



The Kentucky Society for Histotechnology

established 1974

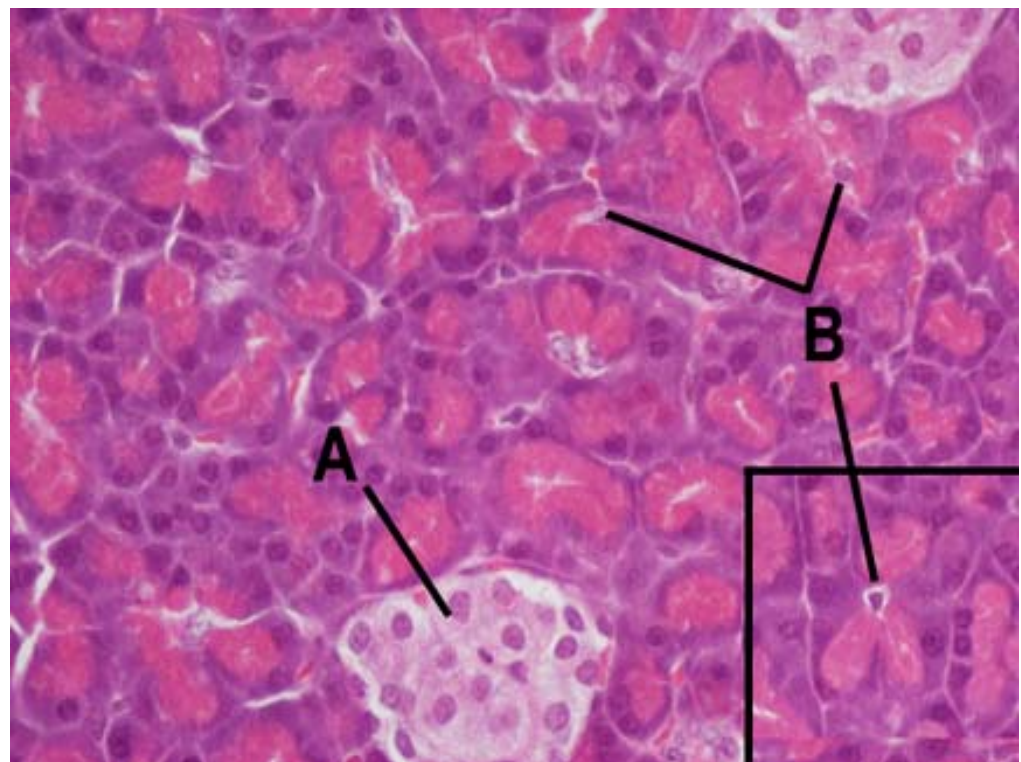
Slice of Life

Fall 2005

Volume 28 Issue 2

Special points of interest:

- Identify this organ
- John Kiernan—
Preservation and Retrieval of Antigens
- New KSH Executive



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Can You Identify This Organ?

This is an H & E stained section. The majority of the field is filled with the structural/functional unit of the *exocrine portion* of this organ - acini. Each acinus is composed of cells exhibiting marked basal basophilia and a spherical nucleus. The apical region of each acinar cell is filled with eosinophilic secretory granules - predominately enzymes. Can you identify A and B? Do you know what the functions of each of these structures are? Why is the basal portion of each acinar cell so basophilic? *Answers are on page 2.....*

Have you seen the NEW KSH website? Check it out at www.kyhistotechs.com. We are always looking for suggestions from the membership on making the web site more functional and useful to all our membership. Send any ideas to Cynthia Long at clongl@uky.edu



I want to thank Renee Matherly Slover for the tremendous effort she put forth on behalf of the Kentucky Society for Histotechnology. As President Renee made the KSH a strong, viable Society. As many of you know, Renee has recently married and moved to Texas. We wish Renee and her new family the best.

As the new President, I want to thank you for the opportunity to serve the KSH. I look forward to working closely with you, I certainly need all of your help to make this a successful organization. The KSH has new officers: Vice President - Audra Rasmussen, Treasurer - Sherrie Drake and Secretary - Barbara Bishop. Audra has been in Kentucky for only a few years but she has made a great impact on the KSH especially as it relates to the Symposium.

Audra works for LabCorp in Louisville. Sherrie Drake has been a member of the KSH for several years and this is the first time to serve the Society. Sherrie works for Norton Healthcare in Louisville. Barbara Bishop is no stranger to the KSH, she has served as an officer, committee member and speaker. Barbara works in Cardiac Research at the University of Louisville. We are very fortunate to have Cynthia Long as the Editor of the "Slice of Life". Cynthia has served as President, Vice President, Treasurer and Editor. Cynthia is in the Faculty of Medicine at the University of Kentucky. Cynthia would greatly appreciate everyone submitting something to the newsletter, do you have a helpful hint?

