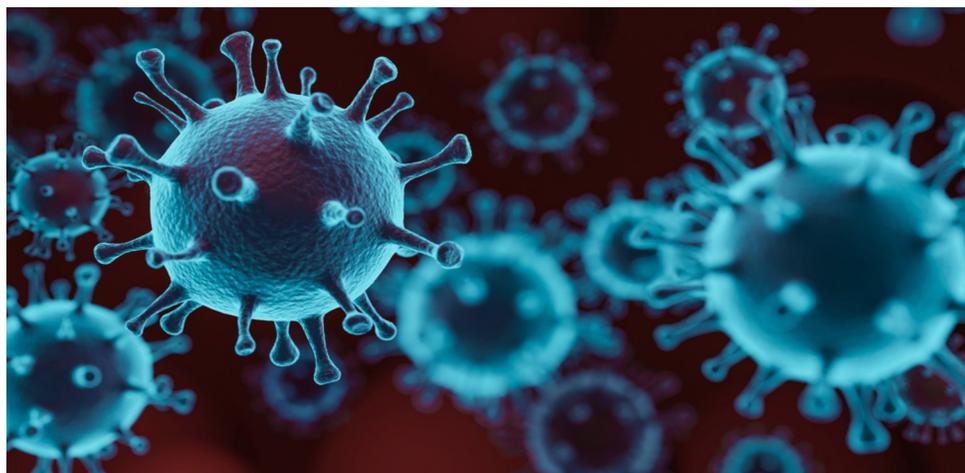


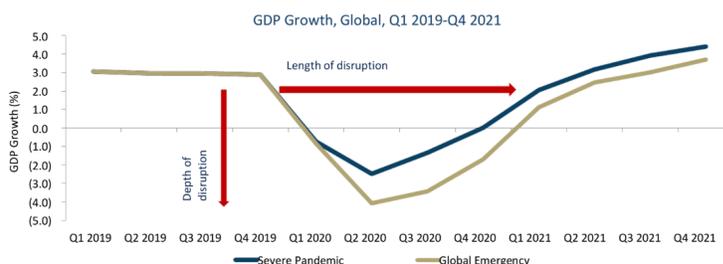
COVID-19 RELATED TECHNOLOGIES

COVID-19 is a highly infectious and fast-spreading virus. Symptoms and their effects can range from mild to severe and in certain cases result in extreme health complications and death. With the emergence of COVID-19, globally we were caught off guard and unprepared. Current solutions to the COVID-19 crisis include: the wearing of masks with any public setting, quarantining if infected or possibly infected, and limiting social interactions. There is a high demand and urgent need for further measures to protect from COVID-19. Researchers everywhere are working to find solutions for this virus. Although vaccines have been developed and are reaching patients, there is uncertainty whether those vaccines will provide long term immunity, so development of antivirals that can target SARS-COV-2 may be important. Thus, University of New Mexico researchers have developed revolutionizing technologies, dealing with multiple aspects of COVID-19, from bacteria-killing chemicals antiviral therapeutics.



MARKET OPPORTUNITY

With no explanation needed, there is a very large market for anything that could aid in slowing the spread of COVID-19. Current implemented solutions have drastically changed our way of life, and it's time for alternative solutions. Protective gear manufacturing has increased exponentially, and numerous do-it-yourself opportunities have been proposed. In addition, drugs that were marketed as treatments for COVID-19, flew off the shelves, and now vaccine waitlists ensue. To address these needs, many different companies, organizations, and academic institutions can further direct their research and development departments to provide relevant solutions. Economically, the COVID-19 pandemic has created major issues in the global market. According to an article posted by Frost and Sullivan, "Despite the preemptive measures taken by the federal reserve, mass layoffs, a prolonged halt in manufacturing activities, and increased cases of individual and business solvency will cause recessionary conditions in 2020." As we have seen over the past year, technological and pharmaceutical developments have enabled some economic stability. With additional strategies in place, product advancements, and commercialization of COVID-19 solutions, global markets can resurge and provide economic growth. Another Frost and Sullivan article, describing growth opportunities in the medical field, states that "New age technology...[will have] a shortened time-to-market, a robust and cost-effective supply chain and other competitive advantages", due to the COVID-19 pandemic. Thus, the following technological breakthroughs may contribute to economic growth both nationally and internationally.



