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LABORATORY INDUSTRY REPORT®

Kimberly Scott, Managing Editor, kscott@G2Intelligence.com

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HIGHLIGHTS

Quest's Acquisition of Athena, Celera Expands Specialty Test Offerings

Quest Diagnostics' acquisition of Athena Diagnostics (Worcester, Mass.) from Thermo Fisher Scientific for $740 million and Celera Corp. (Alameda, Calif.) for $671 million will expand its specialty test offerings and help boost revenue in future years, say industry observers.

Quest (Madison, N.J.) announced the Athena acquisition Feb. 24, 2011, noting that it intends to finance the transaction with cash on hand and available credit facilities. The transaction is expected to close in the second quarter.

Athena is a specialty lab focused on diagnosing neurological conditions and disorders (including Alzheimer's and spinal muscular dystrophy) and developmental disorders, offering 350 tests. The company's 2010 revenues were approximately $110 million and appear to be growing at a double-digit rate. The sales multiple of 6.7x revenue is higher than the average multiple paid in 2010.

Amanda Murphy, an equity analyst with William Blair & Co. (Chicago), speculates that Athena has a much higher margin profile than Quest's base business. Athena has access to various patents via licenses

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Lab Companies Tracked by G2 Intelligence Make Gains in Key Benchmarking Measures

Several publicly traded laboratory companies tracked by G2 Intelligence made significant gains in the past year in key benchmarking measures tracked by G2 Intelligence, which may indicate that labs are beginning to recover from the economic recession of 2008-2009.

Bio-Reference (Elmwood Park, N.J.) increased its revenue per full-time employee by 19 percent between 2009 and 2010, increasing from $214,488 to $256,295. This is due primarily to a 26 percent jump in revenues from $363 million in 2009 to $458 million in 2010. Bio-Reference officials attribute this growth in part to an increase in the total number of patients served, from 4,648 in 2009 to 5,607 in 2010, as well as to its ability to identify emerging laboratory markets that are underserved and underutilized.

Bio-Reference recently developed programs for cardiology, histology, and women's health, along with its existing hemostatis, hematopa-

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■ **Labs Make Gains**, *from page 1*

thology, and correctional health care initiatives. The company is also preparing to launch a comprehensive prenatal program. This is the 17th year in a row that Bio-Reference has had at least 20 percent compound annual growth rate.

Psychemedics (Acton, Mass.) also showed significant gains, with revenue per FTE increasing 19 percent to $228,409 from $192,045 in 2009. Company revenues increased from $16.9 million in 2009 to $20.1 million in 2010. Net income for 2010 increased 71 percent to $2.6 million when compared to 2009. Raymond Kubacki, chairman and chief executive officer, says that while some of the growth in 2010 can be attributed to the economic recovery, the primary increase has come from new customers and introducing new programs to existing customers.

Neogenomics' (Fort Myers, Fla.) revenue per FTE climbed 14 percent, from $169,540 to $194,350. Full-year revenues for the company climbed from $29.5 million in 2009 to $34.37 million in 2010. Test volume increased approximately 26 percent for the year, although average revenue per client requisition declined by about 4 percent to $894 from $931 in 2009. Average revenue per test decreased by about 7 percent to $600 in 2010, primarily due to the impact of going on-contract or in-network with large managed care plans.

Myriad Genetics (Salt Lake City) leads in revenue per FTE at $417,241, an increase of 11 percent over 2009 levels. The previous leader in this category, Genoptix (San Diego) is no longer being tracked by G2 Intelligence. Genoptix was acquired by Swiss pharmaceutical giant Novartis early this year. Genzyme Genetics, which was acquired by LabCorp in late 2010, also is no longer being tracked for this benchmark analysis.

