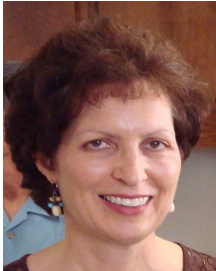


THE FILTER PAPER

February 2010

NCSCLS

President's Message



Greetings and Happy New Year to all of you! A lot is happening at ASCLS and NCSCLS. ASCLS President Mary Ann McLane is asking everyone to 'Provide the Face' to the Laboratory. What have you done to promote laboratory professionals? Please email Mary Ann at mclane@udel.edu and let her know.

Fall Focus was held Saturday November 22 at Winston Salem State University with society board meetings on Friday evening November 21. It was a great meeting with wonderful speakers and sessions. A business meeting was held during lunch, which was provided with registration. Thanks to Libby Haile, NCSCLS Fall Focus Chair and our hosts at WSSU for an outstanding job!

Our Winter Board Meeting and Finance Committee meeting were held on January 9, 2010 in Raleigh at the Wake Tech Health Sciences Building. I gave an ASCLS update and we reviewed our Treasurer's report. NCSCLS is fiscally sound. However membership and income is down so we continue to be frugal with our spending. The ASCLS Legislative Symposium will be March 15-16 in Washington, DC. This is an exciting chance to learn about lobbying for our profession and then visiting senators and representatives on the 'Hill' to let them hear our *voices*! Jesse Frank, Lisa Anderson and Mickey Yost will be there representing NC. NCSCLS will be implementing a Strategic Action Plan next year. The purpose is to plan for the future by identifying specific goals that will shape our society and implement specific actions to achieve these goals. We have identified the following as major goals: Increase Membership/Retention, Career Recruitment, Leadership Development, CE needs, and Licensure. I would like to thank Genentech for providing lunch for this meeting.

National Medical Laboratory Professionals Week is coming up April 18-24, 2010. The theme is *Laboratory Professionals Get Results*. Go to www.ascls.org and then the NMLPW online store to order supplies and help plan your events.

Finally, Carolinas Clinical Connection, Another April in Asheville will be April 21-23 in beautiful Asheville, NC. Program Chair Dan Southern has a great event planned! Send in your registration now!

As always, check out our website, www.ncscls.org for news, pictures and events. Email me at jbwhittlesey@aol.com with any questions, suggestions or comments. Stay warm and I'll see you in Asheville!

National Medical Laboratory Professionals Week



[Go to the ASCLS NMLPW Online Store and more!](http://www.ascls.org)

National Medical Laboratory Professionals Week provides the profession with a unique opportunity to increase public understanding of and appreciation for, clinical laboratory personnel. The dates for the next NMLPW are:

April 18-24, 2010

Welcome New NCSCS Members!

Diana Blanco, Siler City; Anna Reynolds,
Pisgah Forest; Susan Wittig, Asheville;
Wendy Allen, Clayton; Myra Fisher,
Raleigh.

Year of the Phlebotomist – 2010



The North Carolina Society for Clinical Laboratory Science would like to recognize the various levels of laboratory professionals who work everyday to provide the highest quality laboratory test results to patients and their doctors. To do this, each year NCSCS will feature articles on a specific type of laboratory professional. This year we will begin with the professional who gets the laboratory's work started, the phlebotomist.

A phlebotomist's primary responsibility is the collection of blood samples for laboratory tests, either by venipuncture or micropuncture for the purpose of chemical or cellular analysis (Karni, 2002). American Medical Technologists' website states "The Phlebotomy Technician facilitates the collection and transportation of laboratory specimens, and is often the patient's only contact with the medical laboratory." (www.amt1.com) Talk about being the "Face of the Profession"!

As many laboratory professionals know, a laboratory test result is only as good as the sample. Knowing how to select a proper venipuncture or micropuncture site, the proper order of draw when collecting multiple types of blood collection tubes, insuring proper identification of all samples collected, and transporting these samples to the laboratory in a timely manner all contribute to the reporting of an accurate, useful laboratory test result.

