

This year the AWTRS 2022 Scientific Meeting was held in hybrid mode, both in person and online between 12th-14th September in Darling Harbour Sydney, Australia. The meeting hosted leading delegates in various sectors, including scientists and clinicians from Australia and internationally from New Zealand and Singapore. The forum hosted a wide range of research and clinical presentations while providing an excellent opportunity to meet face to face after a few years of communicating virtually. The conference spanned across three days and covered a range of topics including research challenges, innovation, clinical trials, and clinical applications for wound infection, regenerative medicine, burns, inflammation, and fibrosis as well as EMCR development sessions.

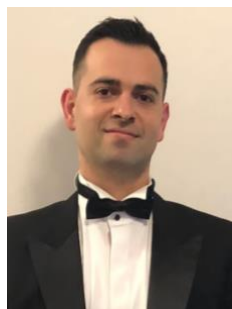
Day 1 of the AWTRS 2022 meeting was held on Monday 12th September. The opening ceremony began by acknowledging the traditional custodians of country throughout Australia and paying respect to all Aboriginal and Torren's Islander peoples by AWTRS president Dr Brooke Farrugia. Following the acknowledgments, Dr Farrugia welcomed the presenters, attendees, and exhibitors. In addition, she introduced the organizing committee, sponsors, and exhibitors, and briefly reminded attendees of some exciting social events planned.

The meeting was kicked off with the first session on *Latest advances in Cutaneous Biology*. The first speaker was a plenary speaker, **Dr. Leah Vardy**, from the Agency for Science, Technology and Research, Singapore, whose research focused on understanding the biology behind skin pathologies. Dr. Vardy presented the roles of polyamines (putrescine, spermidine and spermine) in regulation of cell migration during wound healing. She presented the important rate-limiting enzyme, AMD1, in polyamine conversion and how the inhibition of AMD1 effected keratinocyte differentiation and cell migration during wound healing.

The second speaker of the session was an invited speaker, **Dr. Abbas Shafiee**, from the University of Queensland, Australia, whose research focused on generating skin organoids from human pluripotent stem cells and 3D bioprinting technology to treat skin wounds. In his presentation, Dr. Shafiee spoke on bio-fabricated skin using 3D printing and organoid technology in which 3D printed cell-seeded wound dressing improved cutaneous wound healing. He and his team also successfully developed a differentiation method to generate complex human skin organoids from induced pluripotent stem cells (hiPSCs) that contained stratified skin layers, neuron formation and pigmented hair follicles. This research showed a new possibility of wound healing and scar treatment with hair restoration and skin neuron formation.

The last speaker of the session was one of the AWTRS travel grant receivers, **Zalitha Pieterse**, from Curtin Medical School & Curtin Health Innovation Research Institute, Curtin University, Perth, Western Australia. Ms. Pieterse presented her research on heterogeneity of human skin dermal pericytes. She explained how subpopulations of pericytes were successfully isolated and their characteristics were revealed using single cell RNA-seq in order to find the impact on epidermal renewal. Her findings are leading the investigation of the spatial location of different pericyte subsets in the dermis which could have functional paracrine role in renewal of epidermis.

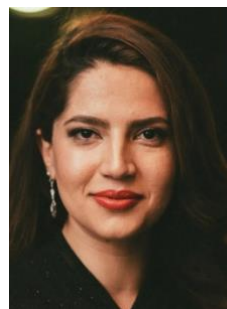
2022 AWTRS Travel Grant Recipients



Umut Rende
PhD Candidate
University of NSW
New South Wales,
Australia



Zalitha Pieterse
PhD Candidate
Curtin Medical School &
CHIRI
Curtin University
Western Australia,
Australia



Zahra Lotfollahi
PhD Candidate
South Australian Health and
Medical Research Institute
University of Adelaide
South Australia, Australia



Linyang Liu
PhD Candidate
Charles Perkins
Centre
University of Sydney
New South Wales,
Australia



Dr. Nutan Chaudhari
Research Associate
Burn Injury Research
Unit
University of Western
Australia
Western Australia,
Australia



Dr. Hanif Haidari
Research Associate
Future Industries
Institute
University of South
Australia
South Australia,
Australia

The first session of the meeting was concluded with an afternoon tea, followed by the final session, which had an exciting line up of speakers, discussing some promising new innovations to combat the threat of wound infections.

