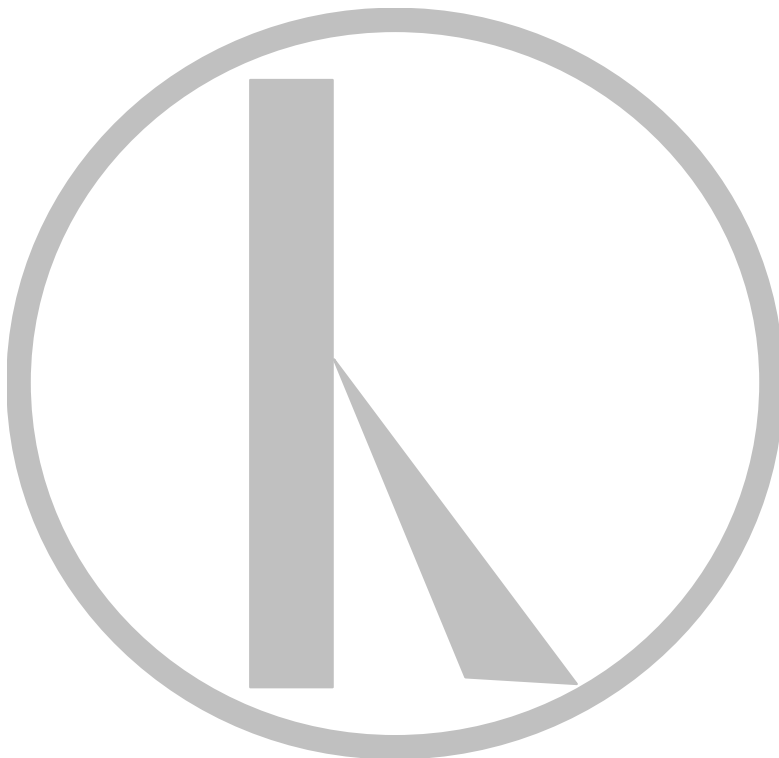

Histograph

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Newsletter of the Histotechnology Group of NSW

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Editorial

Only a few months to go before our National Scientific Meeting at Rose Hill. We hope you have taken advantage of the early-bird registration (definitely save money). AND it will give us an idea of workshop registrations. Be quick, they are filling up rapidly.

In this issue, we launch into paneth cells, and then zap Hepatitis C, followed by aging IPX slides and if you are then feeling unwell, we can inject some dyes or let our furry friends take care of it! What am I talking about? It is all in this issue.

See you all soon.

Tony Henwood,
Editor
anthonyh@chw.edu.au



Chairman's Report

We have just held our "Annual General Meeting" at North Ryde RSL. It was pleasing to see a good attendance of some 40 people. Two of our key committee members, Kathy Drummond and Lin Parkes, who have been on our committee for many years, have decided to "hang their hats up" to focus on family and other commitments. We wish them well in their future endeavours and thank them for their large contribution to our Group. They will both continue to assist with the preparation of the National Conference in November and also ensure there is a smooth changeover with the new Secretary and Treasurer. Congratulations to the new committee members on your election. Looking forward to working with you over the next 12 months.

Our guest speaker at our AGM was Dr Kendall Bailey, Forensic Pathologist, Division of Forensic Medicine, Glebe, NSW. Kendall's presentation revolved around the post death indicators which assist in identifying time of death and the "Body Farm" in USA where she worked for a period. The "Body Farm" is a "Forensic Anthropology Centre" associated with the "University of Tennessee". This unique facility was commenced by Dr William Bass in 1971. It provides a resource facility for students, researchers and Law enforcement agencies. For those who could not attend you missed a very special and informative presentation by a passionate and polished speaker.

In June Dr Tina Baillie (Pathologist with Douglas Hanley Moir Pathology) gave a very interesting presentation on Thyroids. The meeting was well attended and a good night was had by all.

A reminder that Membership renewals are now due.

Our Christmas Function has been booked at "North Ryde RSL Club" on Friday night the 25th of November 2011. Please note this in your diary.

Our main focus continues to be the next "National Histology Conference" in November. Below is some important information relating to this conference.

We have a link on our website to Rydes, Parramatta who are our official accommodation providers. As of the 19th of August there are still 48 rooms available for Friday night and Saturday

night. There is a special conference rate. We still suggest you book with them as soon as possible.

The two "Cut Up" workshops are now "Full" and we cannot accept any further bookings. We still have plenty of spaces left for Tony Henwood's first workshop (Histo Hypotheticals). Since this is not a wet workshop, we can accept more attendees. The second workshop (Unusual Histochemistry) is a wet workshop and therefore places are limited.