Now that the summer is turning into fall, it is time to think about the programs of the KSH. The Symposium/Convention is only a few months away, we are working out the location and date at this time. What we really need is to have speakers and topics that are of interest to you. What topic would you like addressed in a workshop or lecture? Are you working on a new procedure or technique that you would be willing to share with the group? We are working in a dynamic profession and we need to keep abreast of the changes that are occurring. Addressing the needs of the new histologist who has just begun to work, provides us with an opportunity to share our expertise. We will hold our S/C this spring, let's make it outstanding.

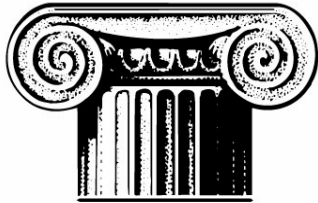
Many of the KSH membership were able to go to Ft. Lauderdale to attend the National Society for Histotechnology S/C. Since we have over 100 Kentucky NSH members, we had two delegates, and the President representing our state at the House of Delegates. This is the governing body of the NSH, which set the policy for the NSH. Since I already have a seat at the HOD, Audra was the President's Alternate.

The KSH has been fortunate to have very dedicated volunteers who always respond when asked to serve. We thank those who are currently serving, and we thank YOU in advance for serving when we call upon you in the future. We have a wonderful history that we want to continue. I look forward to seeing all of you soon.

Identify the organ (continued from Page 1)

This section was taken from the **pancreas** at 40X. The *exocrine portion* composes over 80% of the organ's mass with the *endocrine portion* - **pancreatic islets** (of Langerhans) - item "**A**" on the image - forming less than 15% of the organ. Islets are localized predominantly in the tail of the organ - which is found nestled in the hilus of the spleen on the left side of the body. Remember, the pancreas is retroperitoneal and located posterior to the stomach. Each islet is comprised of a number of hormone-secreting cells, the predominate ones being *beta cells* (centrally located in the islet and secrete insulin that lowers blood glucose) and *alpha cells* (peripherally located in the islet and secrete glucagon that raises blood glucose levels). These two hormones exert their influence on the liver's ability to take up and release glucose from the large volumes of blood that passes through it. Item "**B**" on the image are **centroacinar cells**. These cells are the beginning of the duct system that eventually leads to the lumen of the duodenum. Centroacinar cells (seen enlarged in the lower right insert - 60X) are identified as nuclei appearing in the lumen of the acinus. They secrete a bicarbonate solution that has two functions - solubilizing the eosinophilic enzymatic granules released by each acinar cell, well as lowering the pH of the luminal contents. The ductwork of the pancreas appears very sparse when contrasted to other acinar glands like the parotid. Each acinar cell exhibits a deeply basophilic basal region as they are the quintessential protein-secreting cell. The basal portion of each cell is filled with protein synthetic organelles - rough endoplasmic reticulum (rER). The ribosomes that stud this organelle are acidic in nature and thus attract the basic component of the H&E stain.

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Department: Laboratory

Supervisor: Bob Schacfer

Status: Full Time, Non-Exempt, Benefited

Hours: 7:00 am - 3:30 pm, Monday - Friday

Education Requirements: High school graduate or GED required

Qualifications/Job Requirements: HT(ASCP) certified or eligible

Major Job Duties: Process tissue and body fluid specimens in such a manner as to prepare for examination by pathologist

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**Suggest
your co-
workers
join the
KSH**



Hello everyone! I am just back from the 2005 NSH S/C in Ft. Lauderdale, and hope everyone able to attend had a valuable educational experience and a wonderful time strolling through the vendor exhibits and attending the various social functions. I hope you also had time while in the exhibit area to view the many poster presentations on exhibit. Some of these were on the cutting edge (if you will forgive the pun!) of our field. Congratulations should go to the Florida society and the convention committee for another job well done!

While all of you were attending workshops and visiting vendors, the NSH Board of Directors was hard at work doing the business of your society. I wish that I had had more time to meet with you during the meeting. I hope that if you had something that you wanted addressed,

that you had the chance to talk with me. You can also contact me at anytime during the year at the addresses listed for me under the Who Are We page on the NSH website (www.nsh.org).