Full-Year 2010 Financial Benchmarks

	2010 Revenue (millions)	FTEs	Revenue/ FTE	Comparison to FY09	Pretax Income (millions)	Pretax Income/ FTE	Comparison to FY09
Quest	$7,368.90	42,000	$175,450	+1%	1,184.30	28,198	-1%
LabCorp	5,003.90	28,000	178,710	+7%	915.60	32,700	+4%
Bio-Reference	458.00	1,787	256,295	+19%	47.00	26,301	+15%
Enzo Clinical Labs	44.18	300	147,266	+12%	-7.50	-25,000	-3%
Medtox Scientific	97.10	633	153,397	+6%	4.80	7,582	+120%
Myriad Genetics	363.00	870	417,241	+11%	140.83	161,873	+3%
Neogenomics	34.37	177	194,350	+14%	-2.59	-14,632	+14%
Orchid Cellmark	63.70	400	159,250	+8%	-3.09	-7,725	-97%
Psychemedics	20.10	88	228,409	+19%	4.44	50,454	+71%

Source: Company filings, G2 Intelligence analysis

Note: Myriad and Bio-Reference fiscal year ended June 30, 2010. Enzo Clinical Labs fiscal year ended July 31, 2010.

Both Quest (Madison, N.J.) and LabCorp (Burlington, N.C.) showed small gains in revenue per FTE. Though Quest's revenue dropped slightly between 2009 and 2010 (from $7.5 billion to $7.4 billion), the company's number of FTEs also dropped. Overall, Quest showed a 1 percent gain in revenue per FTE.

LabCorp, which saw its revenues increase from $4.7 billion in 2009 to $5 billion in 2010, also showed a 7 percent increase in revenue per FTE, from $167,668 to $178,710.

Pretax Income Per FTE

Myriad continues to far outpace other lab companies in another key benchmark tracked by G2 Intelligence. Myriad's pretax income per FTE in 2010 was $160,873, a 3 percent increase over 2009 levels. Myriad's robust figure is due largely to the high cost of Myriad's genetic tests, which run in the thousands of dollars. Myriad offers nine commercial molecular diagnostic products, including five predictive medicine products, three personalized medicine products, and a prognostic medicine product. Company revenues increased to $363 million in 2010 compared to $326.5 million in 2009.

Psychemedics showed the strongest gain in this benchmark, with pretax income per FTE soaring 71 percent to $50,454 when compared to 2009 levels of $29,545.

LabCorp Acquisition of Westcliff Still on Hold; Appeals Court Provides Temporary Injunction

Laboratory Corporation of America's (Burlington, N.C.) pending acquisition of Westcliff Medical Laboratories (Santa Ana, Calif.) remains on hold after a federal appeals court granted temporary injunctive relief to the Federal Trade Commission (FTC), which has challenged the merger of the two companies.

A lower court Feb. 22 denied the FTC's request for a preliminary injunction, but the FTC filed an appeal. The most recent ruling by the appeals court is designed to give the court time for full consideration of the FTC's request for an injunction blocking the merger.

The U.S. Court of Appeals for the Ninth Circuit on March 4 issued an order to maintain the status quo concerning the merger of LabCorp and Westcliff in the face of the FTC's concerns that the merger violates the Clayton Act and the FTC Act and will harm competition in California.

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LabCorp announced in May 2010 that it planned to acquire Westcliff for $57.5 million. Westcliff had filed for Chapter 11 bankruptcy on May 19 and was offered for sale to numerous potential buyers (*LIR, June 2010, p. 1*). Shortly thereafter, the FTC issued a civil investigative demand and the parties entered into a hold separate agreement designed to maintain the status quo pending resolution of the FTC's concerns.

In December 2010, the FTC filed an administrative complaint challenging the acquisition, saying that if allowed to proceed it would lead to lower quality and higher prices in the Southern California region. A hearing on the matter is scheduled for May 2.

In its Feb. 22 ruling on the case, the trial court pointed to the product market definition asserted in the administrative complaint, as well as the proposed geographic markets, finding both appeared to be drawn too narrowly. The court also pointed to the presence of numerous competitors and what it perceived to be low barriers to entry that would constrain the merged entity's ability to impose excessive cost increases.

Roche Acquires PVT to Strengthen Laboratory Automation

Roche (Basel, Switzerland) has acquired Germany-based PVT Probenverteiltechnik GmbH and Atlanta-based PVT Lab Systems, a company specializing in customized automation and workflow solutions for in vitro diagnostic (IVD) testing in large commercial and hospital laboratories.

Under terms of the agreement, Roche will pay PVT shareholders an up-front payment of 65 million euros and up to 20 million euros upon reaching performance-related milestones. PVT will become one of the competence centers inside Roche for development and manufacturing of automation products.

