



UTAH LIFE SCIENCES COMPANIES

RESPONSE TO COVID-19



UTAH LIFE SCIENCES COMPANIES COVID-19-RELATED PRODUCTS AND INNOVATIONS



OVERVIEW

When the public health is threatened by an event like COVID-19, it is innovation by life sciences companies that brings solutions. Utah's life sciences industry is doing its part in the battle against COVID-19 by accelerating critical product development, pivoting to meet shortages of vital components, and innovating new ideas, technology and methods for addressing the pandemic.

This document provides a summary of what some Utah companies are doing in the fight against COVID-19. The companies are listed alphabetically. Members of BioUtah are marked with an asterisk.

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UTAH COMPANIES MAKING
UNIQUE CONTRIBUTIONS
TO THE FIGHT AGAINST
COVID-19.



ACCUBREATH

SPENCER MADSEN, CEO

AccuBreath™ provides an accurate and robust ventilation and respiration monitoring system that raises the bar of patient safety but remains cost effective. AccuBreath™ fills an unmet clinical need by providing a cost-effective, accurate respiratory support and monitor that is easy-to-use, portable, and reliable. AccuBreath's technology represents a new level of patient care related to procedures requiring airflow.

COVID-19 IMPACT

AccuBreath™ has developed an ultra low-cost, portable, and simple to use respiratory ventilator to assist patients suffering from COVID-19. The AccuBreath™ ventilator has applications in a number of settings, including emergency medical services, hospitals, nursing homes, and the military.



ALTERRA MEDICAL*

MATT TOONE, CEO

Alterra Medical (Alterra) is a medical device commercialization engine that helps innovators navigate the journey from ideation to market adoption. With a focus on continuous value creation, Alterra engages at every step of the product development lifecycle—from product strategy and clinical validation to full-scale commercialization, GPO contracting and logistics. In partnership with Mountain Pacific Venture Fund, Alterra is committed to catalyzing, capitalizing, and commercializing devices that improve outcomes and enhance quality of life.

COVID-19 IMPACT

Alterra rapidly responded to the universal shortage of disinfection products by bringing a factory online in March, 2020, to manufacture a steady supply of sanitation products, including medical grade hand sanitizers, disposable hospital quality masks, and hospital-grade wipes, and cleaners for front-line healthcare workers, businesses, and government agencies. In addition to continuing to provide disinfection solutions and personal protective equipment (PPE), Alterra is focused on helping to bring manufacturing of critical healthcare products back to Utah and the U.S.



ARUP LABORATORIES*

SHERRIE L. PERKINS, MD, CEO

ARUP Laboratories (ARUP) is a national nonprofit and academic reference laboratory at the forefront of diagnostic medicine. ARUP is a CAP-, ISO 15189-, and CLIA-certified diagnostic laboratory with more than 35 years of experience supporting

clients. ARUP serves hospitals and laboratories nationwide while still serving as the primary laboratory for the University of Utah Hospital and Health System clinics.

COVID-19 IMPACT

Long before the World Health Organization declared COVID-19 a pandemic, ARUP was developing and validating tests to help meet the demand for coronavirus testing in Utah and throughout the United States. ARUP offers molecular tests for diagnosis of current COVID-19 infection and both qualitative and quantitative IgG antibody testing to evaluate past exposure to SARS-CoV-2. Additionally, ARUP does cytokine testing which helps to identify patients at high risk for poor outcomes with COVID-19 infection. Through their blood services division, ARUP is also active in collection of immune serum from previously infected patients to be used as a possible therapeutic intervention for those with severe disease.



ATL TECHNOLOGY*

BRAD BROWN, CEO

ATL Technology (ATL) uses an engineer-to-engineer approach to develop custom interconnect solutions for medical devices that improve the quality of one's life. Seven of the top 10 medical device companies rely on ATL. ATL has manufacturing facilities in China, Costa Rica, and in Springville, Utah, its corporate headquarters.

COVID-19 IMPACT

Using the supply chain developed for their manufacturing operations in China, ATL has become an important supplier of sample and extraction kits used in molecular diagnostic testing for COVID-19. In addition, ATL has been successful in sourcing critical personal protective equipment, such as N95 respirators and surgical masks.



BD VASCULAR ACCESS DEVICES* (UT), DIAGNOSTIC EQUIPMENT (OUTSIDE UTAH)

ROB FREDERICKS, VP/GM, VASCULAR ACCESS DEVICES-UTAH

BD is a global medical technology company that is advancing the world of health by improving medical discovery, diagnostics and the delivery of care. The company provides innovative solutions that help advance medical research and genomics, enhance the diagnosis of infectious disease and cancer, improve medication management, promote infection prevention, equip surgical and interventional procedures, and support the management of diabetes.

