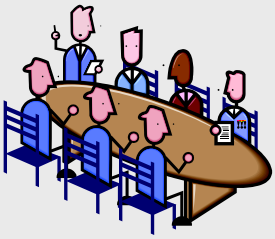
THE CUTTING EDGE

REGION IX NEWSLETTER

Spring Newsletter ~April 2006



Renew your membership for 2006

NSH Membership year is June 1st thru May 31st.

If you apply for membership or renew now at www.nsh.org , **dues will be applied to 2006 – 2007 year!**

And your name will be entered in the draw For the

USD $ 500.00 Regional Membership Scholarship

The names of all Region IX members will be placed into a draw to receive USD $500.00. You can spend the scholarship funds on any NSH educational material or to attend any NSH sponsored event. You will have two years to spend the money.

Joanne Clark
Winner of the 2005 Membership draw

2006 Drawing to be held at:

(Check the program for exact Room Location at the S/C Phoenix Arizona)

Where: Region IX meeting
When: Sept 10, 2005
Time: 4:30 – 5:30 p.m.
Event: S/C Phoenix, Arizona

Greetings from the Region IX Director

Hello everyone! Spring is here and so is....

National Medical Laboratory Week April 23 – April 29

It is time to take pride and recognize everyone's dedication and contributions to the field of Histotechnology everyday of the week but most especially on Med Lab week.

Let us all give ourselves a pat on the back for all the numerous times that we have gone above and beyond what our 'job descriptions' say! We all take pride in our work....reflect on those times when your hard work and dedication has paved the way for a quick diagnosis and treatment of a patient. It is the quality and excellence we provide that we can certainly say:

Histotechs do make a difference!

Election time is here ~ I have decided not to run for re-election ~ it was a very hard decision to make. I would like to thank every one of you who has given me support in my current position as Director for our region. I have really enjoyed every moment of it. I would like to thank Mark Elliott especially for being there for me and to all the executive committee for mentoring and coaching me to achieve success as a Director.

New blood is good – this will ensure the continuous growth of new ideas and creativity to our ever growing Region IX organization! Heather Nymeyer has stepped up to the plate and is running for this position. Let us all give her our total support and vote for Heather as the new Director of Region IX (her BIO is on page 7). I personally know Heather and I know she will do a fantastic job!! I will still remain as a member of the executive and will help in any way that I can.

Montreal Education Day
May 6, 2006, Centre Mont Royal

We hope to see many of you at our Montreal Education day – it will be such an exciting day ~ stimulating presentations by reputable speakers, 13 supportive exhibitors with the latest equipment and a chance to network with colleagues!
http://www.nshregionix.org/education.html

If you are going to the **NSH 32nd Annual Symposium/Convention in Phoenix, Arizona September 8-13, 2006**, do not forget to attend the Region IX meeting (check your program for the exact room location, time and date).

Rose Clarke

Education Update

Mark Elliott-Education Chair

Well, it looks like we may have done it again! Our Education Day scheduled for May 6th in Montréal appears to be a hit. We were hoping that we would be able to get 100 people registered and as of April 20th we are close to 130. There are 14 vendors who will either be present, or will have helped out in some way, so be sure to check out their exhibits during the day and show them your appreciation for all of the support they have given us. They have been generous enough to also provide us with some great door prizes. There are five speakers presenting a variety of topics (see next page), in English and/or French, and all handouts will have English or French versions. Most of the talks will have dual projection with English and French slides projected at the same time to make it easy for everyone to follow. From looking at the registration list we have people attending not only from the Montréal region, but also Québec City, Toronto, Ottawa, Vancouver, to name a few, and even New York state. It is shaping up to be a great day.

A reminder as well that registration for the upcoming NSH Convention/Symposium in Phoenix will be opening sometime in May-keep checking the NSH homepage (www.NSH.org) to find out exact opening dates. This S/C is always a great way for you to learn about a wide variety of subjects, and to network with colleagues from all over the world. It is also a great place to check out all the new equipment and supplies available from all the different vendors. It is the only place where you can easily do comparison shopping with little effort.

Also, once the Education Day in Montréal is over, we will be starting the planning for a similar event in Calgary for 2007. The date has not been confirmed but will most likely be in the summer. We will keep you posted as to the arrangements.

Mark Elliott mark@nshregionix.org
Region IX Education Committee, Chair

Current List of Exhibitors

Montreal Education Day
May 6, 2006 (Saturday)
Place: Centre Mont-Royal

VENTANA

chaptec

Dako

Leica

Davis Diagnostics Limited

SOMAGEN Inspired.

Surgipath

MEDICORP INC.

INTER MEDICO

Creative Waste Solutions, Inc.

ESBE Les Produits *Scientifiques* ESBE
Une division d'ESBE Scientific Industries, Inc.

