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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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Committee Page

The members of the Histology Group of Victoria and Tasmania 2020 are:

Name	Institution
Kerrie Scott-Dowell	Dorevitch Pathology/Leica Biosystems
Adrian Warmington	Ballarat OSM
Mark Bromley	Sullivan Nicolaides Pathology
Elizabeth Baranyai	Cabrini Health
Alison Boyd	Northern Health
Kellie Vukovic	Melbourne Pathology
Samantha Arandelovic	Mater Hospital Brisbane
Snejana Ursache	Alfred Hospital
Imogen Campbell	Alfred Hospital
Alistair Townsend	Royal Hobart Hospital
Cristine Gorringe	Royal Hobart Hospital
Meghan Leo	Histolab
Yashi Xie	St. Vincent's Hospital
Bronwyn Christiansen	Royal Children's Hospital
Hazel Chambers	Royal Children's Hospital
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President's Report – Behind the Bench

As the end to another Covid impacted year rapidly approaches, we can reflect on 2022. If you are working in a clinical histology laboratory setting, you will be buried beneath wax block trimmings and request forms. On the home front, the lawns are growing faster than you can mow, and anytime outside, you will be battling the mosquitoes. Hopefully, the rain will ease enough for us to have a real Summer and a well-earned break.

Since the last newsletter, we have had our AGM and have formed a new committee.

I would like to thank the outgoing committee for their contributions and welcome Cristine, Bron and Hazel as well as welcome back Alistair. We will begin face-to -face meetings in February at Peter Mac and will work to a State Conference later in the year.

On a personal level, I have mixed emotions around the retirement of the very special, Histo-Guru, Immuno- Queen extraordinaire, Ms Sue Sturrock. She has always been the strongest advocate for the Histology Group and further education. I am happy for her next adventure but will miss her advice and committee friendship. Good Luck Sue your contribution to the industry has been enormous.

I wish everyone the very best of the festive season. Stay safe and look forward to seeing you all in 2023.

Kerrie Scott
(Leica/ Dorevitch Pathology)
HGVT President

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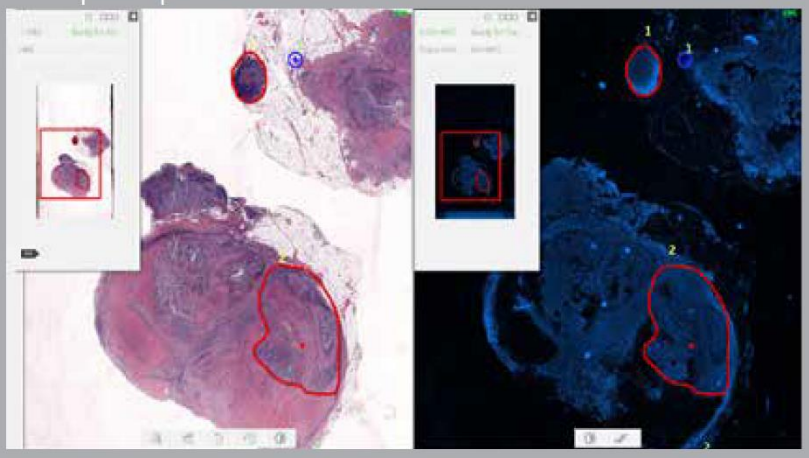

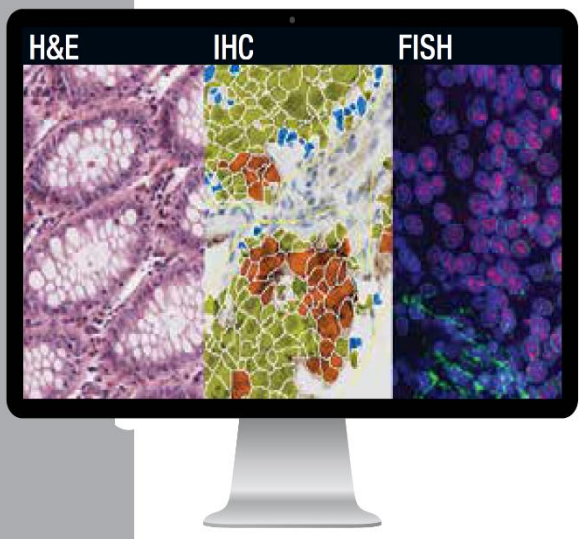

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REFLECTING ON SUE STURROCK'S SUPER CAREER

