



## Nanotechnology – The Next ‘BIG’ Thing is Very Small!

By Michael R. O'Leary, M.D., CEO

A number of people have asked me about nanotechnology.

First, a basic definition: nanotechnology is the engineering of functional systems at the molecular level. It refers to the construction of tiny machines that (theoretically) could be built from the bottom up, atom by atom. The size of these machines would be on the order of nanometers. What is a nanometer? It comes from the Greek word for dwarf: nano. It's one-billionth of a meter. Recall that a meter is 3.2 feet. Another way to think about it — there are 25 million nanometers in an inch!

When K. Eric Drexler popularized the word 'nanotechnology' in the 1990s, he was speaking about building machines on the scale of molecules, a few nanometers wide. These machines would include motors, robotic arms and even whole computers smaller than a cell. Drexler spent the next ten years describing and analyzing the feasibility of these incredible devices and responding to accusations that his writings were nothing short of science fiction! However, recent technological breakthroughs have allowed scientists to build simple carbon structures on a molecular scale.

Federal funding for nanotechnology began under President Clinton with the Nanotechnology National Initiative (NNI). President Bush's 2004 budget allocated \$849 million to the NNI in 2005 and \$2.36 billion over the next several years to focus on cutting-edge semi-conductor research, advanced materials development and nanomedicine.

### Nanomedicine

Nanomedicine is the medical application of nanotechnology and includes the medical use of nanomaterials, nanoelectronic biosensors and even cancer fighting nanorobots! Nanomedicine research is headed by the National Institutes of Health and seeks to discover a valuable set of clinically helpful devices in the very near future. The medical use of nanomaterials revolves around new approaches to drug delivery, which would improve the bioavailability and effectiveness of drugs. These atomic-sized drug carrying structures would be able to penetrate cell membranes delivering the drug to the cell cytoplasm. The small size of nanoparticles endows them with properties that can be very useful in oncology, such as preferentially accumulating at tumor sites and binding to individual tumor cells. Researchers speculate that it maybe possible to manufacture multifunctional nanostructures that would first detect tumor cells and then proceed to destroy them.

There is great interest in the development of nanoelectronic biosensors which could detect minute concentrations of biomolecules in vitro for use in medical diagnostics. Such miniaturized nanosensors could measure a variety of analytes in real time at the single cell level. Imagine, millions of tiny laboratories traveling through the body checking on the health of every cell!

Perhaps the most exciting and speculative aspect of nanomedicine is the manufacture and use of nanorobots. Once introduced into the body, they would detect and kill infections, detect and repair damaged tissues and detect and eliminate tumor cells. Such nanorobots could be observed at work in the body by using MRI scans and their progress monitored. Currently, physicians can only encourage damaged tissues to repair themselves with drugs and surgery. With nanorobots, more direct responses are possible, as they enter cells to build new molecules and disassemble damaged ones.

There is a growing sense that "tomorrow's technology" may be generated less by biotech itself than by nanotechnology. Clearly, nanotechnology, and nanomedicine in particular, are small miracles that promise to produce big results!

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## Laboratory Alliance Hosts, Presents At December BBANYS Event

Laboratory Alliance hosted and participated in the Blood Banks Association of New York (BBANYS) Regional Education Sessions held Dec. 12 at our Corporate Offices.

Attendees and speakers were welcomed by three hosts, including two of our own staff members. They are president-elect of BBANYS Rachel Elder, MD, Director of Laboratories at the Rapid Response Laboratory at Crouse Hospital and Medical Advisor of Transfusion Services and Hematology at Laboratory Alliance, and Juliane Breh, MT(ASCP), Transfusion Services Manager for Laboratory Alliance. Rhonda Parsons from the American Red Cross was the third host.

Juliane, a BBANYS member, also presented at the event. Her topic was a Review of Case Studies: "Solving Antibody Mysteries."