Cell Marque™

MERCEDES MEDICAL
PHYSICIAN AND LABORATORY PRODUCTS

visionbiosystems™

Region IX Montreal Education Day
Centre Mont Royal
May 6, 2006

Speaker Abstracts

8:15 a.m. – 9:45 a.m.

'ROUTINE' Tissue Preparation in Modern Diagnostic Histopathology: Fixation Re-visited (Bilingual)

Bryan Hewlett. MLT, ART & Daniele Harnois

Diagnostic Histopathology, based largely upon histomorphological criteria, is a subjective "art" which relies heavily on the skills and experience of the pathologist. The histomorphological criteria are influenced by the preparative techniques used.

Immunohistochemistry has evolved to become an established routine staining technique in many hospital laboratories. Immunohistochemistry has the ability to identify, and even quantify, specific substances which cannot be characterized by conventional tinctorial staining techniques. The sensitivity with which immunohistochemistry can detect a specific substance may vary dramatically with only slight changes in the protocol used. Consequently, it is very difficult to compare the results obtained by different laboratories, since no standard protocol exists. Even within a single laboratory, using a standardized immunohistochemical protocol, day-to-day results may vary widely due to variation in the histological techniques utilized prior to immunohistochemical staining. Increasingly, particularly in the area of tumor classification, pathologists are being asked to provide additional diagnostic, prognostic or predictive information. This information is critical for proper therapeutic management of the patient. Much of this information is gathered by application of immunohistochemistry to the tissue sample.

Over the past fifty years, advances in tissue processing technology and other preparative techniques have dramatically reduced the time necessary to produce a tissue section with little compromise to the histomorphology. Unfortunately, acceptable histomorphology does not always indicate acceptable preservation of the specific substance to be identified by immunohistochemistry. In fact, the majority of immunohistochemical sensitivity problems, particularly in the area of predictive markers like ER, HER2, EGFR and CD117, may be attributed to sub-optimal tissue preparation.

10:15a.m.–11:30a.m.

Principes Techniques sous-jacents au Contrôle de Qualité en Immunohistochimie'
Technical Principles underlying QC in IHC (French, English slides)

Dr. Pierre Paul Turgeon CSPQ, FRCPC, DABP
Département de Pathologie
Hôpital Maisonneuve-Rosemont

12:30 p.m. – 1:30 p.m.

Basic Molecular Biology CISH/FISH (English)

Peter Krein, PhD

2:00 p.m. – 3:00 p.m.

Molecular Analysis of Tumors Using IHC/CISH/FISH (English)

Dr. Jim Farmilo

The three methods under discussion provide information to the Pathologist, Oncologist and Patient which allows them to identify and do a basic profiling of a tumor, indicate possible prognosis and treatments, and assists the patient in making choices about their life. Immunohistochemistry (IHC) provides information such as which proteins are present in a tumor and their localization. Colorometric and Fluoresence In Situ Hybridization (CISH and FISH respectively) provide information about the presence and amplification of RNA and/or DNA relating to particular genes. Together with other diagnostic information, a panel of antibodies used in IHC will determine the type of tumor involved. This method can also be used to profile the tumor with respect to critical proteins such as HER2, Estrogen/Progesterone Receptors, p53 and so on. The methods of CISH and FISH are useful in determining the presence or absence of specific tumor genes, and also in measuring the amplification of genes such as HER2 in order to help profile the tumor.

This information is becoming critical to treatment decisions, as tumors with different profiles have different prognoses, and are sensitive to different treatments. The increase in target specific antibody treatments for tumors, coupled with a very active development program in many pharmaceutical companies, is changing the approach to treatment from disease specific to patient specific. Examples will be given that show how the information provided by these assays can and will change patient management and also the patient's management of the disease.

3:00 p.m. – 4:00 p.m.
Quality Management and implementing ISO15189 (English)
Dr. Michael Noble FRCPC
Quality Management, UBC
Medical Laboratories are being introduced to quality systems and techniques developed by and for industry many years ago. Quality Management systems save money, reduce error, improve patient safety and establish the grounds and conditions for continual improvement. In Canada, the cornerstone document is the International Organization for Standardization (ISO) standard ISO 15189 Medical Laboratories – Particular Requirements for Quality and Competence.

This document initially intended as a helpful guide for laboratories to implement a quality management system, has become the essential document for medical laboratory accreditation in Canada, Australia, New Zealand, the United Kingdom, Europe and Japan.

A family of documents and standards increasing surrounding ISO 15189 addressing laboratory safety, point of care testing, and risk management is developing which provides added value and assistance.
This document will be introduced and its application to the medical laboratory will be discussed.

Leadership Corner ....

Your Vote Counts!

How many times have we heard it, "It's your responsibility to vote!" or "Your vote counts!" or any number of other phrases designed to get us to do what's right. And yet how many times do we respond by saying "My vote doesn't really matter!" or "They are all the same!" Well for once your vote does matter and they most definitely are not all the same.

