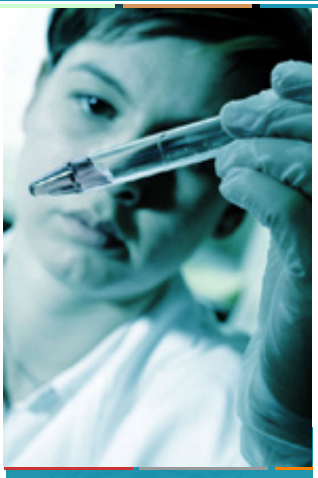
TRADE DEVELOPMENT ALLIANCE of GREATER SEATTLE

Greater Seattle and Washington State:

A Center of World Class Research



Life Sciences, Information Technology, Agriculture, Environmental and Emerging Technologies.

One Large Science Park

Welcome to the science research region that is Greater Seattle. Some cities boast of their technology parks - Greater Seattle, from Tacoma to Everett is a technology park, one large region of research in science and technology. It is a science region that is home to some of the most important research institutions in the world. It is part of a state-wide grouping of top-notch research. From bio science and environmental research conducted east of the Cascade Mountains to genetic, infectious disease and information technology research all over the state, Washington state is a leader in high technology research.

In these pages you will find Nobel Prize winners, scientific breakthroughs, innovations affecting people all over the world, institutions working to save people's lives, and the building blocks of basic research. In short, you will find the Greater Seattle region - a diverse, high tech home to a major cancer research center, one of the top public research universities in the country, the largest information technology research lab, the world's largest private foundation and much more.

So welcome and happy researching. Please contact any of the organizations found on the back cover to find out more about the opportunities to be found in the research organizations and companies of Greater Seattle and Washington state.

A world-class research community extends throughout Washington state in a host of disciplines. Research is conducted by top talent at institutions in fields ranging from information technology, aerospace, biotechnology, medicine and agriculture to emerging technologies such as nanotechnology, photonics and genomics.

Each year the state's research institutions attract nearly $1.5 billion in federal research funds, a figure that does not include private company spending such as Microsoft's $5 billion spent annually on research and development. Come visit the companies and institutions clustered throughout our science region -- on south Lake Union near the University of Washington and throughout Snohomish, King and Pierce counties.

Foundations for a Science Region

University of Washington (UW)

Since 1974, the **University of Washington** has led the nation's public universities in competing for federal research and training grants. In recent years, the UW is first among public and second among all universities in federal research awards. In 2003, UW research awards totaled $933 million. The UW ranks fifth amon UW universities in launching startup companies from its research -- more than 175 companies have been based on UW advances.

Fred Hutchinson Cancer Research Center

The Fred Hutchinson Cancer Research Center, home of two Nobel laureates, is an independent, nonprofit research institution dedicated to the development and advancement of biomedical research to eliminate cancer and other potentially fatal diseases. Fred Hutchinson Center receives more funding from the National Institutes of Health than any other independent U.S. research center.

Pacific Northwest National Laboratory (PNNL)

The Pacific Northwest National Laboratory is a U.S. Department of Energy multi-program national laboratory operated by Battelle. In 2001, PNNL staff members received 32 U.S. patents for innovations resulting from their work, expanding the lab's portfolio to nearly 300 active patents.

Washington State University (WSU)

Washington State University is home to one of the nation's leading plant, biochemistry and biotechnology programs. The university conducts groundbreaking research in agriculture, environmental science, information technology and many other fields.

Biotech, Life Sciences and Global Health

Since the industry's earliest beginnings, Washington state has been a leader in biotechnology and medical technology, and is one of the fastest growing research centers in the United States. Greater Seattle is becoming known internationally as the new center for global health. According to a study by the Brookings Institution, Greater Seattle's research and development alliances are worth $692 million, the fifth-largest in the United States. Washington companies, both small and large, are leaders in their field in biotechnology research. In addition, the region is home to more than 1,600 life scientists. Including divisions and subsidiaries of local and international companies, more than 400 companies, institutes and organizations in Washington specialize in biotechnology and medical research. Nobel Prize winners, cutting-edge research and world renowned institutions and companies make the Greater Seattle region one of the top biotech and life science research regions in the world.