We have now finalised all speakers including one International. A preliminary program has been posted on our Website www.histonsw.org.au. We have had some issues with the Website, these have been resolved. The Website will be our main means of communication in the lead up to the Conference.

We have 19 trade display stands confirmed with some still being finalised. Three companies will be having user meetings at our Conference. A number will be using this meeting to launch new products into the Australian market.

Note the "Early Bird" registrations finished at the end of August. For those who could not send their paperwork in before this deadline the normal rate now applies. The normal rate still represents excellent value. The cost for delegates and exhibitors has been kept down by the NSW committee organising the conference instead of an outside body.

As of the 19th of August our registrations for delegates and trade are around 100. There are many people caught with paperwork in systems. We want as many people as possible to attend so spread the word to as many people as possible. This is a wonderful opportunity to gather new information and ideas, see a large trade display and meet with colleagues socially.

It is encouraging to see a lot of bookings for the dinner. The NSW Group is subsidising this Dinner. The venue has one a "National Award" for Banqueting and catering so the food will be good and you will have an enjoyable night.

Keep the registrations coming in; we look forward to seeing you in November.

Cheers,

Trevor Hinwood. Chairperson. Histotechnology Group of NSW.

Paneth Cells Review

The structure of the small intestine reflects its main functions: the digestion of food macromolecules into their low molecular mass components, followed by their absorption. The absorptive surface of the small intestine is greatly increased by its complex folding. The luminal surface is covered with a velvety carpet of villi, finger-like projections about 0.5–1mm long, each of which is surrounded by several very narrow pits, referred to as crypts. Contrary to their name, the crypts are the birthplace of absorptive epithelial cells whose lifespan is only 4–6 days, as they migrate to the tips of the villi and are shed into the lumen (Gantz 2000). Absorption places limits on the barrier components of the mucosa. Indeed, unlike the oral mucosa and oesophagus, the intestinal mucosa comprises only a single layer of epithelial cells (Bevins 2006). Fresh absorptive epithelial cells from the crypt must continually replace these shed cells, damaged by exposure to digestive enzymes and detergent bile. In a cluster at the bottom of each crypt are Paneth cells with a cytoplasm filled with large secretory granules. Above the Paneth cells are the rapidly dividing pluripotential stem cells that give rise to all the intestinal epithelial cell lineages, including Paneth cells and the absorptive epithelial cells. The function of Paneth cells has long been a mystery (Gantz 2000).

Paneth cells were discovered by Schwalbe in 1872 and described more fully by Paneth in 1888. They have been found since in the intestinal mucosa of a wide variety of animals. They are found in the fundus of the crypts of Lieberkuhn and their characteristic feature is the large granules visible in both

the fresh and fixed state in the apical or upper part of the cell (Lewin 1968).

In man they occur naturally in the small intestine, appendix, and colon and have been reported in the colons of neonates. An increase in the number of Paneth cells has been reported in inflammatory disease of the appendix and in the colon in connexion with ulcerative colitis, in tuberculous 'typhlitis', and in adenoma and carcinoma (Lewin 1968).

Innate immunity provides an immediate and continuous protection from microbes, the so-called first line of host defence of mucosal surfaces, including the small intestine. The innate immune system includes receptors for recognition of microbes, signalling molecules that co-ordinate the various defensive responses, including communication with the acquired immune system, and effector molecules for the incapacitation and elimination of microbes. Innate immunity encompasses a complex array of defence pathways mediated by both local and circulating effector cells. In the small bowel, innate host defence mechanisms include (Bevins 2006):

- (i) physical processes, such as peristalsis,
- (ii) chemical barriers, such as mucus,
- (iii) cellular processes, such as phagocytosis, and
- (iv) complex signalling pathways, including microbial receptors, eicosanoids and cytokines.

In addition, activities associated with digestion, such as the aforementioned hydrolytic enzymes and bile salts, may also

contribute to the inhibition of microbial growth. Together, these physical and chemical components of innate immunity are thought to provide immediate protection against the threat by deleterious microorganisms of colonization and infection (Bevins 2006).

