provider perspectives on amputation services

USask School of Rehabilitation Science and College of Medicine researchers, Dr. **Audrey Zucker-Levin** (PhD), Dr. **Kassondra Collins** (PhD), and Dr. **Gary Linassi** (BMedSc MB) examined the efficacy of services for patients post-amputation from the perspectives of health care providers and patients.

Limb amputation is a life-changing event that not only affects the person in the hospital bed but the family, caregivers, health care system and health care providers. The team created focus groups to facilitate discussions of where improvements can be made in the health care system regarding amputation.

The identified areas of need and efficacy will act as a platform for future research and education. The project was supported by the Saskatchewan Centre for Patient Oriented Research (SCPOR). **Read the full publication.**

Dentistry researcher investigates oral health

Oral health is implicitly tied to one's overall body health.

USask dentistry researcher Dr. **Walter Siqueira** (DDS, PhD) will be involved in a study that aims to paint a picture of the level of oral health of Canadians.

As the lead of the Salivary Proteomics Research Laboratory at USask, Siqueira will process clinical data from salivary samples to determine the general level of oral health among study participants and investigate ways to improve access to dental care and minimize inequities.

Led by McGill University and awarded $3.3 million in Canadian Institutes of Health Research funding, the study will be conducted nationwide over a two-year span with data being collected from Canadians aged 1-79 years, in conjunction with all 10 Canadian dental schools and Statistics Canada's Canadian Health Measures Survey (CHMS). **Read the full interview.**

Animal health

USask researcher discovers tiny beetles cause big threat to woodland caribou

Threats to Canada’s endangered woodland caribou can be traced back to spruce budworm infestations and salvage logging. USask biology researcher Dr. **Philip McLoughlin** (PhD) has co-authored a paper in the prestigious journal, ***Proceedings of the National Academy of Sciences***, demonstrating the phenomena.

The research shows outbreaks of spruce budworms and the human impacts of logging lead to a breakdown of forest vegetation that impacts the natural food chain, depleting resources and introducing predators that can greatly impact the woodland caribou population in the affected region.

This chain of events is imperative to understand as climate change is projected to increase the frequency that these events occur. **The full story.**

Caterpillars borrow weapons from viruses in battle against parasitic wasps

Exactly how the caterpillars are winning a tiny evolutionary arms race is the subject of an article just published in the journal ***Science*** by an international research team including USask scientists and Canadian contingent lead researcher, Dr. **Martin Erlandson** (PhD).

The research found some insects are able to produce virus components inhibiting other competing species. Complex DNA transfer mechanisms have made it possible for the

instructions for toxic proteins from viruses to be transferred to the genes of host caterpillars and the proteins then deployed as a defense tactic.

A better understanding of how viruses and parasitic wasps interact could present new, improved strategies for environmentally sustainable pest control through the combined use of viruses and parasites. **The full story.**

Food security research

USask researchers, SHA, and CHEP Good Food work together to tackle hunger issues in Sask.

The Saskatchewan Health Authority and the CHEP Good Food program are working with USask researchers to better understand the historical roots of food insecurity and food sovereignty in the province and design a path to a more sustainable future.

Of particular concern to the Saskatchewan group is the large-scale food procurement needs of the health authority. This has the potential to overwhelm local sustainable practices—such as hunting, growing, harvesting—if not done in a responsible fashion.

The study will look at various locations in Saskatchewan including urban centres and remote areas among First Nations and Métis communities. Research will be conducted in conjunction with the Nourish Anchor Collaborative Cohort, a national community of practice empowering health-care leadership in climate action and health equity. **The full story.**

From the OVPR

USask signature areas of research

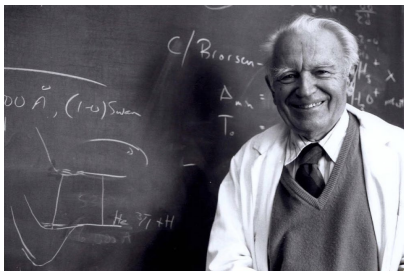
The USask signature areas of research renewal process — led by the Vice President, Research, **Baljit Singh** and Provost **Airini** — has progressed over the summer.

The Signature Areas Advisory Circle report is available on the university's **signature areas renewal project website**. The next step is the presentation for pitches of ideas for new or revised signature areas to the Signature Areas Steering Committee. **Guidance** on the requirements for these pitches is available on the renewal project website.