We have the opportunity to elect two Canadians to the NSH Board of Directors, Janet Tunnicliffe as the Vice-President and Heather Nymeyer as Region IX Director.

We have the opportunity to have a strong Canadian voice in the group which represents all Histotechnologists. This won't happen unless you vote. So please, use this opportunity to have your voices heard.

Tom Wells
Region IX Nominations and Elections Chair

For your info....
NSH Board of Directors

The Board of Directors - makes recommendations to the Society, receives and takes action upon all matters initiated by the House, and is responsible for the administrative affairs of the Society. There are fifteen members: President, Vice President, Immediate Past President, Secretary, Treasurer, Speaker of the House of Delegates and nine Regional Directors. The President, Vice President, Secretary and Treasurer are elected by the general membership, the Speaker is elected by the House of Delegates and the Region Directors are elected by the NSH members of their region. The Board meets annually at the Symposium/Convention and the meeting is open for the membership to observe from a gallery.

www.nsh.org

NSH
MISSION STATEMENT

The National Society for Histotechnology is a non-profit organization, committed to the advancement of Histotechnology, its practitioners and quality standards of practice through leadership, education and advocacy.

Region IX Executive Committee

Rose Clarke
rose@nshregionix.org
Director

Rachel Peters
Rachel@nshregionix.org
Past Region IX Director

Michele Shackleton
Michele@nshregionix.org
Treasurer

Cheryl Clarke
Cheryl@nshregionix.org
Secretary

Michael Ho
Michael@nshregionix.org
Member at Large

Sub Committees

Rachel Peters
Rachel@nshregionix.org
Awards Committee, Chair

Heather Nymeyer
heather@nshregionix.org
Awards Committee, Co-chair
Membership, Chair

Mark Elliott
mark@nshregionix.org
Education Committee, Chair
By Laws Committee, member

Region IX Committee Members Serving on Other NSH Committees

Janet Tunnicliffe
janet@nshregionix.org
NSH Vice President

Tom Wells
Tom@nshregionix.org
Region IX
Nominations and Elections Chair

Bylaws Committee
Mark Elliott
mark@nshregionix.org

Region IX Website:
www.nshregionix.org

NSH website: www.nsh.org

Candidate for Director, Region IX
Heather Nymeyer

After obtaining my general registered technologist certificate from the CSMLS (formally known as the CSLT), I began my career in the Histology department at Royal Inland Hospital, in Kamloops, BC. Since starting my career in Histology I have held several different positions including routine bench tech, Teaching Tech, Safety representative and presently Charge Technologist. I have also been involved actively in the implementation of the computerization of the Anatomical Pathology Lab in our health service area. My choice to specialize in Histology 28 years ago is one that I have not regretted, and I look forward to the changes that the future will bring to the field of Histotechnology.

I was introduced to the NSH approximately six years ago, and attended my first S/C in 2004. It was very easy to become "hooked" on the NSH and to see the benefits of being a member. I remember the first time I entered the vendor's hall and was just absolutely amazed at the number of vendors and the amount of equipment available to view. The lectures and workshops were some of the best I have ever attended and when I returned to Kamloops, I was able to introduce some new products, procedures and ideas to our laboratory. I realized during my time at the S/C this was a Society that I could definitely become involved with and so I submitted my name to our Region IX executive and the Awards committee as Co-chair. One of my goals as a member of the awards committee is to expand the award incentives for the Region IX membership.

When asked what my goals would be for my term in office, I realized the best thing I could do for our region is to bring awareness of the NSH to all our Histology and Cytology laboratories within Canada. I would like to continue to expand the scope of the Region IX Education day to incorporate the whole of Region IX. I hope to continue to improve communications with all members through our Region IX website: www.nshregionix.org and the newsletter.

I am very excited to be nominated for the Region IX Director and I welcome and look forward to the challenges the job offers.
Heather Nymeyer
heather@nshregionix.org

Candidate for NSH Vice President
Janet Tunnicliffe

You never think it is hard to write a biography until you are asked to do it. My career has taken me from Vancouver to Toronto and overseas to New Zealand. I have worked as a bench tech, Teaching Tech, Supervisor and Department Manager and now a Regional Lab Scientist.

Starting as a general duty tech I moved into Pathology where I have remained but I have moved back and forth from clinical, neuropathology, to research and even technical sales. Each move and change has brought me new knowledge and skills which I have been able to apply to both my professional and personal life.

Continuing education has always been a part of my life and what lead me to join NSH. Twenty five years ago when I attended my first convention I was awed by the level of education available. Today after being part of several committees, Secretary of the House of Delegates, Region IX Director, Secretary of the Board of Directors and Vice President, I am still awed by the organization and the dedicated volunteers who keep everything running.

The greatest benefit that NSH has given me is the opportunity to meet people and make many life long friends. Life philosophy, speak up and don't let life pass you by.