The phlebotomist has to keep this in mind while working with patients who are very young, very ill, or very annoyed that a blood sample is needed yet again, when they just let you take one that morning. Some patients have very bad veins and the

phlebotomist must take the time to select the venipuncture site that is most likely to yield a good sample. No matter how many patients the phlebotomist must collect samples from, he or she is expected to treat each one with sensitivity and respect. This is something the professionals who spend their entire day in the laboratory don't have to worry about, since they will only be working with the patients' samples. (Not that there aren't other people who can make a lab professional's day unpleasant!)

Like many laboratory professionals, phlebotomists often are not recognized for the invaluable service they provide to patients and the difficulty of their jobs. NCSCS will be giving them this recognition by featuring continuing education presentations especially for phlebotomists this year, and by printing articles about the phlebotomy profession in each 2010 issue of the Filter Paper. We invite fellow NCSCS members to submit their own articles for publication, especially articles that profile a specific phlebotomist, so that everyone can learn more about the day to day life of a phlebotomist.

NCSCS Offers Student Scholarships

Laine Stewart, NCSCS Scholarship Chair

Students: It's that time again!! Each year, NCSCS offers 2 scholarships – one to an MLT student and one to an MLS (formerly CLS or MT) student. Awards for 2010-11 are \$1000 each!

The NCSCS scholarships are awarded based on financial need, scholastic ability, motivation and achievement. Any student in an accredited clinical laboratory education program in North Carolina is eligible. Information about the awards will be sent to program directors, or you may download the guidelines, application process, and necessary forms from <http://ncscls.org> (Click on "Students: Get Money", then "Scholarship Application"). Applications are due by **June 1**, and winners will be chosen and notified by September 1.

Donations to the scholarship fund are always welcome. Please contact Laine Stewart, Scholarship Chair (lstewart@med.unc.edu) if you would like to support our professionals-in-training by helping us offer scholarship aid.

Factor V Leiden detection by Roche Real-Time PCR

By: Lisa Anderson
July 17, 2009

Indication

Activated protein C resistance (APCr) is a major cause of venous thrombosis, with approximately 90% of APCr cases associated with a hereditary mutation of the factor V Leiden gene(2). This abnormality is defined by a single nucleotide substitution from G to A at position 1691 and consequently a change from arginine to glutamine at 506th protein position(1, 2). This mutation exhibits autosomal dominant inheritance further punctuated by increased severity of resistance and risk of thrombosis in cases of homozygotes (1). Indications for testing should include an assessment of venous thrombosis risk factors, including but not limited to: history of prior thrombotic events, thrombosis at = 50 years old, family history of clotting, and use of oral contraception for females (1).

Specimen Requirements

The specimen of choice is EDTA anti-coagulated peripheral whole blood (7 days at 2-8°C or =12 months at -20°C) (3). However, DNA extraction should only be performed using the High Pure PCR Template Preparation Kit or the MagNA Pure LC Instrument running the MagNA Pure LC DNA Isolation Kit I.

Instrumentation

Intended instrumentation for this assay is the Roche LightCycler 2.0 Instrument with the LightCycler Software 4.05 or 4.1 (3). Additional instruments include the LightCycler Carousel Centrifuge and LightCycler Adaptor (Cooling Block) (1).

QC Required

At least two controls are required for each run of patient samples (3). A negative control (either kit diluent or molecular grade water) should be included in the sample preparation through detection to ensure an absence of contaminants (1, 3). Roche suggests the use of one heterozygote positive control, though laboratories may also use previous patient samples of the three genotypes (homozygous wild-type, heterozygous, and homozygous mutant) (1, 3).

Principle: Purification

As mentioned above in "Specimen Requirements," purification should only be performed with the High Pure PCR Template Preparation Kit or the MagNA Pure LC Instrument running the MagNA Pure LC DNA Isolation Kit I. Since most laboratories will be performing purification through automated methods, only the MagNA Pure LC method will be discussed further.

