



VOLUME 29, NUMBER 2

The HGVT aims to provide a dynamic continuing education program in which all persons with an interest in Histology and Histotechnology are freely invited to participate.

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Positions Vacant-FREE email to

-FREE list on

The members of the Histology Group of Victoria 2025 are:

Name	Institution
Samantha Arandelovic	Mater Hospital Brisbane
Kerrie Scott-Dowell	Dorevitch Pathology/ Leica Biosystems
Mark Bromley	Sullivan Nicolaides Pathology
Kellie Vukovic	Melbourne Pathology
Alistair Townsend	Royal Hobart Hospital
Christine Gorringe	Royal Hobart Hospital
Elizabeth Baranyai	Cabrini Health
Bronwyn Christiansen	Royal Children's Hospital
Snejana Ursache	Alfred Hospital
Gulnur Orman	Box Hill Hospital
Dodie Pouniotis	RMIT University
Fatema Tajbhai	Northern Health
Kerrie Howard	Northern Health/ RMIT University
Maria Boyer	Monash Pathology
Nicola Pinolo	Royal Melbourne Hospital

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President's Address **Behind the Bench with Sam Arandelovic**

Dear Members,

As we step into the beginning of winter, I hope you're all staying warm and well. It's been a vibrant few months for the Histology Group, and I'm excited to share some key highlights and upcoming events.

Firstly, we are thrilled to announce that our Trivia Night, scheduled for August, is officially a complete sellout! The enthusiasm and support from our members have been incredible, and we look forward to what promises to be a fun-filled evening of networking, friendly competition, and histology-themed trivia. A big thank you to our Social Coordinator Kellie Vukovic for all the hard work in making this event happen.

In further exciting news, registrations are now open for our One-Day Seminar taking place in October in Hobart. This seminar will feature a rich program of expert speakers, cutting-edge presentations, and valuable opportunities for professional development. We encourage all members to register early to secure a spot.

As always, thank you for your continued support and engagement. We look forward to seeing many of you at our upcoming events!

Warm regards,

Samantha



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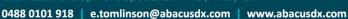






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A: Trajan's Series 3 slides feature a fortified coating for challenging specimens that require enhanced tissue adhesion.

The adhesion of certain tissue types can be challenging in a busy lab. Additional sample preparation* may not be enough to prevent loss of precious tissue, resulting in time-consuming rework and delays to patient diagnostics.

With a specialised fortified coating, Trajan Series 3 slides enhance the adhesion of dense and fatty specimens, such as bone and breast, without compromising on staining performance. With a hydrophilic surface to allow tissue repositioning, the Series 3 slides are designed to combat even the harshest of IHC processes for difficult specimen types.

*Recommended drying time for Series 3 slides is 60 minutes.

Showing the right path



HGVT Word Search

By Nicola Pinolo

XIGMMICROTOMERV SUEEMKYGN OUAMOU EMAX KWHA KHΥ Z SAHER W 0 ZBPGA В RMVYCLUQLC YTOPLASMGKATHB

Haematoxylin **Epithelium** Gallbladder Cells

Neutrophil Cytoplasm Microtome

Nucleus Carcinoma Squamous

Keratin Elastin Tissue

Kidney

Thyroid Adipose

Mucosa

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NEW PRODUCT LAUNCHES 2025

HIGHLIGHTS YOU DON'T WANT TO MISS

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Advancing Cancer Diagnostics Improving Lives









In the news

The National Lung Cancer Screening Program (NLCSP) was announced earlier this year and will commence to roll out from July 2025. This program will use to use low-dose computed tomography scans to look for lung cancer in high risk patients without symptoms, this includes: people aged 50 to 70 years old, have no symptoms or signs suggestive of lung cancer, smoke tobacco cigarettes or have a history of smoking tobacco cigarettes (quit within 10 years) and have a history of cigarette smoking of at least 30 packs per year. The aim of this program is to assist in the early detection and treatment of high risk, low symptoms patients to assist with overall treatment and survival rate of the disease.

More information can be found here:

https://www.health.gov.au/sites/default/files/2025-04/national-lung-cancer-screening-program-why-am-i-currently-not-eligible-for-lung-cancer-screening.pdf

The National Lung Cancer Screening Program is for people who meet the age and smoking history criteria below and do not have symptoms, aiming to find lung cancer at an early stage. Research has found that screening most benefits people who:



In turn, the RCPA have also released updated best practice recommendations in relation to the increased capabilities and understandings of molecular testing in relation to the disease, and consequently treatments.