To commence the final session, we had our Plenary Speaker **Dr. Daniel Pletzer** from the University of Otago, New Zealand. Dr. Pletzer introduced us to the concerning issue of high-density bacterial infections from *Pseudomonas aeruginosa* and *Staphylococcus aureus*, and how there is a lack of effective treatments to overcome biofilm formation and multidrug resistance caused by these pathogens. Dr. Pletzer developed a *Pseudomonas-Staphylococcus* co-infection skin abscess mouse model, and within these models showed the exciting anti-biofilm activity of peptides and peptoids. Along with antibiotic treatment, these peptides and peptoids reduce these co-infections in this model and present as a promising new therapeutic treatment for high-density bacterial infections. It is evident there has been a lot of hard work going into this research, and the range of excellent questions emphasised the interest from the audience.

Next up was our very own 2021 AWTRS Young Investigator recipient, **Dr. Hanif Haidari** from the University of South Australia. Dr. Haidari emphasised the challenges of antibiotic resistance, and the demand for alternative and safer antibacterial agents. In his research, he has developed a smart antibacterial hydrogel therapy which utilises the pH and temperature changes in the wound microenvironment during infection for on demand release of silver nanoparticles. This hydrogel demonstrated to be successful in reducing viable bacterial numbers, faster infection clearance, accelerated wound closure and improved wound microstructure in *in vivo* models. Some very exciting work coming off the bench of Dr. Haidari in South Australia.

The next two talks featured the work of two PhD students. First up, **Zahra Lotfollahi** from the University of Adelaide shared her work investigating high-density lipoproteins (HDL) and its reduced functionality in diabetic patients compared to non-diabetic patients. The

findings of Zahra's study in reduced functionality of HDL and HDL-c levels in diabetic patients can potentially be used as a potential target to optimize management strategies for care of these patients. The second student talk was by **Tahlia Kennewell** from the University of South Australia. Tahlia discussed the problem of biofilm formation in chronic wound infections, and the need for new treatments to combat antibiotic resistance. In this study, Tahlia showed that *in vivo*, the use of a hydrogel (Chitogel) loaded with Deferiprone (Deff) and Gallium-Protoporphyrin (GaPP) in combination reduced biofilm biomass, neutrophil infiltration as well as increased the presence of anti-inflammatory cells. The use of Def-GaPP Chitogels shows and exciting potential to be used as a treatment to combat chronic wound infections.

The final speaker of the session was a fascinating talk by **Dr. Peta Tehan**, a clinical podiatrist and researcher at Monash University. Dr. Tehan gave us a brilliant insight into the challenges clinicians are currently facing during the clinical assessment and management of patients with diabetic foot ulcers. This presentation was of particular importance to highlight the limitations surrounding the assessment and management tools available to clinicians, and that there is an urgent need for researchers and clinicians to come together and identify new and effective therapies to combat these issues.

The first day of the AWTRS 2022 Scientific Meeting was closed with a much-anticipated welcome reception and EMCR networking event. The welcome reception was held in Tasman Light Gallery where everyone had the opportunity to connect at the first face-to-face AWTRS conference in 4 years, with complimentary light refreshments and drinks. Immediately following, the **AWTRS EMCR organizing committee** arranged a networking event for EMCRs held at the Cargo Bar in Darling Harbour. The networking session was purposed as an opportunity to get to know each other, meet new people, and hear from the senior EMCRs about their research journey. The EMCR session was financially supported by AWTRS executives to provide a light dinner and drinks. The event was well moderated by **Hanif Haidari** and **Caitlin Berry-Kilgour**, who initiated the bingo game where everyone had the opportunity to interact while competing for the most sociable AWTRS EMCR 2022 prize. The 25 EMCRs battled for the EMCR prize in a fun, vibrant environment, finishing in a close call, where **Ainslee Roberts** won the bingo game by the slightest margin. The night was well-received, with everyone enjoying their first conference day and making new contacts, setting the tone for the rest of the conference. A very successful close to the first day of the AWTRS 2022 meeting.

