

January 2022 - Issue 48

In this issue: USask researchers develop new potential COVID-19 treatments, a new 'superbuoy' launches in Saskatchewan waters, how visible tattoos impact the public's perception of psychologists, new investments in USask crop research and plant

breeding, 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. <u>Feedback welcome!</u>

Are you doing research in the Canadian or Global North? Fill out this OVPR survey.

This Month's Stories



<u>Disrupting COVID-19 with potential new treatments: USask research</u>

An interdisciplinary USask research team joined forces to investigate the structure of the virus that causes COVID-19 in order determine potential new treatment options. SARS-CoV-2 attaches to cells in the human body via spike proteins, infecting them and spreading through

viral replication.

The study found that specific molecular structures called disulfides are important for holding the spike proteins together and, when disrupted, can cause the virus to lose its ability to infect. The team is now looking into the specifics of a treatment option that will disrupt these viral structures.

The overall team involved a collaboration between College of Medicine professor Dr. Miroslaw Cygler (PhD) and College of Arts and Science professors Dr. Ingrid Pickering (PhD) and Dr. Graham George (PhD), USask research associates Dr. Andrey Grishin (PhD) from the College of Medicine, Dr. Nataliya Dolgova (PhD) from the College of Arts and Science and Dr. Olivier Fissette (PhD) at USask Advanced Research Computing, Dr. Darryl Falzarano (PhD) and Shelby Landreth at the USask Vaccine and Infectious Disease Organization. The full story.



<u>USask researchers tackle health issues</u> raised by COVID-19

As the pandemic rolls through another year, USask researchers continue to seek out timely responses to the crisis based on scientific discovery, thanks to more than \$445,000 in funding from the Canadian Institute for Health Research.

USask College of Medicine Drs. **Cory Neudorf** (MD), **Nazeem Muhajarine** (PhD) and **Anne Leis** (PhD) will address various community health impacts brought about by the pandemic for families and youth across Canada, such as backlogs in youth immunization programs and analyzing coping behaviours of individuals. **The full story.**



<u>USask virologist provides updates about</u> COVID-19 variants and vaccination

Take a minute for research and **watch** Dr. **Alyson Kelvin** (PhD), a virologist and research scientist at the USask Vaccine and Infectious Disease Organization, answer important questions about the current COVID-19 Omicron variant, how vaccination works, and next steps

for pandemic researchers.



Community Consultation: Becoming Canada's Centre for Pandemic Research

VIDO is home to some of the most advanced high containment research capacity in the world. To strengthen Canada's preparedness for emerging infectious diseases, VIDO is expanding their capabilities as Canada's Centre for Pandemic Research. These expanded capabilities will allow VIDO to research all pathogens and rapidly develop

vaccines and therapeutics to help control new infectious diseases including those that cause pandemics.

As part of this process, VIDO is consulting with the community to relay the importance of these enhancements to human and animal health and gain feedback. The consultation will inform local stakeholders on the merits of this type of research and facility, key benefits to society, and how perceived risks will be managed. Please

visit https://www.vido.org/centre for more information.

Upcoming Community Outreach:

- January 13-15, 2022: Business Focused Discussion Board
- January 13-15, 2022: General Public Discussion Board

COVID-19 Research

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



\$500,000 in federal funding awarded for Canada Research Chair at USask

Dr. **Eric Price** (PhD), USask researcher from the College of Arts and Science, has been awarded \$500,000 through the federal government's Canada Research Chair renewal program to support new insights into the development of "smart" radioactive

pharmaceuticals that may be used as innovative treatments for cancers, brain disorders, and infectious diseases.

In conjunction with the Canadian Light Source and the Sylvia Fedoruk Canadian Centre for Nuclear Innovation on the USask campus, Price's research team is investigating the development and applications of radiopharmaceuticals. The Natural Sciences and Engineering Research Council renewed chair will provide extended funding support at a value of \$100,000 annually for five years. **The full story.**



Having visible tattoos gives psychologists more cred: USask research

New USask research suggests that to potential clients, psychologists with visible, provocative tattoos seem more confident, interesting, likable, less lazy, and more competent than psychologists with no tattoos or with less provocative ink.