COVID-19 IMPACT

BD has developed and offers two COVID-19 tests: 1) A molecular diagnostics test to detect SARS-CoV-2 by amplifying two unique regions of the N gene (i.e., N1 and N2), and 2) BD, in partnership with BioMedomics, has released a new point-of-care test that can detect antibodies in blood to confirm current or past exposure to COVID-19 in as little as 15 minutes. Other COVID-related products include:

- **BD Universal Viral Transport System (including swabs, vials and prepackaged kits).** These products are used to collect and transport clinical specimens for viral testing, including for the diagnosis of COVID-19.
- **BD MAX™ System and BD MAX™ Open-System Reagents** providing FDA emergency use authorization (EUA) designated and/or CE marked molecular assays for SARS-CoV-2 testing and system reagents enabling the development of laboratory tests supporting COVID-19 detection, such as the Total Nucleic Acid (TNA) reagent suite.
- **Relevant vascular access and injection-related products** used in treatment of COVID-19.
- **BD and Alaris infusion sets.**



BIOFIRE DEFENSE

ROBERT LOLLINI, CEO

BioFire Defense is a specialized diagnostic company that provides a fully integrated suite of pathogen identification products. The company leads the industry in emerging infectious disease test development and is a hub for rapid PCR product innovation for bioMérieux and BioFire Diagnostics.

COVID-19 IMPACT

In collaboration with the Department of Defense (DOD), BioFire Defense has developed a fully-automated, sample-to-result assay for the specific detection of SARS-CoV-2. This assay is designed to run on both the BioFire® FilmArray® 2.0 and BioFire® FilmArray® Torch Systems, delivering results in about 45 minutes. The diagnostic test is being used by U.S. Forces and hospitals world-wide in response to the pandemic.



BIOFIRE DIAGNOSTICS*

ANDREA KENDELL, INTERIM CEO

The BioFire® FilmArray® System helps healthcare providers deliver proper treatment and reduces patient hospital stays by providing fast and accurate pathogen identification. With a turnaround time of about one hour, clinicians can make vital decisions regarding hospital admission, isolation, cohorting, antiviral or antibiotic therapy, and additional diagnostic testing.

COVID-19 IMPACT

The BioFire® Respiratory 2.1 (RP2.1) Panel with SARS-CoV-2 is now authorized under an EUA for use on both the BioFire 2.0 and BioFire Torch Systems. In addition to the detection of SARS-CoV-2, the BioFire RP2.1 detects 21 additional respiratory pathogens to help clinicians quickly rule in and rule out other common causes of respiratory illness in about 45 minutes. BioFire also intends to submit the BioFire RP2.1 Panel to the FDA for de novo clearance on an accelerated timeline.



BIOPHARM LABORATORIES*

JONATHAN IRWIN, CEO

BioPharm Laboratories (BioPharm) was formed to provide the diagnostic products industry a reliable and cost-effective bovine thrombin material. The company has since added additional items to its product list. BioPharm was founded by Dr. J Foster Irwin, Ph.D. He was an original founder of GenTrac Inc. and developed ThromboGen® therapeutic thrombin which was distributed by Johnson & Johnson®. BioPharma today is located in a 10,000 square foot facility with the capacity to make production scale lot sizes.

COVID-19 IMPACT

BioPharma provides raw materials used in the development of serum based controls used in the diagnosis of COVID-19.



CANARY SPEECH

HENRY O'CONNELL, CEO

Canary Speech is a speech and language company that specializes in the area of identifying disease and human condition through speech. The company uses a variety of machine learning technologies to solve problems at the intersection of healthcare and technology. The company has completed FDA clinical trials and IRB studies, and is expanding its platform geographically to include China, Japan, Korea, and Ireland.

COVID-19 IMPACT

Canary Speech is voice modeling using AI to identify disease/conditions.



CIBUS BIOTECHNOLOGIES AND IONIQ SCIENCES*

JARED BAUER, CEO

Cibus Biotechnologies (Cibus) owns an exclusive world-wide license for technology developed at the University of Arizona that could potentially stop a virus' ability to replicate. Multiple patents were filed in 2019. It is anticipated that additional patents will be filed as work continues. The initial viral targets will be White Spot Syndrome Virus and African Swine Fever.

IONIQ Sciences, Inc. is developing advanced multi-cancer screening technology for early detection that will expand the therapeutic window, dramatically improve survivability, and reduce the cost of healthcare. IONIQ Science's first product utilizing its proprietary analytic platform, the ProLung Test™ for lung cancer, has been designated a Breakthrough Device by the U.S. FDA. ProLung rebranded to IONIQ Sciences in May 2020.

COVID-19 IMPACT

Cibus, through a joint venture with IONIQ Sciences, is working with its clinical research partners to validate a SARS-CoV-2 antibody test and will seek an EUA from the FDA.



CO-DIAGNOSTICS*

DWIGHT H EGAN, CHAIRMAN/PRES/CEO/CO-FOUNDER; DENNY CROCKETT, HEAD OF GLOBAL BUSINESS DEVELOPMENT

Co-Diagnostics is a molecular diagnostics company with unique, patented Polymerase Chain Reaction ("PCR") testing technology. Their technology has broad molecular applications, related to multiple disciplines: infectious disease, oncology, transfusion medicine, pharmacogenetics, therapeutics, liquid biopsy, agriculture, and veterinary medicine.