The acquisition will expand Roche's global access to PVT's product portfoloio for automation of pre- and post-analytical tasks such as centrifuging, pipetting, sorting, and archiving across a large variety of sample formats. Through optimized work processes and improved turnaround times, as well as increased quality and security of sample handling, PVT's products enable clinical laboratories to reliably understand and manage low to very high sample volumes and to arrange their lab space with great flexibility.

"Increasing laboratory consolidation leading to testing volumes of tens of thousands of samples per day demand an ever-higher degree of automation," said Daniel O'Day, chief operating officer of Roche Diagnostics. "With PVT's technology, we will be able to deliver integrated and highly efficient automation solutions to meet the evolving needs of our customers and further strengthen our leading position in the clinical diagnostics market."

Physician Office Lab Numbers Increase While Market Share Decreases

While physician office laboratories (POLs) make up more than half of total labs certified under CLIA (Clinical Laboratory Improvement Amendments), POLs' share of the diagnostic testing market continues to decrease, primarily because the majority perform waived tests, which cost less to perform and are reimbursed at a lower rate than nonwaived, high-complexity lab tests.

Common POL tests are dipstick/tablet urinalysis, fecal occult blood, and urine pregnancy exams. Reimbursement for such tests is approximately 30 percent to 45 percent lower than for the typical test mix at hospitals or independent laboratories.

G2 Intelligence notes that POL total revenue appears to be flat, currently at approximately the same total revenue value as it was in 2007 and slightly less than in 2000, when it was $2.3 billion.

As of December 2010, there were 113,124 POLs, representing 51 percent of the total number of labs in the Centers for Medicare and Medicaid Services' (CMS) CLIA database. G2 Intelligence estimates that POLs make up about 3.6 percent, or $2.2 billion, of the $62 billion that was generated by all laboratories in the United States in 2010. That percentage is adjusted for a 40 percent price discount.

From 2005 to 2010, total national expenditures on physician services grew by 30.8 percent, with a five-year compounded annual growth rate of 5.5 percent. According to data from CMS, it was expected to reach $812.9 billion in 2010.

G2 Intelligence notes that POL total revenue appears to be flat, currently at approximately the same total revenue value as it was in 2007 and slightly less than in 2000, when it was $2.3 billion. From 2000 to 2010, the number of POLs has risen 18.9 percent, from 95,069 to 113,124, with a compound annual growth rate of 1.7 percent. However, despite that growth, POLs show a decrease in their share of the laboratory market both by number of laboratories and percentage of revenue.

In 2000, POLs represented 56.1 percent of all CLIA-certified laboratories, but in 2010 they represented 51 percent. The drop in the total percentage of POLs is a clear trend, as is the decrease in total annual revenue as a result. Pricing and reimbursement pressures are also factors that have cut into the overall POL revenues.

The three most common (waived and nonwaived) tests performed at POLs are dipstick/tablet urinalysis, fecal occult blood, and urine pregnancy test, according to the American Academy of Family Physicians. Among the most common 20 tests performed, the unweighted average Medicare reimbursement in 2010 was $7.11, a 14 percent decline from the unweighted average Medicare reimbursement of the 20 most common tests in 2002, which was $7.48.

The average reimbursement for the most common tests performed in POLs is almost a third of the average that Quest Diagnostics and LabCorp receive per test (approximately $18 per billable test) across all payers. Hospital outreach programs, according to Chi Solutions (Ann Arbor, Mich.), report an average of $26.38 in revenue per test.

G2 Intelligence analyzed CLIA application files to determine which POLs conducted the largest volume of waived laboratory tests. Of the top 100 POLs performing primarily waived tests in this category, the total volume was 20,761,750 in 2009 (down 1.9 percent from 21,160,055 in 2008). Of the top 100 POLs performing primarily nonwaived tests, laboratory survey volumes totaled 49,190,854 (down 30.5 percent from 70,781,399 in 2008). The top 100 POLs performing primarily waived tests perform 10.7 percent of total waived POL test volumes (193,668,800). The top 100 POLs performing primarily nonwaived tests perform 7.8 percent of total nonwaived POL test volumes (633,055,176).