In research <u>published in December in the journal Professional</u>

<u>Psychology: Research and Practice</u>, former USask doctoral student

Dr. **Alexandra Zidenberg** (PhD), psychology professor Dr. **Mark Olver** (PhD), and doctoral student **Shannah Dutrisac**, found that participants without tattoos reported to have a more positive view of a psychologist

who sported a provocative skull tattoo, compared to a psychologist with no tattoo or one with a neutral flower tattoo. **The full story**. **Watch a video summary.**



The shape of music: USask artist and musicians explore human perception

USask College of Arts and Science associate professor **Allyson Glenn** has used her unique ability called synesthesia—the involuntary linking of two or more senses—in a new collaboration with the Saskatoon Jazz Orchestra (SJO) to show audiences how a

synesthete experiences music.

At its concert titled **Dimensions in Sound**, the SJO will perform original music by two Saskatchewan composers while animated art created by Glenn is projected in sync to reflect the images her mind sees while music is playing. **Dean McNeill**, head of the USask Department of Music and artistic director of the SJO, led the collaboration in the College of Arts and Science. **The full story**.



<u>Taking the Pulse of Canada: International travel off this winter, most survey respondents say</u>

The Canadian Hub for Applied and Social Research at USask conducted the latest Taking the Pulse survey and found that while some Saskatchewan residents are planning to go abroad this winter, most are unlikely to travel outside Canada.

With COVID-19 variant cases skyrocketing in many countries and government restrictions on non-essential travel being put in place, the survey found that almost 70 per cent of survey respondents were not at all likely to make travel plans this winter, with 49.7 per cent of those respondents saying feeling unsafe due to COVID-19 was a factor in their decision.

The poll had a sample size of 400 and a margin of error of plus or minus 4.9 per cent. **Read the full story in the Saskatoon StarPhoenix.**



Building a more efficient tool for software coding: USask research

USask graduate student **Avijit Bhattacharjee** has set out to find a solution to software bugs with a tool that helps developers to read, understand and document computer code so software can be produced quickly, efficiently, and increasingly error-free.

Under the supervision of Drs. **Banani Roy** (PhD) and **Kevin Schneider** (PhD) from the USask College of Arts and Science, the current code summary tool provides a resource for developers to help them locate and document relevant source code for further development or future projects.

The study is the first of its kind to provide a multi-perspective view of computer source code and to be conducted with an exclusive focus on water security. So far, the tool has been used in the development of hydrological modeling software for the USask Global Institute for Water Security and the USask Global Water Futures Nutrient app. **The full story**.



USask law faculty member launches new book

USask College of Law Ariel F. Sallows Chair in Human Rights Dr. **Rachel Loewen Walker** (PhD) has released a new book focused on incorporating the Deleuzian theory of timekeeping with queer theory, Indigenous studies and modern focuses on feminism and sustainability.

"Drawing on literature, philosophy, popular culture, and community research, Loewen Walker unsettles the fierce linearity of our stories, particularly as they uphold fixed systems of gender, sexuality, and identity." A book launch hosted by the USask

College of Law will be held on Jan. 17.



USask crop research aims to innovate, thanks to new funding investment

USask researchers were awarded more than \$5.7 million to develop crop-related innovations ranging from plant-based edible 3D printing and packaging to using drones for monitoring crops and soil health.

The funding through Saskatchewan's Agriculture Development Fund (ADF) was awarded to 25 USask researchers to support 34 projects. The ADF is supported through the Canadian Agricultural Partnership, a five-year, \$3-billion investment by federal, provincial, and territorial governments to strengthen and grow Canada's agriculture, agri-food and agri-products sectors. See a full list of funded USask projects here.