Ayabe et al (2000) determined that Paneth cells are the sentinels of the crypts. They react to bacteria by releasing defensins in more than sufficient quantity to kill bacteria. Preceding histologic and biochemical studies showed that mouse and rat Paneth cells discharge their granules into the crypt lumen in response to bacteria, lipopolysaccharide and also after cholinergic stimulation that normally signals the arrival of food with its load of microbes. Defensins have hydrophobic and positively-charged domains that can interact with phospholipids in cell membranes. This structure allows defensins to insert into membranes, where they interact with one another to form pores that disrupt membrane function, leading to

cell killing. Due to the higher concentration of negatively-charged phospholipids in bacterial membranes than vertebrate membranes, defensins preferentially bind to and disrupt bacterial cells, sparing the cells they are functioning to protect. The secretory granules of Paneth cells contain lysozyme, an antimicrobial enzyme that dissolves the cell walls of many bacteria (Gantz 2000). In addition, type II phospholipase A2, an enzyme specialized in the lysis of bacterial phospholipids, is also secreted by Paneth cells (Ayabe et al 2000).

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Can you trust your cryostat? Reproducibility of cryostat section thickness

De Witt Hamer PC, Bleeker FE, Zwinderman AH, Van Noorden CJF
Microscopy Research and Technique: Volume 69, Issue 10, Pages 835 – 838, 2006

Reproducibility of cryostat section thickness is required for valid quantitative microscopy. This is generally pursued by motorized sectioning using a low but constant speed. The purpose of our study was to compare variation in section thickness between motorized and manual cryostat sectioning. Serial sections were cut from a frozen block of homogenized tissue on different days. Lactate dehydrogenase activity was histochemically detected and calibrated absorbance measurements were taken. The coefficients of variation of measurements was 9.7% for motorized sectioning and 3.3% for manual sectioning. In conclusion, section thickness is similarly reproducible after manual sectioning compared with motorized sectioning, if not better.

Safety Corner – A Review of Hepatitis C

Nazish Bostan N, Tariq Mahmood T (2010) “An overview about hepatitis C: A devastating virus” *Critical Reviews in Microbiology* 36(2): 91–133.

Hepatitis C is the disease that has affected around 200 million people globally. HCV is a life threatening human pathogen, not only because of its high prevalence and worldwide burden but also because of the potentially serious complications of persistent HCV infection. Chronicity of the disease leads to cirrhosis, hepatocellular carcinoma and end-stage liver disease. HCV positive hepatocytes vary between less than 5% and up to 100%, indicating the high rate of replication of viral RNA. HCV has a very high mutational rate that enables it to escape the immune system.

The major causative agent for hepatitis are viruses and out of them, hepatitis viruses commonly known as hepatotropic viruses, that has affected humans for centuries, are the most common causative agents responsible for causing hepatitis all around the world. Seven different viruses are now known to cause hepatitis; Hepatitis A, B, C, D, E, G, and SEN virus.

Hepatitis C virus (HCV), also known as parentally transmitted non-A non-B hepatitis or post transfusion non-A non-B hepatitis, was identified and cloned in 1989. It is an envelope, single stranded positive sense RNA virus having a diameter of about 50 nm and classified as a separate genus, Hepacivirus, of the Flaviviridae family.

Efficient transmission of HCV is through the transfusion of blood or blood products, the transplantation of organs from infected

donors or through the sharing of contaminated needles among injection-drug users. However, less than half of patients with acute hepatitis C report a history of such exposure. A small number of epidemiologic studies demonstrate that perinatal, sexual, household, and occupational transmission occurs, but understanding of the risks of transmission in these settings has been limited by inadequate studies, the need for more sensitive tests to detect infection, and the inability to quantitate infectivity. 10% to 40% infected individuals have no identifiable risk factors.

The practice of reusing syringes in medical settings has played a significant role in transmitting blood borne viruses in many countries including Romania, Moldova, and Pakistan. The infection rate in Egypt increases steadily with age, with a 10% HCV rate among those 50 and older and a 5% infection rate in the 30 to 39 age group. The infection rate is nearly zero in children aged 9 years and younger. The reason for this age curve of infection was mass inoculation with reused, contaminated syringes that took place in Egypt from 1960–1987, in an attempt to stop Schistosomiasis. It was not until 1982, when oral treatment to prevent the schistosomiasis became available.

Risk to Lab Personnel

The average incidence of anti-HCV seroconversion from an HCV-positive source is 1.8%; transmission has been associated with hollow-bore needles and deep injuries.

Transmission rarely occurs from mucous membrane or non-intact skin exposures to blood, and no transmission to health care workers has been documented from intact skin exposures to blood.

The risk of mother-infant transmission is less than 10%. Co-infection with human immunodeficiency virus (HIV) increases the rate of transmission 4- to 5-fold.

