sebia®
electrophoresis

We Need Your Feedback

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 385 NORCROSS, GA
POSTAGE WILL BE PAID BY ADDRESSEE
SEBIA ELECTROPHORESIS
6611 BAY CIR STE 190
NORCROSS, GA 30071-9921

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

"Scanning the Future with Electrophoresis" Continued

HYRYS™2 Densitometer

The HYRYS™ 2 was also introduced. Perfect for any size laboratory, this densitometer combines the proven reliable HYRYS™ design with the performance and ease-of-use of Windows® based software. This system is a completely programmable multitasking densitometer with bi-directional host query capabilities. Simple, yet sophisticated, it provides optimum cost-effectiveness with accessories, such as a barcode reader option, that can be tailored to suit the needs of any size laboratory. Entirely designed and manufactured by Sebia, the system has been developed to provide:

- *Unsurpassed curve editing functions from curve overlay to peak delimiting.*
- *Extensive demographic and comment entry capability.*
- *Statistical program with 3 levels of quality control per analyte including Levey-Jennings charts.*
- *8.5"x11" patient charitable reports that include the gel pattern with curve presentation for complete reporting.*

Unsurpassed accuracy of O.D. measurements so linearity is never an issue. Reduced scanning and execution times of less than 2 seconds per sample speeding workflow. Sophisticated database management with storage and recall of up to 100,000 curves and results.

54 Protein and 9 IF

In Sebia's continuing efforts to address customer needs and to help facilitate workflow in large volume laboratories, protein and immunofixation gels designed to handle larger numbers of samples were introduced. Now customers have the option of mixing and matching 7, 15, 30, and now 54 protein gel formats and for immunofixations you can choose 2, 4 and now 9 sample formats. The choice of gel sizes not only optimizes workflow, it offers users the opportunity to minimize waste and reduce cost.

If you would like more information on these products please circle on your Reader Response Card number **108** for Phoresis, **109** for HYRYS 2, and **110** for 54 Protein and 9 IF.

Sebia Industry Workshop Well Attended

"Scanning the Future with Electrophoresis" was the topic of the Industry Workshop this year at AACC presented by Dr. Borek Janik and Lydia Dodson-Lehrer, both from Sebia. In today's laboratory, automation has helped to optimize workflow while providing improved test performance and enhanced reproducibility never before possible. During this well attended presentation the benefits of automated electrophoresis were explored along with novel approaches to traditional diagnostic applications. These included: a streamlined immunofixation screening procedure allowing total reimbursement, an ultra-sensitive spinal fluid O-band assay using unconcentrated CSF combining high resolution with immunofixation, a beta-2 transferring assay using unconcentrated discharge for detection of blood-brain-barrier damage, a unique proteinuria classification assay, and a novel alkaline phosphatase assay identifying major isoenzymes with one test and no sample pretreatment.

Plus, a demonstration of Sebia's new Phoresis Imaging System, the ultimate scanning system for image processing and storage of electrophoresis gels, was performed.

If you were unable to attend the workshop and would like a copy of the presentation please circle number **111** on your Reader Response Card.

sebia® electrophoresis
190-6611 Bay Circle • Norcross, GA 30071 • Telephone: (800) 835-6497 • Fax: (770) 446-8511 • www.sebia-usa.com

issue 3 vol. 1

sebia® electrophoresis

Clearly Superior...
AUTOMATICALLY BETTER

Separations

"Scanning the Future with Electrophoresis"

New Systems and Reagents Introduced at AACC and CLMA

By: Lydia Dodson-Lehrer, Director of Marketing

This year at both AACC and CLMA, Sebia took a serious approach to change the way attendees looked at electrophoresis. In addition to our existing line-up of automated solutions to electrophoresis testing, several new products were introduced to standing room only crowds.

Phoresis Imaging System

The star attraction was the Phoresis Imaging System. Sebia's state-of-the-art digital imaging system allows scanning and storage of electrophoresis results from any Sebia gel including immunofixation. This system provides benefits to any size laboratory. It's so easy to use, simply place completed agarose gels on the high definition flat-bed scanner, select the test or tests and scan! This system has been developed to provide:

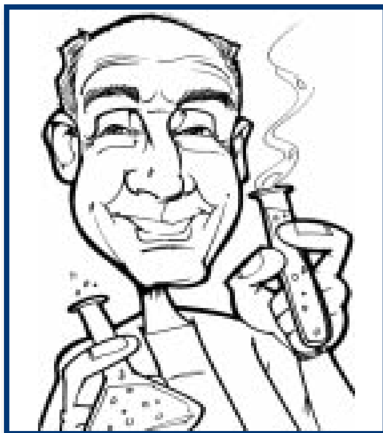
- Ability to scan any type of gel including: protein, hemoglobin, isoensymes, and all types of immunofixation assays.
- Capability of scanning up to 6 different gels simultaneously facilitating workflow.
- As many as 324 samples can be processed in just 4 minutes.
- Both the gel image and curve are displayed and included on the report for easy editing, interpretation and complete reporting.