More information can be found here:

https://www.rcpa.edu.au/getattachment/Library/Practising-Pathology/Molecular-Testing-of-Lung-Cancer-in-Australia/Molecular-Testing-of-Lung-Cancer-28-Feb-2025.pdf.aspx?lang=en-AU

How has your lab planned to facilitate the potential workload associated with the implementation of this new program?





Melanoma / Skin Cancer & Bladder Cancer



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Preferentially Expressed Antigen in Melanoma (PRAME) is an autosomal cancer-testis antigen (CTA) gene which has been shown to be expressed in melanoma, various nonmelanocytic malignant neoplasms, including non-small cell lung cancer, breast carcinoma, renal cell carcinoma, ovarian carcinoma, leukemia, synovial sarcoma, and myxoid liposarcoma. Normal healthy tissues are not known to express PRAME except for testis, ovary, adrenals, adrenals, and endometrium.



Contact us for more information or a quote.

Under the Microscope with Alistair Townsend



What was your first part time job?

Working in the Automotive section of the local K-Mart store

What is your current Job?

Medical Scientist in Charge – Anatomical Pathology, Royal Hobart Hospital

How long have you been working in your role?

16 years

What skill do you want to learn and why?

I'm currently learning Spanish and I'd like to get to a

level of fluency where I can have basic conversations when travelling in Spanish speaking countries.

If money was no object, what would you do all day?

Retire and travel. I'd also want to do more volunteering at major sporting events and any sort of voluntary work in developing countries.

What's an ideal weekend for you?

Catching up with friends at a sporting match and then grabbing a great meal out.

What's on your bucket list this year?

Travel to Greece

What music/podcast is on your playlist at the moment?

I just listen to whatever is on the radio at the time.

Where do you most want to travel, but have never been to?

Antarctica

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MacroShot Digital Imaging System



MacroShot™ is a high-definition digital imaging system designed by CellPath, for capture of high-quality images, video, and audio notes.

The MacroShot^{Pf} utilises a full HD camera with a powerful 30X optical magnification and wide view, which enables the camera to be fitted to any existing cut-up bench, grossing hood or used as a stand-alone system in mortuaries. It fully documents the grossing procedure, enabling laboratories to implement better quality assurance control, reduce specimen description time and reduce risk of errors within the lab.

The MacroShot™ utilises user-friendly icon driven software. A novel auto-calibration procedure, coupled with a comprehensive suite of annotation and measurement tools, ensures accurate, reliable measurements at up to twenty user-defined zoom levels.

The MacroShot™ software can be interfaced with a user's preferred online conference software, to allow remote second opinion telepathology consultations and guided cut-up by pathologists.

Optional accessories available for the MacroShot™ include: a washable keyboard and mouse, a foot pedal system for hands free capture of images, as well as an LED light ring (with polarizer), which removes glare from wet specimens and ensures constant image quality.



- High Quality HD Sony camera optics
- 30x optical magnification (zoom)
- 2.0 megapixel images
- Zoom levels user definable (up to max 20 zoom levels)
- Auto calibration feature
- Single push white balance
- Annotation and calibration features included in software (not an optional extra)
- Video (with sound)

EASY

- Digital dictation/voice notes
- Teleconferencing for remote consultations - second opinion/ guided cut-up by pathologist
- Optional table-top stand with blue cut up board for contrast
- Optional LED light ring with dimmer control and polarizer





Ask us for a demo today!



Scientific Meeting Review

Renal Processing and Reporting including EM

With Maria Boyer (MMC) and Dr. Meghan McKinnon (RCH)

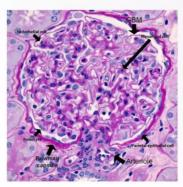
By Nicola Pinolo

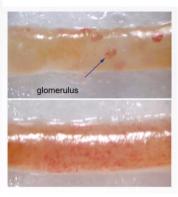
On the first of May we welcomed **Monash Medical Centre's Maria Boyer** and **The Royal Children's Hospital's Dr. Meghan McKinnon** to present us with the ins and outs of renal biopsy processing, staining and transmission electron microscopy (TEM). We had an excellent turnout of up to 50 viewers.

The kidneys are located at the back of the body, and their **primary function is to filter blood and excrete waste products, via collections of capillary loops within the glomeruli**. Maria walked us through renal biopsies, which are a day procedure. An ultrasound probe is used to visualise the kidney, then a needle core is collected. Native kidney biopsies are collected when a patient's own kidney needs investigation, and the biopsy is collected via the back. A transplant biopsy is accessed via the abdomen, and is used to check the health of a transplanted kidney and monitor for rejection.