Day 2 of the AWTRS 2022 meeting was held on Tuesday 13th September. The first session was on *Tissue Repair & Vascularisation* and was started with the plenary speaker, **Associate Professor Geraldine Mitchell** from St Vincent's Institute of Medical Research, Australia, whose research focused on *in vitro* and *in vivo* blood vessel tissue engineering. In this session, A/Prof. Mitchell talked about bio-engineered skin flaps, which are multilayered structures comprised of epidermal and dermal layers and nourished by a capillary network connected to larger source vessels. A/Prof. Mitchell is developing these skin flaps as tissue replacements for skin wounds requiring surgery. She described how successfully her group engineered a human induced pluripotent stem cell (hiPSC) - derived human capillary network *in vitro* and tested *in vivo* models with the integration of the capillary network.

The session was continued with an invited speaker, **Associate Professor Christina Bursill** from South Australian Health and Medical Research Institute, Australia whose

research is focused on the biology and mechanisms of atherosclerotic plaques, and the mechanisms of diabetes-impaired angiogenesis and wound healing. A/Prof. Bursill presented the enzyme “pyruvate dehydrogenase kinase 4 (PDK4)” as a novel regulator of endothelial cell mitochondrial respiration in diabetes-impaired angiogenesis. She described the effect of the inhibition of PDK4 expression in mitochondrial respiration, and impaired hypoxia-induced tubulogenesis. She also showed a successful restoration of endothelial cell function and migration by overexpression of PDK4 and by topical application of rHDL. Hence, she proposed that PDK4 and rHDL could be targeted to prevent diabetic vascular complications.

The third speaker of the session was **Ms. Linyang Liu** from University of Sydney who was one of the one of the AWTRS travel grant receiver. Ms. Liu presented 3D vascularized tissue construct using protein-based composites. She described how her research developed a 3D hybrid vascular system by embedding tubular tropoelastin and silk fibroin composites within enzymatically crosslinked gelatin/silk hydrogel. This successfully mimicked the native tissue microenvironment by providing biomechanical cues in which cultured dermal fibroblasts could support seeded endothelial cells. Her findings promise to construct simple and versatile 3D tissue models to use in pharmacology and biological research.

The last speaker of the session was **Dr. Anna Guller** from Macquarie Medical School, Macquarie University, Sydney. Dr. Guller presented her recent study which explored an alternative neurorehabilitation approach for brain tissue repair and regeneration. She examined the effects of repetitive transcranial magnetic stimulation (rTMS), which is clinically approved for the treatment of depression, on *in vitro* human astrocytes and microglial cell cultures. In her talk, she described how the pulsed magnetic field controlled the proliferation and viability of human astrocytes and microglia, and how it modulated the functional polarisation of immune-stimulated microglia. In addition, she could successfully show the efficient drug release from biocompatible nanoparticles by using pulsed magnetic fields. Dr. Guller’s study demonstrated a useful tool that could be used in treatments of brain injuries.

The first session of the Day 2 was concluded with a morning tea and followed by the next session on *Therapies and Clinical Applications* soon after.

This session was chaired by Dr. Zlatko Kopecki and Dr. Peta Tehan, which featured a plenary, invited talk, and EMCR presentations as well as a rapid-fire session. This session covered major areas in the latest development for burns, antibody delivery, plasma therapy, bioprinting, diagnostic tools, and regenerative therapy using novel approaches.

The session was kicked off by **Professor Fiona Wood** delivering a keynote presentation on the clinical challenges of burn trauma and associated outcomes. Prof. Fiona Wood is a Plastic & Reconstructive Surgeon specializing in the field of burn care, trauma, and scar reconstruction. As Director of the WA Burns Service of Western Australia, she is a consultant at Perth Children’s Hospital and Fiona Stanley Hospital. Over the years, Fiona has been the recipient of numerous prestigious awards and recognitions for her dedicated work on collaboration-focused translational research to improve clinical outcomes and patients’ quality of life. Prof. Woods started by emphasizing the challenges of fulfilling the criteria for skin replacement, which encounters many problems. She believes that understanding basic science is important to transform small ideas into a collaborative approach toward potential commercialization. She also believes that reaching commercialization steps requires a

considerable team effort comprising reputable funding sources, innovative ideas, business strategies, regulatory requirements, and industry support. This approach was supported by describing the success of the “spray-on skin” branded as RECELL supported by Avita Medical. The approved product aims to address the unmet need for therapeutic skin restoration for adults, where patients would traditionally have to receive painful skin grafts. She concluded her presentation by emphasizing the revolution of 3D bioprinting and its expected clinical importance. Where she points out the need for a holistic approach to tissue regeneration, ensuring successful integration, and minimal scarring. She finished off by emphasizing the need for more work to focus on the 3D printing for complete regeneration.

