La Jolla Institute to develop San Diego's first center for RNAi genomics research

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SAN DIEGO (October 8, 2010) The La Jolla Institute for Allergy & Immunology will develop San Diego's first Center for RNAi screening -- a breakthrough genomics technology that will further enhance San Diego's reputation as a national research leader and provide the local biomedical community ready access to the Nobel-Prize winning technology.

The National Institutes of Health awarded the La Jolla Institute $12.6 million to develop the Center.

"RNAi (RNA interference) allows scientists to explore new ways of disrupting disease processes based on altering gene function," said Mitchell Kronenberg, Ph.D., La Jolla Institute president and chief scientific officer. "It is a powerful technology with the potential to transform human health and we are pleased that the NIH has entrusted us with bringing the first publically funded RNAi facility to San Diego."

The La Jolla Institute, a world leader in immunology research, will develop the facility with the intent of hosting research projects throughout the San Diego biomedical research community. "The Center will become a shared resource that we believe will strengthen our efforts, and that of the overall San Diego research community, to make innovative discoveries by providing a dedicated facility for exploring the genetic triggers of disease," said Dr. Kronenberg.

Dr. Kronenberg said one of the NIH's long-term goals in funding such a Center is to boost genetic research because of its strong potential for improving human health. Center set up will begin immediately.

RNAi has been heralded as a revolutionary technology because it opens the door to developing new therapies for cancer and other diseases based on silencing specific genes. Its discoverers were awarded the 2006 Nobel Prize for Physiology or Medicine.

It is generally regarded as one of the most promising drug discovery technologies available today. Scientists from all medical fields can advance their research using RNAi.

Duane Roth, CEO of CONNECT, an industry group supporting the San Diego life sciences and technology sectors, said a dedicated RNAi Center will be an important addition for San Diego. "San Diego has one of the densest concentrations of biomedical research talent in the world which makes this cutting-edge Center an absolute necessity for our region," he said. "I think it's a testament to the La Jolla Institute's excellence that the NIH has entrusted them with this leadership role in

establishing an RNAi Center. This funding insures that the San Diego research community will remain a vanguard in technology-based biomedical research."

Dr. Kronenberg said the Center's creation as a publically funded facility makes it unique and important for the San Diego region, the state and the nation. "There are only a handful of RNAi Centers around the country," he said. "Ours, unlike a number of the Centers, is designed to be openly shared with other research institutes," he said. "While San Diego and immunology will be our Center's primary focus, the La Jolla Institute will certainly attract researchers from institutions in other parts of the nation."

Dr. Kronenberg added that in addition to propelling immunology research at the La Jolla Institute, "a resource such as this will undoubtedly catalyze a broad base of basic and clinical investigations beyond our walls. This will undoubtedly invigorate other genetics-based research in our region and elsewhere around the country and create a self-sustaining and highly collaborative resource that will significantly advance efforts to target diseases at the genetic level."

The RNAi Center grant award originated from the Office of the Director of the NIH, Dr. Francis Collins, who was the leader of the publicly funded project to sequence the human genome. It is funded by the American Recovery & Reinvestment Act of 2009 ("Stimulus Package") and targeted to support research in one or more five thematic areas. In succeeding in this highly competitive grant process, which included thousands of applications encompassing all biomedical research disciplines, the La Jolla Institute proposal addressed several of these thematic areas, by applying "high throughput technologies" in genomics for "reinvigorating the biomedical research community."

An internationally recognized immunologist, Dr. Kronenberg is co-lead investigator on the Center grant along with La Jolla Institute scientist Anjana Rao, Ph.D., a world leader in cell biology and genomics research and a member of the U.S. National Academy of Sciences.

The Center will be launched with four major immunology-focused research projects funded by the NIH as part of the RNAi grant.

Dr. Kronenberg said these initial projects will investigate some of the most fundamental and critical questions of how genes affect immune system function. "We recognize the power and groundbreaking capabilities of this technology and will use it to advance scientific knowledge toward new and more effective vaccines as well as potential new therapies for autoimmune diseases ranging from type 1 diabetes to rheumatoid arthritis."

Three of the projects will be led by Dr. Kronenberg and Dr. Rao, along with scientists Sonia Sharma, Ph.D., and Matthew Pipkin, Ph.D., who work with Dr. Rao. Dr. Rao was recruited from Harvard Medical School last year to lead the La Jolla Institute's new Division of Signaling and Gene Expression, which will house the Center.

A fourth project will be led by David Nemazee, Ph.D., and Changchun Xiao, Ph.D.,

from the Scripps Research Institute. These investigators will analyze how microRNAs regulate B lymphocytes, white blood cells involved in producing antibodies, to either become tolerant of our bodies or make critical missteps leading to diseases like lupus and rheumatoid arthritis. "Dr. Nemazee and Dr. Xiao are outstanding scientists and we are pleased that they will be working with us in initiating the Center," said Dr. Kronenberg.

La Jolla Institute Chief Technology Officer Stephen Wilson, Ph.D., who helped craft the RNAi proposal, said establishing the RNAi Center will require specialized equipment, molecular libraries and instrumentation set up in a laboratory setting. But most of all, it will require significant expertise in designing and running the high-throughput screens. "Dr. Rao brings this expertise to the La Jolla Institute. She is among the best in the world at using the RNAi screening technology and her expertise will undoubtedly be a catalyst to exciting research with colleagues in San Diego and others around the nation interested in using this facility."

He added that he believes that the ability to perform genetic screens at a dedicated RNAi facility will have a major impact on the local scientific community. "Our Center will provide not only the necessary molecular libraries and instrumentation, but essential help and advice to investigators about screen design, which will undoubtedly lead to new collaborations and cross-disciplinary research," he said.

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