Hope Funds for Cancer Research

Press Release
For Immediate Release
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Hope Funds for Cancer Research Announces 2013 Postdoctoral Fellows

NEWPORT, RI -- August 5, 2013 -- Hope Funds for Cancer Research, an organization dedicated to advancing research for the most difficult-to-treat cancers, announced today it has selected this year's recipients for its Hope Funds Postdoctoral Fellowships. The Hope Funds Fellowships reflect the organization's strong commitment to promoting scientific innovation.

"These extraordinary young scientists, who have already spent 10 to 15 years training, and are at the point in their careers when they are making their most important contributions to cancer research. They are of the generation that is going to make basic scince discoveries and translational discoveries, and take them to the place where we will see their impact in patient care," states Malcolm A.S. Moore, Chairman of the the Board of Trustees.

Applications for the fellowships came from the country's most prestigious research institutions and were reviewed by a global scientific study session comprised of key-opinion-leader scientists working in oncology. From more than two hundred applications, the Hope Funds selected its three 2013 grantees: Elizaveta Freinkman, Ph.D., at the Whitehead Institute at MIT, who is targeting cellular metabolism in pancreatic cancer; Leni Jacob, Ph.D., at Memorial Sloan-Kettering Cancer Center, who is investigating molecular mechanisms involved in metastatic disease; and Bluma Lesch, M.D., Ph.D., The Whitehead Institite at MIT, who is working to better understand how inherited epigenetic defects contribute to familial cancer risk. Each Fellow will receive $142,500 over three years to fund her research.

About the Fellows

Elizaveta Freinkman, Ph.D., The Whitehead Institute at MIT, in the laboratory of David Sabatini, M.D., Ph.D. With a five-year survival rate below 5%, pancreatic ductal adenocarcinoma (PDAC) is a disease in dire need of new therapeutic strategies. Recent research has revealed that cancer cells harbor numerous metabolic alterations that support their growth, proliferations, and resistance to drugs and cellular stress; importantly, these metabolic changes can be targeted by new cancer treatments. To apply this insight to pancreatic cancer, I will explore the observation that many of the diverse metabolic enzymes expressed in the normal pancreas are absent in PDAC cells. I will determine which of these metabolic changes specifically promote the process of malignant transformation, as well as how this occurs. I will also identify ways in which, as a result of losing these enzymes, PDAC cells may become vulnerable to interventions such as deprivation of nutrients or inhibition of metabolic pathways that are dispensable in normal cells. Finally, I will investigate the connection between cellular metabolism and the aberrant genomic modifications that are a hallmark of PDAC, in order to identify metabolic interventions that can halt the malignant gene expression program. This will be the first study to systematically analyze the unique features and therapeutic opportunities in the cellular metabolism of this devastating cancer.

Leni Jacob, Ph.D., Memorial Sloan-Kettering Cancer Center, in the laboratory of Joan Massague, Ph.D. This project aims to study the most difficult-to-treat subset of cancer cells from most cancer types, cancer cells that have spread, or metastasized, to other organs. Metastatic disease is the greatest impediment to the therapeutic care of cancer patients and accounts for more than 90% of cancer-related deaths. Even following the successful treatment of localized primary cancers, including those of the breast, lung, prostate, kidney, and thyroid, the risk for developing metastatic lesions remains substantial. Cancer cells that leave the primary tumor, or disseminated tumor cells (DTCs), can often lay dormant at distant organ sites for months or years, resistant to current therapies, before developing into overt metastatic tumors. Disseminated tumor cells likely employ potent molecular programs to persist at distant organ sites despite the stresses incurred from cancer therapies and adapting to an unfamiliar cellular environment. Very little is known about DTC biology because few tools and experimental models exist to study them. Through this project we are generating experimental model systems of latent cancer and will use these tools to reveal and dissect the genes and molecular pathways that promote DTC survival. Uncovering the molecular mechanisms on which DTCs rely will provide targets for the design of novel cancer therapeutics that have the potential to cut rates of cancer relapse.

Bluma Lesch, M.D., Ph.D., The Whitehead Institite at MIT, in the laboratory of David Page, M.D. My project focuses on myeloid and lymphoid leukemias, and on medulloblastoma, a pediatric brain tumor. Although hematologic malignancies and medulloblastomas represent very different types of cancer, both have been associated with mutations in the histone demethylase gene Utx. I will use loss-of-function mutations in Utx to induce an altered epigenetic state in the germline, and determine the risk of developing leukemia or medulloblastoma in offspring inheriting this altered epigenetic state. Cancer frequently runs in families. This observation has driven the discovery of many genes crucial to the initiation and progression of malignancy in both familial and spontaneous tumors. Importantly, identification of inherited mutations in cancer-prone families has also had a profound impact on the livers of the people carrying them. Once aware that he or she is carrying a cancer-associated mutation, a person can take highly effective preventive measures to avoid developing the disease. Despite these important genetic discoveries, however, most of the risk associated with heritable cancers remains unexplained: currently, known gene mutations account for only a minority of familial cancer cases. As a Hope Funds Fellow, I will test the hypothesis that some of this inherited risk can be explained by epigenetic changes passed from generation to generation through the sperm or egg. Like genetic mutations, epigenetic changes alert the molecular state of the cell and can drastically alter a cell's behavior, but unlike genetic mutations, they do not directly alter gene sequence. The possibility that inherited epigenetic defects contribute to familial cancer risk has not been seriously examined up to this point. If true, it will open the way to better understanding of general cancer mechanisms, and may also allow individuals with a family history of cancer to preempt development of the disease in themselves and their families.

About the Hope Funds Fellowships
The Hope Funds for Cancer Research supports research for highly innovative projects that challenge the traditional paradigms associated with understanding the causes, mechanisms, progression, disease markers, or risk factors of the most difficult-to-treat cancers. The Hope Funds believes it is important to emphasize creative approaches to research and award grants to young scientists based on the following criteria: project innovation and originality; the significance and direct relevance of the research proposal; the project's approach and conceptual framework; the researcher's qualifications and those of his or her mentors; and the quality of the researcher's overall working environment. To learn about all Hope Funds Fellows visit: 2013 Fellows, 2012 Fellows, 2011 Fellows, 2010 Fellows, 2009 Fellows, 2008 Fellows

About the Hope Funds for Cancer Research
The Hope Funds for Cancer Research was formed in 2006 by individuals with experience in science, medicine, intellectual property law, investment banking, philanthropy, sociology and the arts, who wanted to establish a funding vehicle that would take a rational scientific, medical and investment approach to awarding research grants. A strong emphasis is placed on identifying innovative and promising research efforts to address the most difficult-to-treat cancers, including

pancreatic, lung, liver, sarcomas, esophageal, brain, gastric, ovary cancers, rare leukemias and lymphomas, and MDS. The Trustees of the Hope Funds for Cancer Research believe that funding innovative research that can lead to medical breakthroughs and increased life expectancy is at the core of its mission. The Hope Funds for Cancer Research is a 509(a)(1) charity under 501(c)(3) of the Internal Revenue Service's code. For additional information about the organization, please visit www.hope-funds.org

Hope Funds for Cancer Research is an independent and unaffiliated non-profit organization

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