I was glad to see many of you attend the Region IV meeting on Saturday evening. This is the primary place and time that I get your feedback on the important BOD agenda items affecting the membership, and am able to receive your voting instructions. Be assured, your instructions are followed. Many of the items passed were NSH "housekeeping" items and I will not list them here as they were numerous. I think the following items, which were passed by the Board at the BOD meeting on Monday, September 12, 2005 will be of immediate interest to you.

- That the NSH permit State and Regions to use it's name and logo for their local conferences with the requirement that the State/Region obtain liability insurance and that the NSH is listed as an additional insured for any meeting occurring on or after January 1,2006.
- Dr. Karen Burg was appointed Editor of the Journal of Histotechnology effective for the June 2006 edition.
- Cincinnati, Ohio was chosen as the site for the 2011 NSH S/C. (Congratulations Ohio!).
- Funds were approved for Regions requiring such funds to pay for website hosting services. (A poll of the Region IV Presidents last year decided Region IV did not need a website as all of our state societies already have them.)
- The BOD approved that the Awards committee develop a "Website of the Year" award with award of merit for the runner up.
- Require anyone funded by the NSH to attend the S/C to stay at a convention hotel.
- Funds were approved for the purchase of a comprehensive IT package for the NSH office.
- Directed the Executive Director to develop a member's only section of the NSH website once implementation of the new IT program and website is complete.
- Beginning in 2006 all teleconference materials be provided in CD-ROM format.
- Approved that the contents of the S/C notebooks be eliminated and be replaced by CD.
- When technology becomes available that complete Journal of Histotechnology articles be available electronically free for members and at a charge of \$15 for nonmembers..
- Appointed Paul Billings as the Public Relations committee chairperson.
- NSH member authors be provided up to two pages of color reproductions at no charge for manuscripts accepted to the JOH.
- The BOD requested that the HOD (House of Delegates) approve an increase in active membership dues to \$60 in 2006 and \$80 in 2009. The HOD subsequently passed this motion.

I will report on the Post HOD Board of Directors meeting in my next Around the Region as this is getting to be a rather lengthy report. As you can see the BOD was busy this year! I said at the Region IV meeting that I will probably only be able to attend two state meetings other than my own this year since my work environment has changed. I will attend the Ohio state meeting and either Michigan or Kentucky, depending on dates and work requirements. As always, if there is anything I can assist you with please feel free to contact me.



Remember that your 2005-2006 membership is now due. If you would like to renew your membership at this time contact any member of the executive or make a check payable to The Kentucky Society for Histotechnology. Mail your check to Sherrie Drake, 78 Elk Creek, Taylorsville KY 40071. Renewal is \$6.00 and new membership is \$10.00.

New 2005-2006 KSH Executive:

Lena Spencer (President)

13206 Crestview Road

Prospect KY 40059

lenaspencer@insightbb.com

Barbara Bishop (Secretary)

7410 Rome Beauty Place

Louisville, KY 40228

(w) 502-852-6015

bjbenn01@gwise.louisville.edu

Audra Rasmussen (Vice President)

9716 Turnpike View

Louisville KY 40229

(w) 502-584-7138

smiley1368@yahoo.com

Sherrie Drake (Treasurer)

78 Elk Creek Court

Taylorsville KY 40071

sherrie.drake@insightbb.com

Plan to attend . . The KSH Symposium . . March 2006

We will be having the KSH Symposium again this spring. We are looking for suggestions for topics of interest to you! Pick up the phone or email any of the executive members!

**Contact information
for NSH Region IV Director**

Rae Staskiewicz

1450 Bridge Ave.

Galesburg, Il 61401

W(309)344-2451

rstaskiewicz@agr.state.il.us

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(631) 586-0400

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Preservation and retrieval of antigens for immunohistochemistry – methods and mechanisms. I. Effects of formaldehyde fixation.

J. A. Kiernan, *Department of Anatomy and Cell Biology, The University of Western Ontario, London, Canada N6A 5C1*

There is no ideal way to prepare all tissues for immunohistochemistry. The access of antibodies in solution to tissue-bound antigens may be enhanced or inhibited by **fixation**. Some antigens can be detected only in unfixed cryosections; most are more easily detected after fixation. Paraffin embedding is usually preferable to either plastic embedding or cutting unembedded specimens with a vibrating microtome or in a cryostat. There are, however, plenty of exceptions to this generalization. Antibodies penetrate thin sections more quickly than thick ones, but sometimes the requirements of an investigation demand thick sections or even whole-mounts for proper interpretation of the results.