Phoresis Screens

- A comprehensive patient report can be produced including the electrophoretic curve with its associated immunofixation pattern, plus related quantitative specific protein results.
- Complete QC package includes three levels per analyte with Levey-Jennings charts.
- Unmatched database capabilities allow storage and recall of up to 100,000 electrophoresis curves and results and 4,000 immunofixations.
- Bidirectional interface capability.

continue on back

Ask Borek
By: Borek Janik, Ph.D.



CRYOGLOBULINS

Cryoglobulins are immunoglobulin that can aggregate at temperatures as high as 30°C. In cold (4°C) they become reversibly insoluble and either precipitate or gel, hence they are referred to as cryoprecipitate or cryogel, respectively. This transition may occur at much higher temperatures (below 37°C). Therefore, cryoglobulins can also precipitate in vivo in blood vessels with very serious consequences.

Cryoglobulins are usually classified into three types:

Type I

These are composed of a single class of monoclonal immunoglobulin; IgM and IgG are most common, IgA and free light chains are less frequent. Type I cryoglobulins account for approximately 25% of cryoglobulinemia cases. The monoclonal protein is present in high concentrations (>0.5 g/dL). They are mostly present in patients with lymphoproliferative diseases, particularly multiple myeloma and Waldenstrom's macroglobulinemia.

Type II

These mixed type cryoglobulins contain a monoclonal component, which always has a rheumatoid factor (RF) activity, and a polyclonal IgG. The monoclonal RF is usually an IgM with kappa light chains. The Type II cryoglobulins are present at much lower concentrations than the Type I.They are most often found in patients with infectious conditions (hepatitis C). Occasionally they are found in autoimmune and lymphoproliferative diseases.

Type III

These mixed type cryoglobulins are composed of polyclonal RF (typically IgM) and a polyclonal IgG (sometimes IgA). They represent about 50% of cryoglobulinemia cases and are present in low concentrations (<0.1 g/dL). The primary condition for Type III cryoglobulins are lymphoproliferative, autoimmune (rheumatic) diseases and persistent chronic infections with immune complexes (e.g.,bacterial endocarditis).

Similar to cryoglobulins are cryofibrinogens. These are fibrin-fibrinogen complexes that have reversible cold precipitability in anticoagulated blood. In true cryofibrinogenemia, the soluble fibrin-fibrinogen complexes precipitate in the presence of fibronectin. They are seen in hematologic and solid malignancies, and thromboembolic diseases.

There is an inherent possibility cryoglobulin will gel or precipitate at room temperatures. A serum containing gelled cryoglobulins may become so viscous that its diffusion into the sample applicator teeth is hindered. The resulting electrophoregrams will be lightly stained and a marked decrease in albumin will be observed. Precipitation of cryoglobulins, often seen as sample turbidity, causes similar effects. A small portion of the cryoprecipitate can be deposited on the gel but it tends to stay at the point of application. Problematic samples have to be treated with Fluidil (Sebia PN 4587). Fluidil, which contains a chaotropic agent, solubilizes both the cryogels and cryoprecipitates. However, when polymerized IgM is involved a reducing agent must be used such as 2-mercaptoethanol.

Apart from the cases where the presence of cryoglobulins is obvious, e.g., high serum viscosity or presence of a precipitate, the following may aid in deciding whether or not a sample should be treated and predicting the outcome of electrophoresis of untreated samples:

Monoclonal Type I cryoglobulins generally precipitate within 24 hours at 4°C. Type II and III mixed cryoglobulins that are often in low concentrations require longer low temperature incubation times (up to 72 hours). Such samples do not require any treatment if the electrophoresis is performed prior to low temperature incubation. Generally, presence of small amounts of cryogel (e.g., with no apparent increase in viscosity) will not adversely affect the results of electrophoresis.

Very small amounts of cryoprecipitate settled at the test tube bottom may become unnoticed. Swirl the test tube. If a small amount of precipitate is noticed, heat the sample to 37°C and perform electrophoresis.

When cryoglobulins are suspected, the evidence of their presence is inconclusive or are present in small amounts, heat the sample to 37°C prior to electrophoresis. In the absence of Fluidil however, gelling or precipitation may possibly take place as the sample diffuses into the applicator teeth.

Sebia immunofixation procedures offer a convenient way for the identification of the immunoglobulin components of cryoglobulin. The identification requires isolation of the cryoprecipitate (cryogel), its solubilization and immunofixation with appropriate antisera.

Store the suspect serum at 4°C (for up to 72 hours before presence of cryoglobulins can be excluded), centrifuge and recover the cryoprecipitate. Wash the precipitate three times with icy saline (centrifuge after each wash). Dissolve the washed precipitate in 100 mL of warm saline (≥ 37°C). Vortex to promote solubilization. If a significant amount of precipitate does not dissolve, add more saline. Add 10 mL Fluidil to 100 mL of the dissolved cryoprecipitate and mix. If the presence of polymerized IgM in the cryoprecipitate is suspected, add 10 mL of 1% BME in Fluidil to 100 mL of the dissolved cryoprecipitate and mix (the temperature of the solution must be <30°C). Perform an immunofixation procedure without any further sample dilution using the Bence Jones migration program for its increased sensitivity. The 2/4 or 9 IF migration program is suitable only when a sufficiently high concentration of the cryoglobulin is obtained (total Ig approximately 100 mg/dL).

