As COVID-19 turns the world upside down, it’s an unprecedented time filled with challenges that BRI is ready for. We thrive on investigating the toughest medical questions. We have unparalleled expertise in studying the immune system. And we have a long history of collaborating on breakthroughs with researchers worldwide. That’s why our team has sprung into action — harnessing the tools and knowledge we’ve been developing for decades.

We’re partnering with Virginia Mason Medical Center to study the disease and test new treatments. And we are pursuing new lines of inquiry to unravel how the virus infiltrates the body and how the immune system responds. This research will help us understand the virus and whether certain populations — like people with type 1 diabetes or rheumatoid arthritis — are especially vulnerable.

And though this time has been difficult for everyone, BRI’s spirit of resilience is shining through. We see it every day, when staff members keep critical experiments and infrastructure running or roll up their sleeves to help Virginia Mason on the front lines of COVID-19 screening and care. This shows the incredible passion and commitment that will help us turn the tables on COVID-19. We will win this fight, but we can’t do it alone.

Whether it’s joining a research study, sharing our latest COVID-19 news or donating to our COVID-19 Rapid Response Fund, everyone in the BRI community can help.

In the coming weeks, we’ll be posting regular updates on our website, our Autoimmune Life blog and our social media channels about how Team BRI is fighting this disease and working to guarantee that everyone has the best chance to overcome COVID-19. Please take care of yourselves and your families, and stay tuned and support us in any way you can.

We haven’t yet obtained funding for our vital COVID-19 projects and we need your help in order to move ahead quickly. Learn about our COVID-19 Rapid Response Fund at BenaroyaResearch.org.
COVID-19: What People with Autoimmune Disease Should Know

Underlying conditions put you at higher risk if infected with COVID-19, and people with autoimmune disease are wondering what this means for them. Here’s input from two BRI physician-researchers — President Jane Buckner, MD and Principal Investigator James Lord, MD, PhD — on autoimmune disease and COVID-19.

People with “compromised immune systems” are at higher risk if infected with COVID-19. Do I have a compromised immune system?

A compromised immune system means your body can’t fight off infections as well as it should. Having an autoimmune disease doesn’t mean your immune system is compromised, but some medications can compromise the immune system (see question 2).

How can my family help protect me?

Anyone who is regularly entering your home must practice good protective hygiene:

- Wash hands for at least 20 seconds when they arrive at your home
- Stay six feet away from others in public
- Use a barrier (like an antibacterial wipe) to touch common surfaces like door and sink handle
- Avoid touching their faces

How can I stay as healthy as possible during COVID-19?

First, keep your immune system healthy: Have a regular sleep schedule, eat a healthy diet and avoid smoking. Jogging or walking alone has generally not been forbidden, but you should keep your distance from others and stay inside if you are sick or unusually vulnerable.

If you’re telecommuting, try to stick to a regular work schedule. If it’s allowed and you are well, take a walk, bike ride or drive at least once a day.

Over the past year, BRI has been working toward a new vision of creating a healthy immune system for everyone. In recent weeks, this has taken on new meaning as our teams expand their research to study how healthy immune systems react to harmful invaders like viruses — and why some people have no symptoms and others get very sick. I'd like to explain what's driving me, and all of us at BRI, to pursue this broader mission.

As a researcher, I see our team making incredible progress toward solving the mysteries behind autoimmune diseases. But as a doctor, I'm acutely aware that we have a long way to go. Often, the best treatments we can offer suppress the immune system. These drugs can reduce the symptoms of autoimmune disease. But they work like a sledgehammer that makes it harder for the immune system to protect your body from harmful invaders. Every week, I come face to face with patients who deserve better.

I see patients who suffer with chronic pain and increasing disability, despite our best efforts with current treatments. And I see patients who cannot tolerate these treatments or who develop infections due to their treatment.

At BRI, we’re learning from these failures and we’re determined to overcome them. We want our research to fuel a new generation of treatments that are more precise and more effective. These treatments will address the immune imbalances that cause everything from autoimmune disease to cancer. And they will lead us to a day when we can predict who will get autoimmune disease and stop it before it starts.

I’m immensely proud of everything we’ve done, but my dream is to develop cures that put us — and all doctors who treat immune disorders — out of business. Thanks to the support of people like you, we’re getting closer every day.

What does immune health mean to you?

Grace Pilo
“A healthy immune system would mean that I could dance in a full-length ballet without having to worry about my blood sugar every time I step on stage.”