A scientist may attend these biopsy procedures, to assess the adequacy of the sample under dissecting microscope. The scientist will ensure that glomeruli are present in the biopsy, as pathologists will usually be looking for changes within the glomeruli to identify any disease processes. **Glomeruli are located in the cortex of the kidney**. An adequate sample will contain cortex, which contains glomeruli, and the scientist will need to ensure there is enough sample for testing. At Monash Health, scientists will ensure they have at least one glomerulus for electron microscopy, at least one for immunofluorescence, and the remaining sample will be used for light microscopy.

Renal Corpuscle





Once processed, a biopsy will be assessed for glomerular disease (glomerulonephritis), which can be primary or secondary in nature. Primary disease will predominantly affect the kidney, and immune complexes will deposit in the capillary walls of the glomeruli, causing inflammation and damage. In comparison, in secondary kidney disease, the patient may experience systemic issues such as

infection, metabolic disorder, auto-immune condition or vascular diseases such as hypertension.

Monash Medical Centre's renal biopsy staining protocols are below. Renal biopsies are commonly sectioned at 0.5um, as the thin sections enable better visualisation of the detailed structure of the glomeruli.

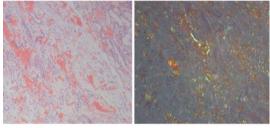
MMC Renal Biopsy Staining Panel

Native Biopsy	Transplant Biopsy	
14 Serial Slides	9 Serial Slides	
H&E levels x3	H&E levels x2	
PAS	PAS x2	
Orcein Masson Trichrome	Orcein Masson Trichrome	
Jones Masson Trichrome x3	Jones Masson Trichrome x2	
IHC IgA	SV40	
IgG	C4D	
IgM		
C3		
C1q		
Fib		

H&E staining is used to assess the general morphology and identify inflammatory responses, and if they are diffuse or focal. Jones Masson Trichrome staining is used for the assessment of basement membranes **PAS** used staining is to highlight carbohydrates. For renal pathology, it is used to highlight basement membranes, thickening of arterioles, and in diabetic nephropathy it highlights Kimmelstiel Wilson nodules **Orcein Masson Trichrome** is used to assess elastic fibres which may highlight damage to blood vessels. Current Monash protocol uses an orcein solution that requires ripening, however it loses its potency over time and can result in some batch variation

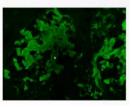


Congo Red staining highlights amyloid, indicating amyloidosis. Amyloid will show apple green birefringence under polarised light. Sections must be cut at 6um.



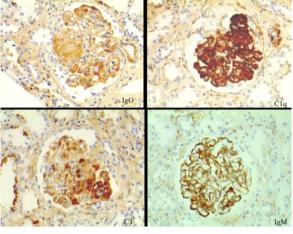
Kappa and Lambda immunofluorescence





At Monash, transplant biopsies undergo C4d and SV40 immunohistochemistry staining. C4d staining can highlight basement membrane duplication, which can be asymptomatic, which is why routine protocol biopsies are important for monitoring the health of the transplanted kidney. SV40 IHC can indicate the presence of polyomavirus nephropathy, from the BK virus. Native biopsies will be stained with a panel of IgA, IgG, IgM, C3c, C1q and Fibrinogen antibodies. This panel can help detect and identify immune complex mediated disease and allograft rejection.

Systemic lupus nephritis is an autoimmune disease that can lead to renal failure. Lupus will present with "full house" staining, in which IgA, IgG, IgM, C3c and C1q will all show positive staining. Depending on the pathology that is identified under light microscopy, Renal **Pathologists** may request immunofluorescence and/or electron microscopy to correlate their findings. Dr.

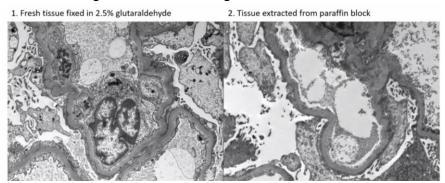


Meghan McKinnon of the Royal Children's Hospital gave us a summary of what goes on behind the scenes.