Janet Tunnicliffe
Janet@nshregionix.org

A Second Look at Staining and other Techniques

Paul Bradbury, ART, FIMLS,
Kamloops, BC,
Formerly Senior Instructor, Medical Laboratory Sciences,
British Columbia Institute of Technology

Staining is not a new invention. One of the very earliest practices among primitive man was to apply dyes to colour their skin. The ancient Britons, many other European tribes, the Japanese, the Maori in New Zealand, and West Coast Indians all decorated their skins. The practice still continues today in the form of make up, hair dyes, and tattoos. Since those very early times, man has also had an urge to change the colour of his environment, his clothing and garments. Ancient man had to use naturally occurring dyes; in the modern world we have access to many hundreds of synthetic dyes. The principles of dyeing have not really changed since those ancient times. We are a little more scientific about it, but the mechanisms remain the same. Coloured substances are attached to non-coloured items to make them prettier, or brighter, or more easily seen, and to make them stand out from other structures. In Histology, this is really what staining is all about, making something stand out, making it more visible, developing a contrast between one specific feature and everything else.

Staining and other demonstration techniques are employed on every tissue sample that is examined in a Histology Laboratory. Without some form of demonstration technique very little detail can be seen in tissue sections. Thin, even sections of correctly fixed, well processed tissues are essential, but without a means of visualizing the tissue components, diagnostic features will not be seen. A sound knowledge of how demonstration techniques work is vital to ensure success in performing them.

Frequently, when people talk about staining, they limit their discussion to dyes, chromophores, auxochromes, resonance systems, absorption and transmission of certain wavelengths, etc. These are all relevant topics, and are critical to staining, but this is only half the story. The half that is frequently overlooked is the tissue, the cells, and the structures to which we apply the stain. In any situation where we want staining to occur, the role played by the tissue is equally as important as that played by the dyes and stains. In this article, we need to spend time looking at the role that is played by the tissues, and at the role that is played by the dye molecules and other coloured substances.

Why does staining occur?

There are two main factors behind all staining reactions. One of the driving factors of all staining reactions is “entropy”. Entropy is an irresistible tendency of any system towards increasing disorder. Entropy is a force whereby nature tries to balance everything out. Nature hates a vacuum; she will do everything possible to cancel out the vacuum. Put an ice cube in a glass of water, the ice cube melts; the effects of entropy have taken the orderly system of cold ice, and warm water, and has melted the ice and evened out the temperature. In a tissue-dye reaction, we start out with a very orderly system of lots of dye in the solution, but no dye in the tissue. Entropy moves the system towards a less orderly situation, and causes the dye molecules to move to the tissue substrate, to try to balance out the distribution of the dye molecules. The other major factor is “affinity”; under a given set of circumstances, the stain reagent prefers the tissue to the solvent. If allowed, the dye molecules will leave their solvent and become attached to tissue elements. Staining has been described as an “entropy-driven ion exchange reaction”; tissue ions are exchanged for dye ions, in an attempt to even out the imbalance in dye ion distribution. This is a very simple, but very accurate stance from which to view staining reactions. So, if staining is an attempt to move dye ions from their original solution to the tissue.

Why doesn’t everything stain?

• Some tissue groups have a greater affinity for dyes than others, therefore they attract more dye molecules.
But, if all tissue groups had the same affinity,
• The concentration of reactive groups varies from place to place, and so dye ions are concentrated at those sites where the reactive groups are most dense.
But, if the concentration of reactive groups was the same,
• Different tissue have different penetration rates, dyes will get into some structures more quickly than into others.

But, if all tissues had the same penetration rate,
• Different tissue groups have different rates of reaction, some will react almost instantly, others may take a while.
But, if all reaction rates were identical,
Some tissues will hold onto the dye substance longer than others. Washing tissues will cause some structures to lose their colour quickly, others more slowly.
But, if all retention rates were the same,
• Reactions at some sites may cause metachromasia or dichroism and result in different colours being produced by the dye molecule.

There are obviously, numerous factors working to our benefit when we perform staining methods that will selectively colour certain tissue structures. It is quite possible to do this, with very little skill, and it does not require any understanding of dye chemistry or tissue chemistry. This was apparently the approach of our predecessors in the late 1800's, who seemingly took a variety of reagents, poured them onto tissue sections, and sooner or later found a mixture that stained something. Given enough time, enough reagents, and an endless supply of sections, how could they fail? There was frequently no understanding of how things worked; they just did. These were empirical methods, they required blind faith in the method, and provided no logical answer if the method failed to work. This was empirical histology and was practiced in many laboratories until as little as 25 years ago. Many histologists began to question why these methods worked, why did they sometimes fail, how could they get them to work better, to work faster, more intensely, or more specifically. This demand for knowledge prompted the scientific, logical investigation of how histological methods worked. This was the birth of Histochemistry. More recently, with further advances in organic chemistry, dye chemistry, protein structure, carbohydrate structure, composition of nucleic acids, enzymes, specific antibodies, etc. and with advances in the quality and purity, of reagents, the answers have been provided. We now know why many of these methods work, how they work, and we can make them work better, faster, or more specifically. However, there are still some which are very obscure, and apparently have no clear, logical explanation behind their reactions.

