Leading Pioneer of Emerging Synthetic Biology Field Receives Prestigious Heinz Award

Dr. Jay Keasling blazed the trail for creating cellular "factories" to manufacture affordable, life-saving medicine and environmentally benign biofuels

PITTSBURGH, September 12, 2012 – Teresa Heinz and the Heinz Family Foundation today announced Dr. Jay Keasling, a leading innovator of synthetic biology, as a recipient of one of five prestigious Heinz Awards. Honored for his work in the category of Technology, Economy and Employment, Dr. Keasling's pioneering contributions in the field of synthetic biology have helped revolutionize its use for problem-solving applications. As an award winner, Dr. Keasling will receive an unrestricted cash prize of $250,000.

"Dr. Keasling is a pioneer in a field few people even know exists but that has profound implications for the future of medicine, chemistry and energy, and for the future of our planet. Great scientific advances often come from scientists working at the intersection of disciplines, and his merger of molecular biology and genetic engineering perfectly illustrates that principle in action," Teresa Heinz, chairman of the Heinz Family Foundation, said today. "His research is revealing how we can use natural systems to produce cheaper, more environmentally-friendly compounds for everything from anti-malarial drugs to biofuels. His work, and the deep human compassion that drives it, is proof that we really can invent our way to a more sustainable future."

Dr. Keasling, a professor at the University of California, Berkeley, and associate laboratory director at Lawrence Berkeley National Laboratory, is arguably the face of synthetic biology. He was able to demonstrate the field's first successful application by devising an inexpensive way to mass-produce artemisinin, a plant-derived, anti-malarial drug that is used to save lives in the developing world. This groundbreaking achievement showed how micro-organisms can operate as cellular factories, or biological assembly lines, to create chemical and pharmaceutical compounds for many different uses in the real-world.

It was additionally important to Dr. Keasling that artemisinin would be affordable for children and adults in the developing world. To do so he created a partnership between the university; Amyris, a company that he co-founded; and the nonprofit Institute for OneWorld Health. The patents would be licensed royalty-free on the condition that no profit was made on artemisinin produced for the developing world.

With the same techniques used in the production of artemisinin, Dr. Keasling has also successfully applied synthetic biology to create non-petroleum-based biofuels from agricultural feedstocks such as cellulosic biomass, which is a less energy-intensive and controversial method than using corn as is commonly done in the United States. Having grown up working on his

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father's farm in Nebraska, Dr. Keasling's agricultural roots remain at the forefront of his work today even as it relates to biofuels.

"Synthetic biology is revolutionizing the way we produce medicine, energy and chemicals. What once seemed impossible is now a reality," said Dr. Jay Keasling. "Imagine if all the products now made from petroleum were made from sugar. By applying synthetic biology, the process to create fuels, components of plastic, medicines and more would instead be non-polluting and nearly carbon neutral, decreasing the production of greenhouse gas and environmental pollution."

Along with his distinguished teaching record, Dr. Keasling heads the Joint BioEnergy Institute, a public-private partnership developing the next generation of biofuels, and a national effort called the Synthetic Biology Engineering Research Center, consisting of biologists and engineers from Harvard, MIT, University of California, San Francisco and Stanford.

In addition to Dr. Keasling, the 18th Heinz Awards honor the following individuals:

- **Arts and Humanities: Mason Bates**, Ph.D., Chicago Symphony Orchestra and Pittsburgh Symphony Orchestra, (San Francisco, Calif.), for dissolving the traditional boundaries of classical music and moving orchestral music into the digital age

- **Environment: Richard J. Jackson**, M.D., M.P.H., University of California, Los Angeles, Fielding School of Public Health, (Los Angeles, Calif.), for his visionary approach to promoting public health through smarter urban planning and designing healthy communities

- **Human Condition: Freeman Hrabowski III**, Ph.D., University of Maryland, Baltimore County, (Baltimore, Md.), for inspiring minority students to the highest levels of excellence in science, technology, engineering and math (STEM)

- **Public Policy: KC Golden**, Climate Solutions, (Seattle, Wash.), for his role in bringing the Pacific Northwest to the forefront of communities taking action to curb climate pollution and promote sustainable prosperity

About the Heinz Awards
Established by Teresa Heinz in 1993 to honor the memory of her late husband, U.S. Senator John Heinz, the Heinz Awards celebrate the accomplishments and spirit of the Senator by recognizing the extraordinary achievements of individuals in the areas of greatest importance to him.

The awards, administered by the Heinz Family Foundation, annually recognize individuals for their contributions in the areas of: Arts and Humanities; Environment; Human Condition; Public Policy; and Technology, the Economy and Employment.

Nominations are submitted by invited experts, who serve anonymously, and are reviewed by jurors appointed by the Heinz Family Foundation. Award recipients are ultimately selected by the Board of Directors.

In addition to the monetary award, recipients are presented with a medallion inscribed with the image of Senator Heinz on one side and a rendering of a globe passing between two hands on the other. The Heinz Awards will be presented at a ceremony in Pittsburgh, Pa. on October 11. For more information about the Heinz Awards or the recipients, including photographs, visit www.heinzawards.net.

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