

DIAGNOCURE'S GCC BIOMARKER PREDICTS DISEASE RECURRENCE OF COLORECTAL CANCER

The Journal of the American Medical Association (JAMA), Vol. 301, No.7, this week published positive results from a major prospective 5-year multicenter study of over 400 enrolled patients demonstrating that guanylyl cyclase C (GCC or GUCY2C) is the strongest independent predictor of colorectal cancer recurrence in patients considered low risk by current assessment methods. The study was conducted by investigators from Thomas Jefferson University, with contributions from McGill University, the Fox Chase Cancer Center and others. DiagnoCure Inc. owns the exclusive worldwide diagnostic rights to the GCC marker, and since last September has offered the Previstage™ GCC test to physicians and patients from its Pennsylvania-based service laboratory.

STATISTICS ON COLORECTAL CANCER (CRC)

Colorectal cancer is the second leading cause of cancer-related death in North America. Annual estimates are:

| Country | People diagnosed with CRC | Deaths due to CRC |
|---------------|---------------------------|-------------------|
| United States | 153,000 | 52,000 |
| Canada | 21,000 | 9,000 |

Sources: American Cancer Society, Canadian Cancer Society, Health Advances

COLORECTAL CANCER STAGING – A CLINICAL DILEMMA

Staging is one way physicians classify cancer, and one of the most important tools physicians have in determining a patient's prognosis or risk of recurrence, and the type of treatment a patient should receive. Criteria include the size of the tumor and whether it has spread to the lymph nodes surrounding the tumor.

In assessing the stage of a cancer after the surgery, the pathologist, using a microscope, examines thin slices of tissue from each of lymph nodes removed during the CRC surgery (usually 12 nodes or more). This process is called histopathology examination. If cancer cell clusters are not found in the thin slices of the lymph nodes, the cancer is classified as stage I or II. Most patients with stage I or II disease are considered surgically cured or at low risk for disease recurrence and do not receive adjuvant treatment, such as chemotherapy. Unfortunately, up to 30% of them experience a recurrence of their cancer, presumably through cancer cells that were missed using the microscope method, which resulted in an underestimation of their risk of recurrence. In comparison, most stage III patients, that is, those where cancer cells were found in their lymph nodes as seen under the microscope, are considered for adjuvant treatment such as chemotherapy. Early treatment of stage III patients reduces the likelihood of recurrence and associated mortality rate.

RESULTS FROM A MAJOR STUDY DEMONSTRATE THAT GCC IS THE STRONGEST PREDICTOR OF CRC RECURRENCE

In its February 18, 2009 issue, the *Journal of the American Medical Association* (Vol. 301, No. 7) published an article on the findings of a prospective 5-year multicenter study that was performed with over 400 enrolled CRC patients from 9 different sites. The results of the study strongly demonstrate that testing of lymph nodes for GCC can more accurately predict the risk of stage I and II CRC patients having disease recurrence.

GCC (guanylyl cyclase C) is a gene coding for a protein found in cells, both normal and cancerous, lining the intestine from the duodenum to the rectum. It is involved in multiple functions including water transport, crypt morphology and suppression of tumorigenesis. It is never found in normal tissue in other parts of the body. When GCC is detected in the lymph nodes removed during a colorectal cancer surgery, it is an indication of the presence of colorectal cancer metastases.

In a group of 257 stage I and II CRC patients, when GCC was considered independently from other factors, patients whose nodes were GCC positive were 4.7 times more likely to develop disease recurrence than those whose nodes were GCC negative, and 3.3 times more likely to die within three years. In fact, patients with GCC positive nodes had a risk of recurrence and a survival rate comparable to that of stage III CRC patients.

Dr. Scott Waldman, at the Thomas Jefferson University, first identified the relation between GCC and colorectal cancer in the early 1990's. The U.S. National Institutes of Health provided two grants totaling over \$10 million to Dr. Waldman for two prospective 5-year studies of the GCC marker as it relates to its potential clinical uses in colorectal cancer. The article published in JAMA reports on

the results of the first study. The second study is evaluating whether detection of GCC in the blood can identify earlier recurrences of colorectal cancer, and should be completed in 2010.

PREVISTAGE™ GCC COLORECTAL CANCER STAGING TEST

DiagnoCure owns the exclusive worldwide rights to the diagnostic applications of the GCC marker. In late summer 2008, DiagnoCure Oncology Laboratories, of West Chester PA, a CLIA-certified (Clinical Laboratory Improvement Amendments) service laboratory, launched its proprietary laboratory-developed test Previstage™ GCC Colorectal Cancer Staging Test. The test identifies the expression of the GCC gene in paraffin-embedded lymph nodes of stage I and II CRC patients.

Dr. Waldman's study is an important validation of the clinical use of the GCC marker for the identification of patients who have metastatic colorectal cancer and for predicting risk of disease recurrence. DiagnoCure's Previstage™ GCC Colorectal Cancer Staging test was developed to detect the same marker as evaluated in the study. The Previstage™ GCC test, however, uses all of the advances in technologies and methodologies that have emerged since the study was first initiated.

Previstage™ GCC is calibrated against histopathology positive lymph nodes of stage III patients to establish the cut-off that distinguishes GCC positive patients (cancer cells detected) from GCC negative patients (no cancer cells detected). The validation of DiagnoCure's test resulted in 22% of stage I and II patients to be GCC positive. In comparison, the GCC testing used in Dr. Waldman's study was calibrated to maximize the Negative Predictive Value in terms of recurrence, which means a lower cut-off was used to distinguish between GCC positive and GCC negative patients, resulting in 87.5% of stage I and II patients to be GCC positive.

The Previstage™ GCC test employs qRT-PCR technology, which has been shown to be up to 100,000-times more sensitive than traditional histopathology in detecting occult metastases. The technology can detect one cancer cell in up to 10 million cells, versus one in 200 normal cells with traditional methods. The test was developed in DiagnoCure's laboratories and was determined to have an analytical sensitivity of 92% and analytical specificity of 98%. The Previstage™ GCC test provides clinicians with a significantly more sensitive tool than traditional histopathology alone for staging a patient with colorectal cancer and therefore may help the physician determine the most appropriate course of treatment. The test is now offered exclusively by DiagnoCure Oncology Laboratories and promoted across the United States.

COMPANY INFORMATION

Founded in December 1994, DiagnoCure (TSX: CUR) is a life sciences company commercializing high-value cancer diagnostic tests and lab services that increase clinician and patient confidence in making critical treatment decisions. DiagnoCure's mission is to be the leading developer and provider of high-value diagnostics for the detection and management of cancer.

DiagnoCure is also involved in other cancers and has a strong pipeline of tests. In particular, the Company owns the exclusive worldwide rights to the PCA3 marker for prostate cancer. In 2003, DiagnoCure sub-licensed its diagnostic rights to PCA3 to Gen-Probe Incorporated, who then developed a second generation of a PCA3-based test. The test is currently sold in the U.S. in the analyte specific reagents format (ASR), and as the CE-marked Progenesa™ PCA3 test throughout Europe and the Middle East. DiagnoCure receives royalties on the sale of that test.

FOR MORE INFORMATION

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The Previstage™ GCC Colorectal Cancer Staging Test is a laboratory-developed test. It was developed and its characteristics were determined by DiagnoCure Oncology Laboratories, which is certified under U.S. CLIA regulations as a high-complexity laboratory.