SUMMER 2009

BENAROYA RESEARCH INSTITUTE AT VIRGINIA MASON

UNLOCKING THE IMMUNE SYSTEM®

NEWSLETTER Vol 1 No 1

BRI THROUGH THE MICROSCOPE

53 Years of Medical Research Advancement

In 1956, a visionary group of energetic Virginia Mason (VM) doctors felt that the mission of the medical center could not be accomplished without research facilities for physicians. The "Virginia Mason Foundation for Research and Education" was established with a $5,000 grant from the Mason Clinic and some private gifts from the community.

Early work at the research center included improved surgical techniques, and advancements in a number of areas including cardiology, pulmonary physiology, diabetes, oncology and otolaryngology. Laboratories were housed in the former Virginia Mason School of Nursing building, Blackford Hall, on the downtown Seattle Virginia Mason campus.

By the 1980s, the prospects for linking basic science with medicine, particularly through antibody therapies and immune modulation, generated excitement which crossed many disease categories from arthritis to cancer to diabetes. VM leadership and the research center board chose a visionary course: they began to develop a new research initiative in immunology. The Immunology Program came to reality in 1986 with the recruitment of Gerald Nepom, MD, PhD, now BRI Director.

By the mid-1990s, the research staff had outgrown Blackford Hall and with the help of the Benaroya family and many other community supporters, the research center built new state-of-the-art research laboratories at Ninth and Seneca in Seattle. The center opened in 1999 and was renamed Benaroya Research Institute at Virginia Mason in 2002.

Today, Dr. Nepom and Executive Director Jack Nagan, JD, lead a team of 200 staff members, including 20 principal scientists. BRI research volume is $24.5 million, funded through research grants awarded by the National Institutes of Health, the National Science Foundation, the Department of Defense, the Juvenile Diabetes Research Foundation, the American Heart Association and a variety of other national and regional foundations, as well as by individual philanthropic gifts.

Benaroya Research Institute

BRI is an international leader in immune system and autoimmune disease research translating discoveries to real life applications. BRI is one of the few research institutes in the world dedicated to finding causes and cures to eliminate autoimmune diseases including Type 1 diabetes, arthritis, lupus, multiple sclerosis, scleroderma and many others.

DID YOU KNOW?

You can help be a better steward of the environment by receiving this newsletter and other information from Benaroya Research Institute electronically.

Sign up online at www.benaroyaresearch.org.

ADVANCING CURES AND TREATMENTS

GAD Vaccine Clinical Trial for Type 1 Diabetes Starts

The BRI Diabetes Research Program recently began clinical trials to see if a protein called glutamic acid decarboxylase (GAD) will help people with newly-diagnosed Type 1 diabetes to continue to make some of their own insulin. In the study, researchers will compare the progression of diabetes in people who receive injections of GAD with those who receive placebo shots. Researchers will explore whether treatment with multiple injections of the GAD vaccine Diamyd can help preserve insulin production by delaying beta cell destruction.

People who are recently diagnosed with Type 1 diabetes often have some beta cells left that produce some insulin, and may be eligible for participation. GAD is a protein made by the same cells that make insulin, and the trials will attempt to elicit a protective immune response to these cells in the participants. Immune responses to GAD have been studied by the Nepom lab at BRI for over 10 years, which contributed to the development of the vaccine. William Kwok, PhD and Helena Reijonen, PhD, also have studied GAD and continue to contribute to the studies in the vaccine trial, which is conducted as part of NIDDK Type 1 Diabetes TrialNet.

Carla Greenbaum, MD, BRI Director of the Diabetes Research Program, is the principal investigator at BRI for this trial. The study will be offered with a staged approach to participants aged 16-45 now, then ages 10-45 and finally ages 3-45, who have had diabetes for less than three months. Clinical research studies make the latest therapeutic options available to patients at the earliest possible time. Research trials are also critical to the advancement of medicine.

For more information on this study or other diabetes studies, please visit www.benaroyaresearch.org/diabetes-research/find-study/GAD/ or call 800-888-4187.

DID YOU KNOW?

Clinical Trials Open for Participation

To learn more about clinical trials for many diseases including arthritis, cancer, diabetes, lupus, multiple sclerosis and scleroderma, visit www.benaroyaresearch.org/clinical-trials/research-studies.