Sue began her career in Science in a cardiac pharmacological research lab at the Austin Hospital in 1982 after being accepted into RMIT to study Medical Laboratory Science part time. As a lab technician, she prepared glassware, apparatus and solutions to study the effects of drugs on ischaemic heart disease. This might seem to be quite dry, but the opposite was the case. Comradery in the lab was fantastic and saw weekly Friday pub lunches, skiing weekends and water fights. Dungeons and Dragons was played using printer comms to and from the Uni Melb server (one of the first internet connections in Australia!) after hours, of course! While the group next door was working on the Human Genome Project, Sue watched along, observing the difficulty in development and achievement of cell culture techniques first-hand. Distilled water didn't just come out of a tap but had to be produced drip by drip from a hand-built still. She is now on one of the drugs she studied.

Knowledge attained:

- Measure cylinder volume at the bottom of the meniscus
- Rats make great friends
- How to bond with librarians over photocopiers and Index Medicus
- How to stop a lift between floors by jumping-up-and-down
- How to catch a man.

When the pay rates crossed over and a trainee wage on the Medical Scientists award was higher than the research rates, Sue obtained a position in the Histology lab at the Austin. The decision to work in Anatomical Pathology was based purely on which lab didn't have to do night shift. The lab was also relatively new with distilled water on tap and a dishwasher (major attractions). Pathologists were aloof and distant creatures who overlapped with lab staff in the cut-up room only. There was a separate doctor's dining room. As a trainee, Sue was placed in cut-up to enter specimens in a huge log book and pass hand-written cassettes to pathologists who didn't want to be there. For sport, they would ask the newbie to hand them a 'feather' and watch as she frantically opened drawers and searched for a bird's feather. This was a strange and scary place – and then, there was - the mortuary. Releasing bodies and fetching items during autopsies was an eye opener. When eventually allowed into the histology lab, Sue discovered a witty and intelligent group of scientists, led by Tristan Roberts, who made her feel welcome and taught her everything they knew with enthusiasm and care. The wall of snow domes and postcards from all over the world and interesting personal items on display provoked educational discussions.

The department tearoom eventually became a mecca for pathologists, technical and scientific staff after a brave young pathologist, Bill Murray, breached the divide. Even surgeons were seen in later years enjoying the ambiance and the magnificent cakes.

Nobody was allowed to use anyone else's steel knife and the quality of the knife was related to your status and experience. If you cut a bone or a calcified specimen you had to sharpen your knife again. You sharpened these dangerous heavy pieces of steel on a Tem Tool – a flat circular plate which whizzed around at high speed onto which you lowered the knife. It ground the nicks off the knife's edge or, if not screwed on properly, was flung across the room. Stropping the edge to remove rough particles was the final stage. Needless to say, knives were treated like gold and were recognised as the most dangerous and delicate item in the lab. If you dropped a knife you jumped out of the way. It could cut your foot off! When disposable knives were introduced it was the dawn of a new age.

Sue witnessed the development and introduction of immunohistochemistry at the Austin in the mid 1980's. From handstaining in Perspex racks to Sequenza units and finally, automated stainers, Sue saw the span of antibodies increase from CEA and CAM5.2 to 160 different targets by the late 2000's. As the AIDS epidemic took hold, she developed histochemical and IHC stains for the terrible range of infections these poor people grew. A tragedy for the individuals, HIV became a smorgasbord of scientific interest for Histology and Microbiology laboratories, resulting in presentation of findings at the AIMS conference in Melbourne. The Austin was developing adult liver transplants at the same time and Sue participated in the assessment of donor livers prior to transplant via early morning Oil Red O's on frozen section liver samples (so much for no night work!). The transplant physicians were a lovely bunch, but you had to drop everything when they called. Worst ever was when I had just finished the supermarket shopping and while at the checkout, had to leave it all and run! Renal biopsy attendance and management saw Sue develop skills in glomerulus spotting, resin processing and glass knife breaking. When this was deemed too slow, paraffin processing saw her in a walk-in fridge cutting them and spending a significant amount of time in the electron microscopy suite where similar cool temperatures were perfect for wine storage. Wine education was gained here and with a group of like-minded fellow scientists monthly at the Austin and the newly formed HGV and satellite IHC groups.

