Scientists at Benaroya Research Institute at Virginia Mason (BRI) recently received a $2.2 million grant from the National Institutes of Health to find a unique biomarker that initiates and drives allergies. This grant expands on previous discoveries that led to the isolation of a type of white blood cells that show up only in people with allergic disease.

“We hope to identify a biomarker at the top of the allergic chain reaction that will predict the onset of allergy and will lead to novel vaccine approaches,” says Erik Wambre, PhD, BRI principal investigator for the grant. “Our aim is to develop a simple blood test to predict the likelihood of resolution of an allergy during therapy and to identify people who will develop an allergy before the first symptoms are experienced. This is especially important in at-risk people such as children with a life-threatening food allergy.”

BRI investigators will focus on a specific white blood cell, a

Continued on page 5

Erik Wambre, PhD, (center) is principal investigator for the allergy biomarker grant.
Barry Thys has lived through a medical revolution. He was diagnosed with ulcerative colitis when he was a child. At 43, with increasing flare-ups of his disease, he took a newly developed blood test that determined he really had Crohn’s disease. Now at 59, he has experienced the spectrum of medications for inflammatory bowel disease (IBD) and surgery as well.

But now he has started on a newly FDA-approved drug for IBD called vedolizumab. “It’s too early to say if it is going to help him, but he has been donating blood to our IBD biorepository to measure the effects of this drug and correlate it with clinical outcomes in an effort to better guide IBD therapy for patients like him,” says James Lord, MD, PhD, Benaroya Research Institute researcher and gastroenterologist at Virginia Mason Medical Center.

BRI scientists are studying the blood of patients with autoimmune and immune diseases to see how drugs impact their immune system. If they can see the medication’s effect early on, they can determine to give more or less of the drug or to switch to another drug. “Track records” of people’s experiences can become guidelines for personalizing medicine for a patient.

“If any good can come of my bad experiences I’m happy to help,” says Barry. “Why not share my experience with researchers who can use the information? Research is important to me because it is paramount to moving forward. If research was never done, we wouldn’t have the new immunotherapy drugs with better results and less side effects. We need to learn more about the disease and treatment so the next generation doesn’t have to suffer like this generation.”

Dr. Lord is grateful for the dedication Barry has to research and his efforts to help. Barry appreciates that Dr. Lord is on the cutting edge of research. “Dr. Lord is 100 percent engaged with me and keeps me informed on new ways to deal with my Crohn’s. I stay positive and receive great support from my family, friends and the people at Virginia Mason and Benaroya Research Institute.”

Learn more at BenaroyaResearch.org.

Barry Thys (left) is a research participant in an IBD study led by James Lord, MD, PhD, BRI clinical investigator (right).

“I had the standard course of sulfa drugs in the ‘90s and had violent reactions to them with nausea and red flushing,” says Barry. “With prednisone I had a ‘moon face’ or swelling in my face and was worried about the long-term effects of steroids.” He experienced many complications with Crohn’s and bad reactions to most IBD medications. He has pain when eating, developed fistulas (abnormal passageways connecting one organ to another) and was recently hospitalized for his disease.

DID YOU KNOW?

- Crohn’s disease and ulcerative colitis (UC) are both known as inflammatory bowel disease (IBD).
- In IBD, the body’s immune system attacks the intestines, resulting in intestinal inflammation, abdominal pain and bleeding.
- IBD affects approximately 1.4 million Americans about evenly divided between Crohn’s disease and UC, and between men and women.
- These diseases can often appear in young people, leading to many years of suffering and disability.
- IBD is more common in northern latitudes, like the Pacific Northwest, where an estimated 50,000 IBD patients are thought to reside.
- Some possible factors that may contribute to this geographic effect are vitamin D deficiency from lack of natural sunlight, genetic predisposition in the North European/Scandinavian heritage, and unknown environmental triggers.
Scientists at Benaroya Research Institute are studying a critical question in type 1 diabetes. Why do some people who get type 1 diabetes continue to produce small amounts of insulin over time while others stop? Researchers have found at the time of diagnosis with type 1 diabetes that many people continue to produce small amounts of insulin. Since even small amounts of natural insulin production can decrease the long-term effects of diabetes and improve short-term clinical management, scientists search for ways to keep these remaining cells producing insulin. The $1.4 million grant to understand why some people with type 1 diabetes maintain the ability to produce insulin was funded by JDRF, a leading organization funding type 1 diabetes research.

“Our goal is to understand the immune system factors that differ between people with type 1 diabetes who retain residual insulin secretion and those who lose residual insulin,” says Eddie James, PhD, BRI principal investigator for the grant. “We have a ‘dream team’ of BRI scientists who can compare the genetic and immunological factors that influence levels of insulin production in people with this disease.

“We then intend to utilize this knowledge to develop biomarkers to monitor the immune status of people with type 1 diabetes early in their disease process,” he explains. “Our future hope is that based on a person’s immunologic profile, we would be able to design a drug combination that would keep a person producing their own insulin as long as possible.”

The BRI team led by Dr. James includes Karen Cerosaletti, PhD, Peter Linsley, PhD, Alice Long, PhD, and Jared Odegard, PhD. They are testing the hypothesis that the balance between destructive immune responses and the regulation of those responses by the body determines the maintenance or loss of residual insulin secretion in established type 1 diabetes.

