

Life Sciences

DISCOVERY FUND

The Life Sciences Discovery Fund supports innovative research in Washington state to promote life sciences competitiveness, enhance economic vitality, and improve health and healthcare. The following are awarded grants in the Fund's portfolio of investments to benefit Washington and its citizens.

Project Grant Awards support focused investigator-initiated research studies.

2007

Daniel Chiu, University of Washington

Award Amount: \$763,454

Monitoring Breast Cancer Metastasis and Treatment Efficacy

FOCUS: To develop an effective yet low-cost blood test capable of detecting signs of breast cancer recurrence early to improve survival

ANTICIPATED IMPACT: More effective and targeted treatment for individuals with metastatic breast cancer

David Flum, University of Washington

Award Amount: \$1,334,726

The Surgical Care and Outcomes Assessment Program (SCOAP)

FOCUS: To define, measure and improve the quality of surgical care practices

ANTICIPATED IMPACT: Widespread adoption of best surgical practices to prevent unnecessary procedures and mistakes

William Hagopian, Pacific Northwest Diabetes Research Institute

Award Amount: \$918,828

Diabetes Evaluation in Washington Study

FOCUS: To determine the feasibility of establishing universal newborn type 1 diabetes susceptibility screening for Washington state

ANTICIPATED IMPACT: Reduction in costs and crises for individuals and families living with type 1 diabetes

Jeffrey Hummel, Qualis Health

Award Amount: \$398,049

Applying Health Information Technology to Improve Medication Management

FOCUS: To define the business case for using technology to improve the medication reconciliation process as part of the ambulatory care workflow

ANTICIPATED IMPACT: Changing the patient culture on the importance of knowing their medications

Cornelius Ivory, Washington State University

Award Amount: \$750,000

Rapid Fingerprinting of Cardiac Biomarkers

FOCUS: To design a miniaturized blood test for both point-of-care and emergency diagnosis of cardiovascular disease based on the mass distribution of a family of cardiac biomarkers

ANTICIPATED IMPACT: Improved allocation of health-care resources through more efficient patient triage

David Newell, Swedish Neuroscience Institute

Award Amount: \$169,532

Intracranial and Intraventricular Hemorrhage with Ultrasound-Enhanced Thrombolysis

FOCUS: To demonstrate that ultrasound can accelerate the delivery of drugs to improve stroke treatment

ANTICIPATED IMPACT: Improved outcomes for stroke patients

2008

Clifford Berkman, Washington State University

Award Amount: \$679,964

Chemoaffinity Agents for the Detection of Prostate Cancer

FOCUS: To demonstrate a new approach to imaging prostate tumors

ANTICIPATED IMPACT: Earlier prostate cancer diagnosis and improved targeted treatment therapies

Diane Cook, Washington State University

Award Amount: \$790,906

Smart Home-Based Health Platform for Functional Monitoring and Intervention

FOCUS: To create a "smart environment" that enables older adults or individuals experiencing cognitive or physical limitations to function independently and remain in their own home setting

ANTICIPATED IMPACT: Cost savings to rehabilitation and nursing care services

Eberhard Fetz, University of Washington

Award Amount: \$1,068,985

Brain-Computer Interfaces for Functional Recovery from Brain Injury

FOCUS: To increase functional recovery in damaged areas of the brain using implantable electrical stimulators

ANTICIPATED IMPACT: Improved outcomes for stroke and brain injury patients

Cecilia Giachelli, University of Washington

Award Amount: \$1,469,606

Engineering Monocytes to Treat Ectopic Calcification

FOCUS: To develop technologies for local human cell therapies that can treat or prevent tissue calcification

ANTICIPATED IMPACT: Improved health outcomes and quality of life for individuals with calcific diseases

Pierre Mourad, University of Washington

Award Amount: \$224,958

Transcutaneous Acoustic Palpation (TAP) for Localizing Painful Pathology

FOCUS: To demonstrate the use of intense-focused ultrasound in identifying the source of deep pain