*Participants in the BBANYS event include, left to right: American Red Cross Blood Services Senior Hospital Account Manager Rhonda Parsons; Juliane Breh; Oneida Healthcare Center Laboratory Administrator Karen Puglisi; Rachel C. Elder, MD; and American Red Cross Blood Services Northeast Division Chief Medical Officer John Burch, MD.*



*Also participating in the BBANYS event were, left to right, from the Rapid Response Laboratory at St. Joseph's Hospital Health Center Medical Technologists Kathy Laubenstein and Jennifer Kerfien; from the Rapid Response Laboratory at the Operations Center Medical Technologist Lawrence Vanderhoff; and from the Rapid Response Laboratory at Community General Hospital Medical Technologist and Technical Supervisor of Transfusion Services and Hematology Margie Daniluk and Medical Technologist Maureen Conklin.*

## New Test Service Available

Laboratory Alliance is pleased to announce the availability of a reference testing service for the genus/species identification and the epidemiologic strain characterization of over 1,000 taxa of aerobic bacteria and yeast. These taxa represent microorganisms that might be recovered from clinical specimens. Individual microorganisms may be submitted for specific genus/species identification or groups of organisms of the same genus/species may be submitted for epidemiologic characterization to determine if they are strain-related.

The genus/species identification service applies to a diverse group of bacteria and yeast that might be recovered from clinical samples. Specifically, genus/species identifications are available for aerobic bacteria representing a diverse spectrum of over 800 different species of gram positive and gram negative bacteria. Additionally, over 270 species of yeast from human sources may also be reliably identified to the genus/species level.

Two or more bacteria or yeast of the same genus/species can be tested to determine the extent of epidemiologic strain-relatedness, based on metabolic fingerprint analysis on the Biolog 5000 instrumentation. Unlike pulse field gel electrophoresis (PFGE) which is expensive, technically difficult and time consuming to perform, the metabolic fingerprint analysis assay serves as a comparatively inexpensive test that rapidly and reliably screens for the extent of strain-relatedness. The use of this rapid yet reliable metabolic fingerprint analysis assay eliminates the need to perform the much more expensive PFGE test on isolates that are not epidemiologically related.

All microbial isolates must be submitted in pure culture. Aerobic bacteria require a culture slant of organism(s) on appropriate culture medium. Yeast requires a culture slant or isolates growth on appropriate fungal medium.

Isolates submitted for identification to the genus/species level or submitted for epidemiologic characterization by metabolic fingerprint analysis will generally have final results available within seven days of sample receipt.

To learn more about this new testing service, please contact Anne Marie Mullin, Vice President of Business Development and Marketing, at (315) 461-3036 or via e-mail at [annemariemullin@lacny.com](mailto:annemariemullin@lacny.com).

## "Laboratory Alliance is a Good Place to Work"

**By Barbara Guiffrida, Vice President of Human Resources**

In October 2008, all Laboratory Alliance employees were asked to complete an employee satisfaction survey. The survey is a tool used to gauge employee satisfaction, to identify concerns and to help management create solutions for improvement.

The information gathered from the survey has helped Laboratory Alliance measure and better understand the employee's overall impression of the company. The survey was distributed to 435 employees. 258 employees completed the survey... an impressive response rate of 59.3 percent!

One of the most notable pieces of data obtained from the survey results is that 97 percent of those who completed the survey said that "Laboratory Alliance is a good place to work" and that they feel that the company is "highly regarded in the community."

For more information about the survey results, please contact the Human Resources Department at (315) 461-3028.



## Tacrolimus Testing by Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS)

By Jayne L. Healey, MD, Assistant Director of Laboratories

Tacrolimus (Prograf®; FK506) is a potent immunosuppressive drug that is widely used for the treatment of rejection following liver, renal, heart, and other organ or tissue transplants. Absorption from the gastrointestinal tract and metabolism of the drug can be variable within an individual and between individuals. This, together with the potentially toxic side effects (mainly nephrotoxicity), necessitate the monitoring of blood concentrations of the drug.

