



2020 IN REVIEW



COVID-19 IMPACT

Top Universities Solving COVID

Colorado State University's research enterprise was recognized on an extraordinary list of 10 research universities that are engaged in fighting COVID by working on vaccines, treatment, testing, contagion mapping, contact tracing, data analysis, and education ([successfulstudent.org](https://www.successfulstudent.org)). CSU was ranked #4, after Harvard, Oxford, and the Broad Institute. CSU currently has more than 125 investigators engaged in more than 150 COVID related research projects. Many of these projects have resulted in technological advances that leverage CSU's extensive infectious disease infrastructure and know-how of its world-class faculty. Several innovations are available to be licensed to commercialization partners and may be found at [csuventures.org/covid-updates-csuinvents](https://www.csuventures.org/covid-updates-csuinvents).

Viral Detection Testing

A rapid, inexpensive virus-detection technology invented by Colorado State University researchers will soon form the basis of a new product that could compete with standard diagnostic testing for COVID-19.

The new diagnostic device, which aims to be fast, portable and more accurate than currently available COVID-19 tests, is one of several technologies spawned from a collaboration among CSU researchers Brian Geiss, Chuck Henry and David Dandy. Combining their wide-ranging expertise in virology, chemistry and chemical engineering, the team has licensed their viral RNA-testing platform to Quara Devices, a startup company specializing in diagnostic biosensors.

Vaccine Manufacturing Capabilities

BARDA and the NIH/NIAID are partnering with CSU's Infectious Disease Research Center (IDRC) to further develop SolaVAX™. The SolaVAX™ platform uses a proprietary technology to inactivate a virus. This project will demonstrate the utility of the SolaVAX™ process for SARS-CoV2 vaccine development. The technology is scalable with potential to accelerate manufacturing capability to meet global needs, and is applicable to other pathogens.



COMMERCIALIZATION HIGHLIGHTS



Cetya Therapeutics, Inc. announces the award of a \$1,000,000 Phase II STTR grant from the National Heart, Lung and Blood Institute of NIH to support the in vivo assessment of its histone deacetylase (HDAC) inhibitor CT-101 for up-regulation of the fetal hemoglobin gene as a potential treatment for sickle cell disease (SCD).



New Iridium has raised \$1.5 million in grants from the Colorado Office of Economic Development and International Trade (OEDIT) Advanced Industries grant program and SBIR/STTR awards from NSF. Recently, the company received an NSF grant to use their photocatalytic technology to work on accelerating manufacturing of Remdesivir, a potential COVID-19 drug treatment.



SiVEC Biotechnologies

SiVEC Biotechnologies was awarded a \$250,000 grant from the Colorado OEDIT Advanced Industries program, and a \$3 million Phase II SBIR grant by NIH. The Phase II grant provides funding to further develop SiVEC-IAV, an antiviral for human influenza treatment and prevention.

2020 INNOVATIVE EXCELLENCE AWARD



The Award for Innovative Excellence is presented to CSU researchers whose innovations have been transferred to industry and are exhibiting strong potential for commercial success. Congratulations to **Christopher Orton** from the Department of Clinical Sciences.

Dr. Orton is highly regarded for starting the first veterinary open-heart surgery program in the world and is a leading authority in veterinary cardiovascular surgery. Dr. Orton has successfully developed multiple innovations for use in teaching and in surgery; he interacts with Colorado livestock producers, especially in the beef, dairy, and equine industries; and champions research advances, including those with translational potential. Orton's work, examining use of new technologies and techniques in heart surgery, exemplifies the "One Health" approach to medicine. One of Dr. Orton's patented technologies is licensed to Abbott and contributed to the design of the company's Tendyne™ Transcatheter Mitral Valve Implantation (TMVI) system [for human use]. Abbott's Tendyne™ TMVI system recently received CE Mark and is approved for use in Europe, and is currently in review with the FDA. This life-changing therapy offers patients with significant mitral regurgitation a minimally invasive alternative to open-heart valve replacement surgery.

INNOVATION



LAUNCHPAD is Ventures' program for supporting startup companies and related technologies. In 2019, we created FUEL to be the cornerstone program, based on proof of concept funding allocated to CSUV through the State of Colorado's Advanced Industries Acceleration (AIA) program. FUEL integrates the competitive grant program with R2M, MARKET, PITCH, and FUND workshops designed to help faculty and staff do customer discovery on their commercialization ideas, and enable them to better compete for funding to advance product development or create a compelling case for investors in their startup company. This past year, LAUNCHPAD successfully completed the first FUEL program cohort, which included 16 teams from CSU, CU and the Colorado School of Mines in the R2M program, of which 6 CSU teams received the associated AIA FUEL grant funds.

