

Pathology Partners

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Leica
MICROSYSTEMS

The Future of Histology ... Complete

Dear Pathology Partners Reader,

Allow me to take this opportunity to announce the newly formed Biosystems Division of Leica Microsystems:

Vision BioSystems™ and Leica Microsystems – histology just got a lot more exciting!

Vision BioSystems has joined Leica Microsystems. Now, the comprehensive Leica histology product line has been enhanced by the addition of the Bond™ IHC/ISH Advanced staining system, Peloris™ rapid tissue processor, and Novocastra™ antibody and reagent lines to form the new Biosystems Division of Leica Microsystems. Working together with you, we can improve workflows and enhance diagnostic confidence for histologists, pathologists, and patients. You now have a single source for histology and the first steps toward integrated laboratory workflows – from specimen identification through routine histology and IHC applications and microscopy.

Listening to the voice of the customer is of primary importance to us. Your feedback is what drives Leica's processes and new product development because the individual user is the beginning and the end of everything we do. We strive to be responsive to your needs for cutting-edge, innovative products that improve productivity, user safety, ergonomics, accuracy, and flexibility, and also allow you to achieve unique personal benefits.

We strive to provide highly skilled sales representatives, technical application support specialists, and field service engineers who are experts with our products and understand your needs and applications. Building added value for you through innovative products, educational opportunities, and excellent after-sale support – these are the things that truly differentiate Leica Microsystems from other companies.

Leica Microsystems fosters a culture of continuous improvement, and we welcome your ideas and feedback. Continue to rely on the

innovative histology solutions you've come to expect from us. Histology has an exciting future. Together, we will lead the way with advanced science, superior products and outstanding service.

Please contact me at george.kennedy@leica-microsystems.com to let us know how we can continue to best serve you.

Sincerely,



George R. Kennedy
Vice President, North America, Biosystems Division
Leica Microsystems, Inc.

Leica Microsystems ... your single source for histology. From patient to pathologist we supply all of your histology needs.

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A Day in the Life

Working with Non-Traditional Specimens

By Gayle Callis, (retired), Research Histopathology Supervisor, Veterinary Molecular Biology, Montana State University – Bozeman, Retired 2007



Gayle Callis

A long career in histotechnology has led me to some fascinating encounters with non-traditional specimens. These specimens have presented challenging moments in terms of working out the parameters to obtain tissue sections for light microscopy. Here are a few of them ...

That slice of slime

Biofilms are a complex aggregate of microorganisms that can be found lining the drain pipes in bathroom showers, sinks, and other porcelain appliances. They can be a problem because they cause clogging and metal corrosion. We also encounter biofilms in nature, as they make rocks in streams a slippery hazard for one walking on wet stepping stones. Biofilms consist of bacteria growing in a watery, polymeric layer, and as such prove woefully difficult to keep intact during cryosectioning; they actually shatter like frozen sand when films are too thick.

We ended up performing cryotomy on a "sandwich" of OCT-biofilm-OCT, with a final specimen orientation on edge for sectioning. The biofilm could be either pre-fixed with formalin or left un-fixed but not overly thick and snap frozen on dry ice, and then cryosectioned at 5µm using a Leica CM1850 cryostat and high profile blades. The inventiveness of this technique led to its publication in a journal for biofilm engineers and a presentation at the National Society for Histotechnology Symposium/Convention entitled, "That Slice of Slime!"

Hard as a rock

The most exotic and proprietary specimen in my experience was *Tyrannosaurus rex* trabecular bone from Montana State University's Museum of the Rockies. During collaboration with the university paleontology department, I had the opportunity to tour their dinosaur laboratory (something the public never sees) and see some interesting and huge specimens.

Trabecular, or spongy, bone is a type of osseous tissue with a low density and strength but very high surface area; it contains the bone marrow and fills the inner cavity of long bones. The embedding media used by the dinosaur group did not infiltrate into the open,

boney spaces, and this led to crumbling, shattering, and eventual loss of precious, rare bone samples during sectioning. Another problem: silt and minerals seep into the bones of extinct dinosaurs over millions of years and finally turn the bone to "rock". One cannot section these specimens, even with tungsten carbide knives. And so a graduate student was attempting to find a way to improve embedding dinosaur bone in order to obtain intact sections.

We tried methyl methacrylate (PMMA) embedding and to our pleasure, had great success. The thin, un-polymerized plastic allowed excellent penetration into the open spaces of this 65 million year-old *T. rex* bone. The bone was dry so no fixation or dehydration was required. The specimens were simply immersed into liquid embedding mixture of PMMA and allowed to sit for days until the PMMA polymerized at room temperature. We sectioned the resulting blocks using a slow speed metallurgical saw and diamond cut off blade, and the sections were then super-glued onto slides. A final grinding and polishing produced excellent samples of this ancient bone for microscopic examination, which led to fascinating observations, research, and a PhD for the graduate student.

Counting the bones

Preparing samples of bone from bovine with genetic anomalies was another uncommon histology process. The bone, after formalin fixation, was macerated or cleaned of all soft tissues by boiling in Biz detergent. The two-headed calf skulls were cleaned, dried, and glued back together; a process which always provided an anatomy lesson on how boney plates and other surfaces fit together.

School-aged children touring the laboratory found the two-headed calf skulls a subject of lively conversation. After much oohing and aahing, we devised a guessing game to discover how many legs, spinal columns, tails, eyes, brains, and jaws comprised these incomplete, conjoined twin calves.

