HGVT

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PARAFFINALIA NEWSLETTER

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June 2019

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 2019 are:

Name	Institution
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Adrian Warmington	Clinicallabs (Ballarat)
Mark Bromley	Sullivan Nicolaides Pathology
Elizabeth Baranyai	Cabrini Health
Kellie Madigan	Leica Biosystems
Alison Boyd	St. Vincent's Pathology
Kellie Vukovic	Sullivan Nicolaides Pathology
Sue Sturrock	Melbourne Pathology
Kerrie Scott-Dowell	Dorevitch Pathology/Leica
Darcee McNair	Clinicallabs (Geelong)
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President's Report- Blurb from G'town

We have hit winter!

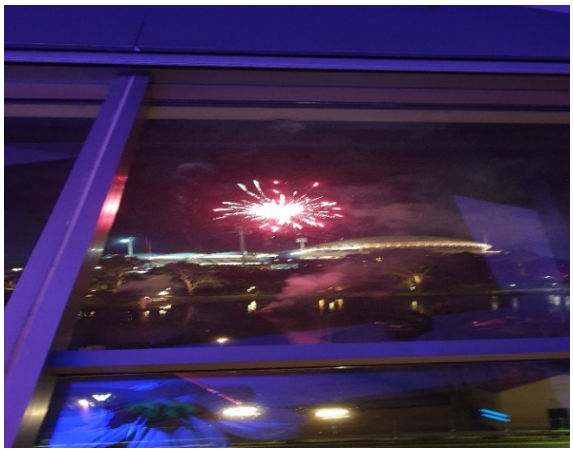
National Histology conference is done and dusted for another two years. The South Australian Histology group is to be congratulated on presenting another well attended meeting. The Saturday evening conference dinner was full of entertainment specially the fireworks on Torrens, with good food and wine, a band and plenty of Histologists taking to the dance floor.

This year on Monday 22nd of April 2019, Grant Taggart- Laboratory Manager of Histology at DHM in Sydney, passed away peacefully. Grant was a founding member of the Histotechnology Society Group of NSW and Life member. Grant will be sadly missed.

The 10th National Histology meeting is planned for 2021 and is to be hosted by the New South Wales Histology group.

Locally, our last scientific meeting was a site visit to Leica Biosystems, Mt Waverley. It was well attended, and I would like to thank the speakers Professor Andrew Pask, Fiona Tarbet and David Roche.

The trivia night is also fast approaching so start thinking about your teams and booking tables. We are locked into the same venue, which has limited availability of tables. If you cannot fill a table, don't worry, we will accept any numbers and form tables of participants, so nobody misses out. Details for the trivia night and forthcoming scientific meetings are within and on our website www.hgvt.org.au.



Samantha Arandelovic

HGVT President

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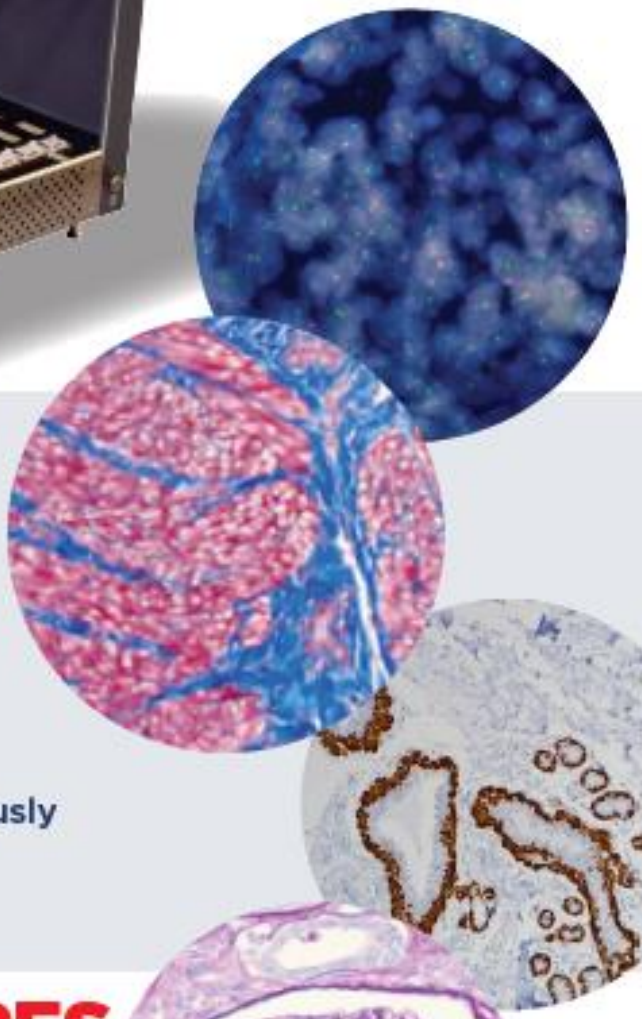

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Under the Microscope with Dave Bauer

Anatomical Pathology
Scientist at Histolab

Reported by: Meghan Leo

1. **What was your first part-time job?**

I shared a paper round with my brother, but we got the sack when he dumped is half of the newspapers in a dumpster, but that was really his job that I was helping out with. My first real job was at Maccas in North Geelong.

2. **How long have you worked in histology?**

This is my 17th year.

3. **When people ask, "So, what do you do?" How do you explain Histology?"**

I just say I'm a medical scientist and that I work in histology. I then hope they are sufficiently impressed and don't ask any follow up questions.

4. **What is a skill you'd like to learn and why?**

Learn how to hypnotize people. Just think of the possibilities!

5. **If you won the lottery, what would you do?**

Retire.

6. **If you could witness any event of the past, present or future, what would it be?**

Geelong winning 4 consecutive premierships.

