Bethesda, MD - In a visit to the National Institutes of Health (NIH) campus, President Barack Obama announced $5 billion in grant awards under the American Recovery and Reinvestment Act of 2009 (Recovery Act) to fund cutting-edge medical research in every state across America. The more than 12,000 grant awards are expected to create tens of thousands of jobs over the next two years and are part of an overall $100 billion Recovery Act investment in science and technology to lay the foundation for the innovation economy of the future.

“We know that this kind of investment will also lead to new jobs: tens of thousands of jobs conducting research, manufacturing and supplying medical equipment, and building and modernizing laboratories and research facilities,” said President Obama. “I’ve long said, the goal of the Recovery Act was not to create make-work jobs, but jobs making a difference for our future. There is no better example than the jobs we will produce or preserve through the grants we are announcing this morning.”

“This historic investment demonstrates this administration’s commitment to pushing the boundaries of science and turning those discoveries into benefits for the American people. NIH researchers and grantees are already conducting some of the world’s most groundbreaking biomedical research, said Secretary Kathleen Sebelius. “These awards will accelerate our progress towards the new medicines, treatments, and cures that will help Americans live longer, healthier lives.

By creating brand-new programs, such as Challenge Grants, Grand Opportunity grants, and Signature Initiatives, NIH is funding innovative research throughout the nation. The grant awards will support the full spectrum of medical research—from basic research to clinical and translational studies. The Recovery Act funded NIH grants are in several areas including heart disease, autism, HIV-AIDS, H1N1 Flu and cancer.

More than $1 billion of the grant funding is dedicated to research applying the technology produced by the Human Genome Project between 1990 and 2003. This new funding will allow researchers to make quantum leaps forward in studying the genomic changes linked to cancer, heart, lung, and blood disease and autism– potentially leading to new treatments and cures. The investment includes $175 million for The Cancer Genome Atlas (TCGA) to collect more than 20,000 tissue samples from more than 20 cancers, and determine in detail all of the genetic changes in thousands of these tumor samples. TCGA involves more than 150 scientists at dozens of institutions around the country. All data will be rapidly deposited in databases accessible to the worldwide research community.

“We are about to see a quantum leap in our understanding of cancer,” said NIH Director Francis S. Collins, M.D., Ph.D. “Cancer is a disease of DNA—it occurs when glitches in the DNA cause a good cell to go bad. This ambitious effort promises to open new windows into the biology of all cancers, transform approaches to cancer research and raise the curtain on a more personalized era of cancer care. This is an excellent example of how the Recovery Act is fueling discoveries that will fundamentally change the way we fight disease and improve our lives.”

More information about NIH’s efforts under the Recovery Act is available at www.nih.gov/recov

ery/index.htm . A list of the NIH Recovery Act grants can be viewed at http://report.nih.gov/recovery/arragrants.cfm . To view a web video on how these Recovery Act funds will create jobs and speeding scientific discovery, go to: www.whitehouse.gov/blog/Creating-Jobs-and-Finding-Cures/ .

FACT SHEET
Recovery to Discovery: $5 Billion Recovery Act Investment in Scientific Research and Jobs

Since September 1st, the National Institutes of Health (NIH), a part of the Department of Health and Human Services, has awarded more than 12,000 grants to research institutions in every state across the country. This $5 billion investment through the Recovery Act is the largest infusion of capital into biomedical research ever and is expected to support tens of thousands of jobs over the next two years, ranging from support staff and lab technicians to database managers and scientists. In addition, NIH estimates that every dollar of research funding produces more than two dollars worth of goods and services in the overall economy, providing an economic benefit that extends well beyond the lab and classroom.

The research grants, which are roughly equal to one-sixth of the annual NIH budget and one half of NIH's Recovery Act funds, are part of the overall $100 billion investment the Recovery Act makes in innovative research and advancing America's science and technology infrastructure. The awarding of these grants nationwide marks a significant step forward in fulfilling the Recovery Act commitment to not just rescue the economy by creating new job opportunities, but to rebuild it better by laying a new foundation that makes American competitive in the 21st century.

More than $1 billion of the grant funding is dedicated to research applying the technology produced by the Human Genome Project which culminated in the sequencing of the first human genome. Since then, researchers have sequenced approximately a dozen additional genomes. Now, through Recovery Act funded research, scientists will sequence over 2,300 complete genomes – or 168,000,000,000,000 DNA base pairs. This effort will allow researchers to make quantum leaps forward in studying the genomic changes linked to cancer, heart, lung, and blood disease and autism – potentially leading to new treatments and cures. The genomic research funded by the Recovery Act includes:

Cancer
The Cancer Genome Atlas (TCGA) is a comprehensive, collaborative effort led by the National Institutes of Health (NIH) to map the genomic changes that occur in major types and subtypes of cancer. Researchers across the nation are using various genome analysis technologies, including high-throughput DNA sequencing, to carry out this effort.

A pilot project initiated in 2006 established the scientific infrastructure and demonstrated the "proof of concept" needed to mount a large-scale cancer genome mapping project. Based on this success, TCGA announced in September 2009 that it will map the genomes of at least 20

cancers over the next five years. $175 million in American Recovery and Reinvestment Act funds, plus $50 million each in appropriated funds from NCI and NHGRI, over two years. Funding for the remaining three years has not yet been finalized.