The first article (this one) briefly explains the effects of formaldehyde on tissues and the antigens that they contain. The second paper of the pair will examine several techniques commonly called **antigen retrieval**. These methods, applied to sections, allow immunostaining of antigens that might not otherwise be detectable after fixation in formaldehyde.

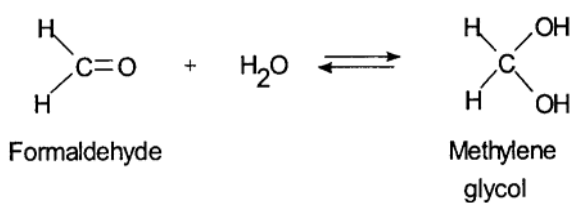
These two articles also have some **references**, which fall into two categories: most are ordinary books or chapters in books; a few are papers in scientific journals. I urge readers to look up and study some of these references. Immunohistochemical staining is a responsible job, and should be undertaken only by people who understand the reasons for all the steps in a particular technique. Without proper understanding it is impossible to intelligently troubleshoot a procedure that does not yield the expected results.

Preservation of structure and antigenicity by formaldehyde

The fixative solution

In histopathology laboratories the great majority of specimens are fixed in an aqueous formaldehyde solution that contains sodium phosphates, contrived to provide **buffering** (minimal pH change following addition of a small amount of strong acid or base) to pH 7.2-7.6 and an approximately **isotonic solution** (one whose osmotic pressure is the same as that of mammalian extracellular fluids). The formaldehyde is usually derived from **formalin**, which is a solution containing 37% w/w (= 40% w/v) formaldehyde in water. The working fixative is a ten-fold dilution of formalin (4 grams per 100 ml). A solution of almost identical composition may be made with **paraformaldehyde** as the starting material. Paraformaldehyde is a solid polymer that changes into formaldehyde when heated (in slightly alkaline water) to 60°C. Many people do not realize that there is no such thing as a solution of paraformaldehyde. The frequently published phrase “fixed in 4% paraformaldehyde” is a clear indication that the writer knows nothing about fixation, even though this is the preparative step that most affects the appearance of a microscopical preparation.

Most of the formaldehyde in a diluted aqueous solution is present as **methylene glycol**, which is formed by addition of a molecule of water to one of formaldehyde:



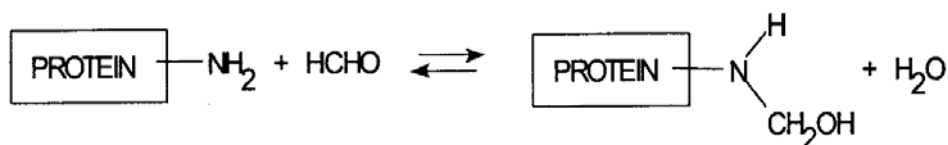
This reaction is reversible, but the equilibrium lies far to the right. The concentration of free formaldehyde in the fixative solution is, therefore, very low. Nevertheless, it is free formaldehyde, rather than methylene glycol, that enters the chemical reactions of fixation. There is always a large reservoir of methylene glycol that instantly replaces formaldehyde molecules that are removed from the solution by reaction and combination with the specimen being fixed (Pearse, 1980; Fox et al, 1985).

Reaction with tissue proteins

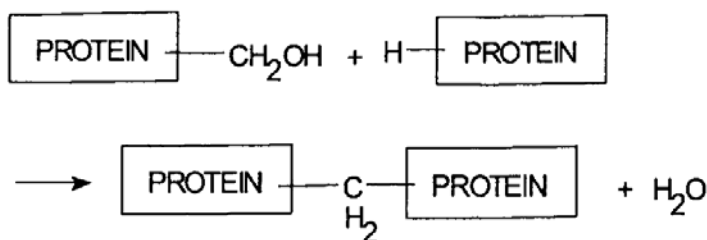
The small molecules of formaldehyde (MW 30) and methylene glycol (MW 48) penetrate quite rapidly through extracellular