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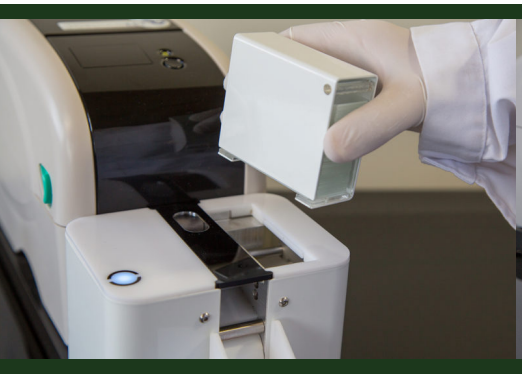

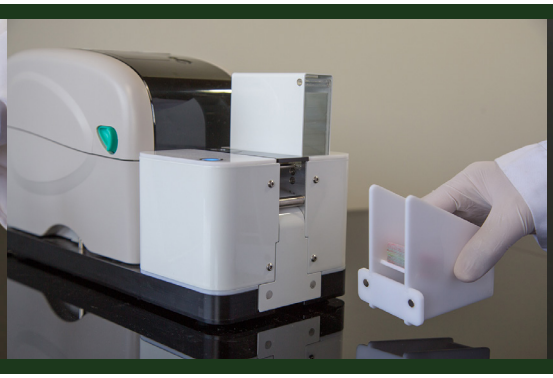

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Under the Microscope with Dave Bauer

7. Who do you most admire in life?

My wife Meagan. Anyone who knows me would admire her ability to put up with me for so long. And she does it with a smile on her face. (Mostly)

8. What is the best conference you have ever attended?

Coonawarra in around 2007. Don't remember any of the presentations which is always a good sign. I do remember walking into the pub around 2am with no shoes. Good times..

9. If you could only keep five possessions, what would they be?

TV, couch, fridge (well stocked of course), house and car. I'm a man of simple needs.

10. What is your dream holiday destination and why?

I'm not much of a traveler, but I would like to see a Packers game at Lambeau field.

😄🤘

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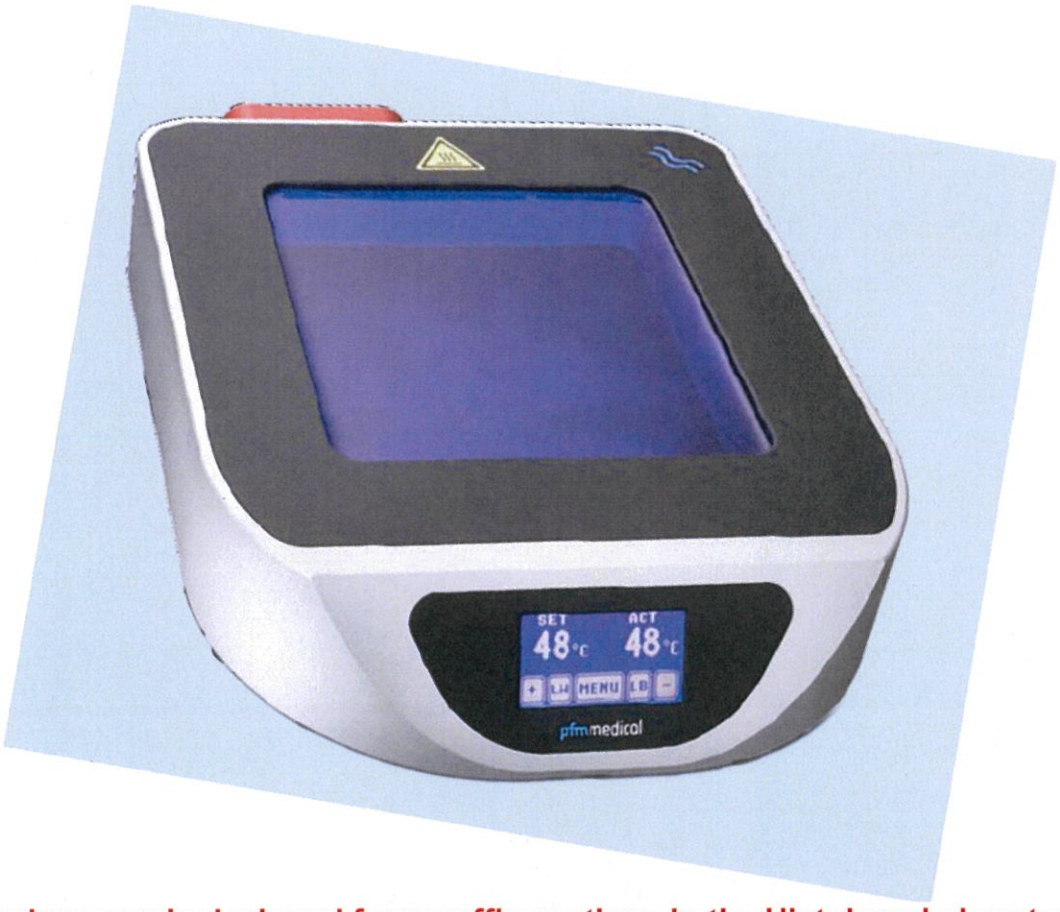

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HGVT HISTOLOGY GROUP OF VICTORIA & TASMANIA

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Date: Friday 19th July

Time: 6.30pm-10.30pm

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Melbourne VIC 3000

Price: $25 per person
(Tables of 10)

Including: pizza, one house beer/wine/soft drink, Trade sponsored prizes and rounds with a professional host

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Payment due by Friday 5th July. Please be quick as tables are limited and sold on a first in best dressed basis!

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

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National Histology Conference Review

By Kellie Vukovic

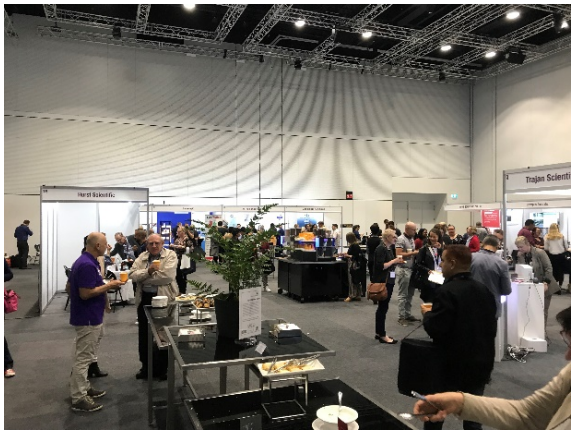
The 9th National Histology Conference was held at the Adelaide Convention Centre on 24-26th May 2019. The event proved to be a huge success with just under 300 registered delegates plus numerous trade exhibitors.