CLINICAL TRIAL PARTICIPANT STORY

Commencement Bay Rowing Club Participates in Diabetes Studies

Four athletes from the Commencement Bay Rowing Club joined researchers at BRI in the fight against Type 1 (autoimmune) diabetes. All four teens have Type 1 diabetes and were eager to raise awareness of this disease and to work toward a cure. They all donated blood samples for the Juvenile Diabetes Research Foundation study of autoimmunity. The teens also agreed to share their story with the media. Both KOMO and KING television stations featured stories about the teens and BRI diabetes research.

As Carla Greenbaum, MD, Director of the BRI Diabetes Research Program notes, "The teamwork, dedication and commitment of these teen rowers ensure success on the water and in diabetes management. By donating blood samples, they join the team of researchers at BRI in their dedication and commitment to exploring the causes and cure for autoimmune Type 1 diabetes." To see the KING story and find more information about diabetes research, visit http://www.benaroyaresearch.org/diabetes-research.

Commencement Bay Rowing Club teammates participate in Type 1 diabetes research at BRI. (Front row, left to right, Gabrielle Rhett and Sarah Harmon. Back row, left to right, David Rurik and Hannah Mendenhall.)

FUNDING MEDICAL ADVANCEMENTS

Select Painting Company Donates 10% of Profits to Cancer Research

When Tony Drllevich, owner of Select Painting Company in Maple Valley, Wash., found out his mother Judy Drllevich had bone, liver and breast cancer, he wanted to do something to help advance cancer research. Tony decided to donate 10% of all Select Painting Company profits to cancer research at Benaroya Research Institute at Virginia Mason.

Tony made his first donation upon completing a painting project at Cascade Golf Course in North Bend. Cascade Golf Course owners Dean and Diane Patterman thought Select Painting Company's approach was a wonderful concept. Each donation Tony makes is in recognition of the organization that hired him. "It's really incredible for someone to give that much of their income to us," says Christopher Porter, MD, Medical Director of the BRI Clinical Research Program. "People need to know that every dollar we get really can make a difference."

"I can't do the research myself," says Tony. "But I can paint and use that money to get the research done. If it doesn't save my mom, then hopefully it will save someone else's." While Tony plans to continue donating to cancer research as long as he is doing business, his immediate goal is to raise $250,000. "People ask me how I can do this in such a tough economy," Tony says. "My answer is, how can I not?"

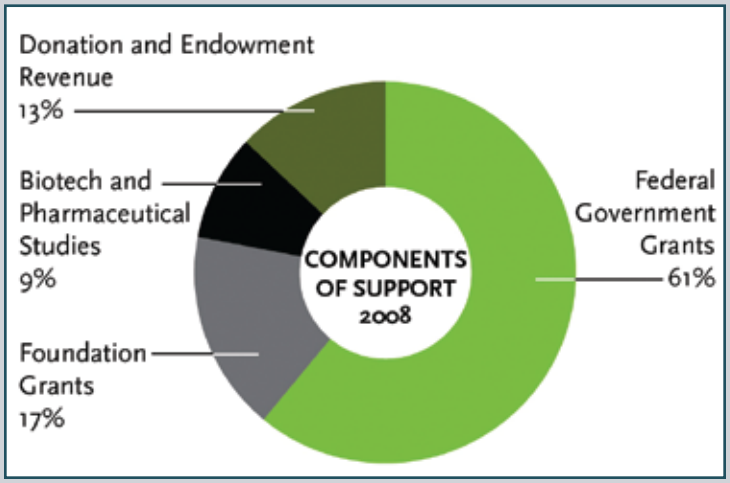
Tony Drllevich, Select Painting Company

Progress at BRI would not be possible without community support. For information on giving to BRI, visit www.BenaroyaResearch.org/donate-now.

GRANT NEWS

$400,000 Grant from M. J. Murdock Charitable Trust

The M. J. Murdock Charitable Trust recently awarded Benaroya Research Institute at Virginia Mason a $400,000 grant for the purchase of state-of-the-art instrumentation to study immune markers on cells in the blood which are indicators of health or disease. In addition, $150,000 was needed to supplement the grant. During the Dreambuilders' Ball "Spotlight on Giving," on May 9, generous donors exceeded this match goal to fully equip the instrumentation.



Grants from the National Institutes of Health (NIH)

- An award of $64,683 from NIH will support studies of how DNA structure influences cell and tissue development.
- A grant of $2,058,750 from NIH will support studies of a recently discovered molecule which initiates immune responses in some types of dermatitis.
- An award of $104,530 from NIH will support studies of how genes are regulated in cells which determine the balance between damaging and healthy immune responses.