materials and cells, typically reaching a depth of 5 mm in about 2 hours (Baker, 1958). The chemical reactions of fixation by formaldehyde are with proteins. These reactions are slower than those of any other substance used as a fixative, and it is generally agreed that for reasonable structural preservation a specimen must remain in a formaldehyde solution for at least 24 hours (Drury & Wallington, 1967; Lillie & Fullmer, 1976). Helander (1994) found that after immersion for 24 hours, tissue-bound [¹⁴C] formaldehyde could be largely removed by prolonged washing in water. Half was removed in 17 days, and 90% was removed in 3 weeks. Further studies (Helander, 1999) indicated that maximal binding of formaldehyde to brain and kidney occurred in 50 hours, but half-maximal binding required only about 4 hours. The rapidly bound formaldehyde probably stops autolysis but it does little to stabilize the fine structure of the tissue, and does not provide effective protection against disruptive effects of later treatments such as paraffin embedding. Indeed, nervous tissue immersed for 24 hours in 4% buffered formaldehyde shrinks or swells when transferred to salt solutions with higher or lower osmotic pressure than the fixative (Paljarvi et al., 1979). The structural instability is attributed to the fact that reaction of formaldehyde with proteins occurs in two stages, the first being fairly rapid (hours) and the second much slower (days).

In the first stage, formaldehyde molecules combine with various parts of protein molecules, especially the side-chain amino group of lysine and the nitrogen atoms of peptide linkages:



These reactions can be reversed by washing in water (or alcohol). The slow second stage is reaction of the bound hydroxymethyl groups with other nitrogen atoms of the same or adjacent protein molecules. The resulting cross-links, known as methylene (—CH₂—) bridges, are stable and account for the insolubility and rigidity of protein-containing tissues that have been fixed by formaldehyde.



The reacting groups for the second stage must, of course, be close together; this condition is not met for a majority of the hydroxymethyl groups formed in the first stage, so it is possible to wash away loosely bound formaldehyde even from thoroughly fixed specimens. Knowledge of the chemistry of formaldehyde fixation has come mainly from investigations in the

tanning industry, where bovine dermal collagen is converted into leather (Gustavson, 1956; Walker, 1964).

In addition to the reactions with proteins, formaldehyde may also combine with some basic lipids. These other reactions are not generally considered to participate significantly in the fixation of tissues (Pearse, 1980; Fox et al, 1985; Hopwood, 2002). The immobilization of DNA and RNA is attributed to trapping of the long nucleic acid molecules in networks of associated basic protein molecules, which are cross-linked by methylene bridges (Hopwood, 2002).

Inadequate and adequate fixation

These chemical reactions account for some of the difficulties encountered when working with formaldehyde-fixed material. Brief exposure to formaldehyde does not cause sufficient cross-linking to immobilize proteins. Instead, fixation is due to coagulation of proteins by the alcohols used to dehydrate the specimens. Alcohol alone is a poor fixative for blocks of tissue (Baker, 1958). Nuclei of cells can be greatly damaged during processing through paraffin after inadequate times in formaldehyde (Dapson, 1993). With adequate formaldehyde fixation, however, the cross-linked protein molecules form a dense network that can impair the penetration of paraffin wax. Cross-linking also impairs the penetration of large antibody molecules applied to sections of tissue as immunohistochemical reagents, so that antigen molecules of interest may be masked even if their epitopes have not been chemically modified by reaction with formaldehyde.

Cellular structure after formaldehyde fixation is often better preserved in frozen than in paraffin sections, especially when exposure to the fixative has been brief. Minimal fixation, either before or after sectioning in a cryostat, is customary in enzyme activity histochemistry because most (though not all) enzymes are inactivated by exposure to formaldehyde, organic solvents or heat. Completely unfixed cryosections can deteriorate or even disintegrate when incubated in the near-neutral aqueous solutions used in enzyme activity histochemistry and immunohistochemistry, though some protection is afforded by including a hydrophilic polymer such as polyvinyl alcohol in the medium (Chayen & Bitensky, 1991; Van Noorden & Frederiks, 1992, 2002).

For successful immunostaining of an antigen in a section of a tissue there must be:

1. Retention of the antigen at the sites it occupied in the living organism. This is favoured by formaldehyde fixation, which, by way of methylene bridges, can bind protein antigens to other protein molecules and trap antigens of any kind within a cross-linked protein matrix.
2. Permeability of the tissue, including cell membranes, to the large antibody molecules used as immunohistochemical reagents. A proteinaceous matrix that is tightly cross-linked by methylene bridges impedes penetration of large molecules, as do intact cell membranes. Exposure to organic solvents damages cell membranes and also distorts protein structures that have been incompletely fixed by formaldehyde. Hence, inadequate fixation and paraffin processing enhance the penetration of a tissue by antibodies, at the expense of inferior structural preservation.
3. The epitopes of the antigen must be accessible to the primary antibody. An epitope is a small part of a large molecule, such as a sequence of 3 to 10 amino acids, that specifically binds to the active site of an antibody molecule. A monoclonal antibody recognizes only one epitope. An antiserum, on the other hand, is polyclonal, containing antibodies that recognize several different epitopes of the same antigen. Cross-linking due to formaldehyde fixation is likely to mask epitopes, leading to false negative immunostaining. This failure is more likely to occur when the primary immunoreagent is a monoclonal antibody than when a polyclonal antiserum is used.