The initial setup of the MagNA Pure LC instrument involves starting up the machine and then entering the samples and controls into the *DNA I Blood Cells Fast* Protocol (3). Most of the reagents are ready-to-use and can immediately be loaded, except for Proteinase K and the magnetic glass particle suspension. Proteinase K, which breaks down residual protein, must be dissolved into elution buffer and then loaded onto the instrument(3). Fifty microliters of patient peripheral whole blood or control should then be added to the individual wells of the Sample Cartridge(3). The magnetic glass particle

suspension should be vortexed just prior to initiating the run (3).

The basic principle of the automated system is solid-phase extraction with magnetic glass beads. Cell lysis and protein digestion occur in the first steps of solid-phase extraction, followed by ethanol precipitation of the DNA. The solution is then passed over the glass beads, allowing DNA to bind and debris to pass through. Bound DNA can then be released with buffer for use in further steps (4).

Principle: Post-Elution/Master Mix Preparation

The master mix is a combination of diluent, Mutation Detection Mix and Reaction Mix(3). The Mutation Detection Mix provides the 2 primers (forward and reverse) for extension and the 2 probes (fluorescence donor and acceptor) for detection (3). The Reaction Mix provides the Tris-HCL buffer, *Taq* DNA polymerase, and dNTPs. Brij-35 (a non-ionic detergent) and MgCl₂ are present in both mixtures (3). The master mix should be pipetted into the capillary wells along with patient extracted DNA. The capillaries are then loaded into the LightCycler carousel and centrifuged (1). It is important that sample identification and location are constantly recorded whenever sample is moved to a secondary container.

Principle: Amplification/Detection

The LightCycler 2.0 instrument is designed to perform amplification/detection (real-time PCR) and genotyping through use of melting curves. The packet insert for the kit did not specify the exact times and temperatures for the denaturation, annealing and extension phases, as this information is already programmed into the instrument's pre-set protocols. However, one article evaluating the procedure did mention that 45 cycles were performed and that fluorescence measurements were taken after each annealing cycle (2).

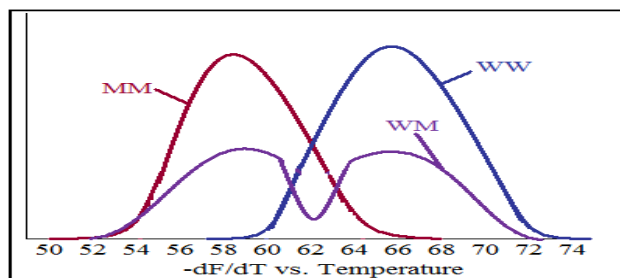
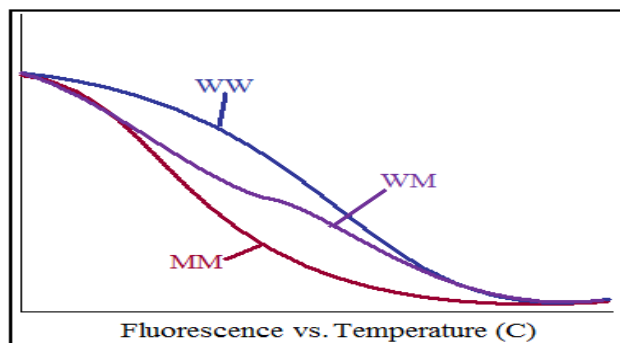
Within the factor V Leiden gene, a 222 base pair section has been selected by Roche for amplification. Double-stranded DNA is denatured into single strands so that the two primers and two probes introduced in the Master Mix can anneal once the temperature has decreased to approximately 55°C (3). The Master Mix also provides the *Taq* polymerase, dNTPs, and Mg²⁺ for extension of the primers once the temperature has increased to ~72°C (3, 4). With each cycle the amount of target DNA will grow exponentially until it reaches a growth plateau or until it has reached the protocol-determined endpoint.