PROGRAMS

STATE OF INNOVATION SPEAKER SERIES



2019-2020 INNOVATION IN ENGINEERING & MATERIALS SCIENCE SPEAKERS:

Nancy Sottos, PhD

(University of Illinois at Urbana-Champaign)

James Conley, PhD

(Northwestern University)

Kenneth Gall, PhD

(Pratt School of Engineering, Duke University)

Robert O'Loughlin, JD

(Counsel, Faegre Baker Daniels, LLC)

Kevin R. Ward, MD

(Michigan Center for Integrative Research in Critical Care, University of Michigan)

Kenneth Bertram, MD, PhD

(Wake Forest Institute for Regenerative Medicine)

AMBASSADOR PROGRAM

AMBASSADOR ALUMNI



"The Ambassador Program was a truly invaluable, one-of-a-kind opportunity to develop a unique set of skills. It sparked my desire to

pursue a career in biotechnology and was largely the catalyst for founding SiVEC."

Dr. Linke (cohorts '14, '15) is a dual graduate of CSU (PhD Infectious Disease Epidemiology, MS Biomedical Engineering). She invented a novel therapeutic technology and founded SiVEC Biotechnologies, a CSU startup company with a tissue specific nucleic acid deliver platform for therapeutic and vaccine development.

2019-2020 AMBASSADOR COHORT:

Sunny Dasgupta College of Business

Emma McKay College of Business

Benjamin McKenney College of Engineering

Catherine McMahon College of Natural Sciences

Alyssa Melvin College of Natural Sciences

Ruth Menger College of Natural Sciences

PATENT HIGHLIGHTS

CSU faculty and staff were awarded a total of 69 patents (international and US) in FY20*. Of those 69 patents - 5 were for potato varieties, 30 were international, and 34 were US. This record number of issued patents landed CSU on the National Academy of Inventors top 100 academic institutions issued US patents for the 2019 calendar year. We are excited to celebrate this accomplishment and congratulate the current CSU faculty, students, and staff inventors that were awarded a patent in FY20 (listed below).

College of Agricultural Sciences: Victoria Anderson, Ed Asfeld, Mark Brick, Darren Cockrell, Todd Gaines, Scott Haley, David Holm, Emily Hudson-Arns, Jerry Johnson, Sally Jones-Diamond, Frederick Judson, James Ogg, Frank Peairs, Meenakshi Santra, Scott Seifert, John Stromberger, Matthew Wallenstein, Hong Wang, Philip Westra

College of Business: Ralph Switzer, Jr.

Walter Scott, Jr., College of Engineering: Pranav Athalye, Travis Bailey, Todd Bandhauer, Randy Bartels, George Collins, Tammy Haut Donahue, David Hobby, Susan James, Kevin Labus, Anthony Marchese, Kirk McGilvray, Branislav Notaros, David Prawel, Christian Puttlitz, Thomas Sale, Christopher Snow, V. Chandrasekar "Chandra", John Williams, Bryan Willson, Azer Yalin, Peter Young, Daniel Zimmerle

College of Liberal Arts: Bernard Rollin

College of Natural Sciences: Christopher Ackerson, Daniel Bates, Eugene Chen, Christine Dunne, Charles Henry, Alan Kennan, Kevin Klunder, Amy Prieto, Melissa Reynolds, Robert Williams

College of Veterinary Medicine & Biomedical Sciences: John Belisle, Lyndah Chow, Steven Dow, Mercedes Gonzalez-Juarrero, Edward Hoover, Mary Jackson, David Leith, Lyndsey Linke, Candace Mathiason, Christopher Orton, Casey Quinn, Daniel Regan, Mo Salman, Richard Slayden, Leslie Stone-Roy, John Volckens, William Wheat, Jeffrey Wilusz

Facilities Management: Brian Sedlak, Scott Seeley



2020 BY THE NUMBERS

116
INVENTIONS
DISCLOSED

\$434,630
PROOF OF CONCEPT FUNDING

\$2.09M
LICENSE REVENUE

177
PATENT
APPLICATIONS*

69
ISSUED
PATENTS*

32
LICENSE
AGREEMENTS

5 STARTUP COMPANIES

*NEW RECORD