In summary, fixation in formaldehyde can impair immunohistochemical staining, not usually by damaging or removing the antigens but by preventing contact between epitopes and antibody molecules. There are several strategies for avoiding or reversing these undesirable consequences of the otherwise desirable process of fixation. The simplest form of avoidance is to use a fixative mixture other than neutral buffered formaldehyde - one that immobilizes proteins either by coagulation or by a combination of coagulation and cross-linking (Polak & Van Noorden, 1997; Van Noorden, 2002). If neutral formaldehyde has already been used for fixation it is necessary to reverse some of its actions and re-expose the concealed epitopes. Techniques for antigen retrieval and their possible mechanisms of action will be discussed in the second article of this pair.

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**Part 2: Antigen Retrieval: Preservation and retrieval of antigens
for immunohistochemistry-methods and mechanisms will be
reprinted for our membership in the winter edition of the *Slice of Life***

About the Author: Dr. John A. Kiernan is a professor in the Department of Anatomy and Cell Biology at the University of Western Ontario, in London, Ontario, Canada. He teaches neuroscience to medical and dental students but also does research in improving histological and histochemical techniques. His importance to the world of histology is admirably illustrated by a casual inspection of the Histonet, where Dr. Kiernan actively contributes to the highly interactive discussion. His textbook of *Histology* has long been a requirement for Med Lab students.

Reprinted from: *The Cutting Edge*. Region IX Newsletter, November 2005.

Don't forget

Send any suggestions for symposium topics to Lena Spencer,
President KSH. The symposium is fast approaching. We will
be meeting in March 2006.!



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Our yearly barbecue was held in the home of Cynthia Long. A delightful time was had by all. A special presentation was made to Renee' Slover (Matherly) for her 10 years of service in support of the KSH. Plus, congrats and best wishes as she starts her new life in Texas. She will be greatly missed. The business meeting was called to order by Renee' Slover at 8:37 pm July 27, 2005. Those in attendance were: Barbara Bishop, Lena Spencer, Sherrie Drake, Barbara Beckman, Joe Holyk, Audra Rasmussen, Ela Patel, Mary Beth Knight, Renee' Slover, Camille Campbell, Martha Davenport, Ann Tudor and Cynthia Long.

Minutes;

Minutes were read from last meeting. Barbara Beckman motioned to accept the minutes with corrections. Ann Tudor seconded.

Treasurer's Report:

No written report submitted. There are more paid dues than ever before with a membership of about 100. Cynthia sends reminders in all newsletters. We had several new members due to the fact it was cheaper to attend the Symposium if you became a member.

National News:

Renee' Slover has credentialed all KSH members going to the National meeting to serve as delegates. She announced that a 3rd delegate was needed. Renee' Gribbons from Audubon requests all KY delegates get together for dinner at the NSH in September.

New Business:

New Officers:

Lena Spencer was nominated for President and Sherrie Drake was nominated for Treasurer. Ann Tudor seconded these nominations. Vote was unanimous. Our new slate of officers for 2005-2007 is: President: Lena Spencer: Vice President: Audra Rasmussen: Secretary: Barbara Bishop: Treasurer: Sherrie Drake. All newly elected officers were sworn in by Renee' Slover, Outgoing President.

Audit:

An audit of the books will be required when they are signed over to the new treasurer. It was decided the two KSH members would be able to do this. Barbara Beckman agreed to contact Alisha McKown and see if she would be interested in helping her do this. She is to report back at the next meeting.

Financing the President's NSH Trip:

A discussion ensued regarding the funding of the President's trip to the NSH. In the past, the KSH has always paid for it, but there was no set amount or a vote taken by the membership for what would be included. The funds are available to pay these costs, although it was mentioned that our annual Symposium takes the most amount of money out of our budget. Donations from doctors and laboratories would greatly help with these expenses. All were encouraged to help with this. Barbara Beckman made a motion that the KSH would pay the following items for the President to attend the NSH meeting in September 2005: round-trip airfare, hotel accommodations in a NSH designated facility (room sharing is greatly encouraged), registration, \$35 per diem, and a banquet ticket. Mary Beth Knight seconded. All present in favor. Motion passes. Motion made to support delegates from KSH in the amount of \$150 each by Barbara Beckman. Motion seconded by Audra Rasmussen. All present in favor. Motion passes.

