TISSUEPAPER

Histotechnology Group of Queensland

PRESIDENT'S REPORT - MARK BROMLEY

Autumn is well and truly here. Those early rising microtomists and embedders among us are having to find socks in the dark, and over the next few months it's good sport to check out who ended up putting odd ones on without realising. And as the socks get thicker too as the cooler months set in, I welcome you to our first 2023 edition of TissuePaper.

What a difference the absence of the little Spanish girl, La Niña, has had this year. The aforementioned socks may be getting thicker, but they're a lot drier than they were this time last year. The floods seem like a distant memory for most of us, but for some things are even no only just getting back to normal. And in some cases, the flood has changed things forever. In This Issue: President's Report: Mark Bromley IWD: Women in Pathology PRAME: Antibody case report Scientific meeting: At the Royal Pathologist focus



Our first scientific meeting of the year was great, many thanks for The Royal Brisbane and Women's Hospital for hosting us and allowing is to have a nose around your impressive laboratory. And thanks to our great speakers, Martina Jonovska, James McCart and Dr Kevin Hardin. A very enjoyable evening.

2023 has lots more in store for us, we have another scientific meeting in May, Trivia in June, Our annual joint meeting with AIMS Qld in August, and our AGM in October. And this year, we are going to try something new. We thought we would take the inter-institution competition seen during our Trivia nights, and turbo-charge it. With axes! So, watch this space and get your axe throwing teams organised!

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Since out last newsletter came out, we've seen International Day of Women and Girls in Science on



February 11th, and more recently **International Women's Day on March 8th**, so in honor of the women currently holding the torch of Australian pathology, we are going to look back at just a few of the influential women throughout history who have contributed to medicine and pathology, usually with far less fanfare or recognition than their male counterparts. Let's kick off with Myrtelle May Canavan, who was born in Greenbush Township in Michigan on the 24th of June, 1879.

She received her M.D. from the Women's Medical College of Pennsylvania in 1905, and after developing an interest in

neuropathology, she became one of the first female pathologists in the world, taking a residency portion in Boston State Hospital in 1910.

She became Associate Professor of Neuropathology at Boston University and curated the Warren Anatomical Museum at Harvard Medical School. However, despite adding over 1500 specimens to

the collection, discarding all of the damaged ones and vastly improving the institutions record keeping, she was always referred to as "assistant curator" because of objections to a woman heading the museum. She is best known for her published description of a neurological degenerative disease in 1931, which became known as Canavan Disease in her name.

ext, we have the Spitz nevus. Anyone who has worked in a lab that does dermatopathology

will have heard the name, but not many would know that it was Dr Sophie Spitz who published a paper in the American Journal of Pathology in 1948, detailing these lesions which now bear her name.

Born in Nashville, Tennessee on February 4th, 1910, she had a passion for music in her youth, and especially enjoyed the violin. She earned her M.D. from Vanderbilt University in 1932, and after World War II and her appointment with the Army Institute of Pathology, she took a position at the Memorial Sloan Kettering Cancer Centre where she came across twelve cases of what was then known as juvenile

melanoma and recognised that these lesions have benign behavior despite their resemblance to melanoma.

She is also recognised for her other contributions to pathology, especially for advocating the use of the pap smear when it first came on the scene.

For all of us who have done some biochemistry at university, the name "Menten" will likely cause palpitations as it invokes memories of Michaelis- Menten enzyme kinetics, but few would realise that Menten's first name was Maud, and that she was... well, a she!





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orn on March 20th, 1879 in Ontario, Canada, Maud Menten was to become a physician and a chemist. She studied in the University of Toronto, earning a B.A. in 1904, a Masters in 1907 and an M.D in 1911, to become one of the first women in Canada to earn a medical degree.



However, women were not allowed to participate in research in Canada at that time, so she moved to Berlin in 1912 where she worked with Leonor Michaelis and co-authored their seminal work on enzyme kinetics.

After completing her work in Berlin, she earned a PhD from the University of Chicago in 1916 with a dissertation entitled "The Alkalinity of the Blood in Malignancy and Other Pathological Conditions; Together with Observations on the Relation of the Alkalinity of the Blood to Barometric Pressure".

She went on to make significant contributions to biochemistry and in histochemistry. Her extensive work on alkaline phosphatase lead to her inventing the azo-dye coupling reaction still in use in histo labs

today. It was referred to in Pearse's "Histochemistry: Theoretical and Applied", a major text book in its day, as "It is not too much to say that the use of this principle was a stroke of genius"

Upon her death in 1960, an obituary was published in *Nature* describing her as "untiring in her efforts on behalf of sick children. She was an inspiring teacher who stimulated medical students, resident physicians, and research associates to their best efforts. She will long be remembered by her associates for her keen mind, for a certain dignity of manner, for unobtrusive modesty, for her wit, and above all for her enthusiasm for research." or the cytologists among the readers of this, I give you Priscilla Taft. She was born in