Waived test volumes reflect POLs that utilize primarily CLIA-waived tests. Total surveyed test volumes reflect primarily laboratories performing higher-complexity nonwaived tests. POLs perform significantly more nonwaived tests (633 million) than waived (193 million).

Twenty Most Common Laboratory Tests Offered at Family Physician Offices

Test	CPT Code	Fee*
Dipstick/tablet urinalysis	81002	$3.66
Fecal occult blood	82270	4.66
Urine pregnancy test	81025	9.06
Rapid strep (direct antigen)	87880	17.18
Vaginal smear/wet mount	87210	6.11
Glucose, using a waived instrument	82962	3.35
Urine microscopic exam	81015	4.35
Glucose, visual whole blood dipstick	82948	4.54
Infectious mononucleosis screen	86308	7.41
Hemoglobin by HemoCue (waived method)	85018	3.39
Prothrombin time	85610	5.62
Hemoglobin (automated nonwaived method)	83036	13.90
CBC	85025	11.14
Spun microhematocrit (waived method)	85013	3.39
Hematocrit (automated, nonwaived method)	85014	3.39
Differential (automated)	85004	9.27
Cholesterol	82465	6.24
Triglycerides	84478	8.24
Glucose (nonwaived method)	82947	5.62
HDL cholesterol	83718	11.73
Unweighted average, top five tests		8.13
Unweighted average, top 10 tests		6.37
Unweighted average, top 20 tests		7.11

** Medicare's national payment limitation amount, or fee cap, for 2010*

Not unexpectedly, although the number of POL facilities continues to increase, the number of nonwaived, high-complexity tests performed by POLs has decreased from 2007 to 2009 by 14.8 percent. It is generally considered very difficult for a physician office lab to hire the skilled staff and keep up with the higher level of regulatory compliance necessary to maintain a nonwaived testing laboratory. Also, many kinds of routine lab tests are being replaced by waived tests that can easily be performed in a POL, as G2 Intelligence's analysis of CLIA records verifies.

Numerous factors are affecting the shift of POLs away from the nonwaived category. The primary factor is that on April 24, 2003, CLIA regulations required end users to perform "method validation" before using a new nonwaived test on patients. This requires more time and effort on the part of the POL and typically requires a more sophisticated level of training and expertise on the part of laboratory personnel. A typical moderate- to high-complexity POL laboratory will require a medical technologist on staff; trained and qualified medical technologists are in high demand and in short supply.

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Nonwaived laboratories are also subject to routine inspections and/or proficiency testing. They must also pay volume-dependent fees every two years that range from several hundred dollars to several thousand dollars. Waived laboratories, however, are not subject to inspections or proficiency testing, and their CLIA certificate costs $150 every two years.

Another factor is that manufacturers of nonwaived laboratory test procedures and equipment have pushed the bulk of validation responsibilities onto the POLs. POLs may find the process time-consuming or technically challenging if the laboratories are staffed by nurses' aides or medical laboratory technicians versus certified medical laboratory technologists.

Manufacturers are increasing the number of CLIA-waived tests produced into the marketplace. In 2000, only five new tests were granted CLIA-waived status, which increased to nine in 2001. However, in 2009, there were 124, and in the first eight and a half moths of 2010 there were 106. These include products aimed at home use; products such as drug screens or urine screens that had multiple certifications (i.e., one for each particular drug) were counted as a single product because they are typically marketed that way even though they have to be certified for each analyte they test for.

The growth in the numbers of CLIA-waived tests is partly because the technology to simplify some tests has come into its own, but also, with increased attention paid to reimbursement of laboratory tests, manufacturers and physicians are seeing the value of fast, inexpensive laboratory test kits that can be performed in the office, physician office laboratory, emergency room, or retail-based clinic.

■ **Quest Acquisition Expand Offerings**, *from page 1*

with academic institutions, although it is not clear whether these are exclusive relationships, she writes in a research note. In addition, it is likely that Athena is one of the only labs to offer some of these tests, and at least some of the tests may be proprietary to Athena.