Other Business:

Next meeting will be in Louisville on September 21. Lena requested help in finding speakers and locations for future bimonthly meetings and the Symposium. Renee' Slover, Past President, will turn KSH records over to Lena Spencer, President, before August 5, 2005. Barbara Beckman made a motion to adjourn the meeting. Seconded by Ann Tudor. Meeting adjourned at 9:15 pm.



The Kentucky Society for Histotechnology

JOIN US!

www.kyhistotechs.com

Do you work in a research lab? clinical lab? teaching?, are you involved with immunocytochemistry? histochemical staining? slide preparation?, or do you just have an interest in histology? If you've answered yes to any of the above you should consider becoming involved in the state society for histotechnology.

The Kentucky Society for Histotechnology (KSH) is a non-profit organization established to foster communication and education among individuals interested in histotechnology and located at various institutions around the state of Kentucky. Bimonthly meetings held regionally are designed to provide an ongoing educational program. A major state symposium, including workshops, is held annually. Our objective is to improve standards in histopathology/research laboratories with up-to-date methodology and scientific advances in the field of histotechnology. Our state meetings supplement the educational effort of the National Society for Histotechnology (NSH) that holds an annual national symposium. The KSH has a listserv, website, newsletter and will be bringing a synopsis of the bimonthly seminars to the web for members unable to attend the regional meeting.

The Society represents your interests (certification issues, etc.) at the national level. Become a member and voice your concerns. By increasing our numbers we have a stronger voice in the House of Delegates at the National Symposium. Why not join today? Our annual fees are modest: new member \$10, renewal - only \$6.

Contact: Sherrie Drake - Treasurer. 78 Elk Creek Court, Taylorsville KY 40071.

Email: sherriedrake@bellsouth.net

National Society for Histotechnology Application for Membership

Indicate:

Social Security # _____ Supervisor yes No

Name _____

Home Address _____

City _____ State _____ Zip _____

Country _____ Home Phone () _____

Place of Employment _____

Department _____

Work Address _____

Country _____ Work Phone () _____ Ext _____

State Histology License No. (if applicable) _____

Student Membership _____
(Program Director Signature)

Check all applicable boxes: 1=primary 2=secondary

- | | | |
|--------------------------------------|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> HT (ASCP) | <input type="checkbox"/> AA | <input type="checkbox"/> University |
| <input type="checkbox"/> HTL (ASCP) | <input type="checkbox"/> BA/BS | <input type="checkbox"/> Hospital |
| <input type="checkbox"/> MT (ASCP) | <input type="checkbox"/> MA/MS | <input type="checkbox"/> Private Lab |
| <input type="checkbox"/> CT (ASCP) | <input type="checkbox"/> PhD | <input type="checkbox"/> Veterinary |
| <input type="checkbox"/> RT (CSLT) | <input type="checkbox"/> MD | <input type="checkbox"/> Marine |
| <input type="checkbox"/> ART (CSLT) | <input type="checkbox"/> DVM | <input type="checkbox"/> Botany |
| <input type="checkbox"/> Other _____ | <input type="checkbox"/> Other _____ | <input type="checkbox"/> Research |
| | | <input type="checkbox"/> Industrial |

Annual Dues: \$40.00 Student Dues: \$20.00

Mail information to Home Address Work Address

Membership Year
June 1 - May 31 (renewal each May)

Half year dues (\$20.00 New member; \$18.00 Student) applies from January to May only, with renewal June 1st at the yearly rate.

NSH membership includes a subscription to the Journal of Histotechnology published March, June September, and December. NSH will apply \$10.00 of your dues to the Journal subscription.

Remit fee with application, in US currency only.

Mail to: NSH, 4201 Northview Drive, Suite 502, Bowie, MD 20716-2604

Referred by NSH member: (Name) _____
(Optional)

Kentucky Society for Histotechnology Application for Membership

Name: _____

Home Address _____

Business Address _____

Telephone (Home) _____ Work _____

Email _____

Membership fees:

New member: \$10.00 per year
Renew \$6.00 per year

Membership year: June 1 to May 31

Checks payable to :

The Kentucky Society for Histotechnology

Mail to:

Sherrie Drake (Treasurer)
78 Elk Creek Court
Louisville KY 40071



Happy Birthday

July 4	Joyce Swain	University of Louisville
July 15	Lesa Towe	Dermpath Associates
August 27	ReneeGribbins	Audubon
Sept 10	Richard Wheaton	University of Kentucky
Sept 16	Janice Young	Jewish Hospital
Sept 27	George Qurinoa	Suburban Hospital
October 15	Susan Hayes	Norton Healthcare
October 15	Debbie Luttrell	Dermpath Associates
October 19	Bea Coomer	Baptist East
October 23	Susan Maze	King's Daughter
November 30	Ela Patel	University of Kentucky
November 30	Sherrie Drake	Norton Healthcare
December 14	Linda Goodwin	Baptist East

If you know of a birthday—send it to us. Contact any executive member or the editor of the newsletter.