The next presentation was delivered by **Dr. Christopher Turner** from Monash University and introduced exciting porous silicon (pSi) nanoparticles delivery of Flightless I neutralizing antibody (FnAb) to improve diabetic wound healing. He emphasized the need for topical administration of FnAb to improve the antibody stability, functionality, controlled release, and ease of application. He demonstrated a simple strategy to load FnAb at the optimized dose within pSi that resulted in improved diabetic wound healing offering a new therapeutic approach for the treatment of wounds. He is excited to test the efficacy using porcine clinical models.

The next interesting talk was delivered by **Dr. Nutan Chaudhari** from the University of Western Australia describing the role of anti-fibrotic drug PXS-6302 as a therapeutic approach for reducing scarring. Nutan emphasized that lysyl oxidase (LOX) plays a critical role in scar formation and maintenance, where inhibition of LOX could present a key therapeutic intervention. She investigated the role of pan-lysyl oxidase inhibitor PXS 6302 which penetrated human skin and inhibits LOX using ex vivo models. The topical application of this treatment significantly improved scar appearance and is currently undergoing phase 1c clinical trials. The audience was excited about this development, and we are all looking forward to hearing future progress of the study.

Dr. Ainslie Roberts from the University of South Australia introduced how cold atmospheric plasma generating RONS could serve as a promising treatment to sterilize wounds and improve the healing rate. She emphasized the importance of strategies to ensure safe, efficacious therapy. As an indirect approach, she used a plasma-activated hydrogel which can be used for biological applications reducing the damage, while improving the safety profile. She has demonstrated that plasma treatment decontaminates skin pathogens and presents useful applications for wound healing management.

The final presentation was delivered by **Professor Gordan Wallace**, an invited speaker from the University of Wollongong introducing the current challenges and future opportunities of bioprinting as an emerging medical technology. Prof. Wallace is a Fellow of the Australian Academy of Science, Australian Academy of Technological Sciences and Engineering, and Royal Australian Chemical Institute. He holds many research leadership roles and has received numerous high-profile prizes and recognitions. In his presentation, Prof. Wallace emphasized the potential translation of 3D bioprinting in numerous clinical settings. He is involved in numerous projects, where his team studies the development and potential of 3D bioprinting to generate cartilage in knee injury, cornea transplantation, and 3D printing of skin for wound regeneration. Prof. Gordon is looking forward to working with

clinicians and research partners to translate his research developments for clinical translations to alleviate the challenges of tissue regeneration.

The clinical therapies session was wrapped up by a series of quick-fire presentations, restricted to three minutes to present their research poster. The first presenter was **Kalani Ruberu** (UWollongong) who introduced a preclinical model for bioprinting skin aimed at repairing skin loss. Kalani's talk was followed by one of the invited speakers **Abbas Shafiee** (UQ), describing the generation of hair-bearing skin organoids from a human pluripotent stem cell. **Michael Smout** (JCU) gave an insight into the potential use of parasitic fluke granulin growth factor for saving diabetic foot from chronic wounds. Next, **Caitlin Berry-Kilgour** (UOtago) one of the AWTRS EMCR committee members, introduced us the use of decellularised seaweed as a novel biomaterial for the treatment of skin wounds. Caitlin was followed by **Asma Khalid** (RMIT) presenting the development and application of diamond-silk dressing: A next-generation platform for infection monitoring and wound healing applications. **Mitchell St Clair-Glover** (UWollongong) described the development of innervated human skin models: bioprinting sensory neuron progenitors. The last presenter was AWTRS general committee member **Jiao-Jiao Li** (UTS) inspiring us by developing a synergistic regenerative therapy for osteoarthritis. The session was concluded, followed by some light refreshments and the poster presentation.