COVID-19 IMPACT

Co-Diagnostics has developed a COVID-19 molecular diagnostics test, which has received FDA EUA. The company began offering its COVID-19 test to some U.S. CLIA labs in March 2020. Previously, the company had initiated sales of its CE-IVD test to the European Community, and to other global markets that accept a CE marking. Co-Diagnostics' COVID-19 test technology has been validated for use with saliva samples.



CONSTANT THERAPEUTICS *

ELIZABETH WAGNER, COO

Constant Therapeutics is a small, private, and clinical stage therapeutics company developing Mas receptor agonists for the treatment of COVID-19, CNS disorders, rare diseases, and other indications. It's lead compound, TXA127, is a pharmaceutical formulation of the natural human peptide Angiotensin-(1-7) (Ang-(1-7)). Lead clinical programs include COVID-19, chronic stroke recovery, epidermolysis bullosa and cardiomyopathy associated with Duchenne Muscular Dystrophy.

COVID-19 IMPACT

Constant Therapeutics will be initiating clinical trials to test the effect of its peptide, TXA127, as a treatment for COVID-19 patients who are hospitalized, but not in the ICU. Ang-(1-7), the active ingredient in TXA127, is normally produced in the body by the action of angiotensin converting enzyme 2 (ACE2), which degrades Angiotensin II to produce Ang-(1-7). The peptide provides certain protective effects, including reducing inflammation, fibrosis and oxidative stress, and maintaining endothelial and epithelial barrier function. However, SARS-CoV-2 leads to a deficiency in Ang-(1-7), and hence, a loss of these important protective benefits, which can result in cell and tissue damage and reduced lung function. Recent data shows that the severity of COVID-19 increases as the level of Ang-(1-7) decreases. In its clinical trials, the company's peptide will be given as treatment to restore Ang-(1-7) levels with the goal of diminishing disease severity, morbidity, mortality, and preserving scarce hospital and ICU resources.



CONTROL DISTAL ACCESS *

SHAWN FOJTIK, CEO

Control Distal Access (Distal Access) designs and develops medical devices. Distal Access offers guidewire and catheter controllers, thrombus macerators, and other medical devices.

COVID-19 IMPACT

Pleural effusion (fluid on the lungs) is a complication of pneumonia that may require chest drainage. The company's ASPIRE device has been used to drain pleural effusion. Its Distal Access Macerator may be used to clear blocked chest drain tubes.



CURAVIT*

JOEL MORSE, CEO

Curavit is a "Next Generation" clinical trial enterprise that provides decentralized clinical trial execution.

COVID-19 IMPACT

Curavit is a start-up phase, tech-enabled services company that designs and executes "virtual" (AKA decentralized) clinical trials. The company is currently working on solutions that may be able to rescue stalled clinical trials and/or use "intentional design" to design clinical trials using a virtual or near-virtual model.



DESERET LABORATORIES*

SCOTT A. GUBLER, CEO AND PRESIDENT

Deseret Laboratories provides approximately 130,000 square feet of production facilities from which to deliver agglomeration, instatization, blending, tableting, hard shell encapsulation, coating, bottling, liquid filling, powder filling, packetting, vertical form, and fill pouching to its valued customers.

COVID-19 IMPACT

Deseret Laboratories has partnered with GeneSTAT to produce a proprietary transport medium for sample swabs used in COVID-19 testing. This transport medium kills the virus upon contact, assuring safe handling of the sample while assuring adequate specimen for testing.



DYNATRONICS CORPORATION*

BRIAN BAKER, CEO

Dynatronics Corporation (Dynatronics) is a medical device company committed to providing high-quality restorative products designed to accelerate one to their optimal health. The company designs, manufactures, and sells a broad range of products for clinical use in physical therapy, rehabilitation, pain management, and athletic training.

COVID-19 IMPACT

Dynatronics has pivoted its sewing operations for orthopedic soft goods in Minnesota to manufacturing face masks and other personal protective equipment.



ECHELON BIOSCIENCES/FRONTIER SCIENTIFIC*

TIM MILLER, PRESIDENT & CEO

Echelon Biosciences, founded as Echelon Research Labs by two professors from the University of Utah, is a leader in supplying biochemical reagents, assays, and screening services to further academic research and pharmaceutical development. It merged with Frontier Scientific in 2007. Echelon-Frontier provides services and products for pharmaceutical and industrial applications.

COVID-19 IMPACT

Based on observations by researchers at the University of Mississippi and the Rensselaer Polytechnic Institute, Echelon Biosciences is investigating an assay based on binding of the SARS-Cov-2 spike protein to human cells dependent on sulfated polysaccharides, such as heparin and enoxaparin.

Frontier Scientific is supplying, in a partnership with Renibus Therapeutics, stannous protoporphyrin (SnPP) – the active pharmaceutical ingredient in an investigational drug now in a Phase II trial, which has been awarded Fast Track designation by the FDA for the treatment of COVID-19 patients at high risk of deteriorating health due to age or comorbidities, such as kidney or cardiovascular disease.



ELITECH GROUP*

BRYCE McCUEN, VICE PRESIDENT, BIOMEDICAL SYSTEMS

The ELITechGroup is a privately held group of worldwide manufacturers and distributors of in vitro diagnostic (IVD) equipment and reagents. By bringing together IVD specialty companies that offer innovative products and solutions, ELITechGroup has become a major contributor in advancing clinical diagnostics to laboratories in the proximity market, those operating closer to the patient.