Nine distinct metabolites of Tacrolimus have been identified. Of these metabolites, only one exhibits immunosuppressive activity comparable to the parent drug. The immunosuppressive activities of the other metabolites are negligible. Traditional immunoassay methods show cross-reactivity for Tacrolimus metabolites, resulting in an overestimation of whole blood

concentrations. LC/MS/MS methods detect only the parent drug of Tacrolimus, resulting in a more accurate estimation of Tacrolimus activity.

Beginning Feb. 9, 2009, Laboratory Alliance of Central New York will begin in-house testing for whole blood Tacrolimus levels using an FDA-approved LC/MS/MS method. Due to the increased specificity, LC/MS/MS testing can be expected to yield lower Tacrolimus results than immunoassay methods. Although no firm therapeutic range exists for whole blood Tacrolimus, early post-transplant 12-h trough concentrations of 5-20 ng/mL have been proposed for immunoassay methods, with 24-h trough concentrations being 33-50% less. Moderately lower target ranges should be expected with LC/MS/MS testing.

## Integrated Detection Systems for Lupus Anticoagulant

By Jayne L. Healey, MD, Assistant Director of Laboratories

Lupus anticoagulants (LA) are autoantibodies directed against patients' own cells. Despite the confusing terminology, most patients who test positive for LA do not have lupus. In addition, isolated LA are not a risk factor for bleeding.

Lupus anticoagulants have been associated with a variety of clinical conditions, including recurrent miscarriages, arterial/venous blood clots and infection. Their presence may be either persistent or transitory. Persistent LA positivity is the single laboratory criterion associated with the highest risk for arterial/venous clots and/or adverse pregnancy events. Diagnosis is often difficult because of the variability of LA antibodies. Therefore, the use of multiple different assays is recommended when the clinical suspicion for LA is high.

Lupus anticoagulants have the ability to prolong the clotting times of certain assays such as the activated Partial Thromboplastin Time (aPTT). LA antibodies are specifically directed against the phospholipid portion of cells. Screening tests typically consist of clotting assays with low levels of phospholipid ("LA-sensitive" assays). Confirmatory tests introduce excess phospholipids which overwhelm the LA antibodies and correct the clotting time.

Laboratory Alliance offers the Dilute Russell Viper Venom Time (DRVVT) assay for LA screening and confirmation. An additional integrated LA detection system, hexagonal phase phospholipid neutralization, will now be performed at the Operations Center in Liverpool using the Staclot® LA 20 assay. The Staclot® LA 20 is a two-part aPTT-based assay. Correction of the aPTT upon addition of HPE (a phospholipid source) confirms the presence of LA.

The persistence of LA should be established before considering anticoagulation therapy for antiphospholipid antibody syndrome (APS). "Persistence" is defined by the International Society on Thrombosis and Hemostasis as the detection of LA in plasma on two or more occasions at least 12 weeks apart. One positive test is sufficient for determining LA positivity, as no single assay is 100% sensitive for LA.

### Welcome to Our New Clients

**Lourdes Hospital**  
Binghamton, New York  
Limited Testing

**Porter Hospital**  
Middlebury, Vermont  
Limited Testing

**Upstate Urology and Female Pelvic Surgery, Inc.**  
Syracuse, New York

**WCA Hospital**  
Jamestown, New York  
Limited Testing



Laboratory Alliance of CNY  
Corporate Offices  
1304 Buckley Rd., Syracuse

## MICROBIOLOGY NEWS



## Tuberculosis Screening Tests for Healthcare Workers – New York State Recommendations

By Paul A. Granato, Ph.D., Director of Microbiology

In November of 2006, our Microbiology Department became the first and remains the only laboratory in the Upstate New York region that offers the QuantiFERON-TB Gold Test. Since that time, several issues of *Lablines* have featured articles on the QuantiFERON TB Gold Test, which is an interferon-gamma release assay (IGRA). The most recent article was published in the September/October 2008 issue of *Lablines* and described the availability of the most recently FDA approved IGRA test that can be used to screen patients for possible exposure to tuberculosis. This new test is called the QuantiFERON-TB Gold In-Tube Test which offers increased sensitivity because it screens for the presence of three, rather than two, mycobacterial antigens that were available in the previous test.