New partnership to increase skills and talent in Canada's agrifood sector

USask is helping to develop a new, \$1.08-million specialized training program targeted at preparing workers for the jobs agri-food sector employers are eager to fill.

Together with non-profit innovation supercluser Protein Industries Canada, the national non-profit organization Palette Skills, Winnipeg-based non-profit Enterprise and Machine Learning Initiative (EMILI), and Economic Development Regina, USask will develop a program focused on increasing employment opportunities among under-represented populations such as the Black, Indigenous and People of Colour (BIPOC) community, and new Canadians to help solve the labour shortage the agri-food sector faces.

As a leader in agricultural research, the USask College of Agriculture and Bioresources will support the program's design and industry engagement. **The full story**.



Resilient crops developed through research and breeding

In the latest edition of the provincial government's digital magazine Agriview, Dr. **Aaron Beattie** (PhD), Associate Professor and Ministry of Agriculture Strategic Research Program (SRP) Chair in Barley and Oat Breeding and Genetics, discusses how the

USask Crop Development Centre is developing crop varieties that can better tolerate adverse weather conditions to maintain yield and quality.

Dr. Beattie's research focuses primarily on milling oats and malt barley, with some work on forage oats and food barley. Varieties being developed include those needing less fertilizer and fungicides, and crops able to grow to their fullest extent in challenging weather conditions. **The full story.**

Global Institute for Food Security CEO Steven Webb staying on in leadership role



Dr. **Steven Webb** (PhD), chief executive officer of the Global Institute for Food Security (GIFS) at the USask is staying on in his leadership role at the institute. The update, provided by GIFS' Board of Directors, followed an October announcement of Webb's resignation for family reasons.

Webb joined GIFS in July 2019. In his time at the publicprivate partnership that was founded in 2012 by the Government of Saskatchewan, Nutrien and USask, he has led the launch of its new strategic plan for its

second phase of growth, including a new vision of a world where everyone has access to safe and nutritious food. **The full story**.



<u>USask researcher's cutting-edge buoy</u> <u>aims to secure water source for Regina</u> and Moose Jaw

A strong partnership between USask School of Environment and Sustainability researcher Dr. **Helen Baulch** (PhD) and the Buffalo Pound Water Treatment Plant is bringing cutting-edge monitoring equipment to Saskatchewan to

advance lake science and safeguard drinking water for 260,000 people.

The independent board of directors of the plant, owned by the cities of Regina and Moose Jaw, in collaboration with plant president and CEO **Ryan Johnson**, has approved the purchase of a custom-designed \$250,000 high-tech buoy that's been nicknamed Superbuoy. It comes equipped with research-grade weather and atmospheric monitors, and an array of winter-hardy water quality sensors for year-round use. **The full story**.



USask researchers angling to protect fish from chemical contamination

Two projects led by researchers Dr. Markus Brinkmann (PhD), Dr. Natacha Hogan (PhD), and Dr. Markus Hecker (PhD) from the USask Toxicology Centre have been awarded \$300,000 each by Fisheries and Oceans Canada to study the toxicological impacts of

chemical contaminants on fishes of commercial, recreational, and Aboriginal (CRA) importance to Canada.

Chemicals widely used in everyday life end up in wastewater that flows to rivers and lakes, potentially causing serious impacts to aquatic life. These materials include compounds that reduce the wear and tear of rubber tires, and antimicrobials used in households, hospitals and industry for disinfecting or preventing microbial growth. **The full story**.



USask at COP26: Sounding the alarm

USask had a substantial presence at the 26th United Nations Climate Change Conference (COP26) held in Glasgow in November through USask Global Water Futures (GWF), which contributed to four events.

GWF's message at COP26 and to the world was that the climate warming that has already occurred is too much, said Dr. **John Pomeroy** (PhD), director of GWF and Canada Research Chair in Water Resources and Climate Change. Through communication of science and art, USask researchers are hopeful that the next global climate change conference will result in a more robust and definitive agreement at future events.