COVID-19 IMPACT

ELITechGroup has developed the GeneFinder™ COVID-19 Plus RealAmp kit by OSANGHealthcare. The kit is CE-IVD certified and detects SARS-CoV-2 on all major PCR cyclers as well as on the Sample-to Result-Platform ELITe InGenius®. The SARS-CoV-2 test was developed by OSANGHealthcare of Korea to provide a fast and easy-to-use diagnostic solution, and has received an FDA EUA.

The endogenous Internal Control allows laboratories to confirm the quality of the sample material extracted. ELITechGroup and OSANGHealthcare collaborate to provide molecular diagnostics solutions for diagnosis of patients, even in epidemics. The ELITe InGenius®/OSANGHealthcare systems are used in Europe for molecular testing of COVID-19.



EXHALENT DIAGNOSTICS

DANIEL OLSON, FOUNDER

Exhalent Diagnostics (Exhalent) is a developer of a breath-based screening platform designed for medical diagnostic applications. Exhaling sensors successfully detect four unique breath-based biomarkers produced by an active tuberculosis (TB) infection. The company intends to pursue other important potential applications, including promising tests for colorectal cancer, pneumonia, among others, and infectious diseases.

COVID-19 IMPACT

Exhalent is producing a rapid (less than five minutes), point-of-care screening test for COVID-19 from breath.



GENESTAT MOLECULAR DIAGNOSTICS*

DAVID TAUS, CEO

GeneSTAT Molecular Diagnostics (GeneSTAT) provides reliable molecular diagnostics, finding answers for healthcare organizations and their patients. The company researches, develops, manufactures and distributes a comprehensive suite of molecular diagnostic products that fill a crucial need for swift and definitive answers. GeneSTAT's instruments, platforms, tests, and supplies make identifying infectious disease faster, easier, and less expensive for patients and providers.

COVID-19 IMPACT

GeneSTAT has developed a molecular test for COVID-19. Their product is in process of validation and submittal for an FDA EUA. As part of their test, GeneSTAT offers a proprietary transport medium for COVID-19 samples that assure the virus is killed, allowing for safe handling of the sample prior to testing. GeneSTAT partners with Deseret Laboratories in the production of their product and currently supplies transport medium to Merit Medical Systems for Merit's COVID-19 sample kits.



HB GROUP

HENRI BONAN, PRESIDENT

The HB group (HB), a local firm, has been developing and manufacturing top-quality, certified protective clothing since 1952. With decades of experience, HB works closely with customers, suppliers, production facilities and certification institutions to optimize materials, processes, manufacturing techniques and quality assurance procedures on a constant basis.

COVID-19 IMPACT

HB has supplied significant amounts of PPE to Utah and New York, and continues to make their services available to local Utah businesses. HB Group also supplies CE Certs, additional specifications and testing reports on PPE products. Recently, the HB Group had KN95 masks tested by Utah-based Nelson Laboratories for effective barrier protection. The KN95's were tested to provide conclusive "reasonable" and "adequate" protection.



IDBYDNA *

GUOCHUN LIAO, FOUNDER, PRESIDENT, AND CEO

IDbyDNA has developed transformative metagenomics technology to simultaneously profile tens of thousands of microorganisms and pathogens in any sample. The company is setting the standard for the identification and understanding of microorganisms and their role in human health.

COVID-19 IMPACT

IDbyDNA has a metagenomics test that can detect COVID-19 as well as other infectious diseases in one test, allowing for assessment of co-infection and tracking mutations in the COVID virus. Since this test takes time, it may be more effective as a surveillance tool. IDbyDNA can use its bioinformatics platform to analyze sequence data collected in laboratories across the country.



LIPOCINE

MAHESH V. PATEL, CHAIRMAN, PRESIDENT AND CEO

Lipocine is a clinical-stage biopharmaceutical company focused on metabolic and endocrine disorders. The company seeks to improve compliance and absorption of drugs with their proprietary drug delivery technologies.

COVID-19 IMPACT

The company is utilizing its drug delivery technology in conjunction with another biotech company to potentially bring a natural supplement treatment to market.



MAXTEC

SHARON BRACKEN, PRESIDENT

Maxtec has been a leading manufacturer of oxygen analysis and delivery products for over 20 years. The Maxtec product line features oxygen sensors, oxygen analyzers and monitors, pulse oximeters, air-oxygen mixers, and ventilator support products. Maxtec serves both national and international markets and their wide range of high-quality products can be found throughout the world.

COVID-19 IMPACT

Most of Maxtec's core products directly take part in the battle against COVID-19. Due to the respiratory distress caused by COVID-19, there is a massive demand worldwide for ventilators and respiratory care products. Maxtec has adapted their procedures and practices to be better equipped to respond to a demand that they have never seen before while keeping employees safe. Maxtec continues to fulfill the increase in orders for oxygen sensors, flow meters, and coiled hoses that are used with ventilators as well as orders for Maxtec air/oxygen mixing products. Maxtec is working hard to get these critical products to patients worldwide.