The detection of the target sequence is accomplished through the two probes that bind within the amplified 222 base pair region. The first probe has fluorescein attached to the 3' end and covers the sequence in which the mutation occurs(3). The second probe is labeled at the 5' end with LightCycler Red 640-N-hydroxy-succinimide ester, which is the resonance energy acceptor (3). Phosphorylation of the 3' end of this probe prevents further extension of the sequence (3). When these probes are both hybridized, light energy (hv) from the LightCycler excites the fluorescein, producing resonance energy. Part of this energy will then transfer across the small distance between the probes to the Red 640-NHS ester producing a fluorescent signal that can be detected and measured by the LightCycler (3, 4).

The melting curves are determined at the end of

the amplification cycles by cooling the samples to 35°C and slowly increasing the temperature 0.1°C/s to 75°C (2). If the mutation is present, the nucleotide mismatch will cause the mutation probe to “melt” off the target at a lower temperature compared to a perfect match, i.e. wild-type (3). Therefore by comparing the melting curves, one can determine not only the presence of the factor V Leiden mutation but also whether the individual is homozygous or heterozygous (1).

Interpretation of Results



Two graphs are provided by the LightCycler for analysis. The first graph is the melting point curve (Fluorescence vs. Temperature (°C)). This graph should provide clear separation between the homozygous wild-type (WW), heterozygote (WM), and the homozygous mutant (MM). Initial observations of the melting point can be determined from this graph, however it is clearer if observed on the alternate graph.

To clearly see the melting point, one can graph the negative derivative of fluorescence with respect to temperature (-dF/dT) versus temperature (1). Each homozygote should have a single peak, while the heterozygote should have two peaks each relatively half the area of the single peak present in homozygotes. The negative control should be a flat line at the bottom of this graph (3).

The melting point for the normal factor V Leiden gene is approximately 65°C +/- 2.5°C, whereas the mutated factor V Leiden gene is 57°C +/- 2.5°C (1). Any samples that differ from either of these melting points should be repeated and/or discussed with a supervisor. Some laboratories have a pathologist review all results prior to reporting to ensure that correct information is communicated to the requesting physician (1). As with many other genetic disorders, a positive result for the factor V Leiden mutation may lead to the administration of drugs (anti-coagulants), life-style modification, and/or genetic counseling, so it important to confirm the accuracy

of such findings.

Limitations/sources of error

As with any laboratory test, it is important to consider any limitations or sources of error. For any procedure involving PCR, a heparinized patient sample should be avoided and contamination minimized (3). Contamination can be minimized by physically separating different stages of testing and good laboratory technique.

Specificity/ Sensitivity

Analytical specificity of molecular testing can be greatly affected by the presence of numerous polymorphisms occurring at a target sequence. Three polymorphisms (A1692C, G1689A, and A1696G) have been reported in the factor V Leiden gene sequence. At this time, these polymorphisms are thought to be silent mutations, but will cause this test to report false positives (3).

Analytical sensitivity describes the limits of detection. Because this test determines presence or absence of the different genotypes, there is no concern for the upper limit. However, it is important to detect low copy numbers in case the amplification is less successful. Roche performed serial dilutions on heterozygote samples and determined that the minimum detection level of the Factor V Leiden kit was 202 copies per reaction (3).

Further testing was conducted by Roche to compare the Factor V Leiden kit using real-time PCR with a DNA sequencing assay on the MegaBACE 500 Sequencing System. Parallel testing of 530 samples was performed using both methods. The Factor V Leiden kit identified 527 of those samples identically to the DNA sequencing, resulting in 99.4% agreement (3).