FRIDAY

The conference began for many on the Friday with four pre conference workshops to choose from. One of the morning options involved a complex cutup up workshop that was a close up inspection and hands on grossing tutorial of a complex kidney specimen. The second option was a troubleshooting workshop aimed to reduce errors in an anatomical pathology laboratory. The afternoon workshops included a repeat of the morning errors in the lab talk as well as a hands on comparative tutorial of IHC staining methods vs old school special stains to show Syphilis.

Although I didn't actually attend the Gin Cruise that was offered as a social event in the afternoon I only heard positive feedback from all those who attended. Others spent the afternoon wandering through the shops of Rundle Street Mall trying to find the famous Haigh's chocolate shop.

The welcome function was held on Friday night and gave delegates an opportunity to meet with the Trade reps as well as their interstate colleagues. The food and drink was flowing which created a great atmosphere to open up the conference.



National Histology Conference Review

SATURDAY

Saturday morning began with an official opening from the Governor of South Australia. The actual hall where the majority of the conference was held at the convention centre, was decorated perfectly in purple with small touches throughout. There were balloons, tables up front and lecture style seating at the back. The SA Committee were a stand out in their purple t shirts and matched the purple theme throughout the whole weekend.

One of the key note speakers at the conference was Dr Arie Perry who is a Professor at the University of California where he serves as the Director of the Neuropathology Division and the Neuropathology Fellowship program. Dr Perry's talk on the practical utilisation of WHO2016 and cIMPACT-NOW in brain tumour diagnosis discussed the recent advances that have resulted in major diagnostic shifts. The new approach focuses on the integrated diagnosis which incorporates classic histopathology with specific molecular signatures. The presentation was very informative and concluded in a way I have never seen before– a 6 minute brain tumour parody to Bohemian Rhapsody where he got up with a microphone and showed off his excellent singing skills. I would highly recommend looking him up on YouTube (https://www.youtube.com/watch?v=FfP4HTuu6Vs)

The mid-morning session included an update from the RCPAQAP which discussed the changes that have gone on within the program including the new myQAP portal, new scanning hardware and imaging software. Changes to programs such as Electron Microscopy and Her2 Brish were also looked at.

There was also a presentation on Molar pregnancy which is an abnormal pregnancy that carries an increased risk of gestational trophoblastic disease. Correct diagnosis of complete mole is required so that the complete evacuation of the uterus and any further treatment can be undertaken. Given that genetic testing is an important part of the diagnosis of molar pregnancy, we learnt that fresh tissue should be kept in case genetic testing is required.

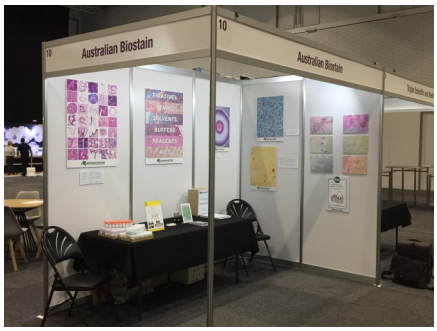
Dr Rajiv Patel began the third session with an introduction to the grossing of skin specimens. Dr Patel is a Professor of Pathology and Dermatology at the University Of Michigan School Of Medicine and completed some of his studies at Flinders University in Adelaide. His presentation discussed the need for proper grossing techniques of skin specimens which are essential in our workplaces. Errors in this area are serious and sometimes difficult to rectify. A number of different skin specimens were discussed from punch biopsies to complex skin specimens.

Michael Bushe-Jones from Path West in WA presented an interesting find in their lab, where a CMV control was accidently used to stain a TTF-1 slide. It was discovered that this tumour marker seemed to stain the CMV infected cells on the aberrant control. To determine if this was a legitimate phenomenon, a number of known CMV positive cases were stained with the TTF-1 antibody. Close analysis showed that TTF-1 not only reliably stained CMV infected cells but it also seemed to stain some infected cells which had not been picked up by the CMV antibody.

The last presentation of the day was an in-depth discussion of the diagnosis, collection and prognosis of renal biopsies. The kidney biopsy is considered the most valuable tool in providing nephrologists with information regarding the pathological causes of intrinsic renal disease. This session outlined the indications, complications and procedural aspects of a kidney biopsy.

AUSTRALIAN BIOSTAIN

Thank you to everybody who visited our stand at the National Histology Conference in Adelaide.



Our competition to identify tissues and stains attracted a lot of interest and created much discussion amongst colleagues.

Congratulations to Team Brazel (Bron & Hazel, seen below with Mike Rentsch) from the Royal Children's Hospital with a score of 11 out of 12.

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National Histology Conference Review

A special presentation was made to honour two invaluable histology figures who have contributed so much to our profession over the years. Laurie and Sue Reilly from Townsville were presented with a trophy as a thanks for all they have done in the Histology world.

The Conference Gala Dinner sponsored by Agilent was themed “Through the Looking Glass” and was attended by 194 delegates. The night was absolutely amazing with an Alice in Wonderland inspired room and a great band that kept people up dancing all night. The highlight of the evening was definitely a fireworks display over the river at the beginning of the evening which was an unexpected surprise for all.

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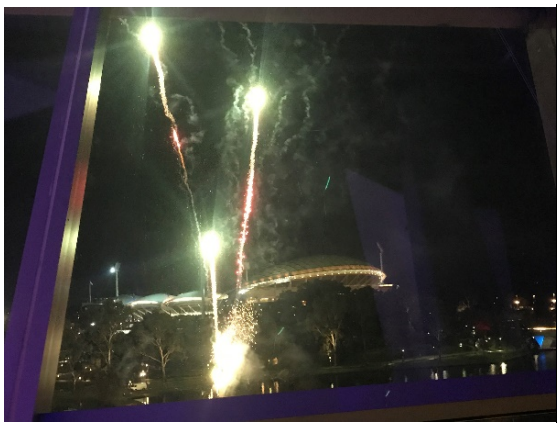
National Histology Conference Review



SUNDAY

At 9am on Sunday morning many bleary eyed delegates turned up for the first presentation of the day by Ian Olver who is a medical oncologist, bioethicist and researcher. The presentation titled “The Evolution and Revolution in Cancer treatment” discussed the shift in cancer treatment towards more targeted therapies rather than using cytotoxic drugs. We learnt that genomic analysis will become more important than histological subtype in selecting treatments and may be achieved by liquid biopsies.