Yvonne Xiao
“A healthy immune system would mean that I don’t have to carry my EpiPen wherever I go.”

Elisa Boden, MD
“A healthy immune system means that my patients could eat whatever they want without worrying about abdominal pain or embarrassing GI issues.”
BRI Launches Gut Immunity Program

Most people don't spend much time thinking about their gut. They know it starts at their mouth and ends at their rectum — and they hope it stays in working order. Some might even know it includes the gut microbiome, millions of bacteria in their large intestine. But most don't know that the gut holds a treasure trove of clues that could help solve autoimmune disease.

The gut is where the outside world meets your immune system. It knows things that might seem unfamiliar — like the ham sandwich you ate for lunch — are safe enough to let into your body. It knows to attack harmful invaders that cause infections. And it can be a warning system: When something in your immune system goes awry, doctors often see it here first.

“You wouldn’t expect multiple sclerosis, which causes brain inflammation, to change your gut, but it does,” says James Lord, MD, PhD. “That suggests your gut plays a role in immune changes throughout your body. It could even mean that the immune system is educated in the gut — it could be where the entire system learns how to coexist with some things and attack others.”

Where IBD Starts

Dr. Lacy-Hulbert thinks IBD might start deep in your gut, where your immune cells learn what — and when — to attack. In people with IBD, he thinks the immune system gets the wrong training and learns to attack healthy tissue.

To figure out why, Dr. Lacy-Hulbert is using biorepository samples to study how people with IBD react to viruses and bacteria. He compares their reactions to those of people who don’t have IBD.

“If we can understand why the immune system responds differently in IBD, we can look for ways to

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BRI LAUNCHES GUT IMMUNITY PROGRAM

retrain it — which could cure the disease,” Dr. Lacy-Hulbert says.

B CELLS AND GUT BACTERIA

Dr. Harrison started his career in England, moved to the National Institutes of Health in Maryland, and then recently joined BRI to study another gut mystery: How do B cells know which bacteria the immune system should destroy?

“Everyone’s gut has millions of bacteria, but somehow the immune system knows it should only attack some of them,” Dr. Harrison says.

“If Dr. Harrison and his colleagues can learn how typical immune systems know which bacteria to attack, their research could inform therapies that re-educate immune systems of people with autoimmune disease.

“We hope to learn a few tricks from balanced immune systems so we can learn how to teach the body not to respond in IBD and other autoimmune diseases,” he says.

A GUT IN A PETRI DISH

The Gut Immunity Program could help Dr. Lord solve a mystery that’s stumped him for nearly two decades: Regulatory T-cells are supposed to keep your body from producing too much inflammation. But people with IBD have more regulatory T-cells — and more inflammation — than people without IBD.

“How CURES ARE MADE

Organoids will also help the scientists combine their expertise to accelerate progress.

“We’ve each studied our own little piece of the gut for years, but we haven’t looked much at how these systems work together,” Dr. Harrison says. “Organoids will help us do that — which could lead to a much deeper understanding of IBD and other conditions.”

This paves the way for unprecedented insight into how autoimmune conditions start and how to stop them.

“Together, we’re more likely to understand what goes wrong in the immune system and learn how to fix it,” Dr. Lord says, “and that’s how cures are made.”

Learn how BRI’s gut trio is taking on COVID-19 on our blog: rebrand.ly/gut-immunity-program

How To Make A Gut In A Petri Dish

1. Take tissue sample during colonoscopy
2. Pull out epithelial cells
3. Pull out stem cells
4. Put stem cells in jelly and let them grow
5. Experiment! Add other cells and study what causes IBD

If Dr. Harrison and his colleagues can learn how typical immune systems know which bacteria to attack, their research could inform therapies that re-educate immune systems of people with autoimmune disease.

He thinks the environment inside the gut (including bacteria, fluid and tissue) may be the problem. This program’s new funding gives Dr. Lord and his colleagues the means to study this using an unprecedented tool called organoids.

“We’ll use samples from people with IBD to recreate a tiny gut in a petri dish,” Dr. Lord says. “This lets us study and manipulate the gut’s environment, which could reveal what’s wrong with these cells so we can learn how to fix them.”

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COVID-19: What People With Autoimmune Disease Should Know
BRI physical-researchers answer common questions about autoimmunity and COVID-19.

Our Vision of Immune Health
Get an inside look at BRI President Dr. Jane Buckner’s motivation to study immune health.

BRI Launches Gut Immunity Program
BRI researchers are investigating one system in the body that holds countless clues to understanding autoimmunity.