Quest's acquisition of Celera, announced March 18, will give the company access to proprietary genetic tests and a research and development pipeline focused on cardiovascular disease and cancer. The company focuses on sequencing the human genome and identifying links between genetic variations and disease states. Quest will purchase all outstanding shares of Celera for $8 per share cash, a premium of 28 percent over the closing price the day the deal was announced. The acquisition price includes Celera's cash and short-term investments, which total $327 million. Celera earned $2.5 million in the three months ended Dec. 25.

Quest in late February reaffirmed guidance for 2011. The company expects revenues to grow about 1 percent, operating income to approximate 18 percent of revenues, and diluted earnings per share from continuing operations to be between $4.25 and $4.45.

In a separate deal, Thermo fisher is selling Lancaster Laboratories (Lancaster, Pa.) to Belgium-based Eurofins Scientific for $200 million. Lancaster offers analytical services to pharmaceutical, biopharmaceutical, and environmental sciences customers. It had 2010 revenues of about $115 million.

Direct Access Genetic Tests Under More FDA Scrutiny

Genetic tests marketed directly to consumers are back in the federal crosshairs again. A federal panel has advised the Food and Drug Administration (FDA) that consumers should access certain clinical genetic tests only through their doctor or a qualified health care professional.

This was the general accord reach by the 21-member Molecular and Clinical Genetics Panel, part of the Medical Devices Advisory Committee, at its March 8-9 public meeting to examine scientific issues concerning direct-to-consumer (DTC) genetic tests that make medical claims.

A majority on the panel said they were concerned that without the involvement of a medical professional, consumers may misunderstand the test results or not know when the results are "meaningful," requiring further attention.

FDA's Elizabeth Mansfield, Ph.D., set the stage with an overview of the history and landscape of DTC testing, including the agency's 2010 letters to 20 firms informing them that their DTC tests appeared to be medical devices. Through meetings with the companies, the FDA determined that the offerings of many DTC companies did not fit the model for laboratory-developed tests (LDTs) and proceeded to request premarket submissions for all genetic tests that will be offered on a DTC basis.

Among the key challenges presented by DTC testing, according to Mansfield, is how to ensure that patients are protected from misleading and false information just as the health care community is working to understand how genetic information can be effectively utilized. "FDA is working with companies to come into compliance with FDA regulations for medical devices," said Mansfield. "Today's panel is intended to gain broad-based information on important issues in DTC genetic testing."

The panel's deliberations centered around three main questions:

- ❏ What are the risks and benefits of making clinical genetic tests available for direct access by a consumer without the involvement of a clinician?
- ❏ What are the risks of and possible mitigations for incorrect, miscommunicated, or misunderstood test results for clinical genetic tests that might be beneficial if offered through direct access testing?
- ❏ What level and type of scientific evidence is appropriate for supporting DTC genetic testing claims?

The FDA weighed in forcefully on DTC testing last year when it squelched a plan by San Diego-based Pathway Genomics to sell its genetic test kit over the counter at Walgreens drugstores nationwide, starting in mid-May. The agency subsequently sent warning letters to other companies marketing DTC genetic tests online that their products also appeared to require FDA approval.

The agency reiterated its stance at a July 2010 public meeting to discuss its plan to develop a risk-based regulatory framework for laboratory-developed tests (LDTs). FDA officials said the agency would rein in LDT genetic tests offered directly to consumers because of concerns about the risks of such testing.

A top FDA official repeated this message at the advisory panel meeting. While certain LDTs have not been regulated under the agency's enforcement discretion, DTC genetic test marketers will come under FDA oversight. "It's not a question that [they] will be regulated," said Alberto Gutierrez, director of the Office of In Vitro Diagnostics in FDA's Center for Devices and Radiological Health. "They will be."

Arguments for and Against

In remarks prepared for the panel meeting, the American Medical Association (AMA) said DTC genetic tests should be allowed without the supervision of a physician or qualified health care professional only "under the most limited circumstances."

The American Clinical Laboratory Association (ACLA) said it shared concerns about the false sense of security or false apprehensions that consumers could experience "without important input before and after testing from a qualified health care provider or genetic counselor." Noting that some DTC entities appear to be making claims that may be misleading, ACLA "supports state and federal investigations by the appropriate authorities to determine whether DTC entities are in full compliance with all applicable regulatory requirements and that the test claims can be substantiated and are not misleading."

