

# CORONAVIRUS-INSPIRED ALBERTA INNOVATION

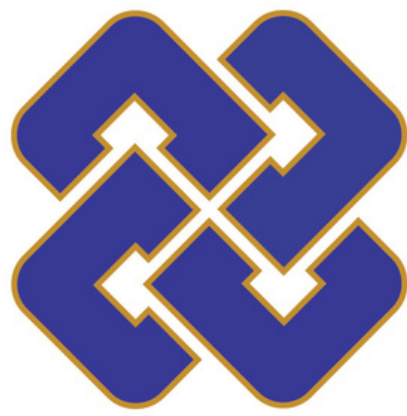
2nd EDITION

11 Months of Inspired Thinking 2020/21



ASTech  
Foundation  
Inspiring Innovation





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**Foundation**  
Inspiring Innovation

**The Alberta Science and Technology Leadership Foundation (ASTech)** is a not-for-profit organization founded in 1989 to identify and celebrate outstanding achievement in science and technology innovation in Alberta.

Through the ASTech Awards, community outreach and other programming, ASTech recognizes, celebrates and grows the culture of innovation in Alberta. We work to:

- Create inspiration;
- Foster innovation;
- Promote excellence;
- Build entrepreneurship and prosperity; and
- Support education and training.

ASTech has:

- Recognized more than 600 individuals, organizations and teams as ASTech Award winners and finalists;
- Invested more than \$1.6 million in the science and technology community through cash prizes; and
- Presented \$15,000 in scholarships since 2017 to first-year post-secondary students in Alberta who are pursuing STEM careers.

For more inspiration, please visit [astech.ca](http://astech.ca)

Calgary, Alberta  
February 9, 2021

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# ALBERTA INNOVATION LEADS THE WAY

As the world faces down the COVID-19 pandemic, innovation in Alberta has never been more powerful.

Researchers and entrepreneurs alike are answering the call and finding ways to adapt, overcome, support and develop important solutions.

This e-book captures more than 90 of those stories, a sampling of that commitment to innovation.

This **Second Edition** includes 12 new stories, covering March 2020 through January 2021.

Click on the links to read more.

# VACCINES



# VACCINES

- **Dr. Michael Houghton**, co-recipient of the 2020 Nobel Prize in Physiology or Medicine, steers his University of Alberta hepatitis C lab to focus on a COVID-19 vaccine. His lab successfully produced a SARS vaccine in 2004, [More](#)
- University of Alberta virologist **Dr. David Evans** partnered with U.S.-based **Tonix Pharmaceuticals** to accelerate the process of moving COVID-19 vaccine testing from the lab to the community. [More](#)
- Promising COVID-19 vaccine candidate Covigenix is going to clinical trials. Developed by **Entos Pharmaceuticals** and led by University of Alberta researcher **Dr. John Lewis**. [More](#)
- **Brad Sorenson's** Calgary-based **Providence Therapeutics** begins Phase I trials of a COVID-19 vaccine. Providence is working with another Calgary company, **Brad Stevens' Northern RNA**, to develop manufacturing capacity in Calgary. [More](#)

# RESEARCH



# RESEARCH 1

- University of Calgary, University of Alberta, Alberta Health Services, and Government of Alberta team up to research whether a five-day treatment can prevent hospitalization for those at highest risk. [More](#)
- **Dr. Matthis Götte's** University of Alberta research team finds remdesivir, a drug meant to combat Ebola, is effective against a key enzyme in coronavirus. [More](#)
- University of Alberta biophysicist **Dr. Michael Woodside** aims to identify already approved drugs that could be repurposed to prevent COVID-19 from replicating. [More](#)
- **Dr. Dylan Pillai** is leading a University of Calgary research team which is validating a simpler rapid-response COVID-19 test. [More](#)
- Leading University of Calgary metabolomics researcher **Dr. Ian Lewis** mobilized his lab to support the COVID-19 research response through rapid protein-based screening. [More](#)
- Water expert **Dr. Steve Hrudehy** leads University of Alberta researchers on a national pilot project to detect early signs of COVID-19 in wastewater. [More](#)
- **Dr. Brian Fleck** creates a "living lab" at the University of Alberta to study the spread of viruses through HVAC systems and improve filtration to prevent it. [More](#)
- **Dr. Sofia Ahmed** leads a University of Calgary study investigating impacts of COVID-19 on healthcare workers. [More](#)
- University of Alberta microbiologist **Dr. Steven Drews** is testing whether COVID-19 antibodies provide long-term immunity. [More](#)
- **Dr. Peter Toohey** and **Dr. John Manzo** are looking at what the future of social distancing really means. [More](#)
- Are kids vectors in the spread of COVID-19? **Dr. Stephen Freedman** leads the University of Calgary North American study in 20 ER sites to find out. [More](#)
- Genome Alberta researchers at the University of Alberta and the University of Calgary are genome sequencing COVID-19 samples to track strains of the virus and monitor spread. [More](#)