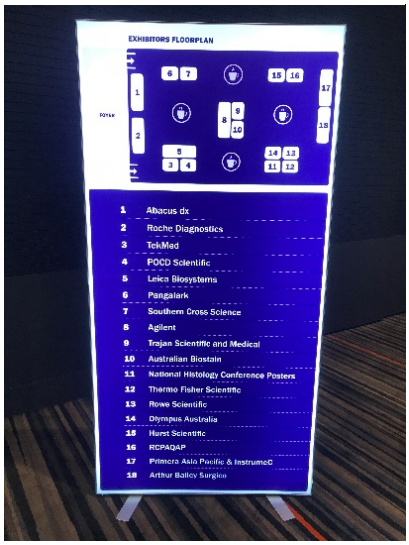
The RCPAQAP then discussed the approach for the assessment of Her2BRISH gastric technical and diagnostic proficiency. The presentation provided an overview of the Her2BRISH Gastric program, discussed the assessment program and highlighted results from previous surveys.

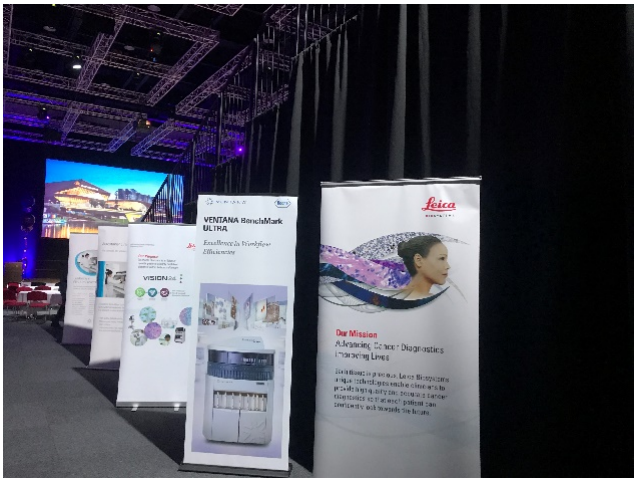
National Histology Conference Review

The second session of the day consisted of three different presentations. Bronwyn Christiansen from the Royal Children's Hospital looked at the combination of C4d and C5b-9 staining in the diagnosis of Gestational Alloimmune Liver Disease. The project demonstrated that a combination of the two markers can be used to improve the sensitivity and specificity of a diagnosis of GALD. Jean Mitchell from the NHS followed with a presentation on the History of Haematoxylin. She explored the pathologists and scientists that lend their names to different types of haematoxylin and the techniques they incorporated into our all-important diagnostic nuclear stain. Finally, Jacqui Simmonds from Lismore showed us a case study on a patient that presented with possible DCIS in her breast after calcifications were found. The biopsy interestingly revealed calcified Schistosoma japonicum eggs which is a parasite that is usually passed through the body.

The final presentations of the conference included the use of archived FFPE tissues for research purposes by Dr Lauren Thurgood. We learnt that the process of FFPE induces numerous chemical changes and degradation to DNA, RNA and protein that can hamper its usefulness for research purposes. Clare Loudon from The Children's Medical Research Institution concluded the conference with a presentation on the cryosectioning of cancer tissues for proteomic analysis.

The Histology Group of South Australia's Committee needs to be congratulated for putting on an excellent event. We also need to thank the many Trade representatives who spent the whole weekend showing us the latest technologies and gadgets they have ready for us to try. Without the support of the Trade, events like this would not be possible. The Conference concluded with the announcement of the 10th National Histology Conference that will be held in Sydney on the 4-6th June 2021.





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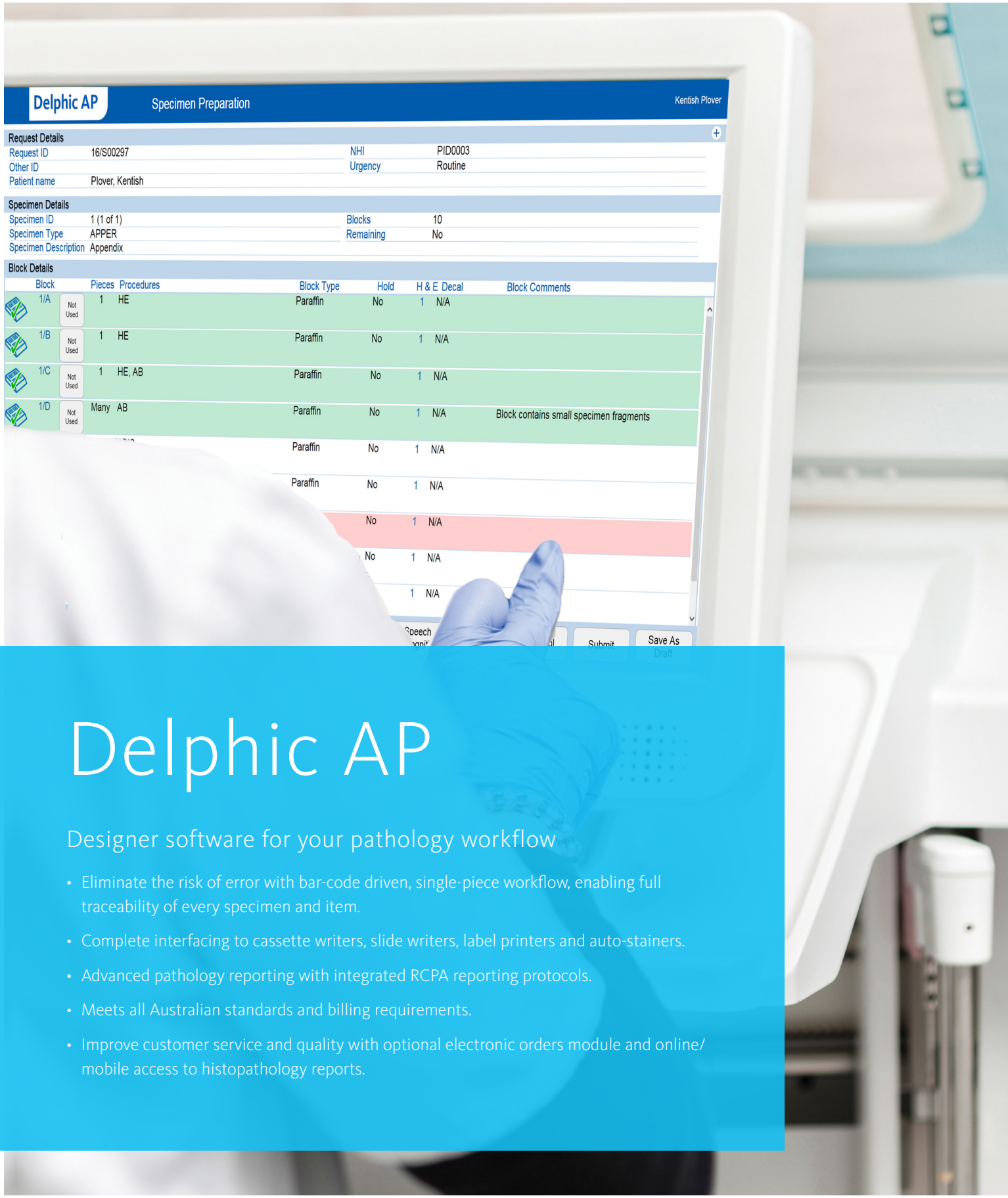