The HGV was a career highlight meeting many people and sharing scientific experiences at committee meetings and conferences organised. Newsletter collation nights were hard but fun, done by hand and sent via snail mail. Histologists are great people always ready to help anyway they can.

In the 1990's, histology was mostly about diagnosing cancer. It was a celebration when a patient was diagnosed with a benign condition. When the Ludwig Institute formed a collaboration with the Austin to identify targets on tissue for antibody therapy for solid tumours, Sue and colleagues created a Tissue Bank of normal and tumour tissues and used IHC to screen chimeric (mouse-human) antibodies for their suitability as carriers of targeted therapies. This was the beginning of immunotherapy and although only one suitable colonic carcinoma antibody was identified, it showed the promise of the individual targets and therapies IHC could identify for cancer.

Events making an impression:

- Watching associates develop PCR methodology
- Roof tiles falling in as a result of water pipes breaking in floor above, simultaneously with power out as senior scientist held an umbrella over paper files
- Celestine blue boiling over on hotplate (as soon as you turned your back)
- Pan flusher leaking through ceiling at special stains
- Dirty Dancing
- Wax crack impression of different senior scientist
- Pink Schiff's hands whenever a social event was planned
- Chloroform-affected ski boot fitting
- Chasing bowel down plughole-slippery suckers
- Gourmet Christmas lunches by invitation only and goodie box.

With 2 children produced and a Northcote weatherboard renovated it was time to look for a career change for Sue at Peter MacCallum in 2007, re-uniting with Bill Murray, now Head of Anatomical Pathology and Louise Keelan in Cytology. Going from a large pathology department to a small one, re-established only 5 years earlier, was certainly a change of pace, but provided significant challenges. The lab was tiny, the size of a lounge room, but fitted microtomy, special stains, cytology and IHC into one area. Everyone's personal space was reduced, but the window to the Fitzroy Gardens provided welcome perspective. CISH, to detect Her2 breast cancer, was run by hand and was the first of many novel assays to be established. This was a major money spinner allowing the Molecular laboratories to be grown, a renovation of the cut-up area and processor and stainer replacement.

As the lab grew, Sue was lucky to engage with wonderful, technically excellent Scientists complemented by many RMIT professional practice students. FISH was established to detect ALK, a translocation marker of eligibility for a very successful drug therapy, stopping lung cancer in its tracks for people who had never smoked. This was very personal for Sue and the other scientists in the group, as it was the first time histologists could feel part of a cancer cure, rather than just providing bad news. With changes to NPAAC guidelines in 2013, a complex cutup training programme for scientists was commenced with training by Canadian pathologists' assistant, Courtney Savill. This created another career direction for scientists and released pathologists to do what they do best – microscopic diagnosis.

The greatest challenge of Sue's career was moving the Peter Mac lab to its current location in Parkville in 2016. Supported by the hospital's long lead into the change process and the great team in the lab, the move was very successful and produced a much bigger space for both histology and cut-up. The best planning and architects in the world could not foresee the car dashes between both sites to save bench supports for the new, worryingly sagging microtome benches or the failure to turn on the deionised water system. The new site produced further connections with pharmaceutical companies and more rapid breakthroughs in cancer therapy, with IHC again providing screening for confirmation by molecular assays and FISH for melanoma, lung, ovarian, colon and other cancers.

Peter Mac Highlights:

- Daily commute to the Commune for morning tea
- Managing deionized water to be directly tapped to the lab (career-long concern)
- Free entry to the last session of the Boxing Day tests at MCG
- Long Island teas at roof top bars in Summer
- Meeting Carlton footballers and Penny Wong at Parliament
- Watching a cascade of block boxes fall off collapsing shelving onto a pathologist's desk and the months of sorting afterwards
- NSH conference in Austin, Texas
- Central Melbourne dinners with wine and guilt free train travel home
- Chased by a possum in Fitzroy Gardens
- Same day lobster.

