

HEALTH

COVID Vaccines and Testing offered at Red Bank Community Fair on Thu. February 24

First 100 people vaccinated or boosted will receive \$25 VISA gift Card

WHAT:

UnifiEd is partnering with Red Bank High School and LifeSpring Community Health to host a vaccination event at the Red Bank Community Fair on Thursday, February from 5 pm – 7 pm at Red Bank High School. UnifiEd will provide \$25 to the first 100 people (children and adults) who get the COVID vaccine or booster.

Those who are fully vaccinated will not be excluded from the rewards. Anyone who has been fully vaccinated will have an op-

portunity to enter a \$250 drawing. Proof of vaccination will be required. The medical staff at LifeSpring Community Health will not only administer the COVID vaccines, they will also offer free rapid COVID testing.

In addition to offering COVID vaccines and testing, the Red Bank Community Fair will include nearly 100 colleges/educational institutions, social services agencies and businesses that offer an array of service and resources to the community residents.

WHO:

Area residents and representatives from colleges/educational institutions, social services agencies and businesses.

WHEN:

Thursday, February 24
5 pm – 7 pm

WHERE:

Red Bank High School
640 Morrison Springs Road
Red Bank, TN 37415



Dr. Michael Danquah Researching Ways to Make Food Safer for the Public

By Camm Ashford

Dr. Michael Danquah and a team from the University of Tennessee at Chattanooga are researching methods that give instantaneous results on whether contaminants are present in food products.

The No. 1 goal is to make food safer for the public, but new testing methods also will save money for companies in the food-processing business, preventing expensive recalls on their products, Dr. Danquah said.

“This is actually going to fill a gap in the industrial operation and make the industry a better, more robust, more rapid, real-time way of assessing pathogens,” he noted.

Checking for impurities such as E. coli--which is one of the most common contaminants found in food--is required for companies in the food-processing business.

To make sure everything is in good shape, samples are taken rou-

tinely from production lines, then sent for testing at in-house labs or ones outside the plant. Currently, even with in-house labs, results can take a week. Time may stretch even longer for commercial labs.

The UTC team recently received a \$600,000 grant from the National Science Foundation for research which will run for three years.

Dr. Danquah hopes the food-processing industries will be interested in his team’s findings.

“The beauty of having the industry involved is they can also help us to test the technology as we develop it,” he explained.

Dr. Danquah, associate dean in the UTC College of Engineering and Computer Science, is among the top 2 percent of research scientists in the world.

He uses biomolecular engineering principles to develop, among others--emerging biopharmaceuticals, methods for deliver-



Dr. Michael Danquah, associate dean in the University of Tennessee at Chattanooga College of Engineering and Computer Science, is working on brand-new methods that give instantaneous results on whether contaminants are present in food products.

ing drugs to their specific targets without alerting the body’s defense mechanisms, biofuels and systems that help clean up environmental pollution.

Dr. Danquah’s research findings have resulted in more than 300 peer-reviewed journal articles, scholarly book chapters, conference proceedings and presenta-

tions, and technical reports. He is a Fellow of the Royal Society of Chemistry and a Fellow of the Institution of Chemical Engineers.

One of Dr. Danquah’s goals is to advance cutting-edge bioengineering research at UTC. Working with others, the research can address the health care challenges of the 21st century, he said.

COVID-19 Offers Some Gifts to Medicine – An Immunology Expert Explains What It Can Teach us About Autoimmune Disease

By Dario Gherzi

Associate Professor of Biomedical Informatics, University of Nebraska Omaha

For all the misery that the pandemic has wrought, it has also opened up a vast storehouse of knowledge about medical issues beyond COVID-19. While it’s still too early to draw conclusions, evidence is emerging of links between autoimmune disorders and the virus that causes COVID-19.

As a bioinformatics researcher with medical training and expertise in immune system modeling, I find this development especially exciting.

The immune system is the most powerful weapon against infection. But on rare occasions, something devastating happens: The immune system turns against its own body – a condition that researchers call autoimmunity. This can result in any of a wide range of autoimmune disorders. They include rheumatoid arthritis, multiple sclerosis and lupus, an inflammatory disease in which the immune system attacks multiple tissues.

Researchers are still trying to solve the mystery of what causes these diseases, in hopes of developing therapies to treat them. COVID-19 may accelerate that process by giving researchers new insight into old findings about the immune system.

From autoimmunity to COVID-19

Molecules called interferons are a significant component of the body’s defense against viruses. These proteins are especially important in the early stages of an infection, frequently getting ahead of it before symptoms appear. Immune cells produce interferons, which then do what their name implies – literally run interference when a virus

begins to multiply. At least that’s what they’re supposed to do.

But reports from early in the pandemic showed that in some patients with severe COVID-19, one interferon, known as Type I, showed a weak response to the virus. Some patients actually developed antibodies specifically targeting Type I interferons – essentially knocking out one of the body’s first lines of defense against the disease.

Researchers had discovered similar occurrences decades before. After introducing interferons to treat a patient with cancer in 1980, doctors found that some of the patient’s antibodies were effectively neutralizing those interferons. And in 1982, researchers reported that antibodies had disarmed the interferons in a patient with lupus. Interferon-fighting antibodies could explain some severe COVID-19 cases.

Another explanation is that, instead of becoming weaker in the face of COVID-19, interferons mount a stronger-than-usual defense, inducing organ damage while fighting the virus. Researchers are investigating the possibility that – for patients with the worst cases – Type I interferon is COVID-19’s all-or-nothing double-edged sword: either rendered inactive before it can fight the infection, or somehow becoming hyperactive and potentially detrimental to the body in later stages.

A window into autoimmunity

Throughout the pandemic, doctors have also noticed that patients with severe COVID-19 infections have symptoms that are similar to autoimmune disorder symptoms, such as blood vessel inflammation, rashes and organ damage. Following COVID-19 infection, some patients have even developed full-blown autoimmune dis-



COVID-19 is helping to advance understanding of autoimmune illnesses like rheumatoid arthritis. MediaNews Group/Reading Eagle via Getty Images

orders, such as Type 1 diabetes, lupus and psoriatic arthritis, a disease marked by skin rashes along with stiff, swollen and painful joints.

Some immunologists suspect that the SARS-CoV-2 virus may be triggering the body to attack itself with autoantibodies – or antibodies that target the body’s own tissues.

This could explain why some people who had COVID-19 later developed autoimmune disorders.

It’s not the first time researchers have suggested a possible connection between viruses and autoimmune disorders. For example, a 2019 study of patients with Type 1 diabetes found that those patients also carried several gastrointestinal viruses.

Immunologists are now looking more closely at other viruses and their possible involvement in autoim-

mune disorders. One example is the Epstein-Barr virus, or EBV, which is responsible for infectious mononucleosis. This virus causes swollen lymph nodes, fever, sore throat and persistent tiredness. Studies in the past two years suggest that the Epstein-Barr virus might also play a role in causing multiple sclerosis and lupus.

So how could COVID-19 cause autoimmunity? One theory is that the virus makes immune cells hyperactive. For example, a computational analysis identified a section of the virus that looks like part of a dangerous type of strep bacteria. This could cause an extreme reaction as the immune system gears up to fight a particularly powerful enemy.