Please note the deadline to **submit** pitches for new/revised signature areas is Aug. 24, 2021.

All interested parties are invited to **register** to attend the pitch sessions on Aug. 30, 2021 to Sept. 9, 2021. These dates may change based on the number of submissions.

Questions or feedback on this process can be directed to **Tonya Wirchenko**, Manager, of Executive Initiatives and Projects within the Office of the Vice President, Research.



Celebrating USask's Nobel Laureate Gerhard Herzberg

When Gerhard Herzberg was awarded the Nobel Prize in chemistry 50 years ago for ground-breaking discoveries in a lifelong exploration of the structure of matter, he publicly thanked the University of Saskatchewan. In the most recent edition of Green and White, Kathryn Warden explores his legacy in unravelling the mysteries of the microscopic world.

More celebratory communications and events are planned through the fall to honour this pioneer and mark the anniversary of this breakthrough accomplishment. **Learn more**.

Zoom now available at USask

Web conferencing with research teams, external organizations, and international counterparts just got easier. After a campus-wide needs assessment, **Zoom** is now available to all USask faculty, staff and students.

Access Zoom in the Web Conferencing channel in **PAWS**. To begin using Zoom, review the details regarding **how to claim your USask account**. Those who already have a Zoom account using you're a USask email address can follow the instructions to **consolidate**. Training is **available** to learn how to use the platform and its advanced features to aid in research teamwork. Training registration instructions can be found **here**.

The university has done due diligence with respect to privacy and security and now has an institutional contract in place with Zoom which meets the university's privacy obligations with respect to service providers under privacy law. The contract has privacy clauses including a health information protection annex, to fill in any gaps with their privacy policy which can be found here: **https://zoom.us/privacy**.

Telling your research story

Follow USask Research Profile & Impact on LinkedIn

Follow the USask Research Profile and Impact page to stay in the know, with exciting research news delivered right to your LinkedIn newsfeed. As a unit of the Office of the Vice-President Research, our mission is to help share USask research stories with the world.

We will be sharing current research, exciting findings, new research directions and partnerships regularly. Come see what we're up to at USask by making us part of your

professional network, and check back often for updates.

Share your research story on social media

Use the hashtag **#USaskResearch** when sharing about USask-related research findings, publications or achievements on social media. Using our hashtag will allow OVPR and USask to find your posts and share them on our own channels. You can also search the hashtag at any time to find relevant research-related content. Don't forget to follow **@VPR_USask** and **@USask** on Twitter for the latest research and university news.

In THE CONVERSATION

Write about your own research in The Conversation

USask is a founding member of The Conversation Canada, an online academic journalism hub/newswire where researchers write plain-language editorials and explainer articles about their research. Articles written by USask researchers have been read more than 2.3 million times since the university entered into a partnership with the SSHRC-funded Conversation Canada in June 2017.

Writing is easier than you think!

Watch a video from Conversation Canada Editor-in-Chief Scott White.

Want to reach a broad audience with your research? Consider pitching an item to the Conversation. **Wondering where to start? Read a short explainer on how to write for The Conversation Canada. Read previous USask articles here** and **get in touch with Research Profile and Impact.**

Opportunities

Science Communications course

Human Element Communications is making a six-week science communications course available for University of Saskatchewan faculty and staff from Oct. 4 to Nov. 12.

USask's School of Environment and Sustainability employed this training earlier in 2021, and reported positive outcomes. Training focuses on the power of stories, becoming media savvy, strategic communications and communications tools.

If interested, contact **Heather Persson**, Director of Research Profile and Impact at USask.

Learn more.

SSHRC Research Data Management Capacity Building Initiative extended

The Social Sciences and Humanities Research Council (SSHRC) has announced the extension of the **Research Data Management Capacity Building Initiative**. This initiative aims to continue helping the Canadian social sciences and humanities research community better understand data management, and incorporate data management considerations into research practices.

The initiative will fund at least 10 meritorious **Connection Grants** proposals per competition for the November 2021, February, May and August 2022 cycles, to support the research community's development, adoption and dissemination of research data management standards, practices, tools and skills appropriate to their field.

For more information on the initiative, please contact SSHRC by email: **connection@sshrc-crsh.gc.ca** or (613) 943-1007.