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HGVT Competition Winner -Yashi Xie

Yashi enjoying the National Conference

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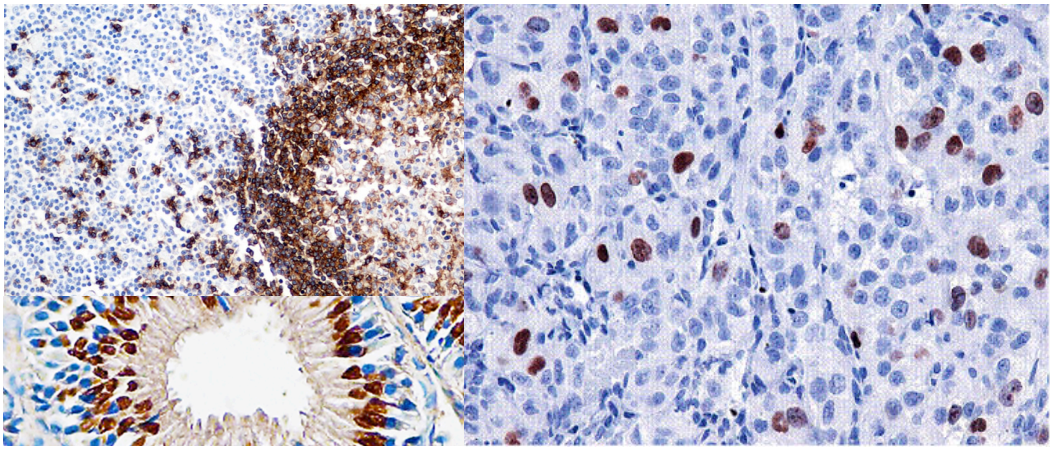
IHC Stain of the Month

June 2019

Darcee McNair



Cytokeratin 7

CK7

Species	Mouse
Antigen	Cytokeratin 7
Clone	OV-TL12/30
Isotype	IgG1
Positive control	Pancreas: • Epithelial cells of the large, intermediate and intercalating ducts should show +++ cytoplasmic staining • Epithelial cells of the large acinar ducts should show ++ cytoplasmic staining • Pancreatic acinar show negative staining Breast: • Epithelial cells show +++ cytoplasmic staining
Localization	Cytoplasmic
Clinical Application	• For identification of tumours of unknown origins • For staining of cytokeratin 7 in glandular and transitional epithelial cells appearing in various tumours such as adenocarcinomas of lung, breast, endometrium, thyroid and ovary.
Differential Diagnosis	• Carcinoma of urinary bladder vs. prostatic carcinoma • Ovarian carcinoma vs. colonic carcinoma • Lung carcinoma vs. breast carcinoma • Cholangiocarcinoma vs. hepatoma • Paget's disease vs. Bowen's disease

Cytokeratin 7 belongs to the neutral basic type B subfamily of cytokeratins. Its expression is confined to glandular and transitional epithelia. It has been seen in cases of adenocarcinomas of the lung, breast, endometrium, ovary and thyroid. It is also expressed in carcinomas of the bladder and chromophobe renal cell carcinoma.

Despite its wide distribution, it is successfully used as part of a panel in determining the primary site of metastatic carcinoma. It is predominantly used in conjunction with cytokeratin 20 (CK20). CK7 and CK20 immunohistochemistry staining show characteristic patterns on primary and metastatic lung and colorectal adenocarcinomas.

CK7+/CK20+	• Extrahepatic carcinoma of the bile duct • Primary mucinous tumours of ovary • Small intestinal carcinoma
CK7+/CK20-	• Breast carcinoma • Endometrial carcinoma • Gastric adenocarcinoma • Mesothelioma • Renal cell carcinoma
CK7-/CK20+	• Colorectal carcinoma
CK7-/CK20-	• Germ cell tumour • Squamous cell carcinoma

References:

- Dako. Atlas of Stains. 4th edn. Denmark: Agilent Technologies, 2012.
- Manjar KP & Umphress B. Cytokeratin 7 (CK7, K7). Pathology Outlines [Internet]. 2019 Apr 12 [updated 2019 Jan 28; cited 2019 May 20]. Available from http://www.pathologyoutlines.com/topic/stainsck7.html
- Leica Biosystems. Cytokeratin 7. Leica Biosystems [Internet]. [cited 2019 May 20]. Available from https://www.leicabiosystems.com/ihc-ish-fish/immunohistochemistry-ihc-antibodies-novocastra-reagents/primary-antibodies/products/cytokeratin-7/

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May Meeting Review- Kerrie Scott

Speakers

Professor Andrew Pask-Secrets from Beyond Extinction: Unlocking the Thylacine Genome

Fiona Tarbet- My Journey from Histologist to Senior Global Product Owner, Peloris

David Roche- When the Last Slide Matters, a study

On the 2nd May the HGVT found themselves in Mt Waverley for a site tour of the Leica facilities and talks by various speakers. Over 50 people were in attendance.