After many years in this profession, unusual specimens still show up in our laboratory. Some specimens are impossible to work with, but the depth of scientific curiosity continues to amaze me. Innovation is key, and there may be techniques or methods developed in your laboratory for unusual tissues and other samples that help solve the scientific questions of our day.



Make the Most of Your Instruments

By Kathy Bucknell, Product Manager, Leica Microsystems



The Leica Bond System

In this section we'd like to present a user's opinion of two of the instruments that are now part of the Leica Microsystems histology instrument family. We asked Director of Operations at AmeriPath Orlando, Kathy Alvarez, to discuss her experience with the Bond™ system for automated ISH and IHC and the Peloris™ rapid tissue processor.

Question: Thinking about the Bond system and the Peloris rapid tissue processor, in your experience are there key features that stand out in your mind?

KA: I find the key feature of the Bond is the continuous load system. For the Peloris, key features on top of processing tissue very well would be its speed and xylene-free processing. But the Peloris' speed is clearly its best feature. In a high volume laboratory like ours, the speed of the Peloris has dramatically helped maintain and improve our TAT.

Question: Are there specific benefits that each system has brought to your lab?

KA: The benefit of the Peloris in addition to its faster processing times is that it is easy to maintain. With the Bond, I would say that it was less the equipment and more the service staff. We were the first high throughput IHC laboratory in the US to go with the Bond. We went through some issues in the beginning and I must say that if it wasn't for the wonderful service we received from Janet White (local area sales manager) and her team, we may not have kept the Bonds around long enough to find out that they truly are robust IHC stainers. Now I am happy to report that they work very well and the staining is consistently good.

Question: How does each system fit into, and possibly improve, your laboratory's workflow?

KA: The Peloris has improved our workflows because blocks come off earlier which allows for more overnight runs. Before the Peloris, we were only able to schedule one run per processor per night. For the Bonds, because of the continuous load feature, we can load the instrument as we cut our cases and this helps accommodate staffing shortages, STAT cases as well as maintain our staining cut-off times.

Thank you, Kathy!



Events

CAP 2007:

In late September, Leica Microsystems had the pleasure of exhibiting at the College of American Pathologists (CAP'07). The College of American Pathologists, a worldwide medical association composed exclusively of pathologists, serves 16,000 physician members and the laboratory community. CAP is widely considered the leader in laboratory quality assurance and an advocate for high-quality and cost-effective medical care.

Leica Microsystems 2007 Symposium Series:

In October, Leica Microsystems held the 2007 Symposium Series: **Advances in Histology and Immunohistochemistry Techniques** at the Gleacher Center in Chicago.



Leica 2007 Symposium Series



Dr. James Vardiman

Over 50 participants learned about exciting industry advances that shape the Histology/Cytology laboratory, earned CEU credits, and saw demonstrations of sophisticated laboratory solutions for their workflow challenges. Leica was pleased to welcome Keynote Speaker Dr. James Vardiman, University of Chicago Medical

Center and guest speakers Dr. Elizabeth Hyjek, University of Chicago Medical Center and Dr. Elizabeth Louise Wiley, University of Illinois Medical Center.

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Events

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We are also please to provide a link to the article on *The First Quantitative Comparison of Immunohistochemical Rabbit and Mouse Monoclonal Antibody Affinities Using Biacore Analysis*, presented at the Leica Microsystems 2007 Symposium Series: by: Dr Mark Rees, Molecular Biology



Dr. Mark Rees

Manager, Leica Microsystems, Inc., Biosystems Division, Newcastle Upon Tyne, United Kingdom. To read this presentation, please click on: <http://shareinfo.leica-microsystems.com/reestalk.pdf>

This article is reprinted with permission from *The Journal of Histotechnology*.

NSH 2007

At this year's NSH meeting, Leica Microsystems was pleased to award the following two scholarships:

Leica Leadership in Management Award

The 2007 Leica Leadership in Management Award winner is **Lawrence Fields**, Manager of Laboratory Operations, Ameripath Indiana, Indianapolis, IN.

Leica Microsystems sponsors this \$3000 grant, which is given annually to an experienced or recently promoted manager, assistant manager, or supervisor who is expected to provide management leadership within their current role. The individual exemplifies the qualities of a dedicated leader in communication and/or interpersonal skills.

Leica Leadership in Teaching Award

The 2007 Leica Leadership in Teaching Award winner is **Lydia Figueroa**, Pathology and Pilot Laboratory Supervisor, Instructor at San Antonio College Histology Program, Walnut, CA.

Leica Microsystems sponsors this \$1,000 grant, which is given annually to an individual dedicated to teaching Histotechnology exemplifying the qualities of a dedicated teacher sharing their knowledge with others and advancing the growth of the profession of Histotechnology. The nominee can be an instructor, technician/ technologist, or supervisor.

Congratulations!

Art Meets Science at NSH 2007

Leica Microsystems hosted an elegant evening of art, hors d'oeuvres, and cocktails on October 27, at the Denver Art Museum. More than 850 guests had the opportunity to meet and greet colleagues and Leica representatives in a relaxed setting.



Your Local Leica Team



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Note: We are interested in your comments and thoughts about the newsletter. Please feel free to email your comments to: pathologypartners@leica-microsystems.com