A few of the stars in the galaxy of these local organizations

- **Fred Hutchinson Cancer Research Center** With two Nobel laureates as faculty, the Fred Hutchinson Cancer Research Center leads the way in cancer research. It pioneered bone marrow transplants and today is home to the largest marrow and stem-cell transplantation center in the world. The center's four scientific divisions collaborate to forma unique environment for conducting basic and applied science.
- **University of Washington (UW)** Since 1990, four University of Washington faculty members have won Nobel Prizes in medicine, more than any other university in the world. The faculty includes 42 members of the National Academy of Sciences, 33 member of the Institute of Medicine and 10 members of the National Academy of Engineering. The UW is a world center for research on AIDS, hearing disorders, cancer, Alzheimer's disease and many other fields of the life sciences.
- **Pacific Northwest National Laboratories (PNNL)** The Pacific Northwest National Laboratories deliver breakthrough science and technology to meet key national needs in environment, energy, national and fundamental science. The Battelle-operated laboratory's customers include federal, state and local agencies, as well as universities and industry sponsors.

- ★ **Benaroya Research Institute at Virginia Mason (BRI**) The **Benaroya Research Institute at Virginia Mason** is internationally recognized for its work in research and therapy of autoimmune diseases, such as diabetes and arthritis, and is an innovator in the exploration of genetic aspects of widespread human diseases, including cancer.
- ★ **Washington State University (WSU) Washington State University** is conducting groundbreaking research ranging from the development of new drugs with the potential to treat pain, cancer and Alzheimer's disease to new understandings of the biochemistry of sleep regulation and reproductive health.
- ★ **Institute for Systems Biology (ISB**) The **Institute for Systems Biology**'s goal is to unravel the mysteries of human biology and identify strategies for predicting and preventing diseases such as cancer, arthritis and AIDS. The innovative "systems" approach is the integration of biology, computation, and technology. This approach allows scientists to analyze all of the elements in a system rather than one gene or protein at a time. The Institute has an extensive network of academic and industrial partners.
- ★ **Seattle Biomedical Research Institute (SBRI) Seattle Biomedical Research Institute** conducts targeted research leading to the prevention and treatment of global infectious diseases, such as malaria, tuberculosis, HIV/AIDS and leishmaniasis, among others. Currently, SBRI scientists are engaged in more than 50 scientific collaborations in 18 countries, as well as throughout the U.S.
- ★ **Pacific Northwest Research Institute (PNRI)** Founded in 1956, Pacific Northwest Research Institute is one of the oldest private non-profit research institutes in the Northwest. Its laboratories conduct pioneering research into the prevention and cure of diabetes and cancer.

Information Technology

The software on your computer was probably developed in Washington state. Whether searching on the Internet or listening to a song online, information technology is continually developed at companies and institutions in Washington. Leaders in their field such as Microsoft, Amazon.com, and Real Networks are headquartered here. A cluster of companies and institutions dedicated to research and experienced in executing successful partnerships between industry and research centers call the region home. They are continuing to create tomorrow's technologies today.

Microsoft Research

Founded in 1991, **Microsoft Research** is the largest software research organization in the world. Its research has advanced nearly every Microsoft product currently on the market. Just one example is ClearType, a key feature in products like Pocket PC and Tablet PC, that makes text easier to read on screen. Although the majority of its work takes place at the Redmond campus, Microsoft Research also has a global presence with offices in China and the U.K. Microsoft spends more than $5 billion in R&D each year.

University Research

With the new Paul G. Allen Center for Computer Science and Engineering, the University of Washington continues to enhanceits reputation as one of the nation's leading computer science research universities. Consistently ranked in the top ten, UW researchers created the first successful full-text web search and web meta-search engines. The Human Interface Lab, one of the top virtual reality research institutions in the world, is located at the UW. The university is also a leader in computational biology, which is essential to working with the sequence obtained through the Human Genome Project.

Washington State University (WSU) is home to the Center for Design of Analog-Digital Integrated Circuits, an industry-university research consortium that includes UW and is supported by the National Science Foundation. WSU also initiated the Center for Excellence in Semiconductor Research that brings together the university, semiconductor manufacturers and their equipment suppliers in a cooperative venture to perform collaborative research and development on semiconductor manufacturing technology.

Company-Institute Collaboration

One example of the numerous collaborations between university researchers and companies is **Microvision**, which worked with UW to create a retinal display that projects critical information before a pilot's eyes so the pilot can spend more time looking out of the cockpit. **Intel Corporation** established a laboratory at UW so researchers could collaborate with faculty and students on the development of new technologies.

A Center for Agriculture and Environmental Research

Washington state's diverse topography and climate makes it a beautiful place to live and provides for abundant natural resources. No other state, with the exception of California, grows a more diverse set of crops than Washington. Over 230 food, feed and seed crops are grown each year, including apples, cherries, potatoes, wheat, barley, pears and wine grapes. Some of the earliest environmental protection laws were enacted in Washington. The state's companies and institutions have onducted pioneering environmental research for decades.

