

Separations

What do the top three hospitals in America have in common?

By: Lydia Dodson-Lehrer, VP, Marketing and Customer Support

According to the *US News and World Report* annual healthcare report, they all use Sebia products! In fact, 11 of the top 15 hospitals on this list work with Sebia. At Sebia, we focus on only one thing, electrophoresis. That is all we do, and we are showing it off during the two largest and most well attended annual meetings for clinical laboratory professionals. These meetings are held by the Clinical Laboratory Managers' Association (CLMA) and the American Association for Clinical Chemistry (AACC).

This year's CLMA was a great success for Sebia. Historically held in June, this year the meeting was in March in Atlanta, GA, also home to Sebia's U.S. headquarters. Laboratory managers from around the country were able to view Sebia's complete line of electrophoresis products as well as preview a few exciting new products soon to be released.

We are now gearing up for AACC to be held in "The City of Angels", Los Angeles, CA. Exhibits are from July 27 - 29. Come by the Sebia booth, number 1661, and discover:

In Step with Automation	Completely eliminate pipetting of samples and antisera with our new Dynamic Mask in conjunction with the HydraPLUS™ - Sebia's automated processor and dilutor
Cutting-edge MS Testing	The most sensitive method of O-band detection - Sebia's CSF IEF is now available, and runs in half the time of similar assays, with no immunoblotting required
Fully Automated IF?	Immunotyping , a newly patented alternative to immunofixation, is now available on Sebia's CAPILLARYS™ - with almost three times the throughput of other totally automated systems

Also, don't forget to mark your schedules to attend Sebia's Industry Sponsored Workshop:

MENU EXPLOSION ON SEBIA'S CAPILLARYS™ INCLUDING AUTOMATED IF ADDED BONUS DISCUSSION OF CSF IEF



Join us Tuesday, July 27 at 7:00 AM in the San Jose Room of the Wilshire Bonaventure Hotel, for a comprehensive review of the system and expanded assay menu including:

- Immunotyping (the automated IF alternative),
- Hemoglobin Profiles,
- Alcohol Abuse Indicator, and
- Inflammatory Pattern Assay, to name a few.

We are looking forward to seeing you all there, but space is limited. If you would like to reserve your seat, please circle number **(157)** on your reader response card. If you would like to receive information on these exciting new products, please circle number **(158)**.

Clearly Superior...

Automatically Better™



sebia®
 electrophoresis

issue 2 vol. 5
2004



Ask Borek (continued)

urine IF. What is unusual though, all the products co-migrate in serum. On the other hand, one would not give second thought to seeing IgM/L and IgM/L from two patients at an equal migration position.

- The treatment with 2ME, indicates a release of free K and L that could have been complexed with IgM (polymerized or monomeric?).
- Strong hypogammaglobulinemia (IgG).
- Unremarkable bone marrow.

Interpretation:

- You could be dealing with a case of restricted clonal proliferation (this is a polyclonal process with oligoclonal/restricted manifestation, i.e., each Ig band in the oligoclonal pattern represents heavy chain and both K and L light chains). The pattern I can visualize from your description seems to be too complex for any type of "traditional" monoclonal gammopathy or MGUS.
- Restricted heterogeneity patterns contain mostly IgG >> IgA > LC, IgM. They can result from chronic immune stimulation or suppression and from other causes such as some lymphomas, leukemias (but the bone marrow was clean!) and can also be caused by post-translational modifications of Ig's. The lone presence of IgM is rather disconcerting in conjunction with the restricted heterogeneity/clonal proliferation etiology where it is usually IgG.
- The strong hypogammaglobulinemia (IgG) suggests immunosuppression such as in conjunction with bone marrow transplants (however no findings in bone marrow!). The subsequent restoration of the immune system is often associated with complex patterns on IF.
- You may also consider, although it is less likely, IgM/L complexing with K or IgM/K complexing with L (formation of such complexes has been reported in literature but only with polyclonal light chains).
- Both alternative etiologies could have bands at the same level in M, K and L tracks.
- Clinical information on the patient (such as presence of diseases and conditions, causes for immunosuppression - a transplant patient?, presence/absence of any symptoms characteristic of multiple myeloma or other lymphoproliferations, and other findings) would be essential for explaining the origins of the EP and IF patterns.
- I would report this patient cautiously as M/K & M/L with possible simultaneous production of free light chains, clinical significance uncertain. I would mention the consistency with restricted heterogeneity etiology but emphasizing that the presence of monoclonal components (those due to proliferation of aberrant clones) cannot be excluded even though the bone marrow is negative. Emphasize the presence of hypogammaglobulinemia (this is always a matter of concern when its presence is not obvious). Suggest follow-up at 6-12 months, unless a shorter time is clinically advisable. Also, watch for chemical and symptomatic signs of lymphoproliferation. If it were MGUS (which could be considered as well), then the presence of IgM makes the transition into a hematological malignancy considerably more likely than if it were IgG.