TCGA is currently in the process of selecting the 20 cancers to be mapped over the next five years.

TODAY: Patients receive chemotherapy without knowledge of each individual's sensitivity to these powerful drugs.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: A novel approach utilizing microRNAs may be able to predict which patients have tumors that are likely to spread throughout the body. This information will allow physicians to identify and aggressively treat high-risk patients and spare low risk patients from ineffective treatments and their damaging side effects.

TODAY: Doctors have a limited number of drugs to treat a wide variety of cancers.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: Tests of plant extracts known to have anti-cancer properties may result in an arsenal of entirely new anti-cancer agents that could dramatically increase our ability to target effective new drugs to the specific cancer type of each patient.

TODAY: Oral and pharyngeal cancer kills about 8,000 Americans each year and less than 60 percent diagnosed survive more than 5 years.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: A catalog of the genetic changes associated with oral cancers will be completed. This information will guide the early identification and treatment of pre-malignant lesions, allowing the disease to be prevented before a tumor ever develops.

Heart Disease

Heart, lung, and blood diseases account for 3 of the 4 leading causes of death in the United States. Under ARRA, the NIH is investing more than $750 million into cutting-edge research on the prevention and treatment of heart, lung, and blood diseases. Genomic technologies have advanced to the point where large-scale DNA sequencing and molecular profiling can be undertaken at the level of entire groups of people. This information promises to lead the way toward more personalized medical and behavioral interventions for heart disease.

TODAY: Doctors monitor our cholesterol, blood pressure and other risk factors for heart disease.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: Researchers will have sequenced the genomes of over 10,000 individuals with known risk factors for heart disease that will identify the genetic changes that cause these risk factors. This will lead to entirely new ways to prevent and treat this killer -- such as identifying individuals likely to develop cholesterol and blood pressure problems and discovering ways to intervene before heart disease ever develops.

TODAY: Doctors test an individual's HDL (or "good cholesterol") and try to increase it by various means.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: Researchers will have compared the genomes of those individuals with high HDL and low HDL and will move closer to understanding the genetic differences that account for this variability. Such information will accelerate the development of drugs that increase the good HDL and reduce the risk of heart attack.

TODAY: The treatment of heart failure does not take into account the 30 percent of heart failure that is due to genetics.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: The genes of over 7,000 heart failure patients will be examined to identify those critical genetic changes. This information will, for the first time, allow doctors to identify those at risk for heart failure and develop personalized treatments to treat, slow or even prevent the disease.

TODAY: Plaque rupture and thrombosis strikes without warning and with deadly consequences.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: Researchers will have indentified markers circulating in the blood that signal that such a critical event is coming and allow rapid initiation of lifesaving emergency therapies that can prevent deadly plaque rupture before it occurs.

TODAY: Statin therapy for atrial fibrillation works well for many patients but also makes some patients worse.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: Biomarker and genetic data will have been analyzed from large pools of patients from around the world to find markers that identify which patients will benefit from statin therapy as well as those with a higher risk of statin-induced adverse effects.

TODAY: The underlying reasons for health disparities are unknown for many conditions.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: The genetic markers for increased occurrence of hypertension, obesity, cardiac hypertrophy and kidney failure in African Americans will be identified. This critical information will facilitate novel and early intervention in these vulnerable populations to slow or even stop disease progression.

Autism

The NIH is committed to finding the causes and treatments for autism spectrum disorders. The NIH awarded nearly $100 million—the single largest infusion of funding for autism research to date. Studies include: determining the complete DNA sequence of individuals with autism and their parents, to look for hidden genetic causes; developing and testing diagnostic screening tools for different populations; assessing risk from prenatal or early life exposures; initiating clinical trials to test early interventions; and adapting existing, effective pediatric treatments for

older children, teens, and adults with autism.

TODAY: Researchers have limited quantities of human material collected during pregnancy and from infants before the development of autism. These materials are vital to understanding the role of environment in autism.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: Researchers will have analyzed hundreds of bio-specimens from ongoing autism studies for environmental chemicals, diet and lifestyle factors to provide a more complete picture of environmental risk factors for autism. This information will drive prevention, early intervention and treatment of this devastating and usually life-long disability.

TODAY: Researchers have only a rudimentary understanding of the many genes that define and contribute to the different clinical subtypes of autism.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: Researchers hope to be able to identify specific subtypes based on genomics, provide the first molecular targets for treatment development, and yield a robust strategy for the study of environmental factors, which interact with genetic risk, that lead to this devastating disease.

TODAY: Researchers have difficulty diagnosing children with autism and placing them appropriately on the spectrum.

IN TWO YEARS BECAUSE OF THE RECOVERY ACT: Researchers will have more precise diagnostic techniques to classify children on the spectrum, allowing more personalized approaches to treatment and intervention.

For more information on specific projects, go to: www.nih.gov/recovery/index.htm . To view a web video on how these Recovery Act funds will create jobs and speeding scientific discovery, go to: www.whitehouse.gov/blog/Creating-Jobs-and-Finding-Cures/
.