

CORONAVIRUS-INSPIRED ALBERTA INNOVATION

8 Months of Inspired Thinking in 2020



ASTech
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**](https://www.atech.ca)

Calgary, Alberta

November 9, 2020

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 77 of those stories, a sampling of that commitment to innovation. This First Edition covers March through October, 2020.

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](#)

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. Matthias 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 Excelerator to build a portable field system to rapidly identify and measure COVID-19 in wastewater outside the lab. [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](#)

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](#)

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](#).

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 are participating 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](#)



Inspiring innovation in Alberta since 1989.

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