In any demonstration method (whether it is a staining reaction, metallic impregnation, product formation, antibody-linked reaction, or enzyme reaction), there are two essential participants:
• tissue, cells, extra cellular materials, etc.
• visualizing reagent (dye, fluorochrome, metallic salt, dye salt, etc.)

The vast majority of tissues have been treated at some point, by fixation, dehydration, clearing, embedding, sectioning, and heating. Each of these treatments causes some change to the tissue; they are physically and chemically altered. Protein structure is changed, proteins are denatured, reactive groups are masked, other groups are exposed, nucleic acids are precipitated, and some elements are lost. The reactivity of the tissue may be enhanced, or it may be inhibited.

Some of the common effects:
Formaldehyde fixation causes a decrease in the number of ionizable amino groups that are available for attachment of dye molecules. Methylene bridges are formed between adjacent protein chains, blocking dye access to these protein groups. Consequently, tissues fixed in formalin will stain less intensely with anionic dyes that attach to amino groups. After prolonged fixation in formaldehyde, tissues will stain more intensely with cationic dyes.
Alcohol/acetone fixation destroys the balance between hydrophilic/lipophilic elements. Proteins are denatured, fats are removed, and water is removed. Tissues shrink noticeably. Anionic and cationic staining patterns are not changed.
Picric acid fixes tissue by forming salts with proteins. Proteins are changed by this action. Some protein picrates are soluble in water and may be lost by washing. The structure of the protein is changed, previously reactive groups are no longer reactive, non-accessible reactive groups are exposed by disrupting the structure of the protein.
Glutaraldehyde produces a similar effect to formaldehyde, but with the additional complication of adding reactive aldehyde groups to the protein chains. Proteins become non-specifically P.A.S. positive.

Whatever form of treatment is used, the tissue is changed chemically. Reactive groups that were present before treatment are no longer there. New reactive groups exist where there were none before. The tissue is also changed physically; these changes may vary from minor ultra structural changes to visible macroscopic changes. Tissue elements may be shrunken, swollen, or disrupted. Tissue pores may be closed, reduced, opened, or swollen. Lipids are removed from cells and cell membranes. The tissues are changed from their original chemistry and from their original structure.

The changes may not even be consistent, due to minor changes in treatment, length of time spent in fixation, concentration, temperature, length of exposure to reagents, tonicity, etc. The second half of the equation is the coloured material that we want to attach to the tissues. The most common colouring methods use dye molecules.

Consistency of treatment is essential to ensure the consistency of the final results. Tissue processing is usually automated and follows a defined, consistent series of steps. However, fixation is frequently less consistent. Tissue samples that are received early in the day receive much longer fixation than specimens that arrive late in the afternoon. This becomes particularly significant when fixing tissue destined for immunohistochemical investigation. Numerous articles have been written on the benefits of extended fixation and its effects on reaction strengths and consistency.

What is a dye?

A dye is an organic molecule that possesses two properties:

- it reacts with light rays by absorbing and transmitting certain wavelengths to produce the phenomenon of colour (or a visible effect).
- It has reactive chemical groups which are capable of forming bonds with reactive groups in the tissue.

Many substances have one of these properties, but a dye must have both. The production of colour is dependent on the dye molecule having a system of delocalized electrons. These react with light to absorb or transmit certain wavelengths to produce colour. Fluorescence, dichroism, and metachromasia are all phenomena produced by particular configurations of the dye molecules. A number of factors, the symmetry and shape of the molecule, and also its size govern the actual colour of the molecule.

Other colouring methods

These include visualization procedures such as metallic impregnations, production of insoluble coloured products by chemical reactions or enzyme activity, and specific antibody-linked procedures. A vast range of tissue components may be demonstrated by these procedures. Any laboratory manual or textbook contains a myriad of methods to demonstrate the constituents of normal or diseased tissues. Each of these methods lists the anticipated results of the method and often claims varying degrees of specificity.

In reality, the majority of “histological staining methods” are really quite non-specific. When the method is used under a limited set of circumstances, the results may appear quite specific, and we may assume that the reactions will be limited to those tissue components that are expected to react. The naive assume that Harris hematoxylin will stain only nuclei, that only collagen will stain red after van Gieson, that the PAS will show only glycogen, and a silver impregnation will demonstrate only fungi. However, when we consider the histochemical reactions involved in the methods, there is no sound reason that the staining of Harris’ hematoxylin should be limited to nuclei, or that the PAS should stain only glycogen, or that only fungi will be black, etc.

