WASHINGTON UNIVERSITY’S NATIONAL AND INTERNATIONAL IMPACT

The overarching goal of Leading Together: The Campaign for Washington University is to enhance our leadership today to benefit America and the world tomorrow.

Washington University attracted $612.6 million in total research support in fiscal year 2015, including $456.7 million in federal research support. More than 2,200 research projects were underway in fiscal year 2015.

Faculty and students at Washington University are addressing national and global imperatives in energy, the environment, security, health, and economic prosperity. Key areas include:

- **Medical research** to translate basic science discoveries into solutions for the world’s most urgent health problems

- **Environmental and energy research** to discover innovations that can reduce greenhouse emissions and slow global warming

- **Innovation and entrepreneurial research** to create intellectual property and advance research for the greatest public good

- **Plant science research**, conducted in collaboration with the Donald Danforth Plant Science Center, to help the world feed its people

Through the McDonnell International Scholars Academy, Washington University works in partnership with 29 leading research universities around the world to focus on key issues facing our global society, including energy and sustainability, public health, education, and international understanding.

Representative advances and discoveries by Washington University researchers:

- Washington University leads the study of personalized cancer vaccines. Using genetic sequencing from the McDonnell Genome Institute, scientists are developing vaccines that harness the power of the immune system to help fight cancer and other deadly diseases. Researchers recently conducted the first human clinical trial of personalized vaccines for advanced melanoma patients. New trials are planned for melanoma, brain cancer, and breast cancer.

- The School of Medicine is conducting the first large-scale clinical trial to identify drugs that may stop or slow the symptoms of Alzheimer’s disease.
• With support from the U.S. Department of Energy, Washington University’s Photosynthetic Antenna Research Center (PARC) is at the forefront of alternative energy research. PARC brings together an international interdisciplinary team to investigate natural and bio-inspired systems for harvesting the sun’s energy.

• Washington University is one of the leaders of the Human Connectome Project, an initiative funded by the National Institutes of Health to map the structural and functional connections of the living human brain.

• The Healthy Mind Study at the Harvey A. Friedman Center for Aging is investigating strategies to slow or reverse age-related cognitive decline.

• Michael Sherraden, PhD, the George Warren Brown Distinguished University Professor at Washington University and one of TIME magazine’s “100 most influential people” in 2010, founded the Center for Social Development (CSD) at the Brown School 20 years ago. Today Sherraden and the CSD advise U.S. and global policy leaders on effective strategies to fight poverty, improve the criminal justice system, support child well-being, encourage saving for college and retirement, promote productive aging, and more.

• The human microbiome is a new field of research pioneered by Jeffrey I. Gordon, MD, the Dr. Robert J. Glaser Distinguished University Professor at Washington University School of Medicine. Dr. Gordon’s long-term genetic studies of the community of microbes in the human gut and its links to good health and disease have the potential to improve human health across the globe.

• About 20 million children under age 5 worldwide suffer from severe acute malnutrition. World Health Organization (WHO) guidelines for effective treatment are based in large part on research led by Mark J. Manary, MD, the Helene B. Roberson Professor of Pediatrics in the Washington University School of Medicine. Dr. Manary is one of the world’s foremost experts in childhood malnutrition.

• The American Bar Association has adopted a resolution on preventing crimes against humanity, citing a model treaty drafted by the Crimes Against Humanity Initiative at Washington University School of Law headed by Leila Nadya Sadat, JD, the Henry H. Oberschelp Professor of Law and Israel Treiman Faculty Fellow at the law school.

• To help meet global demand for food, scientists at the School of Engineering & Applied Science are finding novel ways to increase growth and nutrients in plants. Led by Pratim Biswas, PhD, the Lucy & Stanley Lopata Professor and chair of the Department of Energy, Environmental & Chemical Engineering, Washington University engineers have used aerosols to deliver nanoparticles to tomatoes, producing 82% more fruit and greater nutritional value with fewer nanoparticles than found in conventional fertilizer.
• Nerve-transfer surgery that restores limited movement to patients with spinal cord injuries was pioneered by Susan E. Mackinnon, MD, the Sydney M. Jr. and Robert H. Shoenberg Professor of Surgery at Washington University School of Medicine.

• With support from the U.S. Department of Defense, biomedical engineers at Washington University are testing a device that could help people feel sensation in their prosthetic hands.

• A global network of scientists led by Gary Weil, MD, professor of medicine and of molecular microbiology at Washington University School of Medicine, is conducting 12 projects in 8 countries in Africa and the Asia-Pacific region to eliminate river blindness, elephantiasis, and intestinal parasites—devastating diseases that collectively affect two billion people in the developing world. The team’s research to develop effective treatments has received $20 million in support from the Bill and Melinda Gates Foundation since 2010.

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