MEDSENTIAL

MEDSENTIAL

DORIS HUI, CHAIRWOMAN AND CEO

Medsential is an ISO-certified medical device company, with locations in both U.S. and China, having capabilities to manufacture and assemble a broad range of products. Medsential has an extensive distribution channel, salesforce, engineering platform, and production team to bring quality products to global markets.

COVID-19 IMPACT

The company's COVID-19 IgG/IgM Antibody test is a rapid cassette test that will deliver on-the-spot results in minutes. The test does not require any additional reading device. The test detects antibodies specific to SARS-CoV-2 (COVID-19). Using a simple blood sample from a finger stick, it is an effective screening tool for determining exposure to SARS-CoV-2.



MERIT MEDICAL SYSTEMS*

FRED LAMPROPOULOS, CHAIRMAN AND CEO

Merit Medical Systems (Merit) is a leading manufacturer and marketer of disposable medical devices used in interventional, diagnostic and therapeutic procedures, particularly in cardiology, radiology, oncology, critical care and endoscopy.

COVID-19 IMPACT

Merit has begun production of a sample collection and transport kit, comprised of a nasopharyngeal swab and transport vial, used to collect specimens with suspected presence of COVID-19. The kit will be produced at Merit's facility in South Jordan, Utah, with other Utah companies active in the supply chain.



NELSON LABS*

JEFFERY R. NELSON, PRESIDENT

Nelson Labs® is an industry-leading, global provider of laboratory testing and expert advisory services. They perform over 700 rigorous microbiological and analytical laboratory tests across the medical device, pharmaceutical, and tissue industries. Nelson Labs is a business unit of Sotera Health, along with Nordion® and Sterigenics®.

COVID-19 IMPACT

Nelson Labs' provides protective barrier testing for PPE. The company uses a virus that is a recognized surrogate for virus penetration properties as published in several standards recognized by the U.S. FDA. This approach safely simulates the physical characteristics of the COVID-19 virus to determine how well the PPE will function against the actual virus. They are one of only a few such laboratories worldwide capable of effectively testing PPE. Also, Nelson Labs has compiled testing procedures to assist innovators trying to validate reprocessing solutions for scarce supplies of PPE.



N8 MEDICAL

RONALD BRACKEN, PRESIDENT AND CEO

N8 Medical is commercializing medical devices that incorporate a novel class of active compounds called ceragenins. These proprietary ceragenin compounds impart unique properties to devices, including antimicrobial, anti-inflammatory, and immunomodulatory properties. Ceragenin-based medical devices are designed to address device-related infections and other complications associated with medical devices.

COVID-19 IMPACT

N8 Medical's CeraShield Endotracheal Tube has received a "breakthrough device" designation by FDA. The company's device is able to reduce the virulence of COVID-19 aerosolized particles by preventing bacterial and viral biofilm growth on endotracheal tubes. It will reduce average LOS of mechanical ventilation, reduce lethal infections, and reduce need for additional ventilators.

NUVIEW LIFE SCIENCES

PAUL J. CROWE, CHAIRMAN AND CEO

NuView Life Sciences is a Utah based clinical stage oncology company, in response to the Covid 19 virus impacting many cancer patients by delaying cancer screenings or cancer therapy, NuView evaluated the Spring Health product and believes it may be a reliable test to insure a safe environment for both the cancer patient and medical staff. The test from Swiss manufacturer Spring Health is available through NuView for use in the United States via CLIA labs and is awaiting EUA Point of Care (POC) approval in accordance with the FDA.

COVID-19 IMPACT

Spring Health offers a rapid strip pad test for COVID-19 IgG/IgM antibodies. Their product has been issued the CE mark meeting the highest European healthcare standards. Now worldwide, the product is being used to screen patients for the Covid 19 virus. The rapid strip pad test kit has the following attributes: Detects two antibodies associated with the Covid-19 virus. Ease of use at Point of Care with simple finger prick for blood sample placed in a lateral flow cassette providing a positive or negative end point for exposure to Covid-19 in less than ten minutes with 98.5% accuracy. Each kit has ten individual tests with all necessary testing accessories included. Accompanied by an encrypted mobile App enabling end users to record and store multiple test results.

PREDICTIVE LABORATORIES

BRAD ROBINSON, CEO

Predictive Laboratories is a wholly-owned molecular and genetic diagnostics company of Predictive Technology Group. The laboratory can perform next-generation sequencing experiments, including whole exome sequencing, gene and genetic marker panels, and low-pass whole genome analysis of embryos for aneuploidies.

COVID-19 IMPACT

The company has developed the ASSURANCE AB™ COVID-19 IgM/IgG Rapid Antibody Test, for the detection of IgM and IgG antibodies associated with the SARS-CoV-2 virus. ASSURANCE AB™ is a single-use, self-contained test that provides results in 15 minutes. ASSURANCE AB™ is for use by laboratories and healthcare workers at the point-of-care.