A staining method is just a series of chemical reactions involving available reactive tissue groups and reactive dye molecules or metallic compounds. If two reactive groups are placed together, a reaction between them will occur; if a tissue anion and a dye cation are placed together, a reaction will take place. The reaction will always be the same, and will be quite predictable.

In a simple example, if we place a section in a solution of methylene blue, the nuclei will stain. The dye cations will bond with the tissue anions, and the nuclei will appear blue. However, complications arise from the fact that nuclei are not the only tissue components that contain anionic groups. Tissue anions occur in a wide range of sites, mitochondria, nucleoli, ribosomes, trilaminar membranes, goblet cell contents, connective tissue matrix, myelin, etc. They will all react with cationic dye ions. From the viewpoint of someone who is merely following the steps of the method, the staining of ribosomes would appear “incorrect”, and myelin staining would seem “wrong. This person expects only a “nuclear stain”; they did not want ribosomes and myelin to stain. However, from an informed histochemical viewpoint, the results are quite clear and logical, and should be anticipated.

The same concept may be applied to the majority of “staining methods”. The PAS reaction, reticulin silver impregnations, Masson Fontana, aldehyde fuchsin, etc. will all stain a wide range of tissue elements, but the histochemical reactions involved are consistent. The reactive tissue groups that are involved are the same.

So what factors will produce variation in the results of histological methods?

- The reactive groups with which we are dealing are not consistent, due to variability in the treatment of the tissues.
- The reactive groups in the tissues have been altered by a pre-treatment.
- There are more reactive groups than we had anticipated.
- There are reactive groups in places we did not anticipate.
- The conditions surrounding the reaction have been changed.
- We are trying to use a standardized method in an non-standardized situation.

The explanations are simple ... but how do we control the situation?

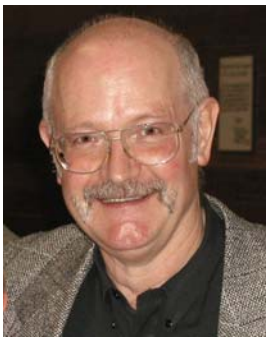
Histopathology is very subjective under the best of circumstances, but we need to minimize the variations which exist.

What can we do to ensure consistency and reliability?

- A current methods manual and established protocols that are followed by all staff members.
- A well researched, well referenced, current Laboratory Manual is essential to ensure consistency. It must, however, never be allowed to become a substitute for technical and theoretical competence. Never "just follow the recipe".
- A sound knowledge of the histochemical reactions involved and the effects of variations on the standard protocol are vital to ensure success.
- Even when doing a routine method, remain fully aware of the histochemical basis that underlies the reaction.
- Evaluate the results of changes in protocol. Do not make arbitrary changes. A change in fixation may have a major effect on a subsequent reaction. Changes to the timing, temperature, pH, concentration, etc. of a reaction must be accompanied by an evaluation of the effects of the change.
- Monitor every product that leaves the laboratory by ongoing Quality Control. Control sections must be used and examined by the technologist performing the procedure; do not delegate this responsibility to the pathologist. It is the role of the technologist to assess quality and specificity. Control sections are not there just to increase the monthly unit values.

As Histotechnologists, it is our responsibility to ensure the highest quality and consistency of diagnostic materials. A detailed knowledge of the individual reactions involved in each procedure is an essential part of this responsibility.

A word about the author.....



I first met Paul Bradbury when I was a student in his Histology class at BCIT more years ago then I care to remember. It was Paul who inspired my interest in Histology. As well as teaching the basic Histology course he showed me that Histology was much more than just cutting sections and blindly following special stain "recipes". Paul pointed out the rich scientific background behind the methods that we do in Histology. He showed me that Histology was a scientific discipline in its own right.

In addition to being an inspirational teacher he is also a published author. Over the years Paul has contributed to *Theory and Practice of Histological Techniques*, Bancroft & Stevens, 1975-98. He also wrote the very well received book: *Introduction to Microscopy*, Paul Bradbury, 1986-1996 as well as numerous other articles. Paul's intelligence and wit has made him a popular speaker at numerous CSMLS conferences. He has received both the fellowship of the Institute of Medical Laboratory Sciences (England) as well as an ART. His experiences include being a laboratory scientist at the University of Alberta, a head technologist at VGH, a Histology Instructor at BCIT and most recently at Royal Inland Hospital in Kamloops.

Tom Wells

Region IX Awards

The Region IX Executive would like to remind the membership of its Awards for 2006.

Region IX has added two new awards for 2006

The Region IX Histotechnology Student Scholarship Award

This student scholarship award is sponsored by Reg Sidhu, MBA, and will be presented annually to a deserving student enrolled in an approved School of Medical Laboratory Technology or a student enrolled in a recognized Bachelor of Medical Laboratory Science course. Only Med Lab students are eligible for this award.