## RESEARCH 2

- University of Calgary researcher **Dr. Doug Mahoney** looks to repurpose a cancer-fighting treatment toward COVID-19 vaccine. [More](#)
- Alberta Innovates invests in COVID-19 rapid response projects, including \$15.3 million in 21 Alberta-led projects. [More](#)
- University of Alberta cardiologist **Dr. Gavin Oudit** says ACE2 enzyme links coronavirus and cardiovascular disease; diagnostics and treatments may also be linked. [More](#)
- Discovery of the mechanism behind HIV infections leads University of Alberta cell biologist **Dr. Tom Hobman** to try a new class of drugs against COVID-19. [More](#)
- **Dr. Paul Kubes** is leading the University of Calgary part of a Pan-Canadian research project to improve treatment and recovery from sepsis, a leading cause of death in COVID-19. [More](#)
- University of Alberta biochemist **Dr. Joanne Lemieux** is preparing to launch clinical trials on an antiviral used to treat coronavirus in cats which she expects will also be effective in humans. [More](#)
- Edmonton school children are tracked by pediatrics professor **Dr. Piush Mandhane's** University of Alberta study over 18 months to determine the prevalence of COVID-19 antibodies. [More](#)
- Physical and mental health of Canadian health workers treating COVID-19 patients are studied by University of Alberta occupational epidemiologist **Dr. Nicola Cherry**. [More](#)
- Alberta Innovates injects \$2.1 million into seven COVID-19 research projects aimed at slowing the spread and lessening impacts. [More](#)
- **Dr. Hyo-Jick Choi's** University of Alberta lab is testing salt-coated masks capable of killing viruses and bacteria. [More](#)
- Drone delivery of medical equipment and COVID-19 test kits to remote communities is being tested in a partnership between University of Calgary, SAIT, AHS, Alberta Precision Laboratories and Stoney Nakoda Nations. [More](#)
- **David Lloyd's** FREDsense has partnered with **Elemental Exclerator** to build a portable field system to rapidly identify and measure COVID-19 in wastewater outside the lab. [More](#)

## RESEARCH 3

- Female hormones and chromosomes give women a stronger immune system which translates into less severe COVID-19 complications, finds University of Alberta-led research by **Dr. Gavin Oudit**. [More](#)
- **Dr. Katrina Milaney** from the University of Calgary is named one of five research leads of CanCOVID, a national network of 2,500 researchers providing better understanding of the pandemic to inform the federal government response. [More](#)
- University of Calgary sociologist **Dr. Naomi Lightman** studies the impacts of COVID-19 on immigrant women care aides in long-term care facilities. [More](#)