The general vibe from the attendees was that they were surprised that manufacturing of the instruments in their labs, was done here in Melbourne. They were suitably impressed by the level of professionalism and attention to detail around quality and continuous improvement.
Once the group had toured the site, they were ushered to the atrium for refreshments and nibbles before being entertained by the lively enthusiastic Professor Andrew Pask.

Professor Pask spoke passionately about his work in 'Unlocking the Thylacine Genome' and his belief that the Tasmanian Tiger can be brought back from extinction. Things that are in his favour in getting this to reality are, the relative recent extinction (1936 was when the last one passed away in the Hobart Zoo) and the preservation of the genetic material in museums with foetuses in formalin. This contrasts with the huge efforts and funding put into bringing back the Woolley Mammoth where material from 10,000 years ago is being used.

The thylacine is the largest known carnivorous marsupials in modern times and it was thought its closest relative was the Tasmanian Devil. Genetically, Professor Pask said the Dunnart and the Numbat that is more closely related, and it will be through one of these small species of marsupial that he hopes to bring back the apex predator to Tasmania.

May Meeting Review- Kerrie Scott

Fiona Tarbet spoke of her 35+ years in the histology field from beginnings in the cut-up area at the Royal Women's Hospital, through senior scientist roles at Dorevitch Pathology before taking on the challengers at Vision Biosystems which then became part of Leica Biosystems. She talked about the changing climate of the work place, the people that influenced her development and her scientific contributions to meetings and education. As most people in the room have a Peloris instrument in their laboratory or are at least aware of the high standard of processing quality it can achieve, it was nice to see the face behind the instrument's development and success.

David Roche, also of Leica, presented a published comparison study of IHC preformed on the Bond platform verses our main competitor. He discussed case management and consequent timeframes associated with diagnostic results. The study looked at lymphoma panels and the time to get all slides through the IHC systems. In some cases, the differences were a couple of hours, so workflows for histology could be improved using the Bond systems.

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The 15.8kg Liposarcoma that cost a life.

A 60-year-old obese female with worsening abdominal distention. Seek medical advice from GP after experiencing fatigue and shortness of breath for a period of 4-5 weeks. Previously said that she has been trying to lose weight for the past 6 months but has been unsuccessful.

Original consultation resulted in patient going for CT scan where they found a large complex abdominopelvic mass extending from the upper portion and occupying most of the abdomen.

Patient then got sent for additional testing that included a PET scan.

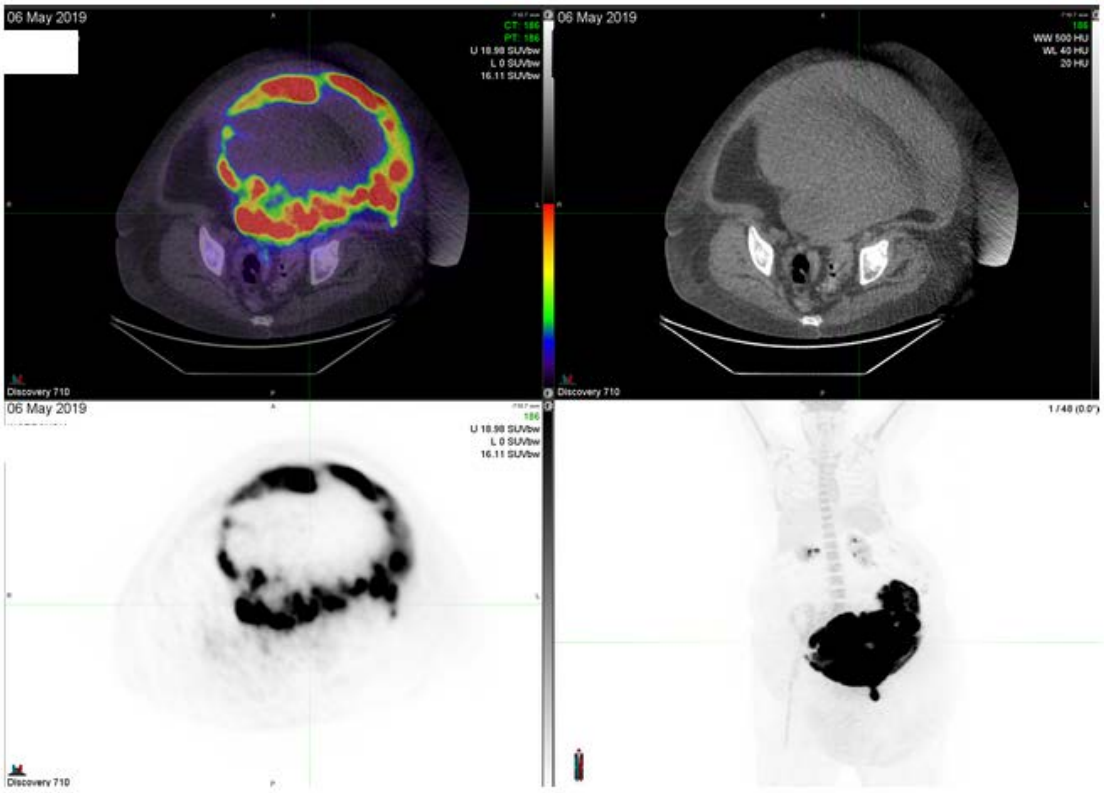


Figure 1: Patient PET Scan showing the massive mass

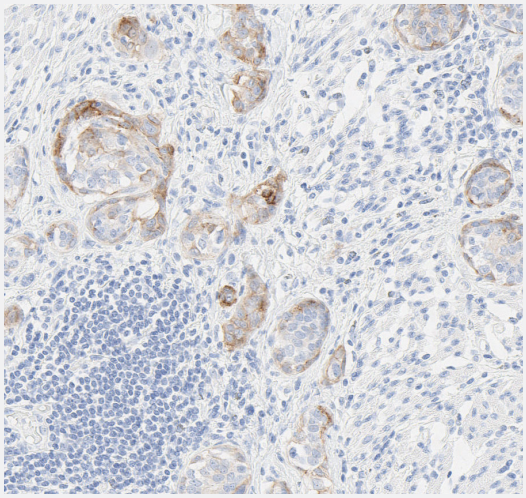
An urgent core biopsy was performed on the patient. The pathologist tested for the typical markers used for detecting sarcomas, liposarcomas and other fatty tumour tissue types including IHC cytokeratins (AE1/AE3, CAM5.2), S100 protein, Sox10, Melan-A, HMB45, desmin, myogenin, CD117 (c-kit), DOG1, CD34, STAT-6, ERG and CD45- but all these markers came back as negative.