Looking for a change of pace after the tumultuous movement of staff and location at Peter Mac, Sue began at Melbourne Pathology in the histology lab in 2018. Having mostly worked in the public sector, the move to private pathology provided a welcome change despite the huge volume of work. In a return to her roots, the pre-established economy of procedure and provision of top-notch equipment produced a simplicity allowing the histology to be the main focus. As trainer and problem-solver, Sue was re-invigorated and relished the opportunity to pass on her knowledge to students and learn from pathologists and scientists in the group. Adapting to the Covid experience showed the calm, rapid capability for versatility at Melbourne Pathology. All employees retained their positions and many more were employed to cope with the racks and racks of Covid tests. Everyone from the CEO down helped batch in a fantastic team effort.

Greatest advances seen:

- Disposable blades
- Barcode driven tracking for cassette and slide labelling
- Predictive IHC markers for therapeutic cancer treatment

Sue will remain grateful to the many who have supported her through her pathology career.

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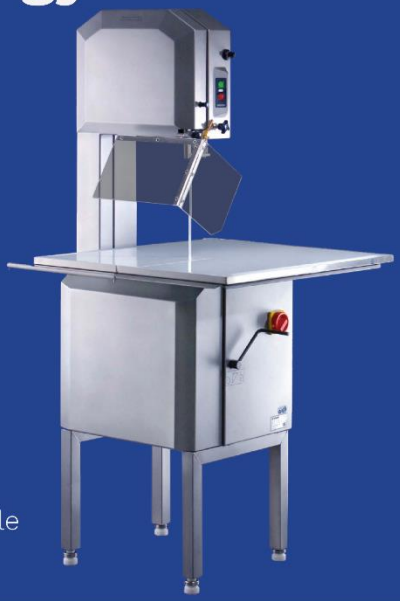

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UNDER THE MICROSCOPE
with Pigie De Castro

What is your current job?
I currently work as a Medical Scientist at The Royal Children's Hospital

How long have you been working in Histology?
I did my work-placement in 2008, then the year after that I was employed as a trainee scientist while I finish my last year of university part time. Since then I have always worked in Histo. So roughly 13 years.

What piece of advice would you give to people starting in Histology?
Learn as much as you can and don't be afraid to ask questions. Also learn/watch how others work and pick up the skills/techniques that you think works well for you.

What's a goal you have for this year?
Start and finish refurbishing the wooden furniture I have hoarded! Our garage looks like an old furniture storage room. Lol

What music is on your playlist at the moment?
I currently have Ed Sheeran radio playlist on my Spotify account.

Other than histology, what is another scientific topic that interests you?

I am into veggie gardening at the moment and I find soil biology very interesting. Learning about soil food web and how it helps a plant grow is mind boggling.

What movie or TV show do you think everyone should watch?
Jason Bourne movies. I would always sit and watch them from start to finish every-time I see it.

If you could live anywhere in the world for a year, where would you pick?
I would choose Norway because it is a beautiful country. I would visit all the Fjords there.

If you could choose two famous people, past or present, to have dinner with, who would it be?
Sir David Attenborough and Alex Hannold. I would love to hear the stories about all the places they have been and adventures that they had.

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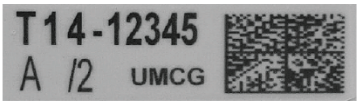

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IMMUNOFLUORESCENCE FOR AUTOIMMUNE ENTEROPATHY

by Bronwyn Christiansen

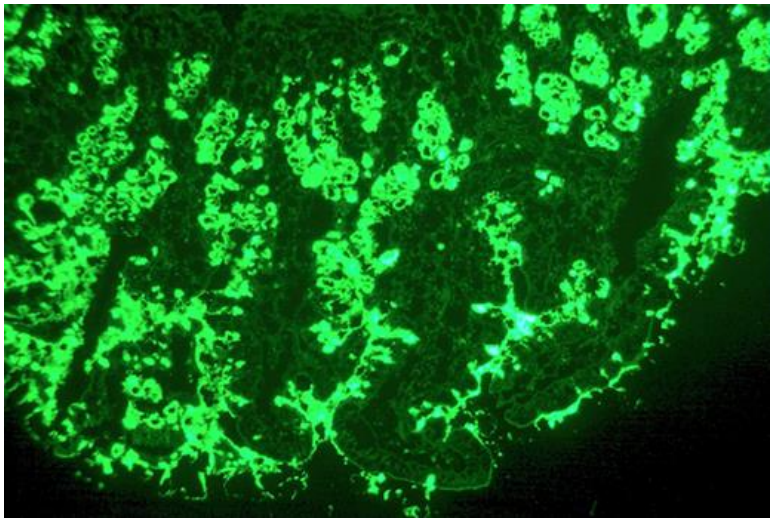
Autoimmune enteropathy is caused by an autoimmune attack. It usually presents in the first six months of life and principally involves the small intestine, although the stomach and large intestine may also be involved. Autoimmune enteropathy is a rare cause of intractable diarrhea associated with circulating gut autoantibodies and a predisposition to autoimmunity.

