Hope Funds for Cancer Research

Press Release

June 14, 2010
For Immediate Release
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HOPE FUNDS FOR CANCER RESEARCH ANNOUNCES THREE NEW POSTDOCTORAL FELLOWSHIPS AND AN EXTENSION OF AN EXISTING GRANT

NEWPORT, RI -- June 14, 2010 -- 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 of its Hope Funds Postdoctoral Fellowships, and has awarded a third year of funding to a 2008 Fellow. The Hope Funds Fellowships reflect the organization's strong commitment to promoting scientific innovation and risk, and to do so by taking a venture-capital investment approach to funding. "We recognize a critical step in finding a cure for these aggressive and insidious cancers is attracting and engaging brilliant, imaginative, energetic young people into this field. We are privileged to have the opportunity to invest in these extraordinary young investigators," states Leah Rush Cann, Chairman of 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 the seventy-five applications, the Hope Funds selected its three 2010 grantees: Server Ertem, Ph.D., at Sloan-Kettering Institute, who is identifying and targeting ovarian cancer stem cells; Jordan Krall, Ph.D., at the Whitehead Institute at MIT, who is working to better understand the mechanisms of systemic tumor promotion; and Manuel Valiente Cortes, Ph.D., at Sloan-Kettering Institute, who is investigating neuronal genetic imprinting of cancer cells that metastasize to the brain. Each Fellow will receive $87,000 over two years to fund his research, with the possibility for a third year of additional funding. Based on his extraordinary progress during the past two years, the Hope Funds elected to extend a third year of funding to a 2008 Fellow, Pedro Medina, Ph.D. at Yale University.

About the Fellows
Server Ertem, Ph.D., Sloan-Kettering Institute, in the laboratory of Malcolm A.S. Moore, DPhil. Epithelial ovarian cancer, an incurable disease, is the fourth leading cause of cancer-related deaths in women in the United States. While most patients initially respond to surgery and chemotherapy, they inevitably relapse and become refractory to chemotherapy with more aggressive tumors associated with metastasis into the abdomen and eventual death from resistant disease. Cancer stem cells (CSCs) provide a reservoir of cells that can self-renew, and generate differentiated cells that make up the bulk of the tumor. They are particularly resistant to most therapeutic modalities and may be the primary source of recurrence. Improvements in cancer therapy require development of drugs that target CSC.

Drs. Ertem and Moore have recently discovered a novel cellular structure consisting of a chain of cells which they have termed *catena* (Latin for chain) in the abdominal metastasis of human ovarian cancer. Their experiments showed that any single catena cell can form a rapidly growing ovarian cancer in immunodeficient mice, suggesting that catenae are composed exclusively of ovarian cancer stem cells. We regard this as a major advance in cancer stem cell research. They have developed an in vitro cell culture system to indefinitely expand ovarian cancer stem cells as a pure population in catenae. This system is unique in that it allows isolation and extensive expansion of CSC under conditions where all the cells remain as CSC without differentiating, yet

retain differentiation potential. The catena system allows establishment of a complete biological profile of ovarian cancer stem cells and also for the first time provides a unique model for testing compounds that can selectively target cancer stem cells. While platinums and taxanes have been profoundly helpful in extending survival, these drugs have not altered the cure rate. This strategy of separating CSC's, delineating their biology and identifying novel therapeutic might achieve curative therapy.

Jordan Krall, Ph.D., The Whitehead Institute at MIT, in the laboratory of Robert Weinberg, Ph.D.

Most cancer-related deaths are due to the metastasis of primary tumors from non-vital to vital organs. These metastases are usually difficult to treat due to their invasiveness and heterogeneity. A recent study has demonstrated that certain aggressively growing tumors can generate a systemic tumor-supporting environment that promotes the growth of weakly growing tumors and the outgrowth of micrometastases in the lungs. Drs. Krall and Weinberg proposed research that aims to investigate the mechanism of this systemic tumor promotion in a manner that addresses the basic biology and reveals new therapeutic approaches that can reduce the outgrowth of metastases in vital organs.

The innovation of this project lies in its focus on systemic properties that promote tumor metastasis. Rather than focus on properties of isolated cancer cells or the interactions between tumors and the surrounding healthy cells, this study investigates how tumors can alter the function of the organism as a whole in ways that promote the metastasis of the primary tumor to distant sites. In particular this research focuses on how tumors alter the function of normal cells in the bone marrow and how the bone marrow cells subsequently promote the outgrowth of disseminated tumor cells into full-blown metastases. The focus on normal cells in the progression of cancer offers the opportunity to discover drug targets in cells that are much more stable than cancer cells themselves.

Manuel Valiente Cortes, Ph.D., Sloan-Kettering Institute, in the laboratory of Joan Massague, Ph.D. Brain metastasis affect between 10 to 30% of patients diagnosed with solid tumors. Development of therapeutic approaches have improved the control of extracranial systemic disease; however, the specific nature of the central nervous system, with a very restricted permeability of brain capillaries, is leading to a concurrent increase in the rate of patients affected by brain metastasis. The occurrence of a brain metastasis is accompanied with a dismal prognosis and poor survival rates.

Using experimental mouse models, Drs. Valiente and Massague have discovered that a number of genes are specifically expressed on human cancer cell lines from breast and lung adenocarcinomas that preferentially metastasize in the brain. They now have the opportunity to evaluate which of these genes are playing fundamental roles in the establishment of brain metastasis. Identification of these genes and the processes in which they are involved will help these researchers directly target the ability of cancer cells to invade the brain from the initial events of the metastatic disease. This will create new opportunities to improve the design of therapeutic drugs that can treat metastatic brain disease.

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.

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 and ovarian cancers. These cancers are highly progressive illnesses that kill most of their victims within months, despite

aggressive chemotherapy. 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.

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