EVENT NEWS

Thank You For Participating

Dreambuilders' Ball Contributions Top More than $1 Million

Lauren Muffett shares her story

The 18th annual Dreambuilders' Ball contributions topped more than $1 million for autoimmune disease research on May 9 with a capacity crowd of more than 900 people at The Westin Seattle.

The evening's honorees were Elmer and Mary Louise Rasmuson and their family. The Rasmuson family has supported BRI and Virginia Mason since the 1970s. In addition to great food, entertainment and auctions, the evening's program featured Lauren Muffett, who shared her story of living with four autoimmune diseases and the hope for a cure. BRI speakers, Gerald Nepom, MD, PhD, Jane Buckner, MD, and James Lord, MD, expressed the need for community support for BRI to continue cutting-edge research. They promoted the Spotlight on Giving which provided matching funds for completing the outfitting of the BRI core cytometry laboratory, specifically the purchase of specialized lasers for the instruments used by BRI scientists to probe the inner workings of the cell.

"We were honored to have so many people join us at this gala event and to support the mission of BRI to eliminate autoimmune diseaes," says Jack Nagan, BRI Executive Director. "Philanthropy is critical to our mission of unlocking the immune system and we thank our contributors and supporters for their ongoing generosity." Mark your calendars—next year's gala will be held on May 8, 2010.

BRI Supports Beat the Bridge and Tour de Cure

On May 17, the BRI team at the 27th Annual Nordstrom Beat the Bridge to Beat Diabetes included 32 BRI staff members, relatives and friends, raising over $1,600. They joined the more than 9,000 participants in the event to benefit the Northwest Chapter of the Juvenile Diabetes Research Foundation (JDRF). Contributions from Beat the Bridge are expected to exceed $1 million for diabetes research this year.

On May 16, hundreds of bicyclists pedaled in an effort to raise awareness and donations for diabetes education and research. They turned out at Redmond's Marymoor Park for "Tour de Cure," the American Diabetes Association's annual fundraiser that takes place in cities nationwide. BRI participated in the event with a booth to inform the public about diabetes research and clinical research studies with a great response. The Seattle event raised nearly $150,000 for diabetes education, research and advocacy.

Type 1 Diabetes Open House—A Successful Community Event

The Benaroya Research Institute Type 1 Diabetes Open House held March 22 drew a capacity crowd to the BRI auditorium. Participants toured the labs, attended a panel discussion on research advances and participated in clinical research studies. Fun activities and entertainment were offered for children.

Benaroya Research Institute Triathlon at Seafair Attracts 2,000 Participants

Nearly 2,000 participants took part in the ninth annual Benaroya Research Institute Triathlon at Seafair on July 19 in Seattle. Thanks to all the participants, volunteers and staff of the Benaroya Research Institute Triathlon at Seafair for making this a successful event. All donations from the triathlon will go to support autoimmune disease research of Type 1 diabetes, multiple sclerosis and rheumatoid arthritis at BRI. These three devastating, chronic diseases, affect more than four million Americans.

MS Walks Raise $1.7 Million

MS Walks in eight Washington State communities raised $1.7 million for the National Multiple Sclerosis Society, Greater Washington Chapter. BRI supported the Seattle MS Walk at Husky Stadium on April 5 by co-sponsoring the event and hosting a BRI information booth and a BRI team for the walk. Several BRI clinical and laboratory investigators conduct studies on the immunologic mechanisms and therapy of MS.

Almost 4,000 people took part in the MS Walk Seattle event which generated about half the funds raised for the weekend's walks. The funds will be used for programs and services for people with MS as well as for research into treatments and a cure.

BRI Volunteers, MS Walk

RESEARCHER IN THE SPOTLIGHT

Brad Stone, PhD, Investigates Immunology of Bone Marrow Transplants

Brad Stone, PhD, a principal investigator at BRI, is studying the immunology of bone marrow transplants. "For my research, I began reevaluating the interaction of the immune system and tumors and became interested in looking for antigens for immunotherapy of cancer. Something that interested me was bone marrow transplants." Bone marrow stem cell transplants are often the most effective treatment for a variety of leukemias, lymphomas and myelodysplastic syndromes. For many patients, a transplant represents their only hope for a genuine cure.