Transmission electron microscopy (TEM) has been used since the 1950s, however recently it is being used less, sometimes being replaced by genetic and molecular testing. TEM is still used for the diagnosis of uncommon or highly specialized disorders, and as Maria discussed, is used to correlate light microscopy findings. At the RCH, all renal biopsies undergo TEM, some cardia and liver biopsies, as well as externally referred renal and nerve biopsies. Processing takes about a week, and another 2-3 weeks to report.

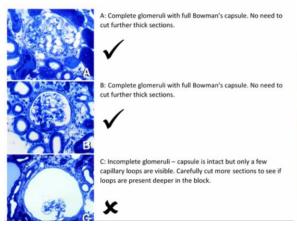
HGVT

For TEM processing, the tissue must be fixed to prevent degradation. Glutaraldehyde is the preferred fixative as it produces sharper images. Unlike routine histology which infiltrates the tissue in paraffin wax, resin is used for TEM, and sections are cut at around 90nm to enable the electron beam to pass through. As TEM images are black and white, high-contrast staining is needed.



Fixation and embedding of samples involves more than **16 hours of fixation in glutaraldehyde**, before washing in phosphate buffer to remove the fixative. A secondary fixative, osmium tetroxide (which also functions as a stain), is used to increase the contrast of cellular structures, before washing in water. Acetone is used to dehydrate the tissue, then it is **infiltrated with resin** and polymerised overnight at 70 degrees celsius to solidify the resin. In some cases, tissue will have already been fixed in formalin and embedded in paraffin wax. These samples require re-processing before TEM can be performed.

Sectioning TEM samples requires an ultramicrotome. The resin blocks are trimmed at 450nm using a glass knife, and sections are stained with methylene blue to ensure the tissue is full-faced. Once faced, **the tissue is cut at 90nm using a diamond knife** that has an attached water bath. A cotton bud is dipped in chloroform and moved over the top of the water bath. This helps the sections spread out and reduces any wrinkles. The sections are picked up using a stick with an eyelash attached (rather than forceps) and placed onto a copper grid. The copper grids are placed into the oven to dry, before **staining with lead citrate and uranium acetate** (UranyLess is used now as it is a non-radioactive alternative).



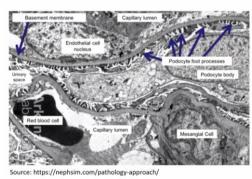


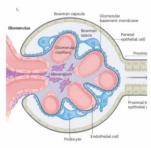


Imaging is performed via a pressurized chamber, where electron beams pass through the sample and are projected onto a light-sensitive phosphor screen. Organised deposition and diseases that affect the glomerular basement membrane can be identified, such as systemic lupus nephritis, amyloidosis, diabetic nephropathy, post-infectious nephropathy and antibody-mediated rejection of a renal transplant.

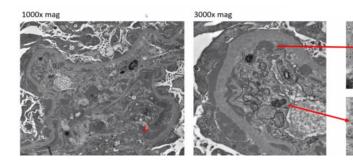


The Normal Glomerulus

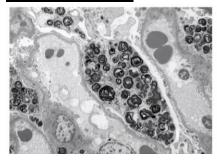


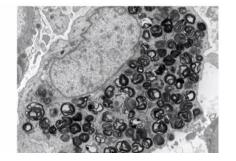


Systemic Lupus Nephritis:



Fabry's Disease:







SAVE THE DATE HGVT ONE DAY SEMINAR Saturday October 25th, 2025



RACV Hobart Hotel

154-156 Collins Street

Hobart Tasmania



Leica Biosystems User Group Meeting by Kerrie Howard



Dr Ewa Douroux spoke about the Lean Principles and how the use of the lean principles can result in a more efficient laboratory process through the implementation of the Kanban principles. Ewa spoke passionately about how the use of Lean principles can create a streamline laboratory process through defining the required value (i.e. expected slide output), mapping the value streams as they are to see the efficacy of the laboratory as it is and then create a more efficient flow which will then allow for a more effective and efficient system as a whole. Ewa shows how Leica have implemented this with the use of

Kanban principles whereby they lower or stop workflow in one area in order to complete an assessment and protocol overhaul to better the processes and output of each plant. The principles and technique of continual improvement not only allows for progression within the laboratory by also in turn having less

wastage throughout the laboratory processes. An example Ewa used was that of the implementation of QC checks of slides pre staining and post staining would reduce the amount of levels or recuts required-a simple block check before completing the slide cutting could stop an unnecessary work load.