“If we can determine this and then find out how to balance these two factors, we hope to help people with type 1 diabetes live with fewer complications and increased ability to manage their disease,” explains Dr. James. Research will include biorepository studies of samples voluntarily provided by BRI research participants and other nationwide participants.

Up to 3 million Americans have type 1 diabetes and the incidence is growing. People with this disease must inject themselves with insulin in order to stay alive. They must carefully monitor their blood sugar, and also balance their food intake and exercise. Long-term complications of type 1 diabetes include disabling or even life-threatening organ damage, such as heart disease, kidney disease, blindness and nerve damage.

Learn more at BenaroyaResearch.org.
HONORING A FRIEND WHILE FUNDING RESEARCH

A labor of love to honor a much loved man provides funds for type 1 diabetes research at Benaroya Research Institute. The fourth annual David J. Fanning Memorial Golf Tournament raised nearly $39,000 in 2014, a new record. The event honors the memory of David Fanning, who was a Seattle biotechnology company executive and entrepreneur. He served as chief executive officer of Theraclone Sciences before he passed away in 2010.

Russ Hawkinson of Theraclone Sciences also manage the tournament.

Katie Fanning, David’s wife, and the tournament organizers decided that a local research-based organization should be the beneficiary of excess funds raised by the tournament. “With David’s interest in finding a cure for diabetes, there is no place better than BRI to put these funds to work,” says Dr. Gillis.

The tournament includes a silent auction and is supported by Seattle biotech and professional communities. Katie Fanning and a dedicated group of volunteers, mostly from the Accelerator Corporation, a Seattle biotechnology incubator, where Theraclone was born, organize the event. “We are all thrilled to provide a source of funds for another great Seattle institution — BRI,” says Dr. Gillis. “We think highly of BRI Director Jerry Nepom and his team and all they have discovered in the area of diabetes and autoimmune diseases.”

For more information on raising funds on behalf of BRI, visit benaroyaresearch.org/support-us.

END-OF-YEAR GIVING

Contributing to BRI provides the Institute with vital funds to continue innovative research, invest in new ideas, support new investigators and buy critical equipment. Thank you for your generosity. Every gift large or small makes a difference.

Visit BenaroyaResearch.org/support-us or return the enclosed donor envelope.

Katie Fanning with friends holding the Viking trophy for the event.

“Dave was a great executive who truly cared about making a difference,” says Steven Gillis, PhD, a manager of the tournament, managing director at ARCH Venture Partners and BRI board member. “He was a fun-loving, wonderful person who dedicated himself to his family, his work and the people around him. His playful attitude carried over to many enjoyable experiences on the golf course.” Jim DeNike of OncoGeneX Pharmaceuticals, Inc. and
How will we personalize immune therapies in the future?

Now drugs are sold as one size fits all. But we are learning that not all patients react to drugs in the same way — genes, behavior and the environment make each person’s response to a particular drug unique. Also in the past, we have treated people for the type of the disease they have rather than how they might respond to a particular medication. We are learning that targeting specific molecular pathways rather than a disease category is a better approach to treating diseases. Finally, we are learning that many diseases are complex (e.g., breast cancer) and actually comprise multiple distinct diseases, each of which may require different medications.

Molecular genetics offers a path for a more logical approach to treating diseases. The beauty of molecular genetics is that it can define how a person’s individual genetic signature may influence the activity of a particular medication.

In the future, we envision that when you walk into your doctor’s office, your physician will be able to look at your genome sequence on file, determine if you have a risk of getting a disease, and if you develop a disease, prescribe drugs that will be most likely to work for you. This helps in a number of ways. You can be diagnosed and treated early, so diseases might even be prevented before you have symptoms. You will receive drugs that are most likely to work for you, saving time and expense and minimizing side effects. Finally, drugs prescribed for other diseases might work for your disease based on your genes, not on a particular disease classification.

Learn more at BenaroyaResearch.org.
COME TO SCIENCE FRIDAY IN 2015

What: Attend our Science Friday Tour to learn more about BRI and autoimmune diseases research. It includes a light breakfast, conversation with a leading researcher and a lab tour led by scientists.

When: 8–9:30 a.m., Jan. 30, March 27, May 29, Sept. 25 and Dec. 4, 2015

Register: Rachel Martin at 206-342-6519 or RMartin@BenaroyaResearch.org.

BECOME A RESEARCH CHAMPION

Benaroya Research Institute recognizes those who donate $1,000 or more annually as a BRI Champion. Champions Circle members receive invitations to the BRI Champions Reception on Feb. 10, 2015.

To join Champions Circle or to learn more call 206-341-1337 or email dnika.jackson@vmmc.org.

RESEARCH UPDATE: YOUR CONTRIBUTION TO SCIENTIFIC DISCOVERY

What: Biorepository participants, please join us as BRI researchers present the latest discoveries and trends in autoimmune disease research made possible by your contributions. Are you a healthy control donor? This event is for you too.

When: Saturday, Jan. 24, 2015, 9–11 a.m. Refreshments will be served 8:30-9 a.m.


Register: Biorepository@BenaroyaResearch.org or toll-free at 1-877-202-5200. Seating is limited so reserve your space early!