Are you interested in learning more about Sebia's CSF IEF assay? Please circle **(159)** on your Reader Response Card. Additionally, please circle **(160)** if you are interested in IF or **(161)** Protein testing.

Congratulations Are In Order

We would like to take this opportunity to congratulate the lucky winner of Sebia's Belmont Stakes horse race package giveaway!

Mr. Gene Davis, Laboratory Manager Virginia Baptist Hospital, Lynchburg, VA

Gene entered by simply coming to the Sebia booth at this year's CLMA show held in our very own home town, Atlanta, GA!

Gene, we hope you enjoyed your trip to the races!

If tennis is your game and you would like a chance to attend the U.S. Open, simply come by our AACC booth, number 1661, in Los Angeles, July 27th to the 29th.

New Digs for Sebia!

Sebia's global customer base continues to grow at an ever increasing pace. Along with this exponential growth, our research, development and manufacturing needs have continued to escalate as well. Although our facilities were only about 5 years old, there was no doubt that we needed more room to handle all system and reagent production as well as the continuous stream of new products for which Sebia is known.

Facing the challenge head on, new buildings were designed with much thought, planning for the future and where we are going as a company. It is with great pleasure that we announce Sebia headquarters has moved into our new expanded facilities at Leonardo DeVinci Technology Park, Evry, France. More than twice the size of our previous space, these new buildings are designed to grow with us and are equipped with everything state-of-the-art.

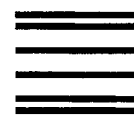


Don't worry, Sebia USA can still be reached at our same location and phone number!



400 - 1705 Corporate Drive • Norcross, GA 30093 • Telephone: (800) 835-6497 • Fax: (770) 446-8511 • www.sebia-usa.com
 Editors: Lydia Dodson-Lehrer, MBA, M.T. (ASCP) & Bonny Champagne, M.T. (ASCP)

sebia®
 electrophoresis



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

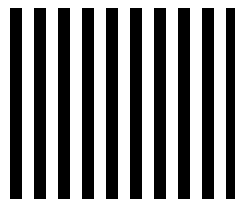
BUSINESS REPLY MAIL

FIRST CLASS MAIL

PERMIT NO. 937

NORCROSS, GA

POSTAGE WILL BE PAID BY ADDRESSEE
 SEBIA ELECTROPHORESIS
 1705 CORPORATE DR STE 400
 NORCROSS, GA 30093-9982



We Need Your Feedback





Q & A

Dr. Janik receives on an ongoing basis many interesting inquiries concerning electrophoresis from you – our customers! We would like to share some of Q & A he has received and answered. Maybe these will help you find a solution to a challenge you are currently facing or simply address a nagging question. Either way, please keep those questions coming!

Q from Washington: (Refer to Image 1)

We really like the new CSF IEF kit ("HYDRAGEL CSF ISOFOCUSING"). Could you please explain the purpose of the plastic mask over the gel during migration?

Borek's A:

The plastic mask serves to protect the highly alkaline range of the gel's pH gradient. It prevents CO₂ from neutralizing the alkalis and therefore from ruining the pH gradient. By the way, Sebia is looking for laboratories running CSF IEF, who could also provide the neurological workup on the patients, for participating in a multi-laboratory study. If you are interested, please contact Borek.

Q from Alabama:

We have been rejecting occasional requests for random urines for EP and IF because they are not 24 hour specimens. Should we be running these?

Borek's A:

There are pros and cons to using a 24 hour urine specimen as compared to a random catch and first morning void. Of course, the "best" sample is a properly collected and stored 24 hour specimen, however these requirements are often not met. There are just too many "practical" drawbacks of 24 hr collections. The first morning void is a good compromise between practicality and having the "best" specimen. For quantitative per day assays, the 24 hr collection remains a necessity. For qualitative assays, random catch and first morning void generally suffice.

Q from California:

Can you help me understand why albumin

values are sometimes discrepant between my chemistry analyzer and my electrophoresis result?

Borek's A:

There are many reasons for differences in albumin recoveries. It must always be remembered first and foremost that electrophoresis is a semi-quantitative procedure. With that in mind, dyes are involved not only with electrophoresis, but usually also with chemistry analyzers. Yet, the latter two techniques are conceptually different. In electrophoresis, the "ideal" dye would bind uniformly to all serum component proteins; the albumin value is based on its relative proportion and the total protein concentration. In albumin chemistry assays, the "ideal" dye would bind only to albumin. Unfortunately the "ideal" is elusive. We can only approach it, but never attain it.