The Awards Committee will select the recipient of this award and suitability will be determined by academic ability and consideration will be given to the applicant's financial situation. These determining factors will be used as criteria for selecting the recipient. The award will carry a $1000.00 prize to be used towards educational endeavors in the discipline of Histotechnology. Visit the Region IX website for the qualifications that are expected of applicants. Applications must be submitted by July 31st. http://www.nshregionix.org/studentacheivementaward.pdf

The Region IX Vendor Plaque of Appreciation

This award will be presented annually to a vendor that has shown a continued commitment and support to the advancement of Histotechnology in Region IX. The award shall have no monetary value and will be in the form of a plaque stating the name of the vendor. The vendor's nomination must be submitted by a NSH member(s) in good standing

Nominations must be made in writing to the Awards Committee and must be submitted by July 31st of the year in which the award will be presented. http://www.nshregionix.org/vendoraward.pdf

The Malcolm Silver Award

This award is sponsored by Region IX and is presented annually at the Region IX membership meeting during the NSH symposium/conference. The award is given for the best article, published or unpublished which in the opinion of the awards committee, contributes to the progress and development of Histotechnology as a profession. It carries $100 cash prize and up to $1,000 to be used to travel to the NSH symposium/conference to accept the award, or be used within one year to travel to the NSH symposium/conference.

Visit the Region IX website for the qualifications that are expected of applicants, the selection process and application form. Applications must be submitted by July 31st. http://www.nshregionix.org/malcolmdsilveraward2.pdf

The Surgipath Award of Excellence

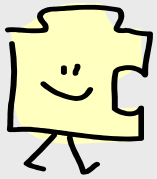
The "Award of Excellence" is sponsored by Surgipath Canada Inc. and is awarded annually to a member of Region IX who has achieved a level of excellence. It is presented at the Region IX membership meeting during the NSH symposium/conference. The award is set up for self- nomination. If you feel you or someone you know meets the criteria you may apply by contacting Surgipath Canada or the Region IX Director. Selection will be made by appointed members of Surgipath Canada and the Region IX Awards Committee and carries a $1,300 cash prize and a plaque.

Visit the Region IX website for the qualifications that are expected of applicants, the nomination process and application form. Applications must be submitted by July 31st. http://www.nshregionix.org/surgipathaward2.pdf

Rachel Peters
Chair, Awards Committee
Region IX

HISTO-WORDSEARCH

d c u b o i d a l e u i o i k
e u e z g l e c d l k c r l m
i n c n t l i m f e u i e m m
f r m i d c f o r c s n p u i
i r a a l o i a e l u e i i r
t r a n s i t i o n a l t l i
a f t u i i a h m l e i h e t
r e i i n s r m e h l i e h e
t i t i e a t a t l a s l t n
s i z r n i s o i u i q i o b
o e f d s o s v i o n u u r r
d s t e r e o c i l i a m u e
u b n i m r i u e u h m i e e
e l l e c t e l b o g o n e e
s n t i l i l r a n m u l o c
p t m i l c l h s t u s i n d



Calling all Histo-searchers!

Take the HISTO-Word Search Challenge

Created by May Chin

This is the first word search of a series that will take you back through Histology basics and microanatomy.

Find the words that have been hidden in the grid. For the solutions

cuboidal	transitional	pseudostratified
cilia	mesothelium	squamous
epithelium	microvilli	stratified
urothelium	columnar	goblet cell
keratinized	endothelium	stereocilia

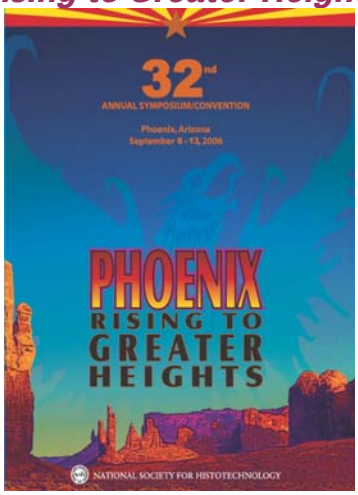
Solution to Word Puzzle

Page 15

Education Calendar

NSH 32nd Annual Symposium/Convention
Phoenix, Arizona
September 8-13, 2006

Rising to Greater Heights



http://www.nsh.org/conventions/index.html

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Catch The Dream
May 27 - May 31, 2006
Winnipeg, Manitoba

Joint Congress of Medical Laboratory Science (CSMLS & the Manitoba Society of Medical Laboratory Technologists)
http://www.csmls.org/congress/mainpage.htm

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Biological Stain Commission
2006 Scientific Session
June 2, 2006
Wyndham Milwaukee Center Hotel
dickdapson@anatechltdusa.com
http://www.biostains.org/

~

Maritech 2006
Oct 26-28, 2006
Delta Hotel, King St.
Saint John New Brunswick
☏ 1-800-268-1133
Speakers list is still being worked on.
Contact: Claudette Ptasznik: pta@nb.sympatico.ca
http://www.nbsmlt.nb.ca/

We are proud to be the Canadian NSH Histotechs!!