Congratulations!

On July 1st, 2005 Renee Matherly was married to Rex Slover in Decatur, Texas. Renee has moved from Louisville and joined her husband, and three children in Justin, Texas. The KSH wishes Renee and her new family every happiness for the future. Thank you Renee' for your numerous years of service and phenomenal energy to the KSH. We will miss you!

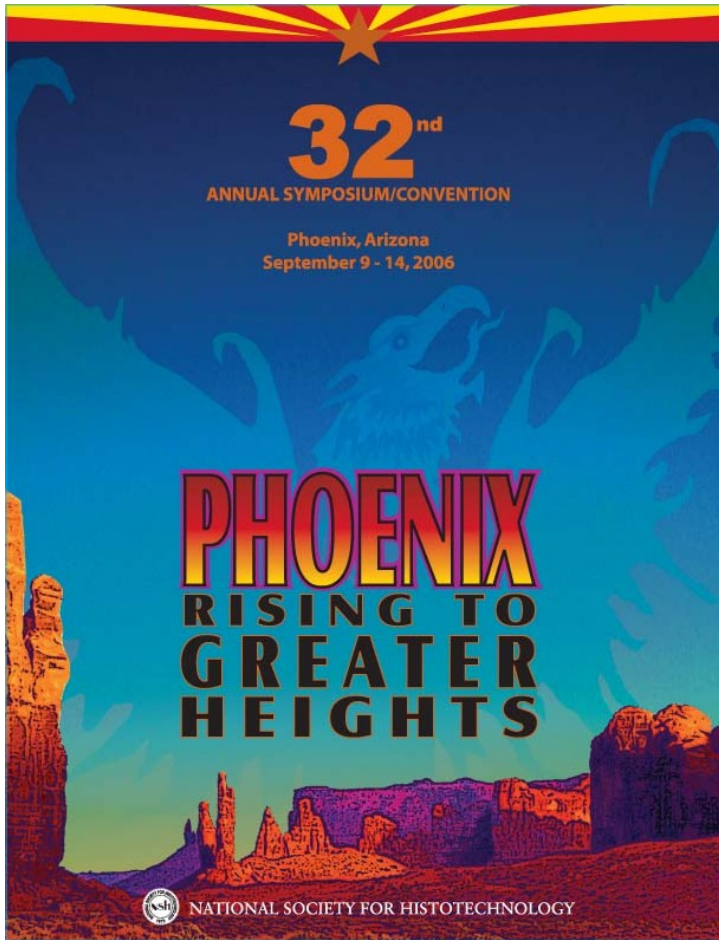
Check out the new format of our website. This may be a time for a new direction for the site so check it out; make suggestions; tell us what you would like to see on the site. Do you have information you would like to share—let us know. We are still at <http://www.kyhistotechs.com> Send suggestions to any executive member or to Cynthia Long at clongl@uky.edu (Webmaster)



KSH in Action

The annual KSH Barbeque was held in July at the home of Cynthia Long, Lexington. This particular meeting recognized the departure of Renee Matherly (Slover) from Kentucky and also the swearing in of the new executive. This is the first time in many years that we have had a full executive. Thanks to all who have offered their services to the society for the coming year. We had a pot luck with great food. The weather co-operated and we had a great turnout! Thank you! Why don't you plan to attend next year?!

Questions regarding upcoming meetings to Lena Spencer (President).



NSH 32nd Annual Symposium/ Convention

Phoenix AZ

September 8-13, 2006

Rising to Greater Heights



**The Kentucky Society
for Histotechnology**

Slice of Life
Cynthia Long, Editor
3500 Onyx Court
Lexington KY 40503-4387

Phone: (859) 323-6114
Fax: (859) 323-5946
Email: clongl@uky.edu

We're on the web
www.kyhistotechs.com

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Kentucky Society for Histotechnology

Symposium/Convention

March 2006

Do you have a topic you would like addressed?