The only positive IHC was MDM2, a soft tissue tumour marker. Given that the core biopsy was urgent, and the clinician needed a result the pathologists called the biopsy a malignant sarcomatoid tumour, favour dedifferentiated liposarcoma. Pathologists also commented saying that a differential diagnosis includes a high grade pleomorphic undifferentiated sarcoma; sarcomatoid carcinoma or sarcomatoid melanoma are regarded as less likely based on the immunophenotype.

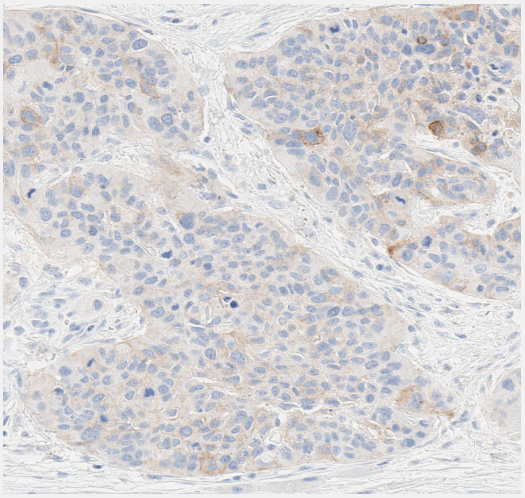
VENTANA pan-TRK (EPR17341) Assay

Your assay choice matters

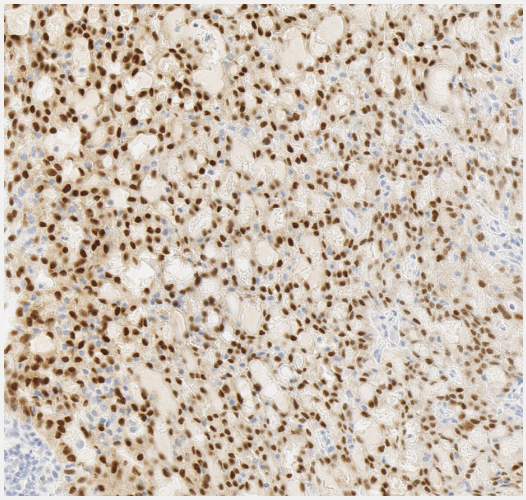
VENTANA pan-TRK (EPR17341) Assay is intended for the immunohistochemical detection of the C-terminal region of the tropomyosin receptor kinase (TRK) proteins A, B and C, which is known to be conserved across wild-type and chimeric fusion proteins, in formalin-fixed, paraffin-embedded (FFPE) neoplastic tissues stained with BenchMark IHC/ISH instruments. This product should be interpreted by a qualified pathologist in conjunction with histological examination, relevant clinical information and proper controls. This antibody is intended for in vitro diagnostic (IVD) use.



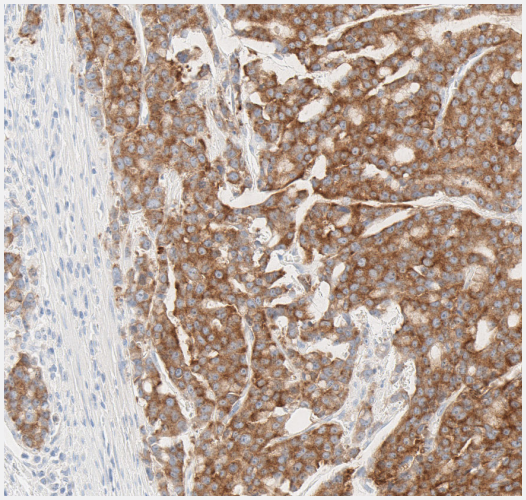
Protein expression in head and neck squamous cell carcinoma with wild-type TRK (20x)



Protein expression in salivary tumour with wild-type TRK (20x)



Protein expression in mammary analogue secretory carcinoma with TRK fusion (20x)*



Protein expression in colorectal carcinoma with TRK fusion (20x)*

Ordering information

08494665001, VENTANA pan-TRK (EPR17341) Assay, 50 test dispenser

The patient reviewed the results with their clinician and it was decided to remove the abdominal mass. The mass was received in cut up weighing in at a massive 15.8kg

