Message from the Founder

January 2008

2008 signals the beginning of the fourth year of our decade-long march to deliver early detection tests for all forms of cancer. We continue to make progress and increase momentum in this field. By 2015, our plan is to deliver both blood and imaging tests to identify and isolate cancer at its earliest, most curable stage.

2007 was a banner fundraising year! Canary received donations and pledges of more than $18 million and we have awarded about $2.5 million with a total of $3.5 million in commitments to our scientific programs. I am very grateful for this ongoing and growing support. Additionally, three corporations have committed to ongoing support for Canary and our teams. We are grateful to Orchard Supply Hardware (OSH), Vardy’s Fine Jewelry, and Club Auto Sport, all from San Jose, for their corporate commitment to Canary Foundation.

Last fall was exceptionally busy with several fundraisers. In Seattle, Jackie Kotkins and JoAnn Forman sponsored the Piranesi event, which netted Canary approximately $45,000. New York was the scene of our first major East Coast fundraiser in partnership with The Thomas G. Labrecque Foundation, in support of our major new initiative in early detection of lung cancer.

Lung cancer is a major global killer and most cases of newly diagnosed lung cancer patients have either never smoked or have quit smoking. The Thomas G. Labrecque Foundation partnered with Canary Foundation to develop early detection tests for lung cancer. The Labrecque Foundation has made a $10 million pledge to turbo-boost this initiative.

Canary now supports six programs: four early detection programs (ovary, pancreas, prostate, and lung), Program Normal (to provide normal reference values), and a collaboration program. We have two major goals for 2008. First, broaden all our programs to include both blood and imaging projects. Second, have the initial set of tests for ovarian cancer by the end of the year ready to move forward into a validation phase.

Read more about these programs in the Science update. Additional information is available on the newly updated Programs page on our website.

February will see the third annual ICBC (International Cancer Biomarker Consortium) meeting. In this forum, sponsored by Canary and hosted by the Fred Hutchinson Cancer Research Center, we facilitate technology transfer to partners in Asia. These countries
Message from the Founder (continued)

bring substantial resources to bear on lung and liver cancer (major killers) and will ultimately be a fantastic environment for validation.

Our partnership with Stanford University continues to expand. We have funded several new projects and are working towards a substantial next step in 2008. Look for more news on this exciting partnership in the spring.

To help facilitate these programs, we have added two new members to our small staff. Dale Jantzen has joined us as Director of Scientific Collaborations and Heidi Auman will be the Scientific Program Manager for the lung cancer program. Momentum and investment in early detection continue to build. Canary is leading the way. As always, we are grateful for your support.
New Canary Initiative Announced at New York Event

January 2008

Lung cancer is the leading cause of death among Americans. Canary Foundation announces its new initiative and partner in the early detection of lung cancer at a New York City reception.

Canary Foundation Launches Lung Cancer Early Detection Program in partnership with The Thomas G. Labrecque Foundation

Several members of the Canary team traveled to New York City in November to share some exciting news with forty very prominent guests. The event was an intimate, private reception hosted by The Thomas G. Labrecque Foundation. The exciting news was the announcement of a new partnership between Canary Foundation and The Thomas G. Labrecque Foundation and the subsequent creation of a new Canary Foundation program—Canary Lung.

Lung cancer is responsible for more deaths than breast, prostate, colorectal, and melanoma cancers combined. “Early detection—catching lung cancer when it can be effectively treated—can increase the five-year survival rates of lung cancer patients to 75 percent, saving more than 100,000 lives each year,” said Thomas G. Labrecque, Jr., president of the Labrecque Foundation. “When we learned about Canary Foundation’s early cancer detection mission, its distinctive approach of building collaborative teams consisting of the best and brightest researchers and clinicians from across the country, and their results with other cancers, we knew we had found the right partner for the Labrecque Foundation.”

“Canary Lung’s objective is to develop a set of blood-based biomarkers that, in combination with improved imaging, will make early detection of lung cancer both effective and affordable,” said Don Listwin, founder and CEO of Canary Foundation, in describing the new cancer program. “By developing and proving out the science and the economics of early lung cancer detection, we will position this for a transition to commercialization, which is the key to large-scale increases in cancer treatment and survival.”
New Canary Initiative Announced at New York Event (continued)

Canary Lung, which was very well received by everyone, has been launched with a $10 million commitment from The Labrecque Foundation. Early supporters of the initiative have already committed more than $3 million through The Labrecque Foundation. Among the early supporters of the Labrecque Foundation and the Canary Lung initiative is David Rockefeller. Mr. Rockefeller said, “I am pleased to support Canary Lung, and hope that the work of this innovative project will soon make it possible to detect and treat lung cancer well before it poses a threat to anyone’s life.”

The Thomas G. Labrecque Foundation is named for the former chairman of The Chase Manhattan Bank and is committed to preventing lung cancer through education and research. Mr. Labrecque’s family and friends established the foundation in 2002 after he passed away from lung cancer eight weeks after being diagnosed. Mr. Labrecque was a lifelong never-smoker.