The QuantiFERON Test has been very popular with public health agencies and private practice physicians in identifying immigrant patients who might have latent infection with *Mycobacterium tuberculosis* but were previously vaccinated with BCG. In such patients, the tuberculin skin test (TST) has limited or no usefulness. Most recently (Jan. 9, 2009), the New York State Department of Health (NYSDOH) has recommended the use of either the TST or the QuantiFERON-TB Gold In-Tube Test to screen new employees for tuberculosis who will be working in hospitals and diagnostic and treatment centers in New York State. The NYSDOH requires a medical evaluation of all healthcare workers prior to employment in these facilities, which must include tuberculosis screening.

The following represents an excerpt from that Jan. 9, 2009, announcement that was authored by Dr. Margaret Oxtoby and Ms. Mary Ellen Hennessy:

### Employee TB Screening Prior to Employment

Baseline TB screening of all employees should be conducted with an approved test. The tuberculin skin test (TST) can be used to screen for tuberculosis infection, using the Mantoux method with 5 tuberculin units of purified protein derivative (PPD). Employees are not allowed to read or interpret their own TST results. When performing a TST, the manufacturer, lot number, date placed, results in millimeters of induration, date read and names of persons placing, reading and interpreting the test should be documented.

When the TST is used, two-step testing is recommended as a baseline for newly hired employees. For two-step testing, persons whose initial TST result is negative are given a second TST, administered 1-3 weeks after the first TST was placed. The two-step test is needed at baseline because in some persons with latent TB infection, the reaction to a TST wanes over time. The initial TST may “boost” responses to a subsequent test. In the

absence of a known exposure, a positive reaction to the second-step of a two-step TST is considered to be due to boosting as opposed to recent infection with *M. tuberculosis*. A second TST is not needed if an employee has had a documented, negative TST during the previous 12 months. If an IGRA test is used for screening, there is no need to perform a two-step baseline. The TST reading(s) and/or the IGRA laboratory report should be documented in the employee health record.

Any employee found to be positive upon initial TB screening should undergo a clinical evaluation, including a baseline chest x-ray examination. Employees should not be allowed to work until active pulmonary or laryngeal TB disease has been ruled out.

At initial hire, employees with documentation of a previous positive TST or IGRA, or treatment for latent TB infection or TB disease do not need to undergo a TST or IGRA. These employees should be clinically evaluated for symptoms suggestive of TB including a cough for greater than three weeks, loss of appetite, unexplained weight loss, night sweats, bloody sputum (hemoptysis), hoarseness, fever, fatigue, or chest pain. If symptomatic, a chest x-ray examination and further clinical evaluation are indicated prior to employment.

### Annual TB Screening of Employees in New York State Hospitals and D&TCs

Annual TB screening of employees must be performed in hospitals and D&TCs in New York State. If previously negative, the TST or QFT should be performed. If previously positive, a screen for symptoms should be performed and the employee evaluated as appropriate. Routine, annual follow-up chest x-rays are not required. All screening activities should be documented in the employee health record.

An employee who is found to be a converter (defined as an individual with a greater than 10 millimeter (mm) increase in the size of TST induration, or with a positive IGRA, after establishing a prior negative baseline TB screening test) must be assessed for active TB disease (clinical evaluation and chest x-ray examination). If active TB disease is suspected or diagnosed, the employee should not return to work until TB disease has been ruled out. If an employee is found to have active TB disease, the employee may not return to work until clinically determined to be non-infectious. Clusters of TST or IGRA conversions or active TB disease in an employee must be reported to the local and state health departments.

For employees who work in non-clinical, off site locations, annual TB screening is not required. However, in all cases in which staff is exempted from the requirement of an annual PPD test, the provider must document the specific settings and work titles that have been exempted in written occupational health protocols that must be maintained on file at the facility.