Upcoming events

20/21 Vision: Speculating in Literature and Film in Canada: Aug. 16–22

This international online conference based at the University of Saskatchewan will bring together scholars, authors and members of the public who are interested in speculative writing in Canada. Speakers include **Cherie Dimaline, Wayde Compton, Saleema Nawaz, Anne Stone, Tonia Laird, Iris Hauser, Laura St. Pierre,** Dr. **Marlene Goldman** (PhD) and Dr. **Dwayne Brenna** (PhD).

Registration is free. **Learn more**.

"In Search of Almighty Voice: Resistance and Reconciliation" book launch – Aug. 21

A new book by USask professor emeritus and alumnus Dr. **Bill Waiser** (PhD) explores the story of Almighty Voice, a member of the One Arrow Willow Cree who died violently in 1897 when the North-West Mounted Police shelled his hiding place.

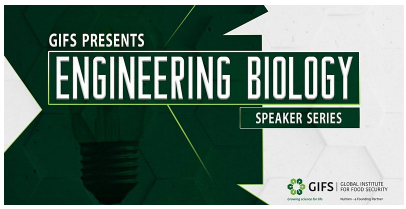
At the request of the One Arrow First Nation Elders, his book In Search of Almighty Voice: Resistance and Reconciliation will be launched at the One Arrow First Nation powwow on Saturday, August 21, 2021. The launch will immediately follow the 1 p.m. Grand Entry ceremony. **Learn more.**

SURE Summer Research Symposium – Aug. 25-27

USask's Student Undergraduate Research Experience (SURE) program is hosting a virtual Research Symposium to showcase undergraduate student summer research projects conducted with faculty supervisors.

Research posters and presentations will be available for viewing and discussion forums will be available to facilitate conversations with students about their work. For any faculty or staff members with undergraduate student research assistants or that are interested in undergraduate research work, please visit us to see what undergrads have been up to at USask this spring/summer.

Any USask faculty, staff or students can attend by accessing the Symposium Canvas course beginning Aug. 25. **Find updates**.



Global Institute for Food Security (GIFS) Presents: Engineering Biology Speaker Series

GIFS is pleased to present an exciting, informative and educative **webinar series** that will answer important questions about the scope and impact of Engineering Biology (aka 'biomanufacturing').

This six-part series will feature **renowned experts** from across North America sharing insights into a field described as the fourth industrial revolution that impacts agriculture, alternative foods, health and medicine, biomaterials and more. The series will run in weekly one-hour editions, starting Sept. 1.

Sign up here to learn more about this bio-revolution that the McKinsey Global Institute estimates will have a global economic impact of up to $4 trillion dollars in the next two decades.

In the news

- USask's COVID-19 research has been featured in:
  - *Nature News* – Aug. 2 - **The coronavirus is rife in common US deer**
  - *Regina Leader Post* – July 30 - **Researchers say many questions left to answer about long COVID**
  - *KHN* – July 28 - **Unraveling the Mysterious Mutations That Make Delta the Most Transmissible Covid Virus Yet**
  - *980 CJME* – July 27 - **VIDO vaccine hopefuls hold out for hometown COVID-19 study**
  - *The Globe and Mail* – July 26 - **SARS-CoV-2: From secret life to global pandemic**
  - *620 CKRM* – July 26 – **VIDO researchers studying COVID-19 "long-haulers"**
  - *CBC* – July 24 - **Canada could avoid the worst of a 4th wave — but we're not**

out of the woods yet

- *Global News* – July 20 - **Hospitals of Regina Foundation invests $150K in VIDO-InterVac lab**
- *CBC The Morning Edition* – Sask – July 19 - **VIDO research provides insight into possible long-term health impacts associated with COVID-19**
- *CBC* – July 17 - **Yes, vaccines curb COVID-19 transmission — but that's not enough to protect those without a shot**

- Other USask research has also been featured in:
  - *620 CKRM* – Aug. 9 – **USask researchers involved in Canadian oral health study**
  - *Saskatoon StarPhoenix* – Aug. 8 – **Study finds inflammatory bowel disease on the rise among Indigenous people in Sask.**
  - *Saskatoon StarPhoenix* – July 30 – **Quebec bug outbreaks could provide answers for struggling Sask. caribou**
  - *Prince Albert Daily Herald* – July 30 – **Mental health partnership created to help assist with reopening anxieties**
  - *Global News* – July 24 – **USask adds chair to research the relationship between cattle and crops**

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For more information,
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