Blood Testing Identifies Abnormal Cells Up to Six Years Prior to Leukemia Diagnosis

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Study published in New England Journal of Medicine employs Quest Diagnostics' blood-based leukemia testing

MADISON, N.J., Feb. 20 /PRNewswire-FirstCall/ -- Testing of blood specimens may detect abnormal white blood cells in patients years before the chronic form of lymphocytic leukemia (CLL) develops, according to research published in the current issue of the New England Journal of Medicine. The finding may lead to a better understanding of cellular changes that characterize the earliest stages of the disease and how it progresses.

Researchers at the National Cancer Institute (NCI), part of the National Institutes of Health, and the U.S. Food and Drug Administration, led the study, which was co-authored by two researchers with Quest Diagnostics Incorporated (NYSE: DGX), Maher Albitar, M.D., Medical Director and Chief of Research and Development, Hematology and Oncology, and Wanlong Ma, M.S., Research and Development Manager, Hematology and Oncology.

For the study, Dr. Albitar and Ms. Ma developed a method to identify abnormal B-cell clones in blood specimens. Quest Diagnostics plans to use a similar approach to develop tests that may one day be used by physicians as an aid in identifying patients who will develop CLL.

"We searched for tumor cells by performing a sophisticated form of flow cytometry as well as molecular testing on frozen samples of whole blood and blood plasma," said Dr. Albitar. "The findings of this study lead to better understanding of biological processes underlying the development of CLL, and give us hope that in the future we will be able to develop new testing techniques to look at blood from patients with abnormal cells and distinguish those who will develop overt cancer from those who will not."

"Quest Diagnostics is the leader in cancer testing, and this study demonstrates the commitment of our science and innovation team to advancing cancer research," said Surya N. Mohapatra, Ph.D., Chairman and Chief Executive Officer, Quest Diagnostics.

CLL is a blood cancer that usually progresses slowly over many years. In this disease, abnormal white blood cells called B-cells accumulate in the blood and the bone marrow. The lymph nodes, spleen, and other organs may also be affected. Although CLL is the most common form of leukemia in adults in Western countries, little is known about what causes the disease or how it develops.

Previous research by the NCI/FDA team and others showed that some family members of CLL patients can have B-cells in their blood that have outer-surface proteins that are similar to proteins found on CLL cells. This abnormal condition, known as monoclonal B-cell lymphocytosis (MBL), occurs in over 10 percent of CLL family members and in about 3 percent to 5 percent of healthy adults over the age of 50, suggesting it might be a precursor of CLL.

In the current study, the research team identified 45 individuals among the more than 77,000 participants in the nationwide Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial who were cancer-free upon entering the trial, were later diagnosed with CLL, and had frozen blood samples available for analysis that had been collected upon their enrollment in PLCO. Using sophisticated laboratory techniques developed by Quest Diagnostics to analyze the blood samples, the researchers found that 44 of the 45 CLL patients had MBL between six months to more than six years prior to their CLL diagnosis. Prior research shows that the MBL cells were identified by examining cell-surface proteins, or CLL markers, using a method called flow cytometry, and by using molecular techniques to confirm the presence of certain rearranged genes, known as immunoglobulin heavy variable (IGHV) group genes, found in CLL. In 41 patients, MBL was confirmed by both methods.

The study, titled "B-Cell Clones as Early Markers for Chronic Lymphocytic Leukemia," (Vol. 360, No. 7, Feb. 12, 2009) was accompanied by the editorial "The Secret Lives of Monoclonal B Cells."

About Quest Diagnostics and Blood-based Tumor Testing

Quest Diagnostics is a leader in noninvasive blood-based biomarker testing used by physicians to screen for, diagnose and monitor carcinomas and other tissue-based disease. The company's proprietary Leumeta(TM) portfolio of tests helps physicians identify and analyze genetic components of leukemia and lymphoma tumors using blood plasma instead of bone marrow, which can only be tested after extraction through painful biopsy. In addition, the company is the exclusive national reference laboratory provider of the blood-based HE4 Ovarian Cancer Monitoring test, which is FDA cleared as an aid in monitoring recurrent or progressive disease in women with epithelial ovarian cancer. The company is also developing a molecular blood test based on Epigenomics AG's Septin 9 DNA methylation biomarker that can help physicians detect colorectal cancer based on a patient's blood specimen.

About Quest Diagnostics

Quest Diagnostics is the world's leading provider of diagnostic testing, information and services that patients and doctors need to make better healthcare decisions. The company offers the broadest access to diagnostic testing services through its network of laboratories and patient service centers, and provides interpretive consultation through its extensive medical and scientific staff. Quest Diagnostics is a pioneer in developing innovative diagnostic tests and advanced healthcare information technology solutions that help improve patient care. Additional company information is available at www.questdiagnostics.com.

The statements in this press release that are not historical facts or information may be forward-looking statements. These forward-looking statements involve risks and uncertainties that could cause actual results and outcomes to be materially different. Certain of these risks and uncertainties may include, but are not limited to, competitive environment, changes in government regulations, changing relationships with customers, payers, suppliers and strategic partners and other factors described in the Quest Diagnostics Incorporated 2007 Form 10-K and subsequent SEC filings.

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