The poster session was packed with fascinating research presentations and was held in the Tasman Light Gallery. Details about the research from rapid-fire sessions were displayed in the posters. Kalani Ruberu, Eileen Wallace and Mitchell St Clair-Glover from the University of Wollongong displayed three posters containing exciting information about 3D bioprinting and its possible applications in wound healing. They have also developed a preclinical model for skin regeneration. Caitlin Berry-Kilgour from the University of Otago presented "Decellularised seaweed as a novel biomaterial for treatment of skin wounds." Asma Khalid from RMIT university presented a poster about "Diamond-silk dressing: a next-generation platform for infection monitoring and wound healing applications." Jio-Jiao Li from University of Technology Sydney had a poster about "Working towards a synergistic regenerative therapy for osteoarthritis." Priscilla Lim from A*STAR presented about "single use automated microcurrent electrical stimulation therapy accelerates re-epithelialisation in an in-vitro human skin wound model." Abbas shafiee from University of Queensland had a poster about "Generation of hair-bearing skin organoids from human pluripotent stem cells." Micheal Smout from James-Cook University presented "Saving diabetic feet from chronic wounds: developing a wound healing peptide inspired by a parasite fluke granulin growth factor." Hien Tran from UNSW presented "Dynamic photo-crosslinked silk hydrogels for biomedical applications: Understanding complex gelation mechanisms." Tuo Zang from QUT presented about "Local burn wound environment verses systemic response: comparison of proteins and metabolites."

Day 2 of the meeting continued with an EMCR discussion panel session on *Tips how to translate your research into the clinical setting*. We had a fantastic panel of expert speakers, including **Professor Anthony Weiss, Professor Fiona Wood, Professor Allison Cowin and Dr. Joanneke Maitz**.

The first discussion point around translating our research into the clinical setting, yielded some fantastic points of advice from our panellists. They spoke about the importance of having strong and robust science, and how this will create a strong foundation for

commercialisation and intellectual property (IP). Understanding the bedside problem and creating an idea around the bedside issue is also important. Furthermore, being open to collaborations and finding people that support your work will help you succeed as a translational researcher.

The next discussion point for our panellists was providing advice on how to reduce the gap between clinicians and researchers. The importance of communication and collaboration with clinicians was echoed by all the panellists. Our very own clinician, Dr. Maitz, made the point that clinicians are interested in ideas that will make a difference, and are open to those collaborations. This is something to keep in mind when we consider future collaborations, and how that could lead to translation into the clinical setting.

The session continued with some discussion around commercialisation and patenting vs. publishing. Our panellists all agreed on the importance of seeking out commercialisation training, whether that be during our PhDs or beyond. They also agreed that you don't need to decide between patenting your work or publishing, but that it's important to look at your work before publishing, and that if there is something work patenting, to file the IP first, and then move ahead with publishing. An important piece of advice for us all to consider before we publish our work.

Finally, we were left with one piece of advice from each of our panellists. Firstly, Dr. Maitz encouraged us to not get disheartened when people say no, and if you believe in something to pursue it. Next, Professor Weiss told us to aim for excellence and do not settle for second best – always aim for quality publications and collaborations. Professor Cowin reminded us to work with positivity, and the importance to look for alternative funding sources to keep us going. Finally, Professor Fiona Wood told us to work hard and to never, ever give up – it pays off in the end. What a fantastic and inspirational discussion this was to encourage our EMCRs on their journeys as they continue their careers in research and beyond.

The *Burn* session was the last session of the day before the conference dinner on the 13th of September 2022. This session was chaired by the world leading burn expert and the Australian of the year in 2004, Professor Fiona Wood and Jiao-Jiao Li.