ANTICIPATED IMPACT: Improved diagnosis of painful medical conditions

Patrick Stayton, University of Washington

Award Amount: \$968,915

Self-Powered Smart Cards for Diagnostic Screening

FOCUS: To develop a rapid, low-cost, self-powered, easy-to-use device to detect infectious agents in blood

ANTICIPATED IMPACT: Less costly, easily accessible diagnostic services

2009

Norman Karin, Battelle, Pacific Northwest Division

Award Amount: \$1,022,867

A Cost-Effective Hydrogel-Growth Factor Complex to Improve Bone Healing

FOCUS: To develop safe, effective, and inexpensive implant materials to promote bone regeneration

ANTICIPATED IMPACT: New cost-effective technologies for stimulating bone healing in both humans and animals

Daniel Leotta, University of Washington

Award Amount: \$509,051

Imaging Oximetry of Peripheral Ischemia for Identification of Amputation Level

FOCUS: To develop an easy-to-use, low-cost, noninvasive portable device that can measure local tissue oxygenation and help guide surgeons in performing lower limb amputations

ANTICIPATED IMPACT: Improved outcomes following limb amputation and prediction and monitoring of healing of diabetic foot and pressure ulcers

Andre Lieber, University of Washington

Award Amount: \$202,759

Peptides that Increase the Efficacy of Monoclonal Antibody Therapy of Cancer

FOCUS: To validate the preclinical effectiveness and safety of a novel molecule that enhances the anti-tumor actions of a chemotherapeutic agent

ANTICIPATED IMPACT: Improved outcomes in cancer patients following treatment with monoclonal antibodies

Daniel Martin, Institute for Systems Biology

Award Amount: \$791,767

High-Throughput Generation of Monoclonal Anti-Peptide Antibodies for High Sensitivity Targeted MS Analysis of Biomarker Candidates

FOCUS: To develop new technologies for biomarker verification and conduct initial validation of prostate cancer biomarker candidates

ANTICIPATED IMPACT: Accelerated translation of biomarker candidates into commercial assays for the diagnosis and monitoring of prostate cancer and other major diseases

Tomikazu Sasaki, University of Washington

Award Amount: \$1,451,193

Development of Artemisinin Compounds for Cancer Treatment

FOCUS: To develop new cancer therapeutics and poultry anti-microbials from a natural product

ANTICIPATED IMPACT: New cost-effective agents for cancer chemotherapy and environmentally safer poultry cultivation

Diter von Wettstein, Washington State University

Award Amount: \$1,099,998

Wheat for Celiac Patients and Improved Disease Prevention

FOCUS: To generate wheat that is safe for individuals with celiac disease

ANTICIPATED IMPACT: Improved health and quality of life for individuals with celiac disease and potential prevention of the disease in others

Program Grant Awards support the launch of new collaborative research initiatives that address major problems within a field of study and position organizations for future competitiveness and leadership.

2007

Martin Cheever, Fred Hutchinson Cancer Research Center

Award Amount: \$2,237,265

Fred Hutchinson/University of Washington Cancer Consortium Phase 1 Clinical Trials Program

FOCUS: To develop a Phase 1 Cancer Clinical Trials Program for accelerating the development of new cancer-fighting drugs

ANTICIPATED IMPACT: Cancer patient access to Washington-based, early-stage drug trials and development

Gail Jarvik, University of Washington

Award Amount: \$5,339,742

Institute for Genetic Medicine

FOCUS: To build a new infrastructure that will enable clinical investigation of medical genetics using rapid analysis of genomic data

ANTICIPATED IMPACT: Improved personalized medical care and disease prevention

Patricia Kuhl, University of Washington

Award Amount: \$4,033,304

Early Learning and Brain Development: MEG Brain Imaging Center for Infants and Children

FOCUS: To establish a regional child brain imaging center to utilize the latest in brain imaging technology to measure the young brain in action and to explore the basic mechanisms that underlie early learning and lay the foundation for lifelong learning