GWF is the largest and most-published freshwater research program in the world, and a partnership between universities across Canada with core support from USask, University of Waterloo, Wilfrid Laurier University, and McMaster University. **The full story.**



USask signs MOU with Universiti Malaysia Terengganu

USask and the Universiti Malaysia Terengganu signed a memorandum of understanding on Jan. 5. The MOU outlines the potential for new research partnerships in the areas of sustainable aquaculture, climate

change, food security and Indigenous knowledge sharing, led by USask faculty Dr. **Hassan Vatanparast** (MD, PhD) and his collaborator Dr. **Meisam Tabatabaei** (PhD).

The MOU will serve as a framework for sharing knowledge, skills and technologies across both institutions and to collaborate in the creation of international research opportunities for students. The partnership celebrates the cultural diversity of both Malaysia and Canada, and hopes to establish distinct intercultural experiences for faculty and students.



USask veterinary pathologist appointed to Order of Canada

Dr. **Frederick (Ted) Leighton** (DVM, PhD), professor emeritus and 1979 graduate of the Western College of Veterinary Medicine (WCVM), was appointed officer of the Order of Canada on Dec. 29. He was **among several USask community members** who received one of Canada's highest honours.

Leighton's work as a clinical pathologist and as an internationally renowned researcher specializing in wildlife disease earned him the honour. In addition to

his teaching, research and diagnostic work at the WCVM, Leighton was the former executive director and co-founder of the Canadian Wildlife Health Cooperative (CWHC). **The full story.**



USask Law lecturer earns Clawbie award for Best Longform Publication

USask College of Law sessional lecturer and PhD student **Benjamin Ralston** has earned one of two Clawbie awards for Best Longform Publication for an e-book published by the USask Indigenous Law Centre. The book and accompanying guides, titled *The Gladue Principles: A Guide to the Jurisprudence*, discusses the systemic discrimination that Indigenous individuals and collectives face throughout the criminal justice system, and discusses a recent legal framework presented to address the crisis of legitimacy and outcomes in the

sentencing of Indigenous persons. Read more about the book here.
Read an article in the *Times Colonist* here.



<u>USask chickpea breeder recognized as</u> Pulse Promoter

Dr. **Bunyamin Tar'an** (PhD), professor at the USask Crop Development Centre and Ministry of Agriculture Strategic Research Program Chair in Chickpea and Flax Breeding and Genetics, has been recognized for the innovation he has brought to the pulse industry as recipient of the Pulse Promoter

Award by Saskatchewan Pulse Growers.

Dr. Tar'an grew up in Palembang City, South Sumatra, Indonesia, where he completed the undergraduate program in Agronomy from Sriwijaya University. Moving to Guelph, Ont., he completed his M.Sc. and PhD from the University of Guelph, specializing in plant breeding and genetics. **The full story**.

From the Office of the Vice-President Research

Campus Conversations on Research, Scholarly, and Artistic



Works

The Vice-President Research is hosting the next Campus Conversation on Thursday February 3, 2022 from 12:00 PM – 12:45 PM via Microsoft Teams.

Campus Conversation is an opportunity for all members of our campus - senior administrators, faculty, staff, students, post-doctoral fellows, and others - to meet with the Vice-President Research and fellow scholars to engage in constructive discussions about

research, scholarly, and artistic works at USask.

Please save the date in your calendar and <u>register online if you wish</u> to attend. A link will be circulated one day before the virtual event.



Survey to discover USask research projects based in the Canadian and Global North

Are you a USask researcher who is undertaking a project in the Canadian and Global North (north of the southern limit of the discontinuous permafrost zone)?

The Office of the Vice-President Research is conducting a survey to take an inventory of USask research projects conducted in the North. Survey responses will be used to develop an improved strategy to communicate the important research being done in these areas. It also provides an opportunity to let USask research communications know if you have a story you would like to share about your work.

Let us know about up to three of your current USask North Research projects by filling out the survey here. Reach out to research.communications@usask.ca with any questions or concerns.



What Canada can learn from Germany's approach to research

Following a tour of world-class universities and research institutes, USask Vice-President Research Dr. **Baljit Singh** (PhD) and Digital Research Alliance of Canada Vice-President of Communications and External Relations Dr. **Julie Cafley** (PhD) write for University Affairs

to discuss how Germany as a nation excels at engaging with research activities and institutions. **Read the full article here.**



Nominations Open for USask Internationalization Recognition Awards

As part of the USask Blueprint for Action 2025, the International Office announces the J.W. George Ivany Internationalization Award, Global Research Leadership Award for Faculty, Global Research Leadership Award for Students, and International Engagement

Service Award for Staff. These awards are to recognize the achievements of faculty, staff and students who provide outstanding contributions to the internationalization of USask. Nominate a deserving colleague for an Internationalization Award.

Nomination deadline: March 11, 2022, 4 pm CST/SK time

Value: \$1500

Visit internationaloffice.usask.ca/awards for details.

Telling your research story

Enter NSERC's Science Exposed Image Competition by Jan. 24.

If you have eye-catching images from research projects from any



scientific or engineering field, submit your photos to the Science Exposed competition by January 24, 2022.

Individuals or groups that have most successfully combined creativity and science will be eligible for a total of three \$2,000 Jury

Prizes and a \$2,000 People's Choice award. The contest is organized by the Natural Sciences and Engineering Research Council (NSERC) and Association francophone pour le savoir (Acfas). **Submit your image here**.



USask "Images of Research 2022" to launch in March

USask's "Images of Research" competition, organized by Research Profile and Impact, launches in March. Snap your research, scholarly, and artistic work and enter your images for the chance to win glory and cash prizes. Get those shutters clicking and

check **Research.USask.ca** for past winners and contest details.

USASK RESEARCH PROFILE AND IMPACT

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

Do the math when measuring social distancing: two metres is not the same as six feet

Please keep two metres apart

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USask College of Education professor Dr. **Egan Chernoff** (PhD)

Public health awareness resources are helping all of us get through these difficult times. Unfortunately, many social distancing signs are also helping spread an entirely different scourge across our country: Innumeracy. **Read the full article 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 3.5 million times since the university entered into a partnership with the SSHRC-

funded Conversation Canada in June 2017.

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.

Upcoming events



Upcoming events are now 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:

2022 Women + Water Lecture Series

- Innovations in Watershed Management: Towards Better Engagement Between Upstream and Downstream Voices - Jan. 27

National Research Conference for Black Excellence in Science, Technology, Engineering, Mathematics & Medicine/Health (BE-STEMM) - hosted by the Canadian Black Scientists Network and sponsored by USask - Jan. 30-Feb. 2

Campus Conversations on Research, Scholarly and Artistic Works - Feb. 3, 12:00-12:45 PM

The 2022 North American Society for Pediatric Exercise Medicine (NASPEM) Biennial Meeting - Aug. 3



Youth Water Film Prize 2022

We know that today's youth bring an important lens and voice to our mounting ecological crises. The *What About Water?* Youth Film Prize gives students a chance to use their talents to explore new, creative ways to talk about water issues in ways that can make a real difference.

Students get to learn from their peers and gain feedback and grow in their filmmaking abilities.

The deadline for final film submissions is April 30, 2022. For more details, visit **here**.

In the news

- The month's top stories:
 - Disrupting COVID-19 with potential new treatments:
 USask research was featured by 39 media outlets, including
 Radio-Canada, News Talk Radio, and Education News Canada and seen by an estimated 350,000 people
 - Having visible tattoos gives psychologists more cred:
 USask research was seen by more than 7.9 million people and featured by Global News, CTV News, and Education News Canada
 - USask researcher's cutting-edge buoy aims to secure water source for Regina and Moose Jaw was seen by 5.7 million people, and featured by Global News, Environmental Science & Engineering Online, and The World News
 - USask crop research aims to innovate, thanks to new funding investment was viewed by an estimated 5.7 million people, and featured by Global News, Education News Canada, and The World News
 - Global Institute for Food Security at USask announces
 new Bangladesh office and new Research Chair was featured
 by Research Money, The Bangladesh Post, and Daily Star Online,

- and seen by 819,000 people
- USask's COVID-19 research has been featured in:
 - Dec. 14 Saskatoon StarPhoenix Makers of Sask. COVID
 shot eye boosters and trials abroad
 - Dec. 17 Reuters Omicron rewrites the COVID plan for 2022
 - Dec. 17 Popular Science It's too early to dismiss Omicron as a mild COVID variant
 - Dec. 21 CTV News How has the COVID-19 pandemic impacted kids and parents? Sask. Researchers are finding out
 - Dec. 23 The Globe and Mail Story of the COVID-19
 pandemic is now the past, present and future of Omicron
 - Dec. 29 Global News <u>USask researchers' projects aim to</u> <u>tackle COVID-19 pandemic issues</u>
 - Dec. 31 CTV News Controlling the pandemic in 2022:
 - Experts talk vaccinations and the myth of 'zero COVID'

 o Jan. 3 CBC News COVID-19 vaccine one important line of
 - defense for students, but not the only one, says virologist
 - Jan. 5 Global News Posting those rapid test results
 online can help normalize the habit, experts say
 - Jan. 7 Global News Thousands of rapid test results already reported to made-in-Sask. online database
 - Jan. 7 Science Friday Omicron Variant Drives Winter
 COVID Surge
 - Jan. 10 Global News Saskatchewan wastewater data
 affirms spiking COVID counts: USask scientist
 - Jan. 11 CBC News Omicron's spread may boost collective immunity, but at what cost?
- Other USask research has also been featured in:
 - Dec. 18 Global News Tattooed psychologists seen as more 'confident, empathetic': USask study
 - Dec. 18 Global News <u>USask researcher joins team</u> studying plants and microbes for oilsand wastewater clean-up
 - Dec. 20 CBC News Climate change could mean some
 Arctic animals will be more vulnerable to disease spread
 by insects: researcher
 - Dec. 21 Saskatoon StarPhoenix Inked shrinks: U of S
 researcher finds visible tattoos help psychologists connect with patients
 - Jan. 1 CBC Quirks and Quarks listener show Where does the rubber from tires go?
 - Jan. 4 Saskatoon StarPhoenix Young Innovators: What's in the water? U of S grad student investigates environmental threat of contaminants in Saskatoon stormwater
 - Jan. 4 Researchers Under the Scope podcast: **Behind BRK**, biochemistry and breast cancer: **Dr. Erique Lukong**
 - Jan. 5 Global News New 'superbuoy' coming to Buffalo
 Pound Water Treatment Plant
 - Jan.6 Western Producer Post-secondary schools work with new ag-tech accelerator
 - Jan. 7 650 CKOM USask prof says extreme cold can be ideal for exercise
 - Jan. 8 Global News Could leftover canola be the next fuel to heat homes?
 - Jan. 9 CBC News Sask. researcher finds alternative fuel
 in province's agricultural leftovers
 - Jan. 9 Calgary Herald Climate disasters and warming

heighten urgency of city's water conservation efforts

- Jan. 11 SaskToday \$5.7 M in grants funds wide range of ag research
- Jan. 11 What about Water? podcast: Boiling point: Water,
 borders and conflict with Aaron Wolf
- Jan. 12 Regina Leader-Post Agriculture minister earmarks
 \$9 million for farm research
- Jan. 13 CBC News 'We're Michif people': Storytelling project revitalizes Métis history in Sask.



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Looking for past issues of Discovery Digest or Research Update? Visit **Research.usask.ca** for more.

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