TECHNOLOGY BREAKTHROUGHS

Cross-Neutralizing scFv Antibodies for COVID-19 Therapies (Ref. 2020-124)

Researchers have developed a method to detect and neutralize SARS-CoV-2, the virus responsible for COVID-19, in a biological sample. Single-chain fragment (scFv) antibodies generated utilizing a cell-free ribosome display against the Ebola virus glycoprotein (GP) were analyzed, resulting in the identification of a cross-reaction with a SARS-CoV-2 protein. Ultimately, this interaction exhibited neutralization of the SARS-CoV-2 infection. These antibodies offer the potential to prevent and/or treat COVID-19, either alone or in combination with alternative pharmaceutical compositions.

Benefits:

- Possible therapeutic for COVID-19
- Has been proven to work on SARS-CoV-2
- Based on antibodies used before, therefore it is not as risky as more experimental vaccines

COVID-19 Anti-inflammatory Drugs (Ref. 2021-002)

Complications that can occur due to COVID-19 are dangerous, such as lung immunopathogenesis or hyper-inflammatory and hyper-oxidative stress reactions. The researchers at the University of New Mexico believes they have found the pathway that causes these dangerous symptoms. Treatment options involving the proper suppression of immune-related signaling pathways and/or activation of anti-oxidant pathways, could potentially alleviate the symptoms seen in late stages of COVID-19. The proposed new method is to use a resveratrol analog, as a suppressant of the hyper-inflammatory and hyper-oxidative stress reactions.



Benefits:

- Targets the signaling pathways responsible for inflammation and oxidative stress
- Dampens the hyperactive immune system response to infection
- Provides treatment option for COVID-19 (SARS Cov2) infections
- Could help in making some COVID-19 cases less fatal

Novel Hydroxyethylamine based Synthetic Compound as Potent Therapeutic targeting a RNA-Directed RNA Polymerase of SARS-CoV-2 (Ref. 2020-095)

Parasitic and viral infections are a major threat to human health and prosperity. Smallpox killed roughly 300 million, Influenza another 100 million, HIV 36 million, and more recently COVID-19 with 2.23 million deaths so far. These outbreaks also cause significant economic damage. The World Bank estimated the economic costs from six major outbreaks between 1997-2009 equated to \$80 billion. If proactive measures could have been taken to prevent the epidemics, the evaded losses would have been \$6.7 billion per year. Because of this reason there is a global need for an anti-parasitic vaccine with antiviral properties that not only suppresses the infection but is affordable for lower- and middle-income countries, where infections are highly prevalent. Researchers at the University of Delhi, University of New Mexico and Loyola University have developed novel pharmaceutical compositions capable of promoting anti-viral activity. The compound targets a protein necessary for voltage-gated calcium channels, which are essential to the parasite's prosperity. This has proven useful in treating multiple viral-based diseases. Synthesis of these compositions is simple, cost-effective, and offers optimal methodologies for large scale production.

Benefits:

- Effective against multiple viruses
- Simple, cost-effective synthesis, and optimized method for scalability
- Favorable blood homeostasis properties
- No cytotoxicity to human cells and no changes to blood parameters in mice

COMPANY OVERVIEW

UNM Rainforest Innovations is a nonprofit corporation formed and Owned entirely by the University of New Mexico Board of Regents (UNM). We are a 501(c)(3) non-profit corporation with an independent board of directors. Located at the Lobo Rainforest Building in the heart of the Innovation District in Albuquerque, New Mexico, UNM Rainforest Innovations has proximity to research and development and laboratory facilities and other technology based companies, many of which are the creation of UNM Rainforest Innovations.



As the technology-transfer and economic-development organization for the University of New Mexico, UNM Rainforest Innovations protects and commercializes technologies developed at the University of New Mexico (UNM) by filing patents and copyrights and transferring the technologies to the marketplace. We connect the business community (companies, entrepreneurs and investors) to these UNM technologies for licensing opportunities and the creation of startup companies.

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CONTACT INFORMATION



UNM Rainforest Innovations has filed intellectual property on these exciting new technologies and is currently exploring commercialization options. If you are interested in information about this or other technologies, please contact Gregg Banninger, Innovation Manager, Life Sciences, at GBanninger@innovations.unm.edu or 505-272-7908.



Supporting Technology Transfer and
Catalyzing Economic Development
at the University of New Mexico