Symptoms of this disorder may include diarrhea / loose watery stools all the time, poor weight gain and weight loss, decreased urine output, frequent infections, occasional blood in the stool and skin rash. Autoimmune enteropathy may be linked with other disorders like diabetes and kidney disease.

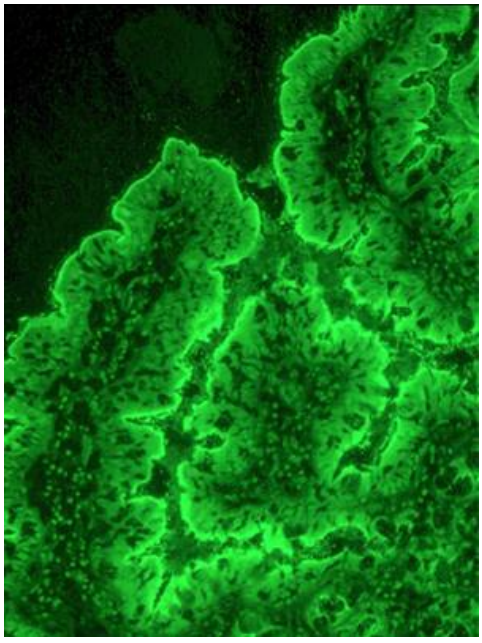
For children with suspected anti enterocyte/anti-goblet cell enteropathy, an endoscopic procedure is performed to gain a diagnosis.

Anti-enterocyte brush border antibodies are demonstrable by indirect immunofluorescence.

An indirect immunofluorescence technique can be used to identify circulating auto antibodies to mucosal structures in a patient's serum. The patient's serum is incubated with frozen sections of the substrate (a normal donor tissue – commonly frozen duodenum) then the bound auto antibodies are detected with the use of anti-human immunoglobulins.



An example of anti-goblet cell antibody binding after incubation with patient serum followed by IgA/G FITC.



An example of anti-enterocyte antibody binding after incubation with patient serum followed by IgA/G FITC.
Note the brush border staining and negative nuclei.

Treatment

The treatment of this problem is usually by medicines that suppress the immune system. Children may also need a special diet. Surgery is usually not needed. Sometimes these children will need to get IV (intravenous) nutrition. This gives them the nutrition their bodies need to grow and heal the intestines.

References

Adult Autoimmune Enteropathy: Mayo Clinic Rochester Experience, Akram S et al. Clinical Gastroenterology and Hepatology. 2007; 5: 1282-1290.

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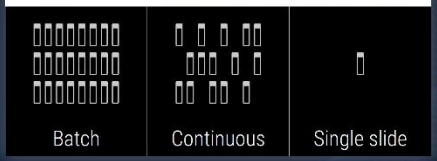

