Subject: News from Hope Funds – Cell Publication

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Hope Funds for Cancer Research

Press Release

Announces Newly Published Research in the journal Cell from Postdoctoral Fellow

For Immediate Release
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Newport, RI - May 16, 2014 - A paper was published on May 8, 2014 in the journal *Cell*, from one of the Hope Funds for Cancer Research postdoctoral fellows, Dr. Bluma Lesch in Dr. David Page's laboratory at the Whitehead Institute at MIT. The findings elucidate implications of chromatin regulation in an area outside of cancer.

These findings demonstrated that the gene that is defective in Fragile X syndrome, which was thought to be mostly involved in regulating RNA translation in the brain, is also involved in regulating chromatin in the context of DNA damage.

This is an excellent example of basic research discoveries having implications more far reaching than in a single type of cancer or even in a single disease, says David Garrett, a Hope Funds for Cancer Research Trustee, "while Dr. Lesch is studying inherited epigenetic defects in cancer, this side project lead her and her collaborators to an important finding in an unrelated disease."

The research published in the May 8, 2014 issue of the journal *Cell*, identifies FMRP as a chromatin-binding protein that functions in the DNA damage response.

Cell Article, To view this article, click here

About Bluma Lesch, M.D, Ph.D.

Dr. Lesch is a Fellow at the Whitehead Institute at MIT, in the laboratory of David Page, M.D. Her 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. She is using 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 lives 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, Dr. Lesch is testing 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 Hope Funds for Cancer Research

The Hope Funds for Cancer Research was formed in 2006 by a group of concerned individuals who have experience in oncology, intellectual property law, investment banking, philanthropy, sociology, and the arts to establish a funding vehicle that would take a rational scientific, medical, and investment approach to granting money to the most interesting 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 insidiously aggressive illnesses that kill most of their victims within months, even with aggressive chemotherapy. The Trustees of the Hope Funds for Cancer Research believe that funding research that could lead to breakthroughs in these areas and increase life expectancy in these types of cancers is at the core of our 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 http://www.hope-funds.org or call 401-847-3286.

Hope Funds for Cancer Research: Advancing Innovative Research in Understudied Cancers

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