The initial group of institutions participating in Canary Lung include the Fred Hutchinson Cancer Research Center in Washington, Memorial Sloan-Kettering Cancer Center in New York, Stanford University, and the University of Southern California in California. The new Canary Lung research team has already met several times and Canary Foundation has begun initial project funding.

For more information about Canary Lung, please visit www.canaryfoundation.org/programs.cfm#lung or www.tglclassic.com/canarylung.htm.
Collaborations Program Update

January 2008

**Canary Foundation’s Collaboration Program fosters the collaborative, coordinated approach that is necessary to achieve our goals. In this issue, we have an update on several of our collaboration projects.**

**Fourth Annual Early Detection and Intervention (EDI) Symposium**
For the last three years, Canary has held an annual symposium for early detection stakeholders. Each of these events has been a great success, bringing together scientists, doctors, businesspeople, policymakers, and funders to hear about and discuss the issues around the early detection of cancer. This year, we are pleased to announce that Dr. John Niederhuber, Director of the National Cancer Institute, will be our keynote speaker. The symposium is scheduled for May 20–22 at Stanford University. The agenda is being developed and will feature, as usual, some great keynote sessions as well as timely and sometimes controversial disease-specific and new technology sessions. The symposium is by invitation only. For more information, registration, and regular updates, check out the [symposium web page](#).

**American Cancer Society**
Canary Foundation’s long-standing relationship with the American Cancer Society (ACS) continues in 2008 with another round of postdoctoral fellowships under consideration. Nine postdoctoral fellowships have been funded over the past three years and this year, up to five new fellows will be selected. ACS and Canary are jointly evaluating projects submitted by postdoctoral fellows focused on cancer early detection. Each recipient will be awarded $138,000 over three years. Details can be found on the [ACS web page](#).

**Canary Virtual Journal**
In the coming months, Canary will be launching a new website, which will serve to aggregate and filter published papers in different fields that apply to the early detection of cancer. The Canary Journal will list articles sorted by specific disease and/or by technology. Researchers and others who are interested in learning more from the widely spread scientific literature will be able to locate information at a single source.
Collaborations Program Update (continued)

The Canary Journal will help disease-specific experts to locate new technology information, while the technology specialists will be able to explore applications in disease-specific fields. The Canary Journal will be piloted by the end of January and will be live shortly thereafter.

Computational Proteomics Analysis System Awards Update

In May 2007, the Canary Foundation awarded $225,000 to key labs around the world to customize and expand the Computational Proteomics Analysis System (CPAS), an open source proteomics data analysis and data management platform developed by LabKey Software and the Fred Hutchinson Cancer Research Institute. By encouraging labs to adopt the CPAS software, the Canary Foundation will create a standard bioinformatics platform for proteomics analysis. A standard platform will facilitate collaboration and data sharing among scientists, enhancing their early detection efforts.

To date, CPAS servers have been installed at thirteen institutions. Support from the LabKey team was an integral part of successful installation. The team has used what it learned from the installation process to create online training videos, which were released on LabKey.org in early January 2008.

In December 2007, the LabKey team prototyped and wrote design specifications covering two shared project areas: label-free quantitation and FASTA database searching. The ability to manage label-free quantitation data will broaden the scope of experiments processed by CPAS. Searching multiple FASTA databases at once will promote comparison across experiments and potentially across laboratories. These features will be included in CPAS version 2.4, with release scheduled for the end of March 2008. Also included in the release will be a rearchitecture of the data-processing pipeline to work seamlessly for a single machine or a multimachine core. Canary award funds will be used to develop, test, and successfully deploy this release at the awardees’ labs.

International Cancer Biomarker Consortium (ICBC)

The goal of the International Cancer Biomarker Consortium (ICBC) is to advance medical research and improve patient outcomes by discovering biomarkers for multiple types of cancer. The consortium is focusing on biomarkers for the assessment of disease risk, early detection of disease, therapeutic prognosis, and response to treatment, as well as disease recurrence. ICBC provides a structure for international teams to work together on global issues such as adoption of data standards and the sharing of data, as well as on scientific details such as the logistics of tissue sample sharing and investigation of mouse models of cancer.

Canary has supported the ICBC’s international conference each year since its inception. It provides a venue for scientists and technologists to get together to discuss their collaborations and provides technology-sharing opportunities. This year’s meeting will be held at the Hyatt Regency Hotel in Honolulu, Hawaii, on February 20–22, 2008. For more information, visit www.fhcrc.org/science/international_biomarker/meetings/2008/feb/.
Winter Science Update

January 2008

With the recent launch of Canary Lung, Canary’s research program portfolio now includes four cancers: lung, ovarian, prostate, and pancreatic, as well as one core program, Program Normal.

Canary Lung

Canary Foundation has recently launched a new program with a goal of saving lives through early detection of lung cancer. Lung cancer is by far the biggest killer of all the cancers, claiming a staggering 150,000 lives last year in the United States alone—more than breast, prostate, colorectal, and melanoma cancers combined. Even among never-smokers, lung cancer is among the top killers. As with other cancers, survival is greatly improved if the disease is detected while it is still localized; thus, early detection presents a great opportunity to save lives.