Body fluids, (serum, saliva, and semen) of patients with chronic Hepatitis C are

rarely, if ever, contaminated with the Hepatitis C virus.

Disinfection

- HCV is relatively unstable to storage at room temperature and repeated freezing and thawing.
- It is inactivated by exposure to lipid solvents and detergents.
- It is inactivated by heating at 60°C for 10 hours or 100°C for 2 min in aqueous solutions.
- Formaldehyde (1:2000) at 37°C for 72 hours, β -propiolactone or UV irradiation will inactivate the organism.

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Antigen Stability in Paraffin Sections

Antigen preservation is known to be adversely affected by delayed, inadequate or prolonged fixation or by over-heating of mounted sections (Henwood 2005). Since the reported worrisome observation of estrogen receptor (ER) antigen loss in stored paraffin sections and a similar finding concerning p53, there are several published reports on the subject of epitope stability in stored paraffin sections (Jacobs et al 1996, Van den Broek and Van de Vijver 2000).

Bertheau et al (1998) compared the immunoreactivity of paraffin slides stored for three months to 10 years with paraffin slides prepared less than seven days before immunostaining. They found significant loss of immunostaining for anti-chromogranin, anti-ER, and anti-CD3. Interestingly, they found moderate increase of immunostaining for vimentin on years old slides. They found no consistent difference in immunostaining between years old and recent slides for other antibodies (Cytokeratin (KLI), EMA, SMA, S100, CD45, CD20, and CD30).

Jacobs et al (1996) have shown that, in most cases, slide storage at room temperature resulted in rapid and substantial loss of p53 immunoreactivity in paraffin-embedded sections of breast cancer. In fact, some cases initially categorized as p53 positive were scored as p53 negative on slides stored for 12 weeks. A significant loss of staining intensity also occurred for factor VIII-related antigen, ER protein, and Bcl-2 protein after storage of slides at room temperature for 12 weeks.

They also found that this phenomenon is at least in part temperature dependent, since storage at 4°C resulted in less loss of p53 immunoreactivity than storage at room temperature. They suggest that it is possible that slide storage at even colder temperatures might further diminish loss of immunostaining intensity.

Van den Broek and Van de Vijver (2000) used a total of 20 monoclonal and 12 polyclonal antibodies in immunohistochemistry using formalin-fixed, paraffin-embedded sections that were stored for periods ranging from 15 to 360 days at temperatures of 4°C, 21°C, and 37°C. After 1 year of storage, immunohistochemical results appeared to be impaired with four antibodies at 4°C, 11 antibodies at 21° (ACTH, c-erb2 (3B5), p53 (DO7), bcl-2 (124), ER (ED5), E-cadherin (HECD-1), CD45RO, PR, Keratin, Vimentin (V9) and CD31(JC/70A)), and 16 antibodies at 37°C. It was found that staining results using polyclonal antisera were affected to the same extent by this phenomenon compared to antibodies of monoclonal origin. No indication was found that antigen retrieval could restore the effect of epitope instability. An additional experiment, in which the influence of section adhesives on epitope instability was investigated, revealed that none of the applied adhesives hampered immunohistochemical reactivity for a storage time of up to 6 months.

Olapade-Olaopa et al (2001) found that the decrease in immunostaining in stored

slides, which overall was independent of the cellular location of the immunoreactivity, was highest in nuclear androgen receptors compared with other antigens investigated. Although the loss in antigenicity was proportional to the length of storage, they discovered that the effect was reversible if super antibody concentrations were used.

Antigen degradation occurs in unstained slides-that is, in 5µm sections-while degradation does not seem to occur (or at a very low level) in paraffin blocks. It has been suggested that exposure of the section to air might be related to antigen alteration (Bertheau et al 1998).

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Wester K, Wahlund E, Sundström C, Ranefall P, et al (2000) "Paraffin section storage and immunohistochemistry. Effects of time, temperature, fixation, and retrieval protocol with emphasis on p53 protein and MIB1 antigen" *Appl Immunohistochem Mol Morphol.* (1):61-70.

Bertheau et al (1998) recommend that if stored unstained slides cannot be avoided, then the first step for investigators should be to demonstrate that the antigen-antibody reaction they want to study is not altered on their oldest slides compared with recently cut sections. That first methodological step should be done for each study using stored unstained slides, as antigen loss is likely to depend on the type of tissue, the type of fixation, and the immunohistochemical procedure used, these being extremely variable among institutions.