The first speaker of the session was **Dr. Joanneke Maitz**, a clinician in plastic and reconstructive surgery and early career researcher in translational burn injury and reconstructive surgery. Dr. Maitz's talk started with the devastating consequences of the White Island Volcano eruption in 2019 with 5 severely burnt patients airlifted to the Burns unit at Concord Repatriation General Hospital (CRGH) for treatment. Dr. Maitz started by describing different type of burns including pyroclastic burn injuries which are the burn injuries experienced by the survivors of the White Volcano eruption. BTM, which is an Australian made polyurethane foam matrix, was used for these patients to treat the devastating injuries. Dr. Maitz reported that all patients - excluding one patient who passed away as a result of multiorgan failure prior to the surgery - had successful wound healing outcomes with BTM.

The next session was then followed by **Dr. Lucy Barret** from the Burn Injury Unit of the University of Western Australia in Perth. Dr. Barret's project was investigating the impact of childhood burn injury on immunity and disease risk later in life. In this study, using pre-clinical mouse model of burn injuries, it was demonstrated that mice who were subjected to a non-severe (8% total body surface area), full-thickness burn injury one month earlier were significantly more susceptible to tumour development compared to control mice in an

orthotopic model of B16 melanoma. Additionally, Dr. Barret's project demonstrated reduced or absent systemic response to vaccine antigens (Diphtheria, Tetanus, Pertussis) after analysing the blood samples in paediatric patients 3 year post injury, despite receiving their DTaP vaccine 1 year after injury. Dr. Barret's team are aiming to develop a strategy of identifying at risk patients and gain a better understanding of burn-associated immune dysfunction to improve long-term outcomes for children with burns.

The third presentation of the day was delivered by **Eva Kierath** investigating the chronic immune system changes in paediatric patients with burn injuries through a clinical study. In this clinical study, 33 burn patients with non-severe burns between the age of 5 to 8 were reviewed and their blood samples were taken for analysis. The data from this clinical trial shows that there is a link between sustained metabolic and immune disruption in burn patients which can suggest chronic immune dysfunction. The next presentation of the day was delivered by the research assistant, **Donna Langley** from the Queensland University of Technology. Donna talked about the important role of vitamin D in terms of calcium absorption and the importance of this vitamin for growing children. Burns paediatric patients are at higher risk of vitamin D deficiency due to multiple factors such as fluid resuscitation, excessive cellular metabolism and most importantly lack of sun exposure due to long hospitalisation. In the project carried out by Donna and her team at Queensland University of Technology, Liquid Chromatography Mass Spectrometry (LC-MS), which is a gold standard for vitamin D assessment, was used. This study observed vitamin D deficiency in patients with large surface area burns compared to other burns. This study concluded that vitamin D deficiency could lead to delayed wound healing, prolonged hospitalisation, and poor scar outcome.

The last speaker of this session was **Alireza Hassanshahi** from the University of South Australia, Adelaide. Alireza investigated the effect of monoclonal antibodies against flightless protein in the process of burn wound angiogenesis during his PhD work. Alireza talked about the Flightless (Flii) protein which is elevated in human wounds and how using antibodies to neutralise the activity of Flii protein (by using FnAbs) to investigate its role in wound healing post-burn injury. Alireza found significant changes in pro-angiogenic factors such as VEGF and FGF-2 following FnAb treatment post burn-injury to the mice as well as more tubule numbers formed indicating increased angiogenesis with FnAb treatment.

The final session concluded, and attendees were invited to attend the Conference Dinner. All conference attendees were gathered at the Aquarium Darling Harbour Wharf to depart with a stunning harbour cruise with the departure time of 07:00pm. The timing was perfect as the glamorous lights of all Sydney skyscrapers and buildings were shining, and we could capture a nice sunset over the harbour bridge and Sydney Opera house. The conference attendees were directed to go towards the deck of the cruise so they could enjoy the sightseeing and take photos. The Sydney Opera House was lit up with an image of Queen Elizabeth II to pay a tribute to her majesty following her passing. After everyone took numerous photos and selfies, it was time for the dinner inside. Before the dinner, the young investigator awards were announced, and the award winners were Dr **HuanTing Ong** from the University of Western Australia and **Dr Rae Moses** from the University of Melbourne. In addition, **Associate Professor Pritinder Kaur** received the lifetime membership award for AWTRS in recognition of her significant and outstanding contribution to AWTRS. The official announcements were then followed by a very delicious dinner and dessert and everyone

engaged in great conversation and took advantage of the amazing chance for networking. What an extraordinary way to end the second day of the AWTRS 2022 meeting.