Turn Around Time

There are many contributing factors when establishing a turn-around time for testing protocols; a few examples include: test volume, instrument capacity/through-put, assay time, and secondary review. A hospital-based laboratory places this test at a 10 day turn-around time, although, a larger reference lab may indicate quicker results due to higher volume testing (1). less successful. Roche performed serial dilutions on heterozygote samples and determined that the minimum detection level of the Factor V Leiden kit was 202 copies per reaction (3).

References

1. Civalier C. Factor V Leiden kit for Mutation Detection with Fluorescent Hybridization Probes on the Roche LightCycler. Version 091107 ed. Chapel Hill, North Carolina: UNC Molecular Genetics Laboratory; 2003. 9 p.
2. Nauck M, März W, Wieland H. Evaluation of the roche diagnostics LightCycler-factor V leiden mutation detection kit and the LightCycler-prothrombin mutation detection kit. Clin Biochem. 2000 4;33(3):213-6.
3. Roche Diagnostics. Factor V Leiden Kit Insert: For Use with the LightCycler 2.0 Instrument. Indianapolis, IN, USA: Roche Diagnostics; 2008. 8 p.
4. Bruns, DE,M.D., Burtis, CA,Ph.D., Ashwood, ER,M.D. Fundamentals of Molecular Diagnostics. Sawyer BG,Ph.D., editor. USA: Saunders; 2007. 40-41 & 68-77

Providing the “Face of the Profession”

ASCLS President Mary Ann McClane challenged ASCLS members to be the “Face of the Profession,” and let the public know about the valuable role the laboratory plays in helping physicians diagnose and treat disease. NCSCLS members were asked how they met this challenge. Here are some examples of NCSCLS members who have met President McClane’s challenge:

Libby Haile, a continuing education coordinator for the Greensboro Area Health Education Center wrote: *I presented information about Allied Health professions to the Freshmen Chemistry Seminar at NC A & T State University on October 1, 2009. I highlighted the clinical laboratory professions as a chemistry-related career requiring a BS degree.*

Rick Bamberg and Kathleen Schulman, faculty in the Clinical Laboratory Science program at East Carolina University in Greenville, NC did a presentation on laboratory tests for the Pitt County Senior Citizens Center last fall. They answered the seniors’ questions about laboratory tests and passed out a brochure on clinical laboratory tests and their disease associations developed by the department.

Kathleen Schulman did a presentation on the CLS profession at ECU for students from Jones High School in Trenton, NC yesterday. The students are in a Health Relations Team class at the high school. During the presentation we talked about the work that medical laboratory scientists do as part of the healthcare team, and why laboratory tests are needed. The students also worked with me on a simulated case study about a teenager with the symptoms of diabetes “There’s Something About Mary”. They read about Mary’s symptoms and suggested diagnoses. They then performed urine tests for glucose, protein and pH on simulated urine samples, and evaluated the results. We then used the results to determine which of the suggested diagnoses was the most likely one, and what additional laboratory tests would have to be done to help the physician come to a final diagnosis.

I am sure that there are many other laboratory professionals in North Carolina who are meeting President McClane’s challenge and educating the public regarding the clinical laboratory. If you would like to share your experiences, please send an email to Kathleen Schulman at schulmank@ecu.edu. Your story can help someone else learn how they can get the message out about the clinical laboratory.

Randolph World Ministries

Our own Tim Randolph, faculty member at St. Louis University's program in Clinical Laboratory Science, and our ASCLS Region VI Director, has been serving the people of Haiti for the past decade, traveling twice a year to help bring lab testing supplies and training to a number of clinics on the island. He had just returned from a winter visit a few days before the earthquake struck. The earthquake relief efforts that Randolph World Ministries, Inc. launched last week has gotten a huge response, according to Tim. Within the first 48 hours of the earthquake he was asked to do 9 media interviews on TV, radio, newspapers and magazines. You can view some of them on his website www.randolphworldministries.org. Many kudos to Tim who is providing the face of American clinical lab professionals to the people in Haiti, and again to the folks in his own city.

