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## **UCLA STEM CELL INSTITUTE ADDS FIVE INTERNATIONALLY RENOWNED SCIENTISTS TO ITS RESEARCH TEAM**

### **Four Women, One Man Join the Institute for Stem Cell Biology and Medicine at UCLA**

Five internationally renowned young scientists have been recruited to the research team of the Institute for Stem Cell Biology and Medicine at UCLA (ISCBM).

From such respected institutions as Harvard, MIT, Rockefeller University and Johns Hopkins University, the new UCLA faculty members are joining a well established, cross-disciplinary stem cell research team at the ISCBM that includes top senior scientists studying stem cells and their role in cancer, HIV/AIDS, metabolic diseases, immune systems, skeletal and cardiac disease, and neurological disorders.

All under 40, the four women and one man are among the top up-and-coming stem cell researchers in the world and represent the leading-edge of science, said Dr. Owen Witte, director of the stem cell institute.

“These scientists are among the very best in their field, coming to us from top notch laboratories,” Witte said. “All of them had multiple offers from other institutions and could have gone just about anywhere. So we’re very pleased to have them at UCLA.”

The new ISCBM research team members are Amander Clark, 34, an assistant professor of molecular, cell and developmental biology formerly of the University of California, San Francisco; William Lowry, 32, an assistant professor of molecular, cell and developmental biology formerly of Rockefeller University; Dr. Hanna Mikkola, 36, an assistant professor of molecular, cell and developmental biology formerly of Harvard; Kathrin Plath, 35, an assistant professor of biological chemistry formerly of the Whitehead Institute at MIT; and April Pyle, 32, an assistant professor of microbiology, immunology and molecular genetics formerly of Johns Hopkins University.

In all, the UCLA stem cell institute will recruit about a dozen more scientists within the next five years, Witte said.

The new research team members cited UCLA’s highly collaborative research environment and energetic group of scientists from a broad spectrum of specialties as the institute’s top drawing points.

“I could feel the collaborative spirit right away,” said Mikkola, the first new faculty member recruited to the stem cell institute in July 2005. “I had high expectations and I wasn’t

disappointed. In fact, everything has exceeded my expectations. The UCLA stem cell institute is unique. They have the infrastructure in place and there's so much energy among the researchers. If you want to do something, everything is doable."

The following are summaries about the new ISCBM members:

### **Amander Clark, PhD**

An Australian, Clark earned a doctorate degree in anatomy and cell biology at the University of Melbourne. She came to the United States in 1998 and did her postdoctoral training at Baylor College of Medicine and the University of California, San Francisco, where she first began her work on human embryonic stem cells. She joined the ISCBM in July 2006. Her laboratory uses human embryonic stem cells to understand the molecular events required for cell lineage differentiation and cancer progression. Her research focuses on the molecular regulation of human germ cell biology, which may shed new light on infertility and the causes of some congenital birth defects. Her work also may provide new information on germ cell or testicular tumors, the number one cancer in men aged 16 to 35. Men with testicular cancer are treated with very aggressive, harsh chemotherapy. If Clark can identify genetic pathways that go awry in the development of germ cell tumors, new therapies that target those pathways or abnormal proteins could be developed that would be less toxic for patients.

### **William Lowry, PhD**

Lowry received a doctorate degree in neuroscience, while studying signal transduction and cell biology at Cornell Medical College and did his post-doctoral training at Rockefeller University, where he studied signaling pathways in adult epidermal stem cells. He joined the ISCBM in July, where he continues to study adult skin stem cells in an effort to understand how they self-renew and differentiate. He is investigating whether stem cells found in different tissues use similar mechanisms to self-renew and differentiate. His laboratory also is working to understand how the earliest steps of lineage restriction/decision are made in the embryo, where ectodermal cells become either neuronal or epidermal stem cells. If researchers can understand how stem cells adopt a particular fate, they can perhaps manipulate that process in an effort to develop new therapies for such diseases as Parkinson's. If the research pans out, doctors may one day be able to take a patient's own skin stem cells and coax them to grow into neuronal cells that could possibly be used to treat Parkinson's disease.

### **Hanna Mikkola, MD PhD**

Mikkola attended medical school in her native Finland at the University of Helsinki, earning a medical degree concurrently with a doctorate degree. Mikkola has been interested in stem cell biology since 1998, when she began her post-doctoral training at Lund University in Sweden. In 2000, she went to Harvard, where her work focused on the regulation of hematopoietic or blood stem cells. She joined the ISCBM in July 2005, where she continues to study hematopoietic stem cells in an effort to understand leukemias. Her laboratory is studying how blood stem cells self-renew, and how this important event normally is regulated by the stem cell "niche," in contrast to leukemias in which leukemic cells no longer respond to physiological cues. Recent studies led by Mikkola identified a novel hematopoietic site, the placenta, where human stem cells are born and nurtured during early fetal life. Mikkola seeks to define the molecular programs and micro-environmental cues that direct human stem cell formation,

maturation and expansion during fetal development. Understanding this process will be critical in making hematopoietic stem cells from embryonic stem cells to improve treatment of leukemias.

### **Kathrin Plath, PhD**

Born in Germany, Plath earned her doctorate degree in cell biology from Harvard Medical School and did her post-doctoral training at the University of California, San Francisco, where she worked on X-inactivation in female mammalian cells. In 2003, Plath moved to the Whitehead Institute at MIT to learn mouse genetics and to gain expertise in stem cell biology. She joined the ISCBM in March, where she studies the regulation of chromatin. Chromatin consists of proteins called histones that DNA, carrying the genetic information, wrap around. Histones determine which genes are active and inactive in a cell. Plath and her colleagues have shown that a special class of chromatin modifiers are important regulators of embryonic stem cells. At UCLA, Plath will study the chromatin structure underlying pluripotency and self-renewal of embryonic stem cells to determine the parallels and differences between those cells and adult stem cells. In addition, she is interested in reprogramming somatic cells into stem cells and discovering how changes in chromatin structure contribute to the development of cancer.

### **April Pyle, PhD**

Pyle earned her doctorate degree from the University of Tennessee, where she worked on understanding the origins of aneuploidy - a condition when a cell has fewer or more chromosomes than normal - and chromosome abnormalities in mouse models during sperm development. She did her post-doctoral training at the Kimmel Cancer Center in Philadelphia and Johns Hopkins University in Baltimore. During her fellowship, she discovered key survival factors important for the growth of human embryonic stem cells. Pyle joined the ISCBM as a researcher in July. Her research here will focus on three projects: Understanding the mechanism of survival in human embryonic stem cells and how researchers can improve growth in future stem cells lines, as well as understanding the role of survival factors during development; second, how the cells make the decision either to remain an embryonic stem cell, through self-renewal, or to differentiate into another cell type; and lastly, Pyle's laboratory seeks to understand what happens when stem cell division goes awry and how that may lead to the development of certain cancers.

The Institute for Stem Cell Biology and Medicine at UCLA was launched in 2005 with a UCLA commitment of \$20 million over five years. The ISCBM is committed to a multi-disciplinary, integrated collaboration of scientific, academic, and medical disciplines for the purpose of understanding adult and human embryonic stem cells. The institute supports innovation, excellence and the highest ethical standards focused on stem cell research with the intent of facilitating basic scientific inquiry directed towards future clinical applications to treat disease. The institute is a collaboration of the David Geffen School of Medicine, UCLA's Jonsson Cancer Center, the Henry Samueli School of Engineering and Applied Science and the UCLA College.

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To learn more about the Institute for Stem Cell Biology and Medicine at UCLA and its new researchers, visit our web site at <http://www.stemcell.ucla.edu/>.