QUANSYS BIOSCIENCES *

ADAM BROWN, CEO

Quansys Biosciences (Quansys) develops customizable multiplex and singleplex assay technologies that allow pharmaceutical companies, clinical laboratories, government institutions, universities, and academics around the world access to large amounts of quantitative data quickly and efficiently. Quansys's proprietary Q-Plex Array Technology makes it possible to measure up to 18 analytes at one time without compromising assay performance. Quick read times, customization, and highly sensitive assays help researchers to better understand disease and improve their biological sample testing.

COVID-19 IMPACT

Quansys has developed a SARS-CoV-2 Human IgG (4-Plex) Q-Plex multiplex assay — a qualitative enzyme-linked immunosorbent assay that detects IgG antibodies to SARS-CoV-2 in human serum or plasma. The SARS-CoV-2 virus has several structural proteins including two spike proteins, S1 and S2. The SARS-CoV-2 Human IgG (4-Plex) Q-Plex Multiplex ELISA detects IgG antibodies to both the S1 and S2 spike proteins present in a blood sample. If antibodies are detected, the result will be considered positive. If antibodies are not detected, the result will be considered negative.



RECURSION PHARMACEUTICALS *

CHRIS GIBSON, CEO

Recursion Pharmaceuticals (Recursion) is a digital biology company industrializing drug discovery. Recursion does this by combining automation, artificial intelligence, machine learning, in vivo validation capabilities, and a highly cross-functional team to discover novel medicines that expand our collective understanding of biology. Recursion's rich, relatable database of four petabytes of biological images generated in-house on the company's robotics platform enables advanced machine learning approaches to reveal drug candidates, mechanisms of action, novel chemistry, and potential toxicity, with the eventual goal of decoding biology and advancing new therapeutics that radically improve people's lives.

COVID-19 IMPACT

Recursion has partnered with biosafety level 3 facilities at Utah State University and Brigham Young University to investigate most FDA-approved drugs and late-stage clinical candidates for relevant effects against live coronavirus in human cells. Initial findings published indicated that Remdesivir may have promise as a therapeutic, and also identified that Aloxistatin is a promising development stage candidate for oral treatment of COVID-19 deserving of clinical exploration.

REDDYPORT

REDDYPORT*

SCOTT BOSTICK, PRESIDENT AND CEO

ReddyPort is a provider of a permanent replacement elbow, cleared by the FDA, and intended to offer oral access for patients undergoing non-invasive ventilation. The company's elbow facilitates oral care, voice amplification, capnography, and other essential therapies, enabling patients to avail oral therapies without needing to interrupt the non-invasive ventilation (NIV) therapy. ReddyPort has a platform of unique NIV products designed to work with the ReddyPort elbow. Standardized oral care will help to further reduce cases of ventilator-associated pneumonia.

COVID-19 IMPACT

ReddyPort is an innovation that enables oral access for communication and oral care for patients on non-invasive ventilation for acute respiratory failure while still maintaining the patients therapy/pressure. ReddyPort can help reduce NIV failure that can lead to mechanical ventilation which has dramatically higher patient risk for ventilator acquired pneumonia (VAP).

RENALYTIXAI

RENALYTIXAI*

JAMES MCCULLOUGH, CEO

RenalytixAI is a developer of artificial intelligence-enabled clinical in vitro diagnostic solutions for kidney disease, one of the most common and costly chronic medical conditions globally. The company's products are being designed to make significant improvements in kidney disease diagnosis, transplant management, clinical care, patient stratification for drug clinical trials, and drug target discovery.

COVID-19 IMPACT

RenalytixAI's KidneyIntelXTM platform will be used in a large study of COVID-19 admitted patients at Mount Sinai Hospital called "Pred MAKER" (Prediction of Major Adverse Kidney Events and Recovery). The study will assess the risk of adverse kidney events in patients diagnosed with COVID-19. Acute and chronic kidney disease is strongly associated with severity of disease and fatal outcomes in COVID-19 patients. Evaluation of a patient's kidney risk status at the time of COVID-19 diagnosis, through recovery and during follow-on monitoring, can be of potentially high clinical value.

revitale
pharma

In addition, Mount Sinai Health System (Mount Sinai) and Renalytix AI have formed Kantaro Biosciences, LLC (Kantaro), a Mount Sinai venture, to develop and scale production of a test kit based on the Mount Sinai-developed highly accurate serologic assay for SARS-CoV-2 antibodies. Working with Bio-Techne Corporation to launch the new kit, the venture has a goal of producing more than 10 million tests per month by July. Kantaro's test kits are designed for use in any authorized clinical testing laboratory without the need for proprietary equipment. Kantaro plans to seek EUA for the test kit following final validation.

REVITALE PHARMA

RICHARD WATT

A virus takes advantage of human Furin and other human proteases to cut the viral proteins into a form recognized by human cells, so the virus is internalized. This mutation allows SARS-CoV-2 to infect humans. The Watt Research Lab Group (Watt Lab) at Brigham Young University recently discovered that HIV protease inhibitor drugs bind and inhibit Furin. Revitale Pharma believes this discovery opens opportunities for treating many diseases, including viral outbreaks.