Tim is collecting supplies and financial contributions and asks for prayer support. Send financial contributions (make check payable to Randolph World Ministries, Inc) or medical supplies to:

Randolph World Ministries, Inc.
318 Vandalia Street
Collinsville, IL 62234

Medical supplies requested: wound care, suture kits, braces, splints and wraps, laboratory supplies, analgesics, general supplies like latex gloves, crutches, etc.

Toiletries (travel size): soap, shampoo, lotion, combs, toothbrushes, toothpaste, hand sanitizer, toilet paper, wash cloths

NCSCS ELECTIONS

P. Karen Sullivan

Chair of Nominations & Elections Committee

Elections to fill open leadership positions in NCSCS for 2010-2011 will be held in February. The Nominations and Elections Committee has been soliciting nominations of members to run for these open positions. It is important that interested and capable members participate in these leadership roles in order to ensure the continued success of NCSCS. An official ballot will be mailed to the membership once the slate of candidates is finalized. The names of the members running for election (to date) are listed below and more detailed information about each candidate will be posted on the NCSCS website (www.ncscls.org).

Thanks to all of you who have already agreed to serve (if elected)! If any other members are interested in running for an open position, please let me know (sullivanp@ecu.edu). Detailed information related to the duties of each position can be found in the NCSCS Policy Manual which is posted on the website in the "Get Involved" section. Members who have served in the past are willing to mentor in other members into these positions, so there is always someone available to provide support and advice.

President: Lisa Anderson

President Elect: Jesse Frank

Board of Directors (two positions open): Jennifer Anderson, Darian Hybl, Georgia McCauley
Secretary: Michele Hybl

Finance Committee (one position open): Sheila Lloyd, Mickey Yost

Nominations and Elections Committee (three positions open): Kathleen Schulman, Libby Haile, Jennifer Anderson, Jeremy Edwards

The N & E Committee will be accepting nominations for members to serve as delegates to the annual ASCLS meeting being held in Anaheim, CA, July 27-31, 2010. The election of the delegates will be conducted at the Spring Business meeting at CCC 2010 in Ashville, NC, April 22, 2010 and final nominations will be accepted from the floor. Monetary support is provided for those who are elected to represent NCSCS as delegates. Notify me at the above e-mail address if you are interested in running for a delegate position.



Fall Focus 2009: Get Results!

56 clinical laboratory professionals and 5 students attended the 2009 Fall Focus at Winston-Salem State University on Saturday, November 21, 2009. This annual event, a collaboration between NCSSAMT and NCSCS, provides the opportunity for continuing education and networking. With a registration fee of only \$50 (\$25 for students), it was quite a bargain!

Ms. Deborah Brock and Dr. George Harwell gave entertaining and inspiring keynote address, and the breakout sessions covered the current understanding of red cell morphology, H1N1 virus, MRSA, Vitamin D, coagulation, lipid profiles and molecular diagnosis.

The WSSU faculty did a wonderful job of hospitality, providing not only the space and AV equipment for the event, but breakfast on Saturday as well. Many, many thanks to them from the planning committee!

Fall Focus generated \$914.38 after expenses, which was divided between NCSCS and NCSSAMT based on members attending. As a result, NCSCS will receive \$664.53.

Libby Haile, NCSCS Chair

Planning committee:

Nedra Edwards-Hines, Northwest AHEC
Georgia McCauley, NCSCS & NCSSAMT
Mary Midkiff, NCSSAMT
Judy Smith, NCSSAMT
Tommie Williams, NCSSAMT

UPCOMING: PLEASE MARK YOUR CALENDARS!