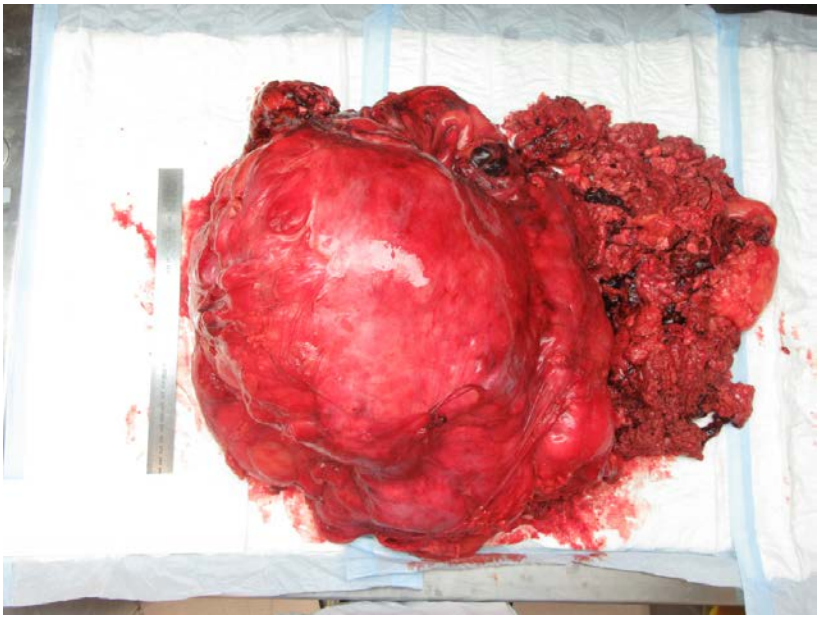


Figure 2: 15.8kg fresh abdominal mass

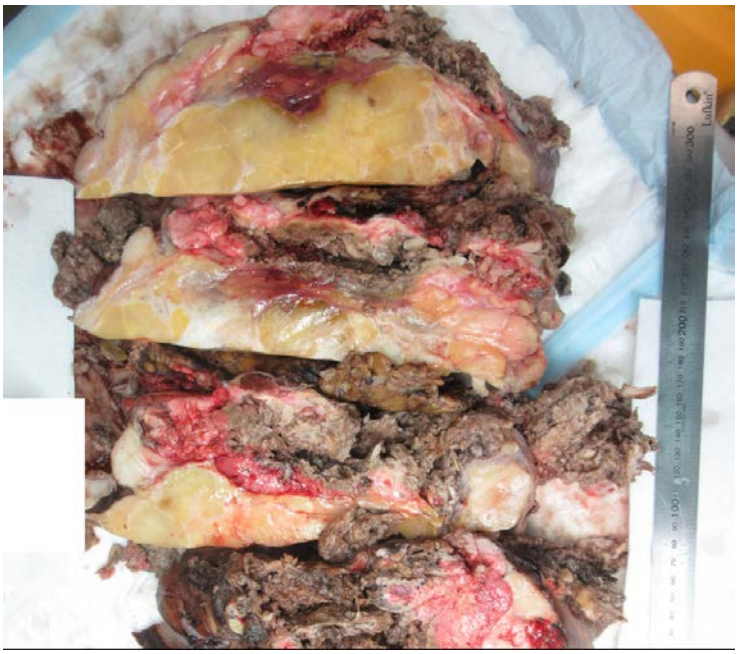


Figure 3: Necrotic tissue from abdominal mass

Macroscopically the mass measured 435x350x214mm in total with the necrotic component of the mass measuring 260x215x85mm and weighing 1549g. The tumour was approximately 30% necrosis, 20% white solid viable appearing components and 50% fatty component.

Microscopically the tumour appeared to have two types of tumour types. Representative sections of the fatty appearing component of the tumour showed adipocytes of varying cell size with fibrous septa containing atypical cells with hyperchromatic nuclei and scattered aggregates of chronic inflammation. The features resemble those of a well differentiated liposarcoma. This comprises 50% of the tumour mass as assessed macroscopically.

The more solid necrotic zone shows a dedifferentiated component, which is abruptly opposite to this well differentiated liposarcoma area. The dedifferentiated component is composed of a cellular proliferation plump pleomorphic epithelioid and spindle cells arranged in sheets and intersecting fascicles. The pleomorphic tumour cells have elongated hyperchromatic nuclei with prominent macronucleoli and moderate amounts of lightly eosinophilic to dense eosinophilic cytoplasm

The same IHC soft tissue tumour markers were used in both tumour types, and the additional use of MDM2 gene amplification for FISH testing concluded that both tumour types were diffusely positive for the MDM2 gene.

The pathologists were able to conclude that the patient's tumour type was a well differentiated liposarcoma (50%) and dedifferentiated liposarcoma component (50%- including areas of tumour necrosis within this area). Concluding that the patient had a retroperitoneal well differentiated and dedifferentiated liposarcoma (FNCLCC grade 3) with extensive tumour necrosis.

On complete resection of the tissue the patient unfortunately deceased. The reasons as to why are not definitive with the patient's body becoming a coroner's case. A major contributing factor would be the massive abdominal mass that was removed from the 60-year-old patient and the amount of necrotic tissue that was present in the tumour.

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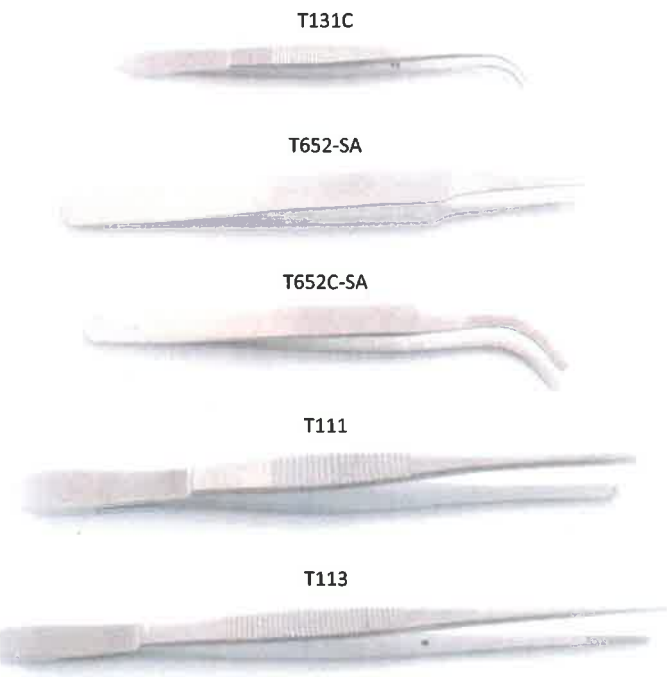

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Future Events:

2019

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Thursday 19th July

Trivia Night

Venue - The Metropolitan Hotel

Thursday 5th September

Educational Evening

Bairnsdale Ulcer

Venue- Peter Mac

Thursday 24th October

Educational Evening

Paediatric Brain Tumours, their IHC and the need for Molecular Profiling

Speaker- Hazel Chambers-Smith (RCH)

Interesting Lymphoma case

Speaker- Aysha Du (Boxhil Hospital)

Interesting IHC case

Speaker- Ahida Batrouney (RM)

Venue-Peter Mac

Saturday 9th November

½ Day Educational Meeting

Venue- Launceston