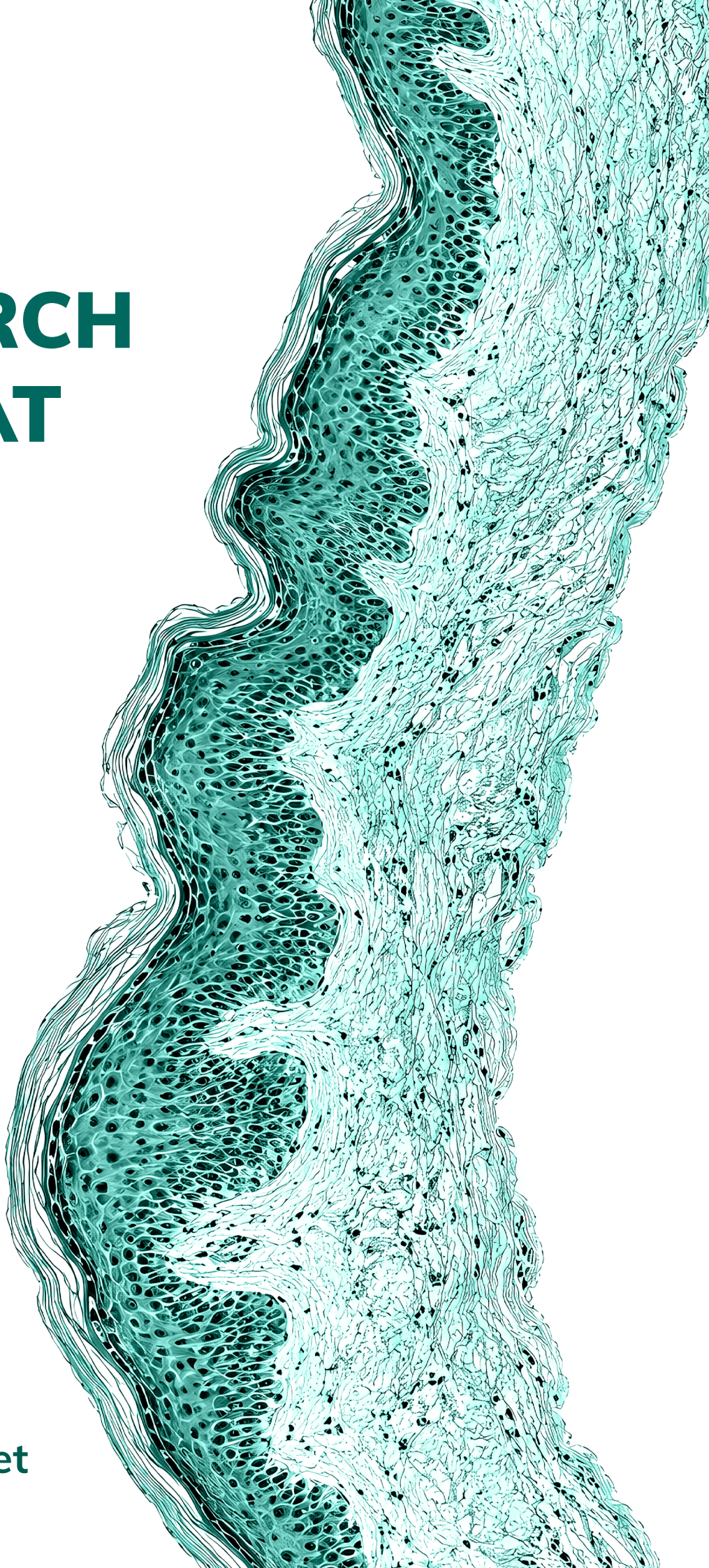
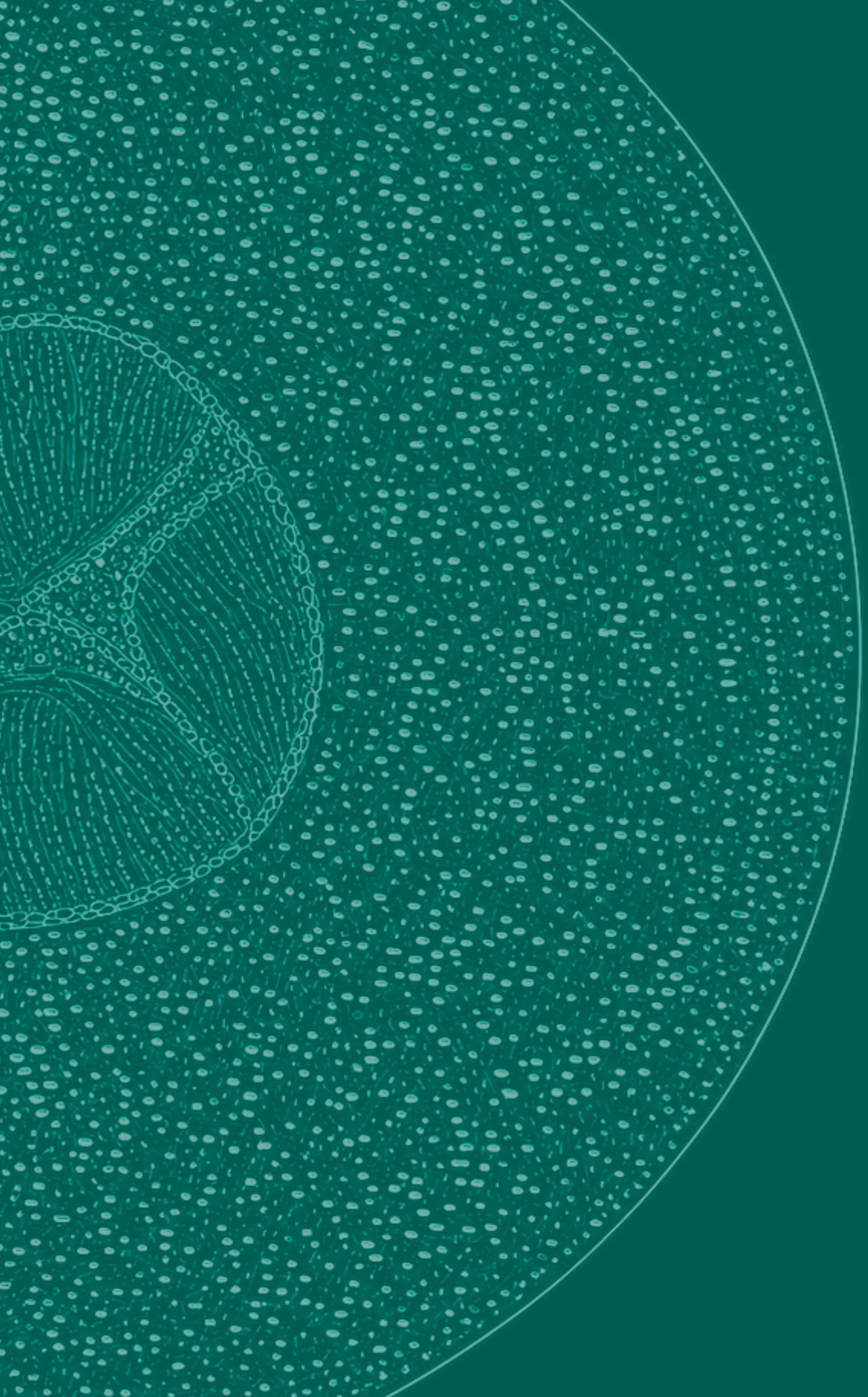
Melanoma Institute Australia

RESEARCH RETREAT 2026



Program Booklet



Research Retreat 2026
Contents

Message from the Medical Director 4–5

Research Retreat 2026 Program 6–9