Below is a summary of certain factors concerning the chemistry systems and sample collection that may contribute to the differences in method recovery.

- Bromcresol Green (BCG) based albumin assays
 - Hyperbilirubinemia and hemolysis do not interfere (they might in EP assays).
 - Marked lipemia causes falsely high albumin values (it does not in EP).
 - Some brands of BCG bind also to alpha-1 and beta-2 globulins causing false elevation; binding of BCG to these proteins is much slower than to albumin, therefore most systems read at <30 seconds to eliminate such interference.
 - In BCG non-compensated procedures, the following proteins may contribute to the stated fraction to the albumin value: alpha globulins (1/3), beta- globulins (1/9), fibrinogen (1/5).
 - Measurements taken after 30 seconds are "non-specific" for albumin. At > 5 minutes, acute phase reactants contribute significantly to the albumin value.
 - At very low serum albumin concentrations, BCG binding to other proteins may cause significantly falsely high values.

Bromcresol Purple (BCP) based albumin assays

- BCP method is generally more specific for albumin than BCG and has less interference.
- For every incremental increase (in parenthesis) of the following substances in serum there is a 0.1 g/dL decrease in albumin: salicylate (15 mg/dL), bilirubin (10 mg/dL), hemoglobin (0.46 g/dL).
- With severely lipemic sera (fat 1 g/dL), albumin is falsely higher by 0.2 g/dL.

Blood collection affects on BCG and BCP albumin assays

- Blood collected from supine (recumbent, lying down, usually hospitalized) patients gives albumin values that are 0.3 - 0.5 g/dL lower than from upright (ambulatory) patients.
- Blood collected by venostasis gives albumin

(apparent) values that could be highly elevated.

Q from Canada:

I would like to ask for some suggestions on a recent case with a very strong monoclonal peak in fast gamma on electrophoresis. Total serum protein is 125 g/L, measured total IgM 88 g/L by turbidimetry, and total IgG 3.5 g/L. A seemingly clear-cut case of IgM gammopathy; however, the bone marrow was unremarkable. On IFE there was a strong reaction with IgM and lambda antibodies (stronger with lambda than with M), and a weaker one for kappa in exactly the same position. There is no reaction with anti-G, A, D, or E, or with free kappa. I believe that this is an IgM lambda, but I am puzzled by the kappa. Diluting the serum 1:4 or 1:10 didn't change anything except that all bands became weaker. Running the serum with Fluidil gave exactly the same pattern of cross-reactivity.

The urine (0.14 g protein/L) contains one monoclonal band in about the same position as in the serum. It reacts weakly with anti-M, very strongly with anti-lambda, and strongly with anti-kappa. Neither free kappa nor free lambda react.

On a hunch I asked the serum sample to be treated with mercaptoethanol, and surprisingly we now get two monoclonal bands very close to each other. Both react with anti-lambda (very strongly) and anti-kappa (weaker). The first, higher band reacts with anti-M (strongly), but the second, lower band does not seem to react with anti-M, or very weakly so.

Borek's A:

This is a puzzling sample. I am afraid no conclusions with certainty could be made solely from the EP/IF results and very limited additional information. Nevertheless, here are my comments:

- Observations (but without seeing the gels):
 - The patient seems to be producing mainly IgM/L but also, minor, co-migrating IgM/K (serum IF). In addition, apparently free monoclonal light chains L and less K (pattern after 2ME treatment). The formation of free light chains is also confirmed by



Image 1

Medical Center of Louisiana at New Orleans, LA

How a charity hospital got a leg up in electrophoresis efficiency
Sebia system boosts processing time for New Orleans med center



"We often see things on the High Resolution gel that we might not normally detect on a 5-fraction protein gel."

Dr. Gary Lipscomb, Pathologist

designed by computer engineers rather than actual users. With those others, it's almost like you'd have to know a secret handshake to make sense of the computer graphics or menus. But Sebia designed the HYDRASYS based on a process that's logical to any technologist."

Though initially drawn to Sebia for the sophisticated technology, lab staff at the Medical Center of Louisiana has since uncovered a major advantage in Sebia's approach to customer service and product philosophy. Medical Technologist Darlene Tauzier notes that Sebia designed the HYDRASYS as a self-contained solution with all components including stains, gels and applicators, providing all-inclusive test kits. This simplifies the ordering process. "Other systems consisted of separate bits and pieces that were more difficult to keep track of in terms of inventory, and you always ran the risk of not having everything you needed," she explains.

"Also, Sebia has made it very easy for us to receive replacement items...we just call and say we need something, and it's shipped out immediately and is usually here the next day. We're not typically used to this because in a government institution, the purchasing process is a little more involved than in a private hospital. Many vendors don't seem to understand this, but Sebia has set up our account so that orders can be processed quickly. That's of paramount importance when you're dealing with testing that can't wait."