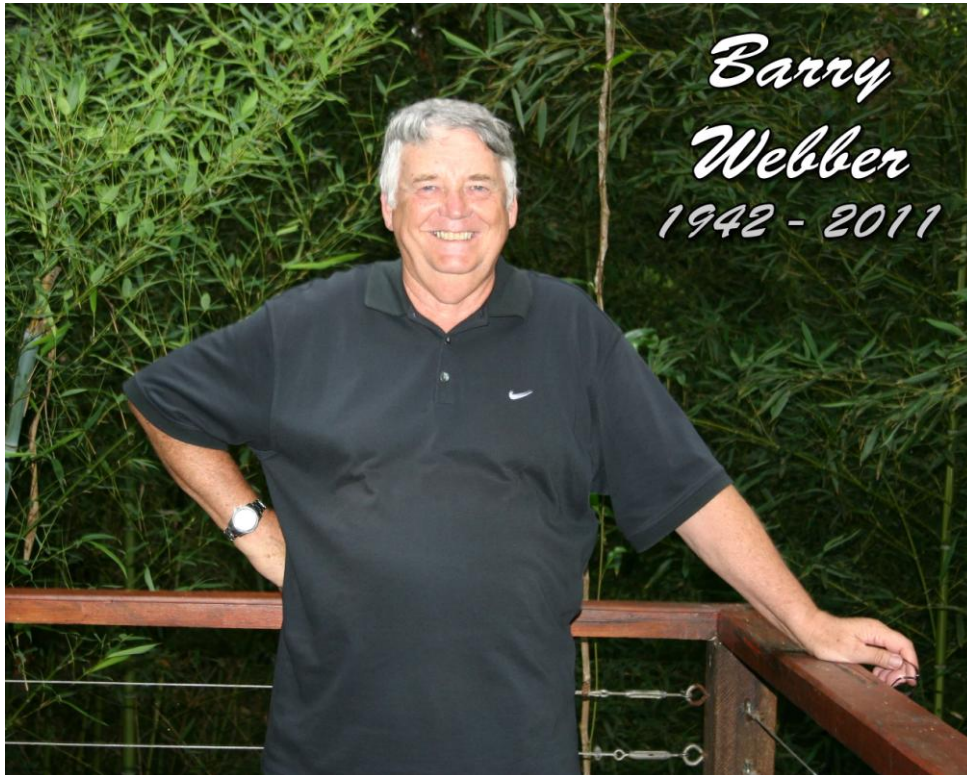
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WE FAREWELL A FRIEND – BARRY WEBBER RIP

It is with sadness that I report the passing of a good friend to Histotechnology Australia, Barry Webber. Barry was an Aussie Scoundrel and All-Round Good Guy. A heart of Gold. If there was something you needed, a good bet was he could source it for you. In our labs you are bound to find examples of innovative equipment and supplies carrying the Pangalark name. Barry was a great supporter of our group and you regularly saw him at our National and State meetings. He was knowledgeable of red wine. He definitely improved my education in this area (not that I remember much of it!). Barry will be missed but not forgotten. Following is an excerpt from the life of Barry:



“It is with a heavy heart that we announce the passing of Barry Webber from his long fight with cancer. He along with his partner Suzanne, founded Pangalark Pty Ltd who has serviced the histology, pathology and mortuary industries for 27 years. Many knew Barry by his booming voice, eagerness to assist customers with a passion and honest integrity. If someone needed a product, Barry knew where to source it. He was born in Newcastle in 1942. Marrying Suzanne in 1982, they established Pangalark Pty Ltd two years later in 1984, moving up to Brisbane in 1988. Barry was heavily responsible for introducing new products such as histology labellers like the Cassette Writer and Slide Writer to the Australian markets as well as inventing the popular Lark Storage System which is now used internationally, of which he was very proud of. Together with Suzanne, they made Pangalark a respected market leader in Australia and New Zealand. While he will be sorely missed, Pangalark Pty Ltd will continue on with Suzanne and their son Jarrad at the helm. A donation to the Cancer Council or similar charity would be greatly appreciated by the Webber family in his memory.”

Hey that's my Dye, why are you Injecting It?

There have been many situations where dyes and stains that we routinely use on our paraffin sections are used by clinicians for injection to treat various diseases or clinicians.

The Congo-red test for secondary amyloidosis is not now extensively used, but it was advised as a helpful diagnostic procedure in primary systemic amyloidosis and for the detection of amyloidosis in association with rheumatoid arthritis (MacCuish 1957).