Budapest, Hungary in 1917, she and her family emigrated to the US at the age of 5. After obtaining an undergraduate degree, she had hoped to study medicine and train to become a physician at Harvard, but the medical school denied her admission because she was a woman. Described as "feisty and determined", she did not let this stop her, and eventually secured admission to Yale, and trained as a pathologist in Massachusetts General after her graduation, where she eventually became director of the cytology laboratory, but not before arguing for pay equal to that of



her male colleagues. Dr. Priscilla Dienes Taft was the first pathologist to practice cytopathology exclusively and directed Cytopathology at Mass General for over 30 years.

ne of the classic texts of neuro-oncology, Russell and Rubinstein's Pathology of Tumours of the Nervous System, has a place on the bookshelves of most neuropathologists. There was, however, nothing commonplace about either author, and certainly not the Russell half



of the partnership- Dorothy Russell, the first woman to be appointed to a pathology chair in Western Europe.

She was born in Sydney in 1895. Her father died of a chest infection when she was three. She then then moved to Queensland with her mother who married again, but a few years later died herself, from measles. Dorothy and her sister were sent to England to live with their late father's sister.

She excelled at school, and went to Girton College, Cambridge, obtaining a first in Zoology with the top mark among her peers. However, despite her result, as a woman she was not entitled to be rewarded a degree.

She was, however, determined to study medicine. Towards the end of the First World War, medical schools where reluctantly beginning to open their doors to women to overcome the shortage of qualified doctors and medical students, and in 1919 she secured a place at The London Hospital Medical College, a notably male-oriented and culturally inbred establishment. Despite being viewed as second class reportedly ignored in lectures, she excelled, and was awarded an undergraduate prize in pathology. After graduating, she entered the Institute of Pathology and then obtained a three-year research attachment. Her interest focussed on Neuropathology, and years later in 1946 she



SAVE THE DATE

TRIVIA NIGHT

WHEN: FRIDAY JULY 14TH, 6:00PM-10PM WHERE: TBA became professor of morbid anatomy and Director of the Institute of Pathology, the first female to be appointed a pathology chair in Western Europe.

ast but by no means least, let's meet Elizabeth Stern. She was a Canadian born (1915) American pathologist. After receiving her medical degree from the University of Toronto in 1939, she migrated to the US and became a naturalised citizen in 1943. After becoming certified by the American Board of Pathology, she became interested in the progression of cervical cancer, and published her first papers on the subject.

She was a driving force in defining dysplasia as the earliest sign of cervical cancer development, and her breakthrough studies changed the disease from fatal to one of the most easily diagnosed and treated cancers there is. She also published a paper in Science in 1977 demonstrating the link



between oral contraceptive pills and cervical cancer.

It is because of Dr Stern's findings that Pap smears were adopted routinely and can identify cervical cancer early in its development. Her work has had a lasting impact on women's healthcare, improving cervical cancer diagnosis and promoting the inclusion and protection of all women against disease.



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Prame: An antibody report

by Kim Judge - Product Specialist, Agilent Technologies

RAME (PReferentially expressed Antigen of MElanoma) is a relatively new antibody on the market and very popular in Australia. It owes its popularity in this region due to its expression in melanocytic lesions which is highly useful in a country where melanoma is the 4th most common cancer (Cancer Australia, 2022). Even though PRAME is predominantly expressed in human melanomas, it is also

expressed in in nonmelanocytic malignant tumors and is also found in the testis, ovary, placenta, adrenals and endometrium (Lezcano, Jungbluth & Busam, 2021).

Interestingly, the PRAME expression regulation is not yet known. We do know that PRAME represses the retinoic acid receptor (RAR) pathway which induces cellular action such as proliferation and apoptosis etc. PRAME is a rabbit monoclonal antibody, it is located on chromosome 22q11.22 and is



recognized by cytotoxic T lymphocytes (Lezcano, Jungbluth & Busam, 2021).

PRAME is a nuclear stain which will stain positively in 87% of metastatic melanomas and 83.2% of primary melanomas (Lezcano, Jungbluth & Busam, 2021). The image below shows a good example of what to look for during quality control of the IHC slides. PRAME can be stained with DAB (brown) or red/magenta to improve contrast between melanin in the skin. So, why is PRAME a helpful biomarker for Pathologists? It can support the diagnosis of melanoma, but also can indicate that a naevus is more likely in borderline cases. Pathologists will look at staining patterns and intensity to determine a diagnosis. In partial biopsies it can provide the confidence to recommend a complete excision (Rawson, 2022) and it also has a relatively quick turnaround time (depending on clone and platform, around 3-4 hours) in comparison to molecular tests. PRAME is often run parallel with other biomarkers such as Sox-10, Melan A and within melanoma panels.