Among the hospital's routine order of supplies is the Sebia High Resolution assay, which the lab relies on for regular protein testing. The composition of the gel, the electrophoretic conditions, and the choice of stain allow for excellent resolution and high sensitivity, particularly in the gamma zone. Instead of the usual five or six fractions, this gel yields about 10 fractions, each containing one or more proteins.

"We often see things on the High Resolution gel that we might not normally detect on a 5-fraction protein gel," says Dr. Gary Lipscomb, pathologist. "Therefore, we feel the results are much more clear and less ambiguous."

The lab is also currently evaluating Sebia's CSF assay, which combines a high resolution electrophoresis with an immunofixation procedure. This design provides for detection roughly 100 times greater than the standard immunofixation - and guarantees that any banding identified is truly immunoglobulin based.

In addition to keeping the lab well stocked with fast order fulfillment, Sebia also helps the lab maintain "uptime" by providing highly responsive technical support.

"The high level of support and service provided by Sebia's people has exceeded my expectations," Darlene says. "Their technical staff is always efficient and very knowledgeable - I would say more so than what we have experienced from other companies. And in a healthcare environment, that can be a dealbreaker."

About the Medical Center of Louisiana

The Medical Center of Louisiana comprises two neighboring hospitals in downtown New Orleans: the historic Charity Hospital and University Hospital (formerly Hotel Dieu). Each has a rich history of service in this historic community. Charity predates the founding of the United States, opening in 1732 after Jean Louis, a French sea-man and merchant who made New Orleans his home in the New World, died and bequeathed his estate to "establish and maintain a hospital for the poor people of New Orleans." By the time the Civil War began in 1860, Charity was one of the largest hospitals in the world, able to accommodate 1,000 patients at a time. University Hospital was founded in 1859 and, together with Charity, provided care for soldiers from both armies.

In a city that practically implores people to sit back, relax and wile away the hours, there's at least one group of professionals that doesn't believe in "downtime."

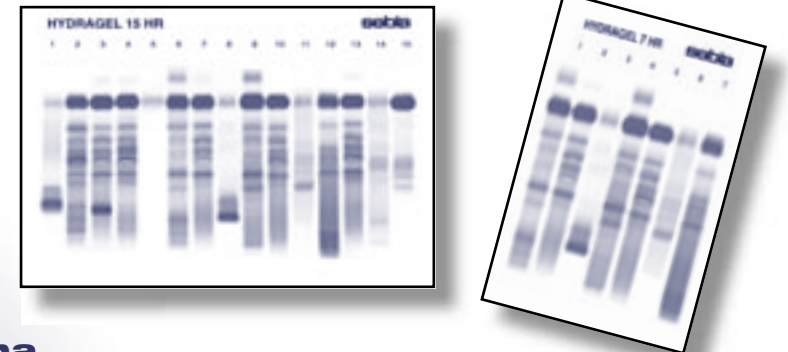
Of course, no one would expect the Medical Center of Louisiana to be anything less than fully engaged in work every second of every day. But even an organization that's accustomed to always being "on" has to find new ways to get more from every hour. And the med center's Special Hematology Lab has done just that by implementing Sebia's HYDRASYS® electrophoresis system.

This "walkaway" solution automates agarose electrophoresis for protein, immunofixation and iso-enzymes. The result? Techs spend less hands-on time with the process...that means less time "waiting" through each step and ultimately, more capacity to handle growing test volume. With manpower in the lab already stretched ultra-thin, the concept of "hands-free" has become an essential feature rather than a simple luxury.

"Electrophoresis used to be performed in two different labs on our campus," explains Mary Jo Gessler, Medical Lab Supervisor 1 in the Special Hematology Lab. "But in a major restructuring of the state medical system, all of this workflow was consolidated into our Special Hematology Lab."

Aided by newfound automation and speed via the HYDRASYS, Mary Jo and her colleagues can now process significantly more samples each day with their increased workload - a dramatic improvement over the previous manual methods. Using a simple keypad on the instrument, technologists can almost effortlessly carry out all phases of the process, from sample application to migration to incubation to staining, destaining and drying.

"It appears that Sebia took a lot of input from technologists when designing this instrument," Mary Jo says. "The software seems to mirror the way technologists think, whereas other systems were more complicated and looked as if they were



In order to better serve you, we constantly update our **Sebia Separations** Mailing list. Please complete this card and return to us.

Please circle the reader service numbers of those items on which you would like more information.

article **156** article **157** article **158**

article **159** article **160** article **161**

Number of electrophoresis test run per week.

Protein _____ Immunofixations _____ Hemoglobin _____

Please include your name and address here.

check here if this is a new address

Comments: _____

Thank You for Your Assistance