COVID-19 IMPACT

Revitale Pharma is repurposing HIV Protease Inhibitors to block coronavirus lifecycle by inhibiting Furin. Their goal is to share the data they have using Nelfinavir as a Furin inhibitor and consider that Nelfinavir or a combination of Remdesavir and Nelfinavir could be effective in treating COVID-19 patients. The Watt Lab intends to share any data for further evaluation. The Watt Lab is also developing lateral flow immunoassays as COVID-19 diagnostic tests.



SIGNPATH PHARMA *

KAI LARSON, CEO

Signpath Pharma (Signpath) has developed a platform technology (the CorreQT platform) which mitigates the cardiac side effects of other drugs, including cardiac arrhythmia and cardiac damage associated with chemotherapy. The company has partnerships and working relationships with laboratories, hospitals, and other companies in Canada, Europe, the U.S., and Asia. Using the CorreQT technology, Signpath is developing heart-safe versions of FDA approved drugs which cause dangerous arrhythmia side effects. Clinical testing for these targets is expected to begin in 2020.

COVID-19 IMPACT

Signpath is developing a treatment for severe viral infections utilizing Lipocurc™, its patented intravenous formulation of liposomal curcumin. Signpath's Lipocurc™ is an intravenous treatment, proven to be safe in patients, that suppresses the multiple pro-inflammatory cytokines that cause severe lung damage (ARDS) in patients with COVID-19 infection. Patients with severe COVID-19 infection can develop fatal lung damage from a cytokine storm, a marked increase in pro-inflammatory cytokines. Unlike other treatments now being studied to treat COVID-19 (which suppress only Interleukin-6), Lipocurc™ has the major advantage of not only safely suppressing interleukin-6 by 83%, it also suppresses two other extremely important pro-inflammatory cytokines associated with cytokine storm and fatal lung damage (TNF-alpha by 77% and IL-1 beta by 85%) as well as suppressing RANTES (CCL5), IL-8, MCP-1 and MIP-alpha.



SOFT CELL BIOLOGICAL RESEARCH*

JOHN "BRENT" HUNT, FOUNDER AND CEO

Soft Cell Biological (Soft Cell) has developed a patent-pending protocol to culture and examine hidden bacteria in the circulatory system. The company's ultimate goal is to reveal the link between these bacteria, autoimmune disorders, and recurrent infection. Preliminary testing reveals that donors suffering from chronic fatigue, fibromyalgia, arthritis, and anemia carry high concentrations of L-form bacteria in their blood. The ability to culture L-form bacteria from two drops of blood reveals new avenues toward solving these problems.

COVID-19 IMPACT

Soft Cell recently opened a brand new, 13,000 square foot, CLIA certified testing laboratory. They have capabilities to run thousands of COVID-19 tests per day and can use nasal swab or saliva samples in the process.



SPECTRUM SOLUTIONS

STEPHEN FANNING, CEO AND PRESIDENT

Spectrum Solutions is a single-source provider and manufacturer of technically superior medical and clinical biosample collection devices and collection kits. The company addresses common points of failure in whole saliva collection for clinical DNA projects. For clinical brands focused on molecular diagnostics, it delivers consistent high-quality, high-yield DNA at a more affordable price with an increase in process efficiencies.

COVID-19 IMPACT

SpectrumDNA has developed and is marketing the only saliva collection device used for COVID-19 testing that has received FDA EUA. The collection device is proven to inactivate the virus while suspending and stabilizing the RNA transcripts for sensitive and specific quantitative real-time PCR analysis.



TEVA PHARMACEUTICALS*

MICHAEL KIMBALL, GROUP SITE HEAD, VP R&D

Teva Pharmaceuticals (Teva) is a global leader in generics and biopharmaceuticals, producing 120 billion tablets and capsules a year in facilities around the world. Teva has two facilities in Salt Lake City. Teva produces a wide range of pharmaceutical products at the two manufacturing locations, including hormone replacement therapies; pain relief, hypertension and cold sore medications, and treatments for dermatitis and acne. Its Research Park site is one of just a few transdermal patch production facilities in the world.

COVID-19 IMPACT

In response to the possibility that hydroxychloroquine might be effective in treating symptoms of COVID-19, Teva donated 10 million pills for distribution through its hospital network.



THROUGH THE CORDS*

SEAN RUNNELS MD, CEO

Focused on difficult intubations, Through the Cords developed and distributes three products that make intubation safer for patients and easier for providers. The devices were brought to first-stage market with a Technology Commercialization and Innovation Program Grant from the Utah Governor's Office of Economic Development.

COVID-19 IMPACT

Through the Cords' intubation device, the Runnels Total Control Introducer™ (TCI), is a novel drivable intubating stylet designed to increase first-pass breathing tube placement during video assisted intubations. A critical benefit of using the TCI is the distance it allows between the patient and the provider during intubation, while facilitating successful introduction of the breathing tube. Procedural distancing can decrease the risk of COVID-19 exposure during this high-risk procedure. Intubation is a necessary procedure for ventilator access in the treatment of critically ill patients. Protecting frontline providers is especially important in the face of problematic PPE availability in order to keep our provider population healthy and available.