Eosin sodium is used extensively as a diagnostic tool in the field of ophthalmology. Eosin is a fluorescent compound or fluorophore having a maximum absorbance of 494 nm and an emission maximum of 521 nm. The yellowish-green fluorescence of the compound can be used to demarcate the vascular area under observation, distinguishing it from adjacent areas. It is applied topically in the form of a drop or it can be injected intravenously to produce a fluorescein angiogram.

Topical fluorescein is a useful tool in the diagnosis of corneal abrasions, corneal ulcers, herpetic corneal infections, and dry eye. Eosin angiography is used to diagnose and categorize macular degeneration, diabetic retinopathy, inflammatory intraocular conditions, and intraocular tumours.

Methylene blue (MB) has been used in differential staining of cells and tissue,

intravital staining, treatment of malaria and methemoglobinaemia among others. It has recently been used as a therapeutic agent in the setting of septic shock, anaphylaxis, and vasoplegic syndrome following cardiopulmonary bypass. The profound vasodilatation that occurs in these conditions is believed to be caused by overproduction of nitric oxide during pro-inflammatory states which activates guanylyl cyclase, leading to cyclic guanosine monophosphate production and smooth muscle relaxation. MB inhibits guanylyl cyclase and has been shown to increase systemic arterial pressure after intravenous administration. MB is metabolized to the colourless leukomethylene blue (leukoMB) and excreted in bile, faeces, and urine (Tan & Rodriguez 2010).

The procedure of intra-articular injection of methylene blue is used to identify disruption of the joint capsule and may facilitate early intervention. Intra-articular injection of methylene blue that demonstrates extravasation of dye from the wound site is highly suggestive for open joint injury.

Tan & Rodriguez (2010) reported an interesting autopsy observation in patients who received methylene blue as adjunct therapy for septic shock. The exposed surface of cardiac myocardium on both fresh and fixed states rapidly turned green. In the presence of molecular oxygen, the colourless metabolite leukomethylene blue is readily oxidized to methylene blue, thus explaining the visible colour change of the myocardium. The green colour was

preserved upon further fixation with formalin but slowly leached out of the tissue when placed in alcohol solution. Paraffin-embedded blocks retained a light green hue. The green discoloration did not affect histochemical staining or microscopic interpretation.

References:

MacCuish RK (1957) "Fatal Reaction Following the Intravenous Injection of Congo Red" Br Med J. June 15; 1(5032): 1403.

Tan CD, Rodriguez ER (2010) “Blue dye, green heart” Cardiovascular Pathology 19(2):125-126

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Neuroendocrine Cell Markers for Pancreatic Islets and Tumors

Portela-Gomes GM, Hacker GW, Weitgasser R, Applied Immunohistochemistry & Molecular Morphology. 12(3):183-192, September, 2004.

The authors review the application of a variety of neuroendocrine cell markers to identify pancreatic islet cells and tumours. In the past, several empiric histochemical techniques had been used to demonstrate neuroendocrine cells, particularly the Grimelius argyrophilic stain. The development of immunohistochemistry made it possible to demonstrate specific cell products such as regulatory peptides, thus allowing the classification of pancreatic neuroendocrine tumours with a view to clinical symptoms. However, it is not always possible to visualize regulatory peptides in these tumours. It is therefore important to use broad-spectrum neuroendocrine cell markers to identify the neuroendocrine nature. These markers are proteins localized in the secretory granules (core- or membrane-related), in the cytosol, or in the cellular membrane. The markers most commonly used in routine histopathology are the secretory granule proteins chromogranin A and synaptophysin and the cytosolic enzyme neuron-specific enolase. Other new markers (eg, synaptic vesicle protein 2) are of general diagnostic value. Region-specific antibodies to chromogranin A can be valuable in differentiating between benign and malignant neuroendocrine tumours. Some markers may be related to the functioning characteristics of pancreatic neuroendocrine tumours, such as prohormone convertases. In addition, markers giving further complementary information have been identified, such as five somatostatin receptor subtypes, the expression of which varies markedly in pancreatic neuroendocrine tumours. Antibodies against all somatostatin receptor subtypes are now commercially available, and immunohistochemical investigation of its expression should be routinely applied when considering treatment with somatostatin analogs.