DTC proponents say they are responding to growing interest by the public in learning more about their genetic profile and what it means for their health or disease prospects. In its presentation to the panel, 23andMe, a DTC genetic test marketer and one of the companies to receive a warning letter from the FDA, said its tests offer important benefits to consumers and sought to allay critics' concerns over perceived risks.

The risk of incorrect data generated can be mitigated by a risk-based approach to analytical performance standards and ongoing clinical research, 23andMe said. It supports a defined regulatory framework and education.

FDA Clears First Diagnostic Radiology Application For Mobile Devices

A new mobile radiology application cleared recently by the U.S. Food and Drug Administration (FDA) will allow physicians to view medical images on the iPhone and iPad manufactured by Apple Inc.

The application is the first cleared by the FDA for viewing images and making medical diagnoses based on computed tomography (CT), magnetic resonance imaging (MRI), and nuclear medicine technology, such as positron emission tomography (PET). It is not intended to replace images viewed at a full workstation and is indicated for use only when there is not access to a workstation.

"This important mobile technology provides physicians with the ability to immediately view images and make diagnoses without having to be back at the workstation or wait for film," said William Maisel, M.D., M.P.H., chief scientist and deputy director for science in the FDA's Center for Devices and Radiological Health.

Radiology images taken in the hospital or physician's office are compressed for secure network transfer and then sent to the appropriate portable wireless device via software called Mobile MIM. Mobile MIM, manufactured by Cleveland-based MIM Software Inc., allows the physician to measure distance on the image and image intensity values and display measurement lines, annotations, and regions of interest.

In its evaluation, the FDA reviewed performance test results on various portable devices. These tests measured luminance, image quality (resolution), and noise in accordance with international standards and guidelines. The FDA also reviewed results from demonstration studies with qualified radiologists under different lighting conditions. All participants agreed that the device was sufficient for diagnostic image interpretation under the recommended lighting conditions.

The display performance of mobile devices can experience significant variations in luminance levels even between mobile devices of the same model. The Mobile MIM application includes sufficient labeling and safety features to mitigate the risk of poor image display due to improper screen luminance or lighting conditions. The device includes an interactive contrast test in which a small part of the screen is a slightly different shade than the rest of the screen. If the physician can identify and tap this portion of the screen, then the lighting conditions are not interfering with the physician's ability to discern subtle differences in contrast. In addition, a safety guide is included within the application.

The FDA's approval of this technology could point to future approval of similar mobile applications for use in evaluating digital pathology images, speculate some in the industry. A number of companies currently are working on a digital pathology solution, including Omnyx, Leica, Olympus, Aperio, Roche, Bioimagene, 3DHistech, and Philips (*LIR, December 2010, p. 5*).

Lab Index Drops 3% on Market Concerns

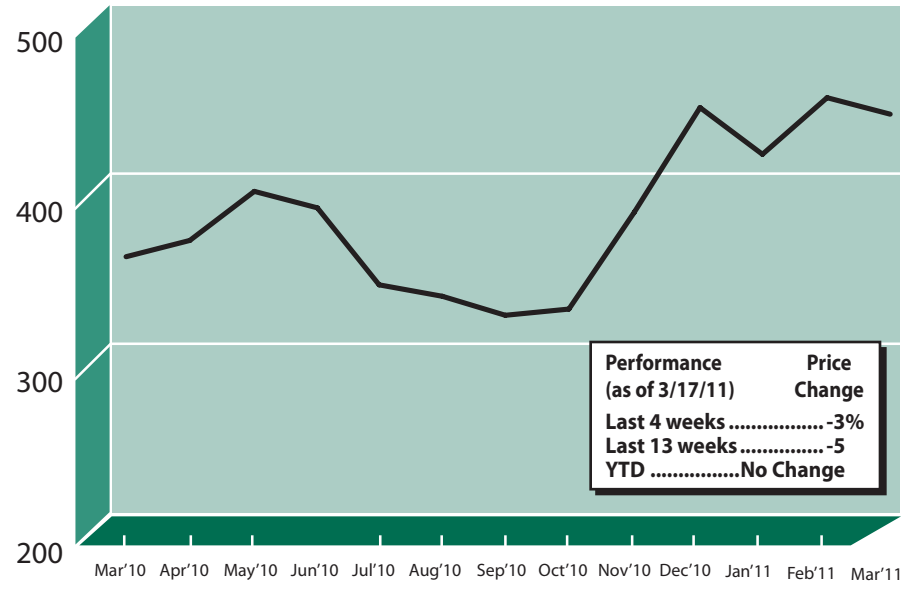
The G2 Intelligence Laboratory Stock Index fell 3 percent in the four weeks ended March 17, 2011, largely reflecting uncertainty in the overall stock market due to unrest overseas and the disaster in Japan. Of the 11 stocks tracked by the index, three gained in price, seven fell, and one stayed the same. The index remains largely unchanged since the beginning of the year. In comparison, the Nasdaq composite is down 1 percent, and the S&P 500 is up about 1 percent.