Canary Foundation’s vision for the lung program is to develop a blood test and an imaging test that can be used together to detect cancer at a curable stage across never-smokers, former smokers, and smokers. In order to achieve these goals, we have assembled a team of leading scientists with complementary expertise, defined several key initiatives, and funded the first round of projects. Initially funded initiatives and projects include:

Biomarker Discovery

- Dr. Sam Hanash (FHCRC): Proteomics Based Discovery of Early Detection Blood Biomarkers
- Ite Laird-Offringa (USC): Early Detection of Lung Cancer Using DNA Methylation Markers
- Harold Varmus and Katerina Politi (MSKCC): Plasma Markers of Lung Cancer in Mouse Models
Winter Science Update (continued)

Molecular Imaging

- Sam Gambhir and Juergen Willmann (Stanford University): Molecular Imaging of Early Lung Cancer with PET-CT

Epidemiology and Screening Implementation

- Sylvia Plevritis (Stanford University): Epidemiological Models of Risk Assessment and Screening for Lung Cancer
- Peter Bach (MSKCC): Individuals Who Died of Lung Cancer in CT Screening Studies

Resources

- Carotene and Retinol Efficacy Trial (CARET) (FHCRC): A Biospecimen Resource for Cancer Research

In order to enable rapid confirmation of candidate biomarkers, we will leverage the antibody/assay development capacity that we have built with Dr. Brad Nelson in Victoria, British Columbia.

Ovarian Cancer Program

The Canary Foundation’s Ovarian Cancer team has recently launched a number of exciting new projects. One major new initiative is an investment in the evaluation of lead biomarkers in blood samples from pre-symptomatic women—the true test of an early detection biomarker. Such specimens are extremely rare and thus require formation of multi-institutional partnerships and pooling of resources; this effort is being led by Dr. Charles Drescher. We are also supporting a biomarker discovery project led by Dr. Martin McIntosh that will use novel proteomic and informatics approaches to discover protein biomarkers directly in the blood from women with pre-symptomatic ovarian cancer. In addition, we are launching a project led by Dr. Pat Brown to characterize the DNA mutations found in ovarian cancer, which may provide further candidate biomarkers while shedding light on the progression of ovarian cancer. We are also continuing to collaborate with Dr. Dianne Miller in characterizing a potential novel source of biomarkers—proximate samples, such as uterine or vaginal lavage. Our program in molecular imaging continues to make steady progress toward the creation of imaging agents that can be used for PET; two of our three targets are at the stage of screening phage libraries for identification of peptides that have high specificity and sensitivity for their respective target proteins.

Prostate Cancer Program

The Canary Foundation’s Prostate Cancer Program continues to make rapid progress, particularly in building a multi-institutional prospective study that will be critical for biomarker validation. Following our team meeting with nearly 30 participants in January, the team successfully finalized the design of the Canary Active Surveillance Protocol. Achieving this milestone involved great cooperation in order to standardize practices and protocols across institutions. Recruitment of patients and regular collection of biospecimens...
Winter Science Update (continued)

will begin following official approval at each of the six participating institutions:
Stanford University; University of California, San Francisco; University of Washington;
Fred Hutchinson Cancer Research Center; University of Texas Health Science Center;
and the University of British Columbia (Canada).

The retrospective component of the Prostate Cancer Program is also moving along
swiftly. The team has begun to standardize the protocol for evaluating candidate
biomarkers on prostate cancer tissue microarrays (TMAs) across institutions and
anticipates beginning to evaluate candidate biomarkers by the end of this quarter.
Our strategy will be to use commercial reagents when available and to leverage
Canary’s assay production capacity through Dr. Brad Nelson in Victoria when reagents
are not available.

Pancreatic Cancer Program
The Canary Foundation’s Pancreatic Cancer Program, led by Dr. Teri Brentnall, has made
significant progress on several fronts. In terms of biomarker qualification, Dr. Brentnall
has recently tested her top candidate blood biomarkers in a larger reference sample set
and continues to see performance that exceeds the current gold standard pancreatic
cancer biomarker, CA19-9. Dr. Brentnall is now in the process of assembling the necessary
resources for a larger validation study, including blood from patients with pancreatic cancer
and pancreatitis and a large number of healthy volunteers. On the assay development
front, Dr. Brad Nelson’s team has developed high-quality monoclonal antibodies for two
of four novel pancreatic cancer targets, and has created a prototype ELISA for one of
these targets.

Program Normal
The Canary Foundation has come to recognize that an understanding of normal biology
will be critical to the advancement of all of our cancer biomarker efforts and has recently
initiated two new projects under this program. One project, led by Dr. Pat Brown, consists
of global gene expression profiling of a wide range of normal tissues. A second project, led
by Dr. Martin McIntosh, involves proteomic analysis of blood samples from healthy controls,
and aims to characterize within and between individual variations in blood protein profiles
of healthy individuals. These projects will yield extremely valuable resources that will enable
more informed selection of targets for the cost- and time-intensive process of assay
development.