Forensic Corner- Animal-Causing Deaths

Smothering is defined as an obstruction of the air passages above the level of the epiglottis, including the nose, mouth, and pharynx. This is in contrast to choking, which is considered to be due to an obstruction of the air passages below the epiglottis. The manner of death in smothering can be homicidal, suicidal, or an accident. Accidental smothering is considered to be a rare event among middle-aged adults, yet many cases still occur. Redpath & Sauvageau (2011) presented a case of a 39-year-old woman with a history of bipolar disease who was found dead on her living room floor by her neighbours. Her hands were covered in scratches and her pet cat was found disembowelled in the kitchen with its tail hacked off. On autopsy her stomach was found to be full of cat intestines, adipose tissue, and strips of fur-covered skin. An intact left kidney and adipose tissue were found lodged in her throat just above her epiglottis. After a complete investigation, the cause of death was determined to be asphyxia by smothering due to animal tissue.

D'Aloja et al (2011) presented a unique case of death due to the assault and bites of a donkey on a 65-year-old man. The farmer,

found dead in his farmyard, had a very deep wound in the anterior region of the neck, with a sharp transection of the trachea and severe bleeding by several minor vessels wall disruptions. The cause of death was established to be massive bleeding combined with asphyxia due to aspiration of the blood. Moreover, multiple contusions with associated skin abrasions and perforations were present. The general impression of the injuries was consistent with an animal's bite marks. Herbivorous or omnivorous bite attacks on humans are rare; instead, these animals attack by kicking, trampling, and kneeling, resulting in secondary blunt injuries. The donkey is usually a docile animal, but its behaviour can be aggressive during the mating season, and the possibility of biting should not be underestimated, as illustrated by two previously published cases as well as by the case presented by D'Aloja et al (2011).

References:

Redpath M, Sauvageau A (2011) "An Unusual Case of Smothering Secondary to Ingesting Raw Pet Cat" *Am J Forensic Med Pathol* 32(2):190-192.

D'Aloja et al (2011) "Death Secondary to a Donkey's Bites" *Am J Forensic Med Pathol* 32(2):183-185.

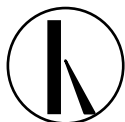


Horses for Courses

FIFTH NATIONAL HISTOTECHNOLOGY MEETING

4-6 NOVEMBER 2011

Hosted by



HISTOTECHNOLOGY GROUP of NSW
Celebrating 30 years of Histotechnology

Dear Member,

The Histotechnology Group of NSW invites you to attend the next National Conference which is to be held at Rosehill Gardens, Sydney, 4-6 November 2011. Rosehill Gardens is one of Sydney's premier horse racing centres. This weekend is an excellent opportunity to meet your fellow Histotechs from around Australia and from further afield. We are expecting over 300 delegates.

There will be two **Gross Dissection** workshops on Friday 4 November run by Anne Prins and Penny Whippy at nearby Granville TAFE. Numbers for the Gross Dissection workshops will be limited.

There will be two separate on site workshops - **Histo Hypotheticals (morning)**: an interactive workshop which will present problems that affect the quality of our results and participants will be encouraged to advise suitable courses of action; and **Unusual Histochemistry (afternoon)**: a 'wet' workshop exploring alternative staining procedures (Microwave technology, detergent de-waxing, alternative stains). The workshops will be lead by Tony Henwood and Linda Prasad from The Children's Hospital at Westmead. These will be held once only, so that if you want to attend a cut up workshop, you will need to choose which of these you would like to attend.

The preliminary program for Saturday and Sunday includes an international speaker as well as a speaker from the Brain and Mind Research Institute and speakers on Lymphomas, Haematoxylin, Molecular Pathology, Moh's surgery, Skin Cancer, Case studies in bone tumours, Breast pathology, Colorectal pathology.

There will be a significant trade display with a large number of companies being represented and prizes for posters and abstracts.

Also a gala dinner has been arranged for Saturday night at Rosehill Gardens costing \$74. You might like to dress for the occasion: 'Horses for Courses' is our theme, just a few days after the Melbourne Cup. There will be a prize for the best race call.

Accommodation is not included in your registration fee but rooms have been reserved at Rydges Hotel at Parramatta (across the road from the venue). Please contact Rydges via our Website linkage (www.rydges.com/cwp/histotechnologyconf) or direct on (02) 8863 7600 to book and pay for your own accommodation.

Your registration includes all meals **except** breakfasts and Saturday dinner.

Saturday and Sunday registration: early bird, before 31 August 2011 \$310
after 31 August, before 4 October \$340

Single day registration: early bird, before 31 August 2100 \$210
after 31 August, before 4 October \$230

Each workshop will cost an **additional** \$50 and includes morning or afternoon tea plus lunch for Friday.