ANTICIPATED IMPACT: Improved understanding of early childhood behaviors, syndromes, and disabilities

Gerald Nepom, Benaroya Research Institute at Virginia Mason

Award Amount: \$5,575,200

Program for Autoimmune Disease Intervention (PADI)

FOCUS: To apply genetic and immunologic discoveries to benefit people with autoimmune diseases such as type 1 diabetes, multiple sclerosis, and lupus

ANTICIPATED IMPACT: Improved diagnosis and treatment of autoimmune diseases

Richard Smith, Battelle, Pacific Northwest Division

Award Amount: \$4,830,000

Next Generation Clinical Proteomics to Target Human Health Challenges

FOCUS: To develop a new proteomics technology for the large-scale study of proteins and to apply this technology in search of biomarkers for liver disease

ANTICIPATED IMPACT: Earlier, less invasive diagnosis, monitoring, and management of chronic diseases

2008

Lawrence Corey, Fred Hutchinson Cancer Research Center

Award Amount: \$4,727,296

Washington Vaccine Alliance

FOCUS: To develop an integrated, multi-institutional program to stimulate discovery and development of vaccines for widespread use

ANTICIPATED IMPACT: New vaccines to prevent or treat herpes simplex virus-2, syphilis, and *E. coli* contamination

Thomas Rea, Seattle & King County Department of Public Health

Award Amount: \$2,653,031

Program to Integrate Technology and Cardiac Arrest Resuscitation

FOCUS: To improve cardiac resuscitation technology and resuscitation outcomes

ANTICIPATED IMPACT: Statewide training and implementation of improved cardiac resuscitation methods and enhanced survival following sudden cardiac arrest

John Roll, Washington State University

Award Amount: \$4,048,617

Program of Excellence in Rural Mental Health and Substance Abuse

FOCUS: To improve the delivery of mental health and substance abuse services in rural, underserved communities

ANTICIPATED IMPACT: Improved management of substance abuse and mental illness in rural areas through testing and implementation of appropriate evidence-based treatments

Patrick Stayton, University of Washington

Award Amount: \$7,163,794

Center for Intracellular Delivery of Biologics

FOCUS: To better deliver drugs to their site of action within cells

ANTICIPATED IMPACT: Enhanced treatment of cancer, pulmonary trauma, and other major disorders with fewer side effects

Commercialization Grant Awards support small-scale, highly targeted studies that move technologies along the pathway to the marketplace.

2009

Philip Fleckman, University of Washington

Award Amount: \$150,000

Cutaneous Healing into Porous Biomaterials Impedes Infection

FOCUS: To test the ability of a percutaneous catheter to resist infection

ANTICIPATED IMPACT: Reduced morbidity and mortality in patients with skin-penetrating devices and commercialization of the novel device by a Washington-based company

Kenneth Schenkman, University of Washington

Award Amount: \$150,000

Noninvasive Clinical Monitor for Early Detection of Shock

FOCUS: To test a new instrument for the diagnosis and monitoring of shock

ANTICIPATED IMPACT: Improved outcomes in trauma patients and formation of a new start-up company to commercialize the shock monitor

Cecilia Giachelli, University of Washington

Award Amount: \$150,000

Bioengineered Osteopontin to Treat Vascular Calcification or "Hardening of the Arteries"

FOCUS: To test the ability of an optimized osteopontin molecule to inhibit or reverse calcium deposition in blood vessels

ANTICIPATED IMPACT: Commercialization of a new drug by a Washington-based company that will extend survival in individuals with heart disease

Opportunity Grant Awards support compelling, time-sensitive initiatives from Washington's public and non-profit life sciences research community.

2009

Deborah Nickerson, University of Washington

Award Amount: \$1,999,650

Northwest Genomics Center

FOCUS: To support the launch of the new Northwest Genomics Center with the purchase of four state-of-the-art gene sequencers

ANTICIPATED IMPACT: New personalized, genetic-based approaches to disease prevention, diagnosis, and treatment