Research at **Washington State University (WSU)** creates the continuous innovation in crop varieties that underpins much of the state's $6 billion agricultural industry. Well known is the research in breeding new varieties of wheat, cherries, pears and apricots. WSU research also determined the horticultural practices for growing vinifera grapes in Washington, spurring development of the state's wine industry, now second largest in the nation.

Work conducted in the WSU College of Veterinary Medicine on safe food led directly to a $10 million, seven-year contract with the National Institute of Allergy and Infectious Diseases of the National Institutes of Health for the establishment of a Zoonoses Research unit. Research in this unit is designed to develop products to rapidly identify, prevent and treat food and waterborne diseases that can be transmitted from animals to humans.

With funding from the National Science Foundation (NSF), Department of Energy and

U.S. Department of Agriculture, research is conducted within the Center for Multiphase Environmental Research at WSU to determine how contaminants move through the environment, interacting with plants, microbes, soils and air. Through these grants more than 40 PhD students from engineering, microbiology, chemistry, and soil science work to solve environmental problems and develop remediation technologies for our state and nation.

InnovaTek, founded by a former **Pacific Northwest National Laboratory (PNNL**) researcher, is an example of industry-institution collaboration. The company partnered with Eastern Washington University, Battelle Memorial Institute, Quantum Northwest, UW, and WSU to develop a family of products for surface decontamination. InnovaTek also is commercializing a new generation of air samplers capable of trapping airborne viruses, bacteria, molds, and spores.

Other developments by PNNL researchers include:

- A process for decomposing rubber so that it can be recycled more efficiently.
- An efficient way to remove mercury pollution from water.
- A process that uses baking soda to inexpensively destroy PCBs, pesticides and other hazardous organic materials in soil.
- A safer cleaning process for clothes and mechanical parts that uses carbon dioxide instead of hazardous chemicals.

A Center for Emerging Technologies

Just as Washington state played crucial roles in developing the technologies that led to some of the largest and fastest growing industries over the past several decades, Washington researchers are pioneering fields whose potential is just beginning to be understood.

Nanoscience

The **University of Washington** launched the first doctoral degree program in nanotechnology in the nation. In addition, PNNL houses some of the most sophisticated nanoscience research equipment in the world, including the world's most powerful nuclear magnetic resonance spectrometer, a 900-megahertz system two and a half stories tall that can provide molecular-level information about biological materials. Together, these two research institutions formed a consortium of nearly 100 scientists and engineers called the Joint Institute for Nanoscience and Nanotechnology.

Photonics

The National Science Foundation is investing more than $18 million over the next five years toward the Center for Materials and Devices for Information Technology Research at the **University of Washington**. This center will explore the field of photonics, the fundamental science of exploiting light. UW also has received more than $10 million in awards from the Defense Department and substantial corporate funding for its photonics research, which could push total funding to more than $100 million over the next decade. The center's research in photonics is expected to have impacts on telecommunications, defense, computing, transportation and personal and home electronics.

Genomics

Leroy Hood, internationally known for co-developing the automated DNA sequencing technology essential to the Human Genome Project, co-founded the **Institute for Systems Biology (ISB)** in Seattle. The non-profit research institute is dedicated to predicting and preventing diseases. Robert Waterston, one of the world's leading genome scientists, chairs the UW Department of Genome Sciences, which already houses the Maynard Olson's Genome Center and Stan Fields' Proteomics Lab. **Benaroya Research Institute** is one of three laboratories in the world that are producing genomic libraries of BACs (bacterial artificial chromosomes) for the use of genetics researchers. On the corporate side, **Amgen**, maker of the wonder drug Enbrel, recently opened the $650 million Helix Research campus in Seattle. **Targeted Genetics** is a leader in gene delivery technology and in the development of therapeutic products based on gene delivery.

And More!

Researchers at **WSU** have built the world's smallest engine, an innovation with the potential to replace batteries in manyportable electronics. Microsoft co-founder Paul Allen recently formed the **Allen Institute for Brain Science** to address key issues in neuroscience and study human thought and behavior.

Resources

Greater Seattle and Washington State have a wealth of organizations supporting science and research. The Technology Alliance of Washington (TA) is a statewide consortium that brings together leaders from Washington's technology-based industries, research institutions, and regional organizations. The TA fosters support for technology-based economic growth through research studies, educational events and programs. Industry focused associations include the Washington Chapter of the American Electronics Association (AeA), Washington Biotechnology and Biomedical Association (WBBA), and WSA (formerly the Washington Software Alliance). In addition, foundations and institutions providing financial and other support are located in the region. Foremost among these is the Bill and Melinda Gates Foundation, the largest foundation in the world. The Gates Foundation concentrates on global health issues. The Trade Alliance promotes the Greater Seattle region, from Tacoma to Everett, into international markets.

For additional information about research conducted in Washington state, please contact:

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