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July 2010

HUTCH AWARD LUNCHEON

THE GREGORY FUND® FOR EARLY CANCER DETECTION RESEARCH

Fred Hutchinson Cancer Research Center thanks our Hutch Award Luncheon partners for your generous support of The Gregory Fund.



Dr. Jason Bielas

Fred Hutchinson Cancer Research Center is home to world leaders in research to detect cancer in its early stages. Our scientists are demonstrating the potential of cutting-edge early detection, from improving the discovery of ovarian and esophageal cancer to identifying proteins that may indicate the presence of pancreatic cancer, an aggressive and deadly disease.

In this report we highlight recent progress in early cancer detection research. Your contributions to The Gregory Fund® have helped support these innovative projects and others like them that may change the face of cancer in our lifetime.

LOOKING INTO A CELL'S POWERHOUSE TO PREDICT CANCER RISK

Dr. Jason Bielas joined the Hutchinson Center in 2008, adding a new facet to our early detection research. He is one of only a few researchers in the world using discoveries about mitochondrial genetic mutations to develop tools and techniques intended to help patients.

Mitochondria are small structures within cells that work as power stations for the cell. They carry their own DNA, and scientists suspect that accumulated alterations, or mutations,

in this mitochondrial DNA give rise to age-related disorders such as cancer, Parkinson's disease and Alzheimer's disease. Dr. Bielas' lab is investigating the potential of using these mutations as markers to help detect cancer earlier.

Dr. Bielas has developed a novel way to measure the mitochondrial DNA mutations in tumor cells that is 1,000 times more sensitive than any existing method. His technique can pick out a single cancer cell among one million healthy cells. This advance allows researchers to study mitochondrial DNA mutations and their associations with cancer in unprecedented detail.

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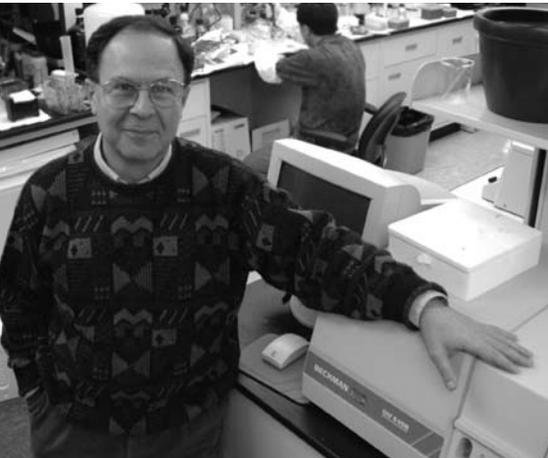
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A LIFE OF SCIENCE



Using his measurement technique, Dr. Bielas is undertaking several research projects. For example, he is studying specific mutations found in precancerous growths that may be used to detect cancer in its very early stages. Dr. Bielas is also looking at the rate at which mitochondrial DNA mutations occur. He has already shown that the mutation rate in cancer cells is 200 times higher than in healthy cells. By studying the rate of mutation he intends to unravel the processes at the root of cancer development and then use this information to improve patient care. For instance, it is possible that in the future physicians could screen patients for their rate of mutation and then pursue surveillance and prevention strategies for those at greatest risk of developing cancers.

Dr. Bielas pursues high-risk, high-reward research in a pioneering field. His research depends on private contributions to support the preliminary work that will allow him to garner future government and foundation grants.



FUELING INNOVATION

Innovative ideas are tested in what are called pilot studies. The resulting information can then be used to secure the large scale grants that enable an insight to be developed into the kind of discoveries that impact patients' lives. A number of Center researchers, including Drs. Laura Beretta and Sam Hanash, have recently leveraged data from privately funded pilot studies to obtain sizable new awards, allowing them to extend their findings.

Dr. Beretta studies the link between the hepatitis C virus and liver cancer. Most liver cancer is caused by infection with either the hepatitis B or hepatitis C virus. Dr. Beretta looks for molecules in the blood that could be markers to detect liver cancer at its earliest stages. Additionally, her lab is seeking to understand which people infected with hepatitis C are most likely to develop liver cancer. In the past two years, Dr. Beretta has used data generated with private funds to secure three awards totaling \$2.2 million from governmental agencies. These awards are key to her efforts to find markers for liver cancer. The need is great, as the number of liver cancer cases associated with hepatitis C is expected to triple in the next 10 to 20 years in the United States due to the high incidence of the virus.

Dr. Sam Hanash

Early detection could significantly improve the outcomes of both lung and pancreatic cancers, and Dr. Hanash has recently made notable progress in both fields. Dr. Hanash, the head of the Center's Molecular Diagnostics Program, has identified an immune response against lung tumors that could be a first step in developing a simple early detection test. His team has also identified, for the first time, proteins linked to pancreatic cancer that might help researchers develop a blood test to catch early signs of the disease. With the help of private support, Dr. Hanash recently secured more than \$2 million from government and foundation sources to continue these projects as well as other early detection studies.

The stories of these researchers demonstrate how private support received from events such as the Hutch Award Luncheon can be parlayed into significant grants that allow Center scientists to advance their groundbreaking efforts to find cancer early, when it is easiest to treat. Thank you for your efforts to change the future of cancer care by supporting The Gregory Fund.

SAVE THE DATE

We hope you can join us again on Wednesday, January 26, 2011. For more details, please visit www.fhcr.org/hutchaward.