Payment can be made by cheque to "Histotechnology Group NSW Conference" or via internet, but you **MUST** complete all details on the internet so we know who is paying and **return your completed registration form** for early bird registration by 31 August 2011 or by 4 October 2011:

mail to PO Box 496, Guildford.NSW. 2161 or

email to kdrummond@dhm.com.au or

fax to (02) 9855 5169

BSB:802 084; Account number: **100198182**; Account name: **Histotechnology Group of NSW**. Reference your name or invoice number. Prices **include** GST.

Further conference information is available on our Website (www.histonsw.org.au) or by contacting:

Kathy Drummond	Phone:	(02) 9855 5059
	E-mail:	kdrummond@dhm.com.au
or		
Trevor Hinwood	Mobile:	0427 249 794
	E-mail:	trevor.hinwood@hdscientific.com.au

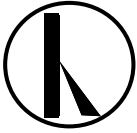
We look forward to seeing you at Rosehill in November.

Yours sincerely,

Kathy Drummond (Hon Secretary)

***Histotechnology Group of NSW
National Histology Conference 2011***

Name:.....		
Address:..... Is this address work <input type="checkbox"/> or home <input type="checkbox"/> ?		
Phone no.: work mobile:		
Place of work:		
Email (please print legibly):		
Dietary requirements:		
Workshops: Surgical dissection (morning)	<input type="checkbox"/>	\$.....
OR Surgical dissection (afternoon)	<input type="checkbox"/>	\$.....
Histo Hypotheticals	<input type="checkbox"/>	\$.....
Unusual Histochemistry	<input type="checkbox"/>	\$.....
Early bird registration (Before 31st August 2011):		
Saturday and Sunday	<input type="checkbox"/>	\$.....
Saturday only	<input type="checkbox"/>	\$.....
Sunday only	<input type="checkbox"/>	\$.....
Saturday registration	<input type="checkbox"/>	\$.....
Sunday registration	<input type="checkbox"/>	\$.....
Saturday and Sunday registration	<input type="checkbox"/>	\$.....
Saturday night dinner: delegate	<input type="checkbox"/>	\$.....
guest/s	<input type="checkbox"/>	\$.....
Payment method:		
cheque to Histotechnology Group NSW (National Conference)	<input type="checkbox"/>	\$.....
internet banking	<input type="checkbox"/>	\$.....
(your name)		
Submission of abstract :	<input type="checkbox"/>	
Submission of poster :	<input type="checkbox"/>	
TOTAL		\$.....



HISTOTECHNOLOGY GROUP of NSW

ABN: 63 128 868 343
nswhistogroup@bigpond.com

I wish to become a member of the Histotechnology Group of N.S.W. and enclose

- PLEASE TICK: ☐ \$38.50 for annual subscription of \$35.00 and \$3.50 GST.
☐ \$16.50 for student subscription of \$15.00 and \$1.50 GST
(Full-time or working toward first qualification)
☐ \$82.50 for company subscription of \$75.00 and \$7.50 GST
(2 representatives, one of whom must be a NSW representative)

Please make cheques payable to the Histotechnology Group of NSW

Or: **Internet Banking:** BSB:802 084; Account number: **94099**;

Account name: **Histotechnology Group of NSW.**

****Reference: [Name – for member identification]**

☐ RENEWALS

☐ ANY CHANGES TO PREVIOUS DETAILS.

PLEASE **PRINT** ALL INFORMATION.

SURNAME_____

GIVEN NAME_____

TITLE: MR, MRS, MS, DR, MISS. (Circle one)

OCCUPATION_____

POSITION_____

INSTITUTION_____

DEPARTMENT_____

ADDRESS for CORRESPONDENCE:

STREET/P.O.BOX._____

CITY,TOWN,SUBURB,_____

POSTCODE._____

IS THIS ADDRESS HOME OR BUSINESS ? (Circle One).

PHONE No. WORK_____ EXT_____ HOME_____

E-MAIL ADDRESS: _____

2ND COMPANY CONTACT

SURNAME_____ GIVEN NAME_____

TITLE: MR, MRS, MS, DR, MISS. (Circle one)

POSITION_____ INSTITUTION_____

ADDRESS STREET/P.O.BOX._____

CITY,TOWN,SUBURB,_____ POSTCODE._____

PHONE No. WORK_____ HOME_____

E-MAIL ADDRESS: _____

SIGNATURE_____ DATE_____

Office use only

RETURN TO:

SECRETARY
HISTOTECHNOLOGY GROUP of N.S.W.
P.O. BOX 496
GUILDFORD NSW 2161

Receipt	
Recorded	