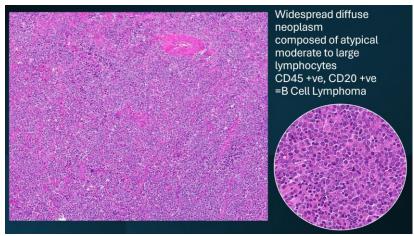
Joel Dowsett spoke about the implementation and verification of the Leica Bond Prime IHC machines at Eastern Health and how their verification process

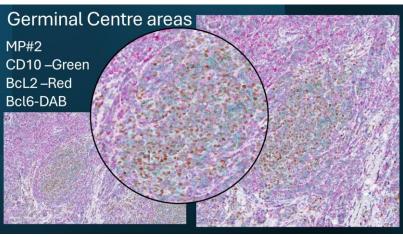




progressed for this instrument through working parallels with their current platforms. Joel spoke about th issues encountered such as antibodies those which are frequently negative and how he navigated confirming the successful staining protocols on cases like this through the use of internal controls and discussion with both Pathologists at

Eastern Health as well as other institutions. Joel also elaborated on how he used the pre- verified antibody dilutions and programs provided with the BondPrime and how the required concentrations deemed acceptable by the pathologists at Eastern Health were more dilute than that of their previous platform, ultimately reducing laboratory costs and wastes.





Kerrie Scott of Leica Biosystems and Dorevitch Pathology led humours and educational session on "Crimes Histopathologyin when the scientist becomes the detective" showing cases where the presumed diseases or what the case looked like at a first glance was not what was diagnosis. the final Kerrie showcased multiplex IHC and many special stains to highlight the importance of how whilst "annoving" in some cases, Pathologists have to order a plethora of tests to achieve the correct diagnosis.

Susan Lin and Susanne Fala joined us from New Zeland

showcasing the Leica Work management system Cerebro and highlighting it's



usages and benefits for tracking of specimens throughout the laboratory. One item I personally found highly helpful within a laboratory is the fact that when a lab staff leaves a comment regarding the case in one module (i.e. a grossing scientist states "red dot down" for a specimen) the embedding staff get a comment bubble when they open the case in their module and when they read and acknowledge it, it signs off with their log in- increasing understanding of work requirements specific for each case whilst also reminding staff of the responsibility and accountability required of each member within the laboratory.

After lunch we were introduced to the world of digital pathology by Roseline Su who showed us through the fundamentals of digital pathology and how it's advancements can benefit a laboratory not only for diagnostics but also for collaboration on cases requiring a second opinion, education and staff learning. Whole slide imaging, whilst creating a large digital file the benefits outweigh the risk with whole slide analysis absolutely critical for an accurate diagnosis and cohesive slide analysis. Roseline also spoke passionately about the increased use and research on artificial intelligence in relation to IHC analysis.



A huge thank you to all at Leica Biosystems for the educational and lively day.



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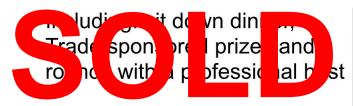
TRIVIA NIGHT 2025

Date: Friday 1st August

<u>Time:</u> 6.30pm-10.30pm

Location: La Di Da. 577 Little Bourke St

Price:\$35 per person





Additional drinks at bar prices.

Payment due by Friday 11th July.

Please be quick as tables are limited and sold on a first in best dressed basis!

Menu to follow at a later date for pre-ordered meals

350m from Southern Cross Station, \$10 parking at First Parking after 4pm (558 Little Bourke St) – entry via Crombie Lane



PAYMENT DETAILS PLEASE RETURN THIS SLIP WITH YOUR GROUP

PAYMENT - MENU TO FOLLOW

Email: kellie_vukovic@hotmail.com or kellie.vukovic@mps.com.au

Direct deposit (please leave name as a reference)

Account Name: Histology Group of Victoria and Tasmania

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Please forward this information to Kellie Vukovic via email listed above after payment.

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Contact Email:
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Total number of people attending:



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HGVT Future Events 2025

Org. No. A0035235F

Scientific Meeting | June 19th

ZERO Clinical Trial- What is it?! Presenter: Nick Sanders (MCRI)

TRIVIA NIGHT | August 1st (SOLD OUT)

La Di Da, 577 Little Bourke St, Melbourne 7pm Start

Scientific Meeting | August 21st.

Title: Student Presentations

Presenters: TBA

Tasmania Scientific Meeting and AGM | 25th October Hobart RACV Hotel

Title: Tasmanian Pathology Discussions Presenters from Royal Hobart Hospital and Launceston General Hospital