VAREX IMAGING CORPORATION *

SUNNY SANYAL, CEO

Varex Imaging Corporation (Varex Imaging) is a leading innovator, developer, and manufacturer of X-ray imaging component solutions, which includes X-ray tubes, digital flat-panel detectors, software, and other key components of X-ray imaging systems.

COVID-19 IMPACT

Varex Imaging products are used to diagnose the major complications of COVID-19, such as pneumonia.



ZENERCHI *

BRYAN BRANDENBURG, CEO AND CHIEF SCIENCE OFFICER

Zenerchi is a private organization based in Salt Lake City, Utah and Ho Chi Minh City, Vietnam with a mission to create the #1 4D human body simulator, 3D/VR/AR visualization and AI cloud platform in the world to empower a new era of uses. The education, diagnostic, and business applications for the Zenerchi SimViz AI Platform™ will serve wellness, healthcare and biomedical education, as well as creating visualization capabilities far beyond our current technology realm.

COVID-19 IMPACT

Zenerchi is utilizing its unique platform to create a new level of advanced coronavirus visualizations including the human cell, flu, and COVID-19, along with its nucleus, proteins, and associated chains and amino acid sequences.



ADDITIONAL INFORMATION

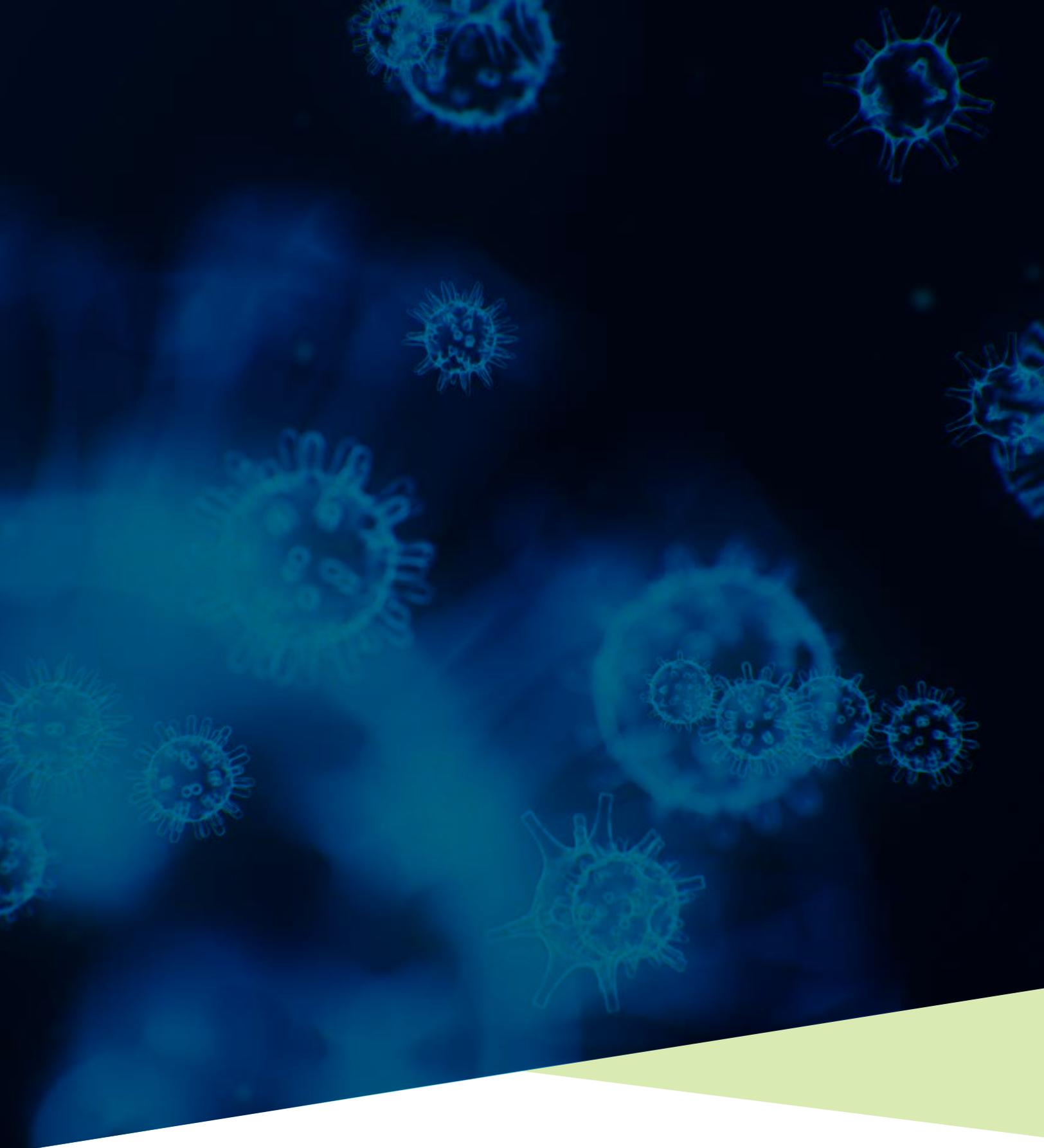
For more information about the efforts of Utah life sciences companies to fight COVID-19, please contact :

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