The third day of AWTRS 2022 conference started freshly on the morning of Wednesday 14th of September at Darling Harbour, Sydney.

Inflammation & Fibrosis was the first session of the day, chaired by Dr. Chris Turner and Dr. Nutan Chaudhari. **Dr. Andrew Stevenson** firstly gave a talk on his research at the University of Western Australia focusing on burnt patients scarring at molecular level by introducing three studies from his group. **Umut Rende**, a PhD candidate from the University of New South Wales showed his research on proteins in mouse kidneys to the audience. **Helen Cao** from the University of Otago gave a detailed and enthusiastic talk on her research about wound healing adipokine profiles from adipose tissues of the patients undergone caesarean operation. Her research shown that the clinical tissue study is valuable for the wound healing and tissue repair field. Lastly, a research student from Queensland University of Technology, **Man Ching Siu**, presented her work on gene expression associated with scarring outcome post-burn, which successfully wrapped up session 1 on the third day.

Regenerative Medicine & Biomaterials was the very last session of the AWTRS 2022 conference. AWTRS president Dr. Brooke Farrugia and Dr. Abbas Shafiee chaired this session. **Associate Professor Jelena Rnjak-Kovacina** gave an invited talk on her research on silk fibroin as biomaterials. She started with sharing her experiences on transitioning from her PhD research to her current research interests – vascularisation of the biomaterials, which remains an important research challenge for biomaterial development. After that, she introduced to the audience that how the silk fibroin was used as biomaterials, its biocompatibility, strength, and its different applications make it to have huge potentials in this field. Silk fibroin can be fabricated in various forms, such as highly porous sponges, microgels by microfluidic techniques, hydrogels, and scaffolds. Silk fibroin is also bio-printable for potential 3D printing use. Multiple questions and discussions from the audience after her talk further proved how inspirational her talk was.

A PhD candidate, **Long Nguyen** shared his research on marine-derived sulphated polysaccharides for chronic wound healing. After that, **Dr. Rachael Moses** from the University

of Melbourne presented her work on building a 3D chronic wound model using entirely animal-free products. This opened a door for researchers to rethink about commonly used animal-derived products like foetal bovine serum and trypsin. Lastly, **Professor Anthony Weiss** from the University of Sydney gave a plenary talk about his tremendous work on the monomer of elastin – tropoelastin. He firstly talked about tropoelastin structure and introduced this protein that he has been working on for decades. After that, he shared multiple tissue engineering and wound healing related applications using tropoelastin. Tropoelastin promotes cell attachment and proliferation, also it has excellent elasticity. Prof. Tony also shared some of the most up to date work from his lab, for example, the tropoelastin-containing vascular graft project which was just accepted by the prestigious *Advanced Materials* journal. The very last session of the AWTRS 2022 conference closed in a round of applause.

The meeting was closed with the awards and closing ceremony, chaired by AWTRS president **Dr. Brooke Farrugia**. Dr. Farrugia gave final remarks by expressing gratitude to the organizing committee and all the attendees, especially to **Associate Professor Pritinder Kaur** for her contributions to AWTRS community. A/Prof. Kaur also took on the honour to thank Dr. Farrugia for her work towards a very successful meeting. The AWTRS 2022 conference officially closed after the announcement of the lucky and well-deserved award winners:



ECR presentation winner

Dr. Lucy Barrett

UWA Burn Injury Research Unit



ECR presentation runner-up

Dr. Rachael Moses

University of Melbourne



ECR Poster Winner

Dr. Abbas Shafiee

University of Queensland



Student presentation winner

Donna Langley

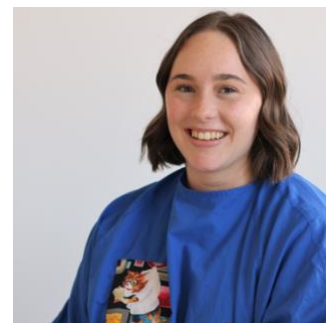
QUT Burns and Trauma Research



Student presentation runner-up

Helen Cao

University of Otago



Student Poster Winner

Student Rapid-Fire Winner

Caitlin Berry-Kilgour

University of Otago