In the meantime, keep sending in those questions. You may send them to me by mail at Sebia, 190-6611 Bay Circle, Norcross, GA 30071, attn. "Ask Borek", by fax at 770-446-8511 attention "Ask Borek", or by e-mail at bjanik@sebia-usa.com. Whichever method you choose, include your name, laboratory name and phone number should I have questions for you.

Customer Focus

St. Marys Finds Sebia's Electrophoresis System "Simply Divine"

Life is a whole lot easier than it used to be in the chemistry lab at St. Marys Hospital Medical Center.

Since the lab began using the Sebia HYDRASYS® electrophoresis system in January 1999, technologists exert less effort preparing reagents… less time running electrophoresis… and less eyestrain interpreting results.

"When we compared automated electrophoresis solutions, a couple of big pluses set the HYDRASYS apart from the other competitors," explains Eunice Hardy (MT ASCP), Chemistry Technical Specialist at the Madison, Wisconsin-based medical center. "It's a very easy system to operate, and the gel quality is exceedingly good."

The instrument, which is compact enough to fit unobtrusively on the countertop, performs fast agarose gel electrophoresis for protein, immunofixation (IFE), lipoprotein + Lp(a), Hb, Hb A1c, HDL-cholesterol and iso-enzymes. St. Marys currently uses the system to test protein and IFE.

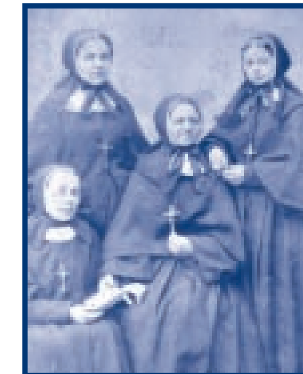
Drilling down to specifics, Hardy attributes the easy operation of the HYDRASYS to two things. First, she and her colleagues find the instrument software to be extremely user-friendly; with just a few touches on an LCD keypad, the HYDRASYS automatically carries out all phases of electrophoresis — from sample application to migration to incubation to staining, destaining and, finally, drying.

"Sebia has made it incredibly easy to move from test to test on this instrument," Hardy says. "If you can run protein you can run immunofixation without any hassles as far as programming goes."

According to Hardy, simplified reagents are another reason the HYDRASYS is so user-friendly. "Everything comes prepackaged in one kit — there's nothing to prepare except for the dilution of the Wash, Destain and Stain. That's a real time saver."

"The HYDRASYS allows technologists to batch samples, leading to better resource allocation and significant cost savings."

Looking at gel quality, the St. Marys team likes the crispness of the Sebia gels, particularly for IFEs. The HYDRASYS instrument yields images with sharp and well-separated zones — making for highly accurate readings. "With this system, interpretation is as good or better than the alternatives," Hardy says. "In fact, these plates are more sensitive than what we were accustomed to with our old system, which means we're getting a more complete picture than we did in the past."



As an example, she notes that they are picking up more minimonoclonals as a result of the increased sensitivity of the gels. Has the HYDRASYS helped improve operations at St. Marys? According to Hardy, it has - and the benefits are measurable. For one thing, the instrument allows technologists to batch samples, leading to better resource allocation and significant cost savings. "Our old system didn't give us that capability on every test," she notes.

By relying on the HYDRASYS, the lab has standardized processes among staff - dramatically reducing training time while ensuring accurate results with every test.

"When you have multiple technologists running electrophoresis, consistency becomes a major concern — unless you have this type of automation," says Hardy. "It's not as 'technique-dependent' as a manual system.

"And not only that, we used to spend many, many hours getting an individual up and running. Now a new employee is ready to go in a matter of hours…which keeps productivity up."

Now that St. Marys has clocked more than a year with the HYDRASYS, are they still pleased with their choice? "Absolutely," Hardy says. "We couldn't be more happy with the HYDRASYS instrument. And our experience with Sebia's people has been positive too — they are very responsive to our questions and needs, always working to provide answers and solutions quickly so we can keep things moving in our lab. They exemplify everything a partner should be."

About St. Marys Hospital Medical Center

Founded in 1912 to serve the people of South Central Wisconsin, St. Marys Hospital Medical Center offers a full range of inpatient and outpatient treatment and diagnostic services in primary care and nearly all specialties. Special medical/surgical areas of focus include the Center for Cardiovascular Care, Perinatal Center, Pediatrics, Neuroscience Center, Geriatrics and Emergency Services. Since 1972, St. Marys also has been affiliated with the University of Wisconsin School of Medicine's three-year family practice residency program.

St. Marys Hospital Medical Center is a part of St. Louis-based SSM Health Care, owned by the Franciscan Sisters of Mary.

We Need Your Feedback

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 **108** *article* **109**

article **110** *article* **111**

Number of electrophoresis tests 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

"When we compared automated electrophoresis solutions, a couple of big pluses set the HYDRASYS™ apart from the other competitors."

—Eunice Hardy (MT ASCP), Chemistry Technical Specialist, St. Marys Hospital Medical Center