## In the News



An article titled “Iatrogenic Streptococcus salivarius Meningitis” was featured in the recent *Clinical Microbiology Newsletter* dated Jan. 1, 2009 ( Vol. 31, Issue 1).

The Case Report is co-authored by Russell Rawling, MS M(ASCP)SM, RM(NRM)SM, Sharon Reif, MT(ASCP) and Jane Roller, MT(ASCP), all of Laboratory Alliance, and Paul A. Granato, Ph.D. of the Department of Microbiology

and Immunology at SUNY Upstate Medical University, Syracuse, and Director of Microbiology at Laboratory Alliance.

For a copy of the report and discussion relating to the viridans group streptococci affecting the upper respiratory tract, please e-mail paulgranatophd@lacny.com.

## Two to Lead Anemia Workshop in California

Two Laboratory Alliance staff members will present a national workshop titled “Overview of Anemia” on Monday, April 27, in San Francisco, Calif.

The American Society for Clinical Pathology (ASCP) has invited Jayne L. Healey, MD, Assistant Director of Laboratories, and

Anne Chamberlain, MT(ASCP)SH, Hematology Manager, to develop a program for the American Society for Clinical Pathology (ASCP) Workshops for Laboratory Professionals.

The ASCP is the leading provider of continuing medical education for practicing pathologists, pathology fellows and pathology residents. ASCP recruits experts and offers the latest information in surgical, cytological and clinical pathology and supports lifelong learning in and dedication to pathology. ASCP also oversees institutional, licensure and Maintenance of Certification requirements.

The ASCP hosts 10 meetings per year in various locations across the country. The day-long workshop will cover critical findings related to anemia and will include case studies relating to both microcytic and macrocytic anemia.



Jayne L. Healey, MD



Anne Chamberlain, MT(ASCP)SH



## TRAINING

### Meet Our Medical Technology Trainees

In 2004, Laboratory Alliance developed a Medical Technologist/Technician Training Program to recruit college graduates with degrees in biology, chemistry and biochemistry. Foreseeing a shortage of those entering the health care professions combined with increased demands on the health care industry, including advances in technology and an aging population, the program has been successful in its goal to recruit new trainees to the company.



*Three recent graduates recently signed on to the program. The trainees include, back row left to right, Sally Bien, Roy Philpot and Matthew Kearney. Joining them for introductions are, seated left to right, Education Services Manager Lonnie Stallcup, CEO Michael R. O’Leary, M.D., and Vice President of Human Resources Barbara Guiffrida.*

## COMMUNITY OUTREACH

Laboratory Alliance employees will participate in the following school career fairs this winter and spring:

- Jan. 16 Nottingham High School – Careers in the Laboratory Work (for 10th graders)
- Jan. 30 Huntington School Career Fair
- Feb. 11 Nottingham High School – Lecture Series/Math and Science Academy
- March 5 Nottingham High School – Career Fair
- March 27 Solvay High School – Career Fair
- May 14 Henninger High School – Career Fair



## IS Department Interfaces with Employees, Clients, Laboratories

From a staff of just seven in 1999 to 18 employees today, our IT Department has expanded with the growth of the company. This competent staff provides 24-hour coverage for our many systems, including laboratory information, network, interfaces, business, telephone and security systems.

Interfaces to our owner hospitals (St. Joseph's Hospital Health Center, Crouse Hospital and Community General Hospital), laboratories at each hospital, other reference laboratory interfaces and more than 50 interfaces to physician office computer systems provide secure laboratory result reporting supported by the IT Department. As the challenges in connectivity, complexity and security continue to grow, the IT staff at Laboratory Alliance continues to grow and adapt to our customers' needs.