References

Cancer Australia. (2022). *Melanoma of the skin statistics*. Cancer Australia. Retrieved April 8, 2023, from: <u>https://www.canceraustralia.gov.au/cancer-types/melanoma/statistics</u>

Lezcano C, Jungbluth AA, Busam KJ. *PRAME.* PathologyOutlines.com website. Retrieved April 8, 2023, from: <u>https://www.pathologyoutlines.com/topic/stainsPRAME.html</u>

Rawson, R. (2023, April). The role of Prame immunohistochemistry in the diagnostic approach to melanocytic lesions. IAP 2022.





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Registrations close 17th of July 2023

Scientific meeting: At the Royal

by Cally Matthews - Assistant Scientific Manager, SNP, and HGQ Committee Member

n Thursday 16th March the first scientific meeting for 2023 was held at the **Royal Brisbane and Women's Hospital** in Herston. This event was sponsored by **Abacus dx**.

Attendees arrived at the RBWH education centre in Block 7 and signed in. Then everyone

enjoyed some lively conversation with peers and delicious refreshments.

Once everyone had arrived and had a feed we headed into a meeting room for some thought-provoking presentations.

First up was **Martina Jonovska** who studied Bachelor of Medical Laboratory Science at AUT, NZ before moving across the ditch where she worked in Sydney and the Royal North Shore hospital before moving to the Gold Coast where she joined QML for 4 years. Deciding it was

time she returned to her "Royal" title, she joined the Royal Brisbane Hospital a year ago. Martina presented a fascinating look into what can go wrong in the lab and how to troubleshoot and resolve these issues in a talk entitled - Fungus foes, Fungus woes. The lab began noticing presence of fungus on slides that should not have fungus. Investigation found that there was contamination in the bulk solution carboys within their BMK special stains system. They have implemented changes to their protocols and have not encountered any further fungus woes.

Up next was **Dr Kevin Hardin** a consultant at **RBWH**. Dr Hardin studied Biochemistry at Georgia Tech in Atlanta and Medicine at UQ. He recently finished General Pathology training and is putting these skills to the test in Paediatric Pathology. He can be seen rocketing around the streets of Brisbane on his bike. Dr Hardin delivered an informative and engaging presentation on Placental Macro, Dissection & Molar Pregnancy Pathology. The audience was enthralled and had plenty of questions at the end.











Last but by no means least was **James McCart**, Scientist Extraordinaire presenting on Renal biopsy handling. James studied Biomedical Science, majoring in Anatomy and completed a research Honours year in Molecular Biology. He stared in the Histology game in 2012 at SNP before joining the team at Royal in 2013. He has been slicing and dicing there ever since. James presented a very informative look at renal biopsies from collection through dissection and results interpretation.



All three of the amazing presenters were handed a thank you gift for their time by the HGQ president - Mark Bromley.

We then broke off into smaller groups for a guided tour of the RBH laboratory. The staff were helpful in leading us around their lab which they loving called the "rabbit warren" and answering our questions. It is always fascinating to see how other labs operate



and is a great chance for the TAFE Queensland students to get a look at a real-life lab.



Figure 1: Dissection

Figure 2: Macro Photography

Figure 3: Microtomy



Figure 4: Processing Room



Figure 5: Embedding

Thank you everyone who attended it was a great turnout and a fun night. Thanks again to Abacus Dx for sponsoring the Event. We would like to extend a big thank you to our three amazing presenters, these nights aren't possible without people like you willing to stand up and impart your knowledge and to the staff of **RBWH** for hosting the event and showing us around your lab.

Hope to see everyone at the joint HGQ/Aims Scientific Meeting on the 24th August.

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Tissue Paper

Dr Kelly McClymont - Sullivan Nicolaides Pathology

What did you want to be when you grew up?

As a child I wanted to be a writer. As I grew up I saw how random and tough it could be. Decided pathology would be more rewarding.

What is the best piece of advice someone has given you?

When I was a young registrar someone told me "Work hard, but don't burn out". This resonated with me and I set about ensuring I found the sweet spot when studying and prioritised quality over quantity.

How long have you worked in Histology?

I have been a consultant for 13 years now. Specialising in GI, Skin and Nephropathology.

What is your favourite part about working in a laboratory?

How much fun it can be, you create close relationships working with people and it is a stable place.

What is your favourite stain and why?

The good old H&E. It is the gold standard for a reason. It is like vanilla and chocolate - simply the best!

Do you have any hobbies / What do you do in your spare time?

I enjoy road cycling and participate in a triathlon once a year. I also like spending time with my wife and two daughters.

Do you have a hidden / special skill?

I speak German and Spanish and enjoy conversing with others at language classes and putting my skills to the test when we travel.

What is your favourite food?

I love Mexican cuisine.

What is your favourite TV show? The insiders.

Dream holiday destination?

Bhutan - it is a small Kingdom in South Asia that requires a VISA and only let's a small amount of tourists in per year. The valleys and mountains are dramatic and breathtaking in photos.

Do you have a joke for us?

Q: Why was Pavlov's hair so soft and shiny? A: He conditioned it.





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