Importantly, much of the curative effect of a transplant is due to the activity of donor T cells. (Regulatory T cells regulate the immune system.) Following transplant, a subset of donor T cells will circulate through the patient and kill residual cancer cells. This response is called "graft versus leukemia" or GVL. However, transplants also come with substantial risks. One major problem that can occur is when donor T cells begin to attack normal host tissues. This response is known as "graft-versus host disease" or GVHD and can be lethal. Importantly, while GVL is often accompanied by GVHD, these effects can occur independently, suggesting that it may be possible to develop transplantation protocols that promote the growth of T cells providing the beneficial GVL effect without stimulating the harmful GVHD response.

The key to this problem is to gain an understanding of the targets that T cells respond to in both GVL and GVHD. We know that donor T cells respond to normal protein variations that are present in the recipient, but not in the donor. The protein disparities targeted by donor T cells are known as minor histocompatibility antigens. "My goal is to develop a rapid, unbiased method to identify minor histocompatibility antigens. This knowledge can be used to modify the graft to promote GVL while reducing the risk of severe GVHD. We are now evaluating T cell responses in recipients that respond well to the transplant by generating a significant GVL response. Antigens identified in this screen that are expressed primarily in leukemic cells but not in the tissues affected by GVHD will be attractive therapeutic targets in transplants with a similar disparity. This solution offers specific and personalized medicine."

Dr. Stone received several small two-year grants to fund this project and the initial results look promising. "After a decade of research, traditional methods had identified only 27 minor histocompatibility antigens. But by using new high throughput sequencing technology, we can identify over 90% of all of the potential antigens unique to an individual recipient. Combined with a novel screening protocol, we think we can test recipient T-cells for responses against up to 2,500 candidate minor antigens, constituting the vast majority of protein disparities existing between a particular recipient and his or her donor. One of the first questions we will be asking is whether there is a hierarchy of minor antigens targeted in GVL and/or GVHD. New technology is making this possible and it is incredibly exciting." With recent National Institutes of Health awards, Dr. Stone is building up his laboratory. "I feel fortunate to have been given this research opportunity," notes Dr. Stone.

Dr. Brad Stone,
BRI Researcher

DID YOU KNOW?

Autoimmune Diseases

Approximately 23.5 million Americans (one in 20) have an autoimmune disease.

They happen when the body's immune system attacks the body instead of protecting it.

There are more than 80 different autoimmune diseases.

No tissue or organ is exempt from autoimmune diseases.

The effects of autoimmune diseases cost an estimated $100 billion a year in direct health care costs.

UPCOMING EVENTS

Seattle Mariners' Diabetes Awareness Night
Wednesday August 26, SAFECO Field, Seattle

Athletics vs. Mariners, 7pm. Buy your exclusive discounted game tickets online before Aug. 24th. Benaroya Research Institute (BRI) is a sponsor of the event. Visit BenaroyaResearch.org and click on the Mariners under News and Events to buy tickets.

2009 Bike MS Ride, Saturday & Sunday
September 12 & 13, Mount Vernon, WA

Join more than 2,000 cyclists at the annual fundraiser hosted by the National Multiple Sclerosis Society, Greater Washington Chapter. BRI is a sponsor of the event. Visit nationalmssociety.org, click on Bike MS, and then click on Washington state to register.

Step Out: Walk to Fight Diabetes
Saturday October 10, Seward Park, Seattle

Hosted by the American Diabetes Association. BRI is an event sponsor. The walk route follows the 2.7 mile paved pedestrian path around Bailey Bay. Visit stepout.diabetes.org, click on Get Involved to register to walk.

BRI Science Friday: Tour of BRI
Friday October 30, Seattle

Join us for a tour at our internationally known research institute. Learn about scientific advances and observe a laboratory demonstration of the work in progress. The event will be led by BRI administration and scientists. For more information, or to sign up, contact Jessica Shaw at 206-583-6514 or e-mail Jessica.Shaw@vmmc.org

Benaroya Research Institute at Virginia Mason (BRI) is an international leader in immune system and autoimmune disease research translating discoveries to real life applications. The BRI Newsletter is published several times throughout the year.

Benaroya Research Institute at Virginia Mason | 1201 Ninth Avenue, Seattle, WA 98101 | www.benaroyaresearch.org

Return Service Requested

1201 Ninth Avenue
Seattle, WA 98101-2795

BENAROYA RESEARCH INSTITUTE at VIRGINIA MASON

Unlocking the Immune System®