Pictured, left to right, are: John Vormwald, IS Manager; Laryl Hludzinski, IS Sr. Analyst; Lisa Leone, IS Analyst; George Popp, CIO/VP of IS; Olga Farrell, IS Manager; Dan Ho, IS Technician; Pete Johnson, IS Analyst; Dave Mineo, IS Sr. Analyst; Phil Crocetti, IS Analyst; Kathleen Shumway, Business Applications Supervisor; Gina Potenza, Director of Information Systems; Ron Hart, IS Sr. Analyst; Phyllis Leone, IS Analyst; Matt Vanderwerken, IS Analyst; and Curtis Brunelle, IS Technician.

Missing are Sue Maloney, IS Manager, and Dawn Nappa, IS Technician.

## Toys for Tots

Laboratory Alliance employees responded generously to the Toys for Tots campaign held in December. We filled nearly six boxes with toys that were distributed by the U.S. Marines Corp to children in need.

Special thanks to Dru Ellen Clay for coordinating this effort on behalf of Laboratory Alliance and the Rapid Response Laboratories.



## Dancing with Our Stars



Information System Analyst Dan Ho will participate in the Syracuse "Dancing with Our Stars" Syracuse competition. Previously, Dan worked for Wegmans as a chef and he is author of the cookbook titled *Food and Dance of the Month Club*.

His dance partner will be Casey Nelson from Arthur Murray Dance Studios in Syracuse. The competition will be held Friday, April 17, at the Oncenter and will be emceed by Doug Logan. The event will benefit the Barnes Foundation's historic preservation project. The Foundation's goal is to restore the 155-year-old Barnes Mansion in Syracuse. For details or tickets visit [www.grbarnes.org](http://www.grbarnes.org).

In his youth, Dan learned the Jitterbug and a little bit of Waltz from his mom, but his passion for dancing grew from attending dance parties at the local Knights of Columbus. Dan started dancing in earnest last spring when he enrolled in ballroom dance classes.

# LA NEWSMAKERS

## New Employees

Please welcome our new employees

### At our Operations Center

**Richard Daddario**, Laboratory Office Assistant

**Ronald LaRose**, Courier

**McKenzie Yost**, Laboratory Office Assistant

### At our Rapid Response Laboratory at St. Joseph's Hospital Health Center

**Jessica Bellinger**, Medical Technologist

### At our Rapid Response Laboratory at Community General Hospital

**William Hubbard**, Laboratory Office Assistant

## Employee Anniversaries

### January

**5 Years:** Richard Russell  
Michael Venezia

### February

**5 Years:** Mary Hayden  
Jean-Paul L'Orange

**10 Years:** Mark Adkins  
Phyllis Leone  
Jean McNeil  
Jeffrey Peterson

### March

**5 Years:** Jean Amidon  
Kathleen  
McCormack  
Ronald Sweet

**10 Years:** Michael Lynch

## Special Thanks to a Caring Staff

In recognition of outstanding customer service and an exceptional act of human kindness, the staff at our Patient Service Center at Community General Hospital received a personal thank you from Laboratory Alliance CEO Michael R. O'Leary, M.D., Vice President of Business Development and Marketing Anne Marie Mullin, and Director of Support Services Jeff Coyne.



*Posing for a photo after a job well done are, left to right, Sherri St. James, Phlebotomist, Jeff Coyne, Kristyn Bowman, Phlebotomist, Cynthia Brown, Phlebotomist, Kimberly Johnson, Phlebotomist, Erin McDonald, Receptionist, and Dr. O'Leary.*

## Congratulations

### Rose Martin is Recognized for Volunteerism

Our Payroll and Benefits Manager Rose Martin was recognized at United Way of CNY's 2009 Achievement Celebration on Jan. 28. Rose was Laboratory Alliance's Employee Campaign Coordinator for the 2008 United Way campaign and was one of the "sweet sixteen" finalists for Campaign Volunteer of the Year.

United Way wraps up its campaign efforts each year at the Community Achievement Celebration. The sixteen award finalists have gone above and beyond the call of duty in volunteerism.

Rose sent e-mail bulletins with important information about United Way to each of the company's five Onondaga County sites and she made sure that every employee received a pledge form. She credits her coworkers' generosity with the campaign's success.