Enter to Win!!!
Region IX
T-shirt Design Contest

Each year, NSH sponsors a

- **Best T-shirt Design Award**
- **Runner up for Best T-shirt Design**
- **Most number of attendees wearing a state or region T-shirt**

This was our T-shirt last year

2005 Region IX S/C T-shirt

Design a T-shirt that Region IX members will be proud to wear to the 2006 S/C Phoenix.
Winning design will be printed in time to wear at the S/C in Phoenix T-shirt competition!!

Prize for winning designer:
Bottles of beautiful
B.C. Red and White wine

E-mail your design by:
July 31, 2006 to:

Cheryl@nshregionix.org or
janet@nshregionix.org

Please contact Cheryl or Janet if you wish to send your design by postal delivery.

Please check calendar program for exact room location and time!

Answer to HISTO-Word Search Challenge

THE CUTTING EDGE is the official newsletter of Region IX of the National Society for Histotechnology. It is distributed quarterly to 305 members in Canada.

The Objectives of THE CUTTING EDGE are to:

- Reflect both Canadian and North American articles pertinent to the practice of Histotechnology
- Publish articles that are beneficial to our discipline .
- Promote communication between Region IX members and members of the other NSH Regions
- Provide a medium for exchange of information among members.

Contributions are *welcome.*
Please send your articles to:

Rose Clarke, RT, M.A.
rose@nshregionix.org
Burnaby Hospital
Fraser Health Authority
3935 Kincaid St.
Burnaby, B.C. V5G 2X6
Tel: 604.412.6251
Fax: 604.431.2806

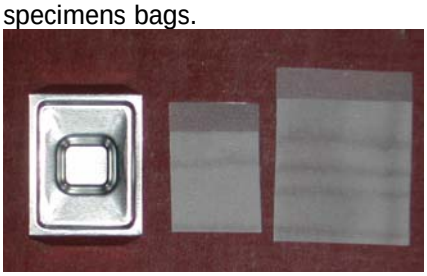
W. Mark Elliott Ph.D.
mark@nshregionix.org
St. Paul's Hospital
1081 Burrard St. Rm.166
Vancouver, B.C. V6Z 1Y6
Tel: 604.806.8346
Fax: 604.806.9274

Production of The Cutting Edge is *sponsored by Surgipath Canada Inc.*

www.nshregionix.org

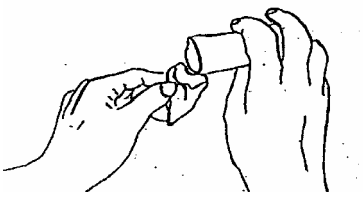
New From Surgipath Medical Industries

Biopsy Bags: Small mesh for the processing of biopsy and histological specimens bags.

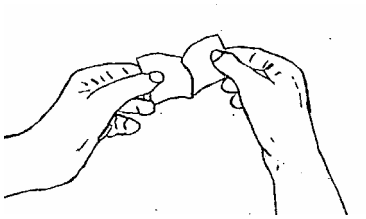


Manufactured from solvent resistant nylon bags that provide an excellent fluid exchange and maximum tissue safety during processing.

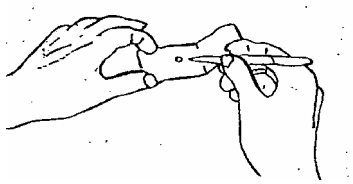
Instructions for use:



- Empty the fixative and the specimen in the bag, the bag filters the fixative and the biopsy remains inside.
- Close the bag and put it in a standard biopsy cassette.
- Process as normal.



- After processing extract the bag from the cassette, open it with care extending the edges.



- Extract the specimen and embed it in paraffin.

Biopsy bags ordering information:

Item #	Description	U of Measure
01085	Biopsy bag 30x45mm	1000 / Bag
01087	Biopsy bag 45x60mm	1000 / Bag

FSC 22 - Frozen Section Compound

FSC 22 is a water soluble embedding compound used in frozen sectioning. It provides excellent sectioning consistency with minimal curling of sections at working temperature of -20 Celsius. FSC 22 comes in clear and in blue for better visibility of small specimens.

FSC Ordering information:

Item #	Description	Size	Qty
01480	Clear	118ml	9/case
01481	Blue	118ml	9/case

MM24 Mounting medium- *FAST DRYING!

MM 24 is a low viscosity mounting medium that is compatible with aromatic and aliphatic clearing agents. It is specially formulated to provide optimum results with automated glass coverslippers and is excellent for manual as well. Set-up time for permanent filing is normally **24Hrs** when used with conventional aromatic clearing agents and 48-72 hours when using aliphatics (xylene substitutes)

MM24 ordering information

Item #	Size	QTY
01120	Pint	Each
01121	Case	4/Cs

Contact your Sales Representative today for more information at 1-800-665-7426!

Surgipath® CANADA