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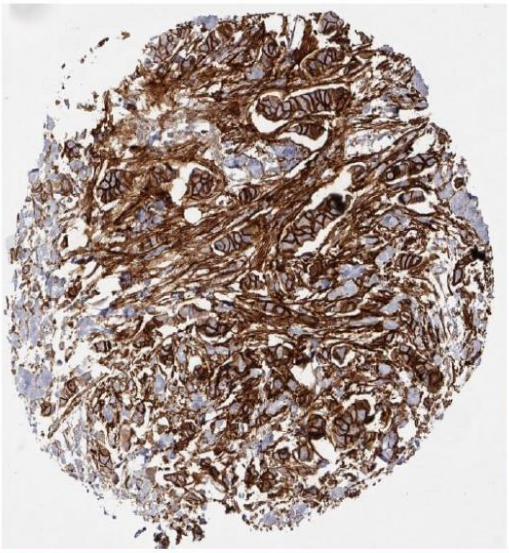
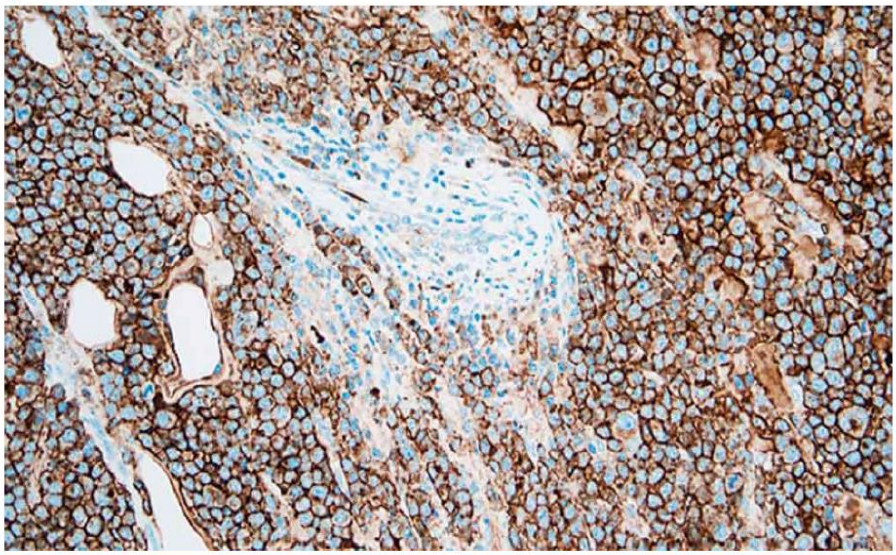
IHC ANTIBODY SPOTLIGHT: CD138

One of the most abundant surface proteins on the surface of myeloma and plasma cells is syndecan-1 or CD138. (Akhmetzyanova et al., 2019) The CD138 molecule is a transmembrane heparan sulphate glycoprotein expressed at distinct stages of differentiation in normal lymphoid cells such as pre-B cells, immature B cells and Ig-producing plasma cells as well as being expressed in stratified and simple epithelia. The loss of CD138 expression from atypical cells is reported to be an early event during cervical carcinogenesis whereas CD138 antigen expression shows a close association with preserved epithelial morphology and differentiation. However, CD138 is commonly used to identify and quantitate plasma cells. In normal tissues, CD138 is expressed on plasma cells but also in various epithelial cell types. CD138 is also expressed in various cancers. In several tumor types CD138 expression levels were described to be prognostically relevant. CD138 expression in cancer is of potential clinical interest. Antibody-based drugs targeting CD138 in plasmocytomas are being evaluated in clinical trials. In preclinical studies, anti-CD138 antibodies were also effective against triple negative breast cancer and melanoma cells.





[LEFT] Breast ductal carcinoma: Breast cancer no special type, NST) with strong membranous CD138 staining of tumor cells and intensive CD138 positivity of the tumor stroma
[RIGHT] Plasmacytoma: Note the intense membrane staining of tumor cells

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Hello Histo group! The HGVT is interested in promoting Histology into the public eye more (to show off of course!) and want to see pictures from our community to develop an Instagram (or Histo-gram, for the pun-minded). Above is some artistic inspo of the already incredible potential our discipline offers, however, anything related to Histology, your lab or your team is more than welcome!

Send all pictures to: editor@hgvt.org.au

Best regards!

Links to above art:
https://www.nsh.org/blogs/christine-carreira/2021/03/26/art-of-the-stain-2021-contest-winner
https://www.pinterest.com.au/pin/20055160831353005/
https://illnessnarratives.files.wordpress.com/2014/01/i-will-wear-my-heart-upon-my-sleeve.jpg
https://www.pinterest.com.au/pin/395331673514803840/

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Future Events: 2022

Org. No. A0035235F

Date: 23rd February, 2023

Scientific Meeting

Topic: Short Presentations

Venue: Zoom Meeting (streamed and recorded)

Date: 20th April, 2023

HGVT Scientific Meeting

Topic: TBA **Venue:** TBA