The celebration had a great turnout, despite blizzard conditions. Guests were greeted by the "sweet sixteen" finalists – in life-size cutout form! Some Laboratory Alliance co-workers joined Rose and her lifesize cut-out for a picture, right.



*Joining Rose Martin and her life-size cutout are, left to right, Amy Hall, Marketing Assistant, Jeff Coyne, Director of Support Services, Rose, Karen Carter, CFO, Barbara Guiffrida, VP of Human Resources, and Anne Marie Mullin, VP of Business Development and Marketing.*

# CALENDAR OF EVENTS

- Wednesday, Feb. 11** **Loretto Employee Health Fair.** Laboratory Alliance will be an exhibitor.
- Wednesday, March 25** **Upstate NY BioCareer Connection.** Laboratory Alliance will be an exhibitor.
- Thursday, April 2** **Syracuse Chamber Business Show, NYS Fair-** grounds, 9 a.m.-5 p.m. Laboratory Alliance will be an exhibitor.
- April 19-25** **National Medical Laboratory Professionals Week.** The theme is "Laboratory Professionals GET RESULTS."
- Monday, April 27** **ASCP Workshops for Laboratory Profession-** als; "Overview of Anemia," presented by Assistant Director of Laboratories Jayne L. Healey, MD, and Hematology Manager Anne Chamberlain, MT(ASCP)SH, San Francisco, Calif.
- Friday, May 29** **St. Joseph's Hospital Health Center Foundation Gala.** Laboratory Alliance is a corporate sponsor.



*Thanks to the generosity of many of our employees, Laboratory Alliance collected \$600 for the American Heart Association by participating in "Go Red for Women" day held on Friday, Feb. 6. Many wore red and some employees at the Corporate Offices gathered for a photo to show off their colors and support.*

**Chances are you know your cholesterol level. But do you know your level of vitamin D? If you don't, you should.**



Vitamin D helps the body maintain sufficient levels of calcium and phosphorus. When we don't replace it daily, our body meets its needs by stealing calcium from our bones, weakening them over time. This can contribute to the development of osteoporosis and weaken our immunities. Recent studies show that vitamin D can protect against colon, breast, prostate and ovarian cancer and multiple sclerosis.

**You are at risk for vitamin D deficiency ...**

- if you live in Central New York where there is limited sun exposure during winter months.
- as you age, as the body is less efficient at using its reserves.

**Testing provides important information! Know your total vitamin D level.**

Laboratory Alliance performs the total test that measures vitamin D<sub>2</sub> and D<sub>3</sub> levels in the blood. The test requires a blood sample drawn from a vein in your arm.

**Laboratory Alliance is one of the few laboratories regionally to offer a total vitamin D test.**

More physicians are ordering vitamin D levels on their patients and recommending supplements for those with low levels. It's important to use a test that measures total vitamin D level. Vitamin D tests also are used to determine effectiveness of treatment when vitamin D, calcium, phosphorus, and/or magnesium supplementation is prescribed.

**Isn't it time that you discuss your total vitamin D test options with your doctor?**



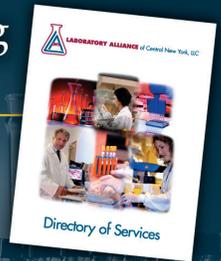
To learn more about vitamin D tests or other tests now available at Laboratory Alliance, visit us online at [www.laboratoryalliance.com](http://www.laboratoryalliance.com) or call (315) 461-3008.



## Search Our Test Catalog And More Online

Enhanced Web site includes:

- 1,400+ Tests
- Clinical & interpretative information
- On-line test information bulletins & decision algorithms
- "What's New" in laboratory medicine
- Complete specimen requirements
- Full color photos of specimen collection containers and devices
- Reference intervals for most tests
- Maps and driving directions to all of our Patient Service Centers



**LABORATORY ALLIANCE**  
of Central New York, LLC

To quickly find test information you need, please visit us at [www.laboratoryalliance.com](http://www.laboratoryalliance.com)

## LABlines

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