Enzo-Biochem (New York) took the biggest fall in the past month, with the stock dropping 25 percent to $3.46 despite reporting a slight increase in revenues for the second quarter, ended Jan. 31, 2011. The company reported revenue of $23.7 million for the quarter, an increase of 2 percent over the same period last year. The increase was primarily a result of higher revenue at Enzo Clinical Labs. At Enzo Clinical Labs, revenue increased 16 percent to $12.3 million, compared to $10.6 million a year ago.

Shares of **Psychemedics** (Acton, Mass.) rose 2 percent to $9.12. The company March 2 announced that revenue for fiscal 2010 increased 19 percent to $20.1 million. Revenue for the fourth quarter was $5.1 million, an increase of 20 percent compared to the same period in 2009. Net income for the quarter was $417,000, or 8 cents per share, down 24 percent from $546,000 or 10 cents per share for the same period the previous year.

Orchid Cellmark (Princeton, N.J.) shares fell 2 percent to $2.04, though the stock did perk up in the past week on reports that revenues had increased by 12 percent to $16.6 million in the fourth quarter of 2010. For full-year 2010, service revenues grew approximately 10 percent to $63.7 million.

G2 Laboratory Stock Index



Source: The G2 Laboratory Stock Index is tabulated weekly by Laboratory Industry Report *from the average percentage change of 11 laboratory testing service stocks.*

Percent Price Change, Four weeks ended 3/17/2011

	Price	Percent Change
UP		
Medtox	$16.12	+5%
Psychemedics	9.12	+2
Genzyme	75.76	+1
NO CHANGE		
Neogenomics	1.35	0
DOWN		
Bio-Reference	21.90	-2
Enzo Biochem	3.46	-25
Genomic Health	23.16	-2
LabCorp	87.31	-2
Myriad	18.87	-1
Quest	54.20	-6
Orchid Cellmark	2.04	-2

INDUSTRY BUZZ

Could SIVQ Be a Game Changer in Pathology?

A new technology developed by the Division of Pathology Informatics at the University of Michigan Medical School in conjunction with researchers at Massachusetts General Hospital and Harvard Medical School has the potential to be a "game changer" in the field of pathology.

Known as Spatially Invariant Vector Quantization (SIVQ), the technology can pinpoint cancer cells and other critical features from digital images made from tissue slides. But SIVQ isn't limited to any particular area of medicine. It can separate calcifications from malignancies in breast tissue samples, search for and count particular cell types in a bone marrow slide, or quickly identify the cherry red nucleoli of cells associated with Hodgkin's disease, according to findings published in the Feb. 26 issue of the *Journal of Pathology Informatics*.

"The fact that the algorithm operates effortlessly across domains and lengths scales, while requiring minimal user training, sets it apart from conventional approaches to image analysis," says Ulysses Balis, M.D., director of Michigan's Division of Pathology Informatics.

The technology differs from conventional pattern recognition software by basing its core search on a series of concentric, pattern-matching rings, rather than the more typical rectangular or square blocks. This approach takes advantage of the rings' continuous symmetry, allowing for the recognition of features no matter how they're rotated.

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Myriad Genetics 801-584-3600

Neogenomics 239-768-0600

Psychemedics 800-628-8073

PVT Lab Systems 877-588-5498

Quest 800-222-0446

Roche +41 61 688 1111

ThermoFisher Scientific 800-678-5599

Westcliff Medical Laboratories 949-724-3900

William Blair & Co. 312-236-1600

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