# TREATMENT & THERAPEUTICS



## TREATMENT & THERAPEUTICS

- **Dr. Ratmir Derda's** company **48Hour Discovery** searches for antiviral compounds to treat COVID-19. [More](#)
- **Dr. Davinder Sidhu** leads the University of Calgary portion of a national study to investigate whether plasma from recovered COVID-19 patients can help others still battling the virus. [More](#)
- **Drs. Igor and Olga Kovalchuk** lead University of Lethbridge partnership in development of new medical cannabis cultivars which show promise in combating the COVID-19 virus. [More](#)
- The University of Alberta's **Applied Pharmaceutical Innovation Institute** leads a province-wide effort to ensure ample supply of two drugs required to put patients on ventilators. [More](#)
- University of Lethbridge scientists **Drs. Igor and Olga Kovalchuk** and their **Pathway RX** researchers find certain cannabis extracts may help prevent acute respiratory distress in COVID-19 patients. [More](#)
- **Nanostics** uses diagnostic technology to help health professionals intervene more quickly and efficiently with patients who are likely to need hospital care. [More](#)
- **Providence Therapeutics** seeks government aid to create made-in-Canada COVID-19 vaccine. [More](#)
- **Exergy Solutions** produces Alberta E-Vent, a very simple ventilator for very complex times. Receives Health Canada approval in record time. [More](#)
- University of Lethbridge partners with **Applied Pharmaceutical Innovation** (API) on MITACS-funded development of COVID-19 treatment. [More](#)
- Building a better CPR board: how the pandemic inspired a University of Alberta team to innovate in emergency and critical care. [More](#)
- Canada Foundation for Innovation Exceptional Opportunities Fund backs three University of Calgary projects focused on improving detection, diagnosis and treatment of COVID-19. [More](#)
- With an anticipated need for lung transplants for COVID-19 patients who develop pulmonary fibrosis, University of Alberta surgeons **Dr. Darren Freed** and **Dr. Jayan Nagendran** have demonstrated the effectiveness of Ex-Vivo Organ Support System (EVOSS), 'lungs in a box' [More](#)

# PPE



## PPE

- The University of Alberta has teamed up with Alberta Health Services to create thousands of 3D printed face shields for health care workers. [More](#)
- **Dr. Craig Coburn** and a University of Lethbridge team are utilizing 3D printers to create face shields and masks. [More](#)
- University of Calgary spinoff **EnviCore** makes hand sanitizer to donate to community groups. [More](#)
- SAIT donates 400 3-D printed face shields to frontline COVID-19 responders. [More](#)
- **Rocky Mountain Soap** uses mushroom-derived chitosan for moisturizing effects in its hand sanitizer. [More](#)
- University of Alberta lab tech **David King** uses 3-D printing skills to protect healthcare workers with Viking Ear Savers. [More](#)
- ASTech Award Winner **Dr. Breanne Everett's** company **Orpyx Medical Technologies** is providing more than 40 million locally-made medical masks to Alberta Health Services. [More](#)
- **Afif Tabish's Creative Cycle** receives Level 3 Health Canada certification for disposable medical grade MasterMasks, available for order by the public and businesses. [More](#)
- **Dr. John Conly's** University of Calgary research team partners in a global study investigating decontamination methods for medical masks. [More](#)
- University of Alberta textile scientist **Dr. Patricia Dolez** and her team are developing a textile treatment to kill viruses on contact on medical gowns and masks. [More](#)

# PIVOTS



# PIVOTS

- **Provision Analytics** pivoted their platform OneTrace, a food safety and traceability application, to Bascase, to help food companies prevent the spread of COVID-19 amongst staff and the public by tracking daily digital logs of symptoms and exposure factors. [More](#)
- Several companies, including **Minhas Micro Brewery and Annex Ale Project**, along with **Burwood Distillery** steer production away from their primary products to hand sanitizer,
- **Alberta Garment** usually produces overalls to support oil and gas construction. They are now ramping up to 10,000 safety items per week, including hospital-grade masks, gowns and other protective items. [More](#)
- Four small businesses have found opportunity in COVID-19 times to reshape their businesses in these rapidly changing times. [More](#).
  - **EverLine Coatings and Services**: from line painting to disinfectant spraying.
  - **SkipTheDepot**: scaling app-based recycling.
  - **Hippo Hug**: from weighted blankets to cotton masks.
  - **The Crossing**: from private events to charitable meals for veterans.
- SAIT graduate **Doug Braden** went from seven to over 100 employees in five weeks, redeploying education-based equipment and technology to print face shields for the healthcare industry. [More](#)
- Tourist t-shirt maker **Canadian Zodiac** finds a niche in producing lab-tested brushed cotton flannel masks. [More](#)
- Promising tech start-up **Showpass** decided 'layoffs weren't an option' so they reinvented themselves as an online marketplace to connect talent and supporters for virtual experiences. [More](#)
- NAIT graduate **Jonathan Mui** pivots his business model to 3D-print ear protectors for frontline workers. [More](#)
- COVID-19 put **Pratik Patel's** catering company **OYO Cater** on hold, so he pivoted to help local restaurants gain affordable access to fresh quality produce through his start-up **Mundii**.
- **Mike Kuzmickas's** private lab **Ichor Blood Services** does private COVID-19 testing for those willing to pay out of pocket. [More](#)