- Clinical Laboratory Educators' Conference:
February 25-27, Biloxi/Gulfport, MS
- Legislative Symposium 2010: March 15-16, Washington, DC
 - CCC 2010: Another April in Asheville:
April 21-23, Asheville, NC
- Region III Council Meeting: April 24, Asheville, NC
- National Medical Laboratory Professionals Week: April 18-24
 - ASCLS National Meeting: July 27-31, Anaheim, CA

Save The Date

April 21-23, 2010
Carolinas Clinical Connection
Another April in Asheville
Crowne Plaza Tennis and Golf Resort

The Crowne Plaza was recently renovated and a new meeting expo center added. Reserve your room on-line at www.ashevillecp.com and use the group code CAC to get the conference rates (\$115/night for a King or two double beds or call toll-free at 800-733-3211. The local number is 828-254-3211. Call for conference prices for King Executives or Villa Suites. The hotel address is: Crowne Plaza Tennis & Golf Resort, One Resort Drive, Asheville, NC 28806.

NCSCLS is proud to be affiliated with ADVANCE for Medical Laboratory Professionals. Please visit www.advanceweb.com

Please visit our website at www.ncscls.org

Featuring:

- Motivational Keynote Address - "Quality Control for Your Attitude" by Tim Dumas, AKA "The Lab Guy".
- Informational General Session on Thursday - "Professional Recognition: Licensure and Advanced Degrees" by Shirlyn McKenzie and Tim Randolph
- Motivational Endnote Address on Friday - "It's not always what you know, but who you know" by George Fritsma.
- Yummy Vendor Reception to open Exhibits Wednesday evening with exhibits open Wednesday and Thursday
- Continental Breakfast provided Thursday and Friday
- Super Buffet Lunch Thursday
- Optional LaZoom Bus Shuttle to downtown Asheville for dinner Thursday evening
- 24 fantastic discipline breakout sessions with nationally known speakers in: Hematology, Microbiology, Clinical Chemistry, Immunology/Blood Banking, and Management/Education

CCC 2010 PROGRAM AT A GLANCE

"Another April in Asheville"

Crowne Plaza Hotel, Asheville, NC

Wednesday, April 21

10:00 - Noon	Society Board Meetings - (NCSCLS, SCSCLS, NCSSAMT and SCSSAMT will have assigned rooms)					
1:00- 1:30	Awards Ceremony- Presidents of Organizations will present major annual awards.					
1:30-2:30 General Session	#1 Keynote Address: Expo Center "The Lab Guy" Tim Dumas "Quality Control for Your Attitude" Sponsor: Roche Molecular Diagnostics					
2:30-3:00	Beverage Break- in Expo Center- Exhibits open					
3:00 - 4:30	Hem/Coag	Micro	Clinical Chemistry	BB/Immuno/Mol	Management/POL	Student/NP/BB
Breakout Sessions	#2 Gordon Ens " Aspirin Therapy...What Your Doctor May NOT be Telling You??"	#3 Dr.Peter Gilligan "Complexities of Microbiology in Cystic Fibrosis Lung Infections" Sponsor: Remel	#4 Dr.Andre Valcour " Vitamin D: The Classic Story and the Emerging Role" Sponsor: Labcorp	#5 Caroline Immel "To ProVue or not.... That is the Question"	#6 Tim Dumas "POL Financial Feasibility" Sponsor: Roche Molecular Diagnostics	#7 Nicole Pekarek "Blood Banking... A Review of current theory and practices"
	4:30-5:15 Scientific Assembly Meetings- in the discipline breakout rooms (NCSCLS SA chairs will moderate networking meetings in each discipline area) All CCC attendees are welcome to attend and discuss current issues, problems, solutions!					
6:00 -8:00	Vendor Appreciation Reception in Expo Center - food, fun, music, exhibit time					
Thursday, April 22						
7:30-8:15	Breakfast (included with registration)- Expo Center					
8:30-10:00	Hem/Coag	Micro	Chem/UA/BF	Blood Banking	Management	Student/NP/gen
Breakout Sessions	#8 George Fritsma "Hemophilia Therapy; from Rasputin to Recombinants" Sponsor: Diagnostica Stago	#9 Dr. Hassan Aziz "Introduction to Biofilms" Sponsor: Smockey Mountain Pathology, PC	#10 Deborah Brock "Urinalysis and Body Fluid Review" Sponsor: SCSCLS	#11 Martha Combs "Cases I've known and loved"	#12 Susan Helms "A Supply Chain Adventure Trail in Asheville" Sponsor: Premier Inc.	#13 Lisa Anderson "Networking: What's In It For You?" Sponsor: Sarstedt
	10:00 - 10:30 Beverage Break- Expo Center					
10:30-Noon General Session	#14 "Professional Recognition: Licensure and Advanced Degrees." Dr. Shirlyn McKenzie (Sponsor: Sysmex) and Dr. Tim Randolph (Sponsor: Infolab) Expo Center					
12:00-1:30	Lunch included with registration (must surrender a lunch ticket) - Expo Center Past Presidents Luncheon (by invitation only) -Pro's Table Restaurant by fireplace- Sponsored by Infolab					
1:30 - 3:00	Student Forum meetings (NCSCLS -Foxfire, SCSCLS- Magnolia) and Visit Exhibits- Expo Center					
2:30 - 3:00	Beverage Break - Expo Center					
3:00-4:30	Hem/Coag	Micro	Clinical Chemistry	Blood Banking	Education	student/NP/gen
Breakout Sessions	#15 Dr.Shirlyn McKenzie "Update on the 2008 WHO Classification System" Sponsor: Sysmex	#16 Dr.Tim Stegall "Microarrays in Clinical Laboratory Medicine"	#17 Kaye Flood "Chemical Terrorism"	#18 Dr. Evelyn Lockhart "Update on Platelet Transfusion Therapy"	#19 Deborah Brock "Top 10 List for Educators" Sponsor: SCSCLS	TBA
	5:00 - 6:30 Society Business Meetings- (NCSCLS, SCSCLS, NCSSAMT, SCSSAMT to meet in assigned rooms)					
6:00 - 10:00	Night out in Asheville (Ride the LaZoom round trip shuttle bus leaving each hour from the lobby) Bus returns on the half hour to the hotel from downtown. Choose a restaurant of your liking to dine.					
5:00 - 6:30	Society Business Meetings- (NCSCLS, SCSCLS, NCSSAMT, SCSSAMT to meet in assigned rooms)					
6:00 - 10:00	Night out in Asheville (Ride the LaZoom round trip shuttle bus leaving each hour from the lobby) Bus returns on the half hour to the hotel from downtown. Choose a restaurant of your liking to dine.					

CCC 2010 PROGRAM AT A GLANCE

"Another April in Asheville"

Friday, April 23

Crowne Plaza Hotel, Asheville, NC

7:30-8:15	Breakfast (included with registration) and Education Scientific Assembly Meeting (look for signs)- Expo Center					
8:30-10:00	Hem/Coag	Micro	Clinical Chemistry	Blood Banking	Management	student/NP/Ed
Breakout Sessions	#21 Dr. Tim Randolph "Molecular Changes in Abnormal Iron Metabolism" Sponsor: Infolab	#22 Marion Boatwright "Unraveling the Mystery of CLSI M100-S10" Sponsor: Siemens Healthcare Diagnostics	#23 Dr. Jim Aguanno "Diabetes and eGFR" Sponsor: Siemens Healthcare Diagnostics	#24 Dave Miller "A behind the scenes look at a Red Cross Donor Screening Laboratory" Sponsor: Charlotte Red Cross	#25 Ron Riffle "Practical LEAN Concepts" Sponsor: Quality Process Management, LLC	#26 Dr. Susan Beck "Updates on Levels of Practice and Certification" Sponsor: NCSCLS
	10:00-10:30	Beverage Break- Expo Center				
10:30- 12:00 General Session	#27- Endnote "It's not always what you know, but who you know" by George Fritsma Sponsor: Diagnostica Stago, Inc.					Expo Center