# COMMUNITY



# COMMUNITY 1

- **MedROAD**, a virtual clinic originally developed to extend health care to remote communities, could help provide patient care while maintaining distance, says University of Alberta computing scientist **Dr. Pierre Boulanger**. [More](#)
- [Sprung Structures](#), [CANA Construction](#) and [Stantec](#) combine forces with Alberta Health Services to design and construct Alberta's first temporary COVID-19 treatment centre at Peter Lougheed Hospital in Calgary. [More](#)
- [Falkbuilt, Sprung and SAIT](#): How they turned a parking lot into a pop-up hospital in 10 days. SAIT's Green Building Technology team studied the experience to lead to a plan for one-week installation time on future pop-up hospitals.
- University of Calgary researchers led by **Dr. Gabriel Fabreau** are studying a meat processing plant COVID-19 outbreak in hopes of preventing other such outbreaks. [More](#)
- 10 Calgary start-ups helping the community through COVID-19 [More](#)
- More than 100 individuals and 24 teams participated in the Alberta Innovates and Cybera month-long data science hackathon to provide understanding and context to flatten the infection curve and restore the economy. [More](#)
- **LotSpot** app helps homebuyers get the detailed home info they need in a COVID-friendly way. [More](#)
- A team of Alberta entrepreneurs led by **Tim Carwell** and **Sam Jenkins** started **COVID Continuity**, focused on sharing tools and actions to help business owners become empowered through the recovery. [More](#)
- Calgary high school students led by teacher **Jamie Anderson** make the *Late Late Show* with **Joy4All**, a telephone joke hotline to lift pandemic spirits. [More](#)
- Foothills Hospital residents **Dr. Kimberley Nix** and **Dr. Alexandra Frolkis** raise funds for tablets so isolated patients can connect with their families. [More](#)
- How do entrepreneurs navigate these difficult times? **Platform Calgary** has assembled access to financial supports, resources, links, podcasts and inspiration. [More](#)

## COMMUNITY 2

- ASTech Award Winner **Dr. Steve Liang** is developing smart passcards to help open workplaces. [More](#)
- **Teser Technologies** sterilization unit kills COVID-19 virus in 45 seconds flat. [More](#)
- **Headversity** uses an app to improve mental wellbeing and build resiliency in these uncertain times. [More](#)
- SAIT and **Blue Eden CleanTech Inc.** received NSERC funding to rapidly assemble, test, evaluate and commercialize a novel, high performance and cost-effective electrochemical unit capable of COVID-19 and pathogen destruction from biomedical wastewater.
- Masks are safe and don't limit breathing, says University of Alberta respiratory expert **Dr. Christopher Ewing**. [More](#)
- Mount Royal University students take on front-line roles during the pandemic. [More](#)
- University of Calgary epidemiology student **Seham Elmrayed** helps vulnerable entrepreneurs find success through COVID-19 initiative. [More](#)
- How is the pandemic affecting the mental wellness of new Canadians? University of Calgary researchers, including **Dr. Turin Tanvir Chowdhury**, are working to find out. [More](#)
- SAIT launches School for Advanced Digital Technology to boost Calgary's tech talent pipeline amid the pandemic. [More](#)
- **Platform Calgary** welcomes first wave of partners to the Innovation Centre, scheduled to open in 2021. [More](#)
- **Mathew Lowe's ZeroKey** and **QResponse**, founded by **Griffin Smith** and **Jacky Tai**, are two Calgary tech companies developing targeted contract tracing solutions. [More](#)
- **Dr. Faisal Khan's** University of Calgary lab, in partnership with Alberta Health Services and Alberta Precision Labs, provides timely COVID-19 test results for international travellers at Calgary International Airport in a pilot project. [More](#)
- University of Alberta professor **Timothy Caufield** spearheads the #ScienceUpFront campaign to counter COVID-19 conspiracies and misinformation. [More](#)



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Inspiring innovation in Alberta since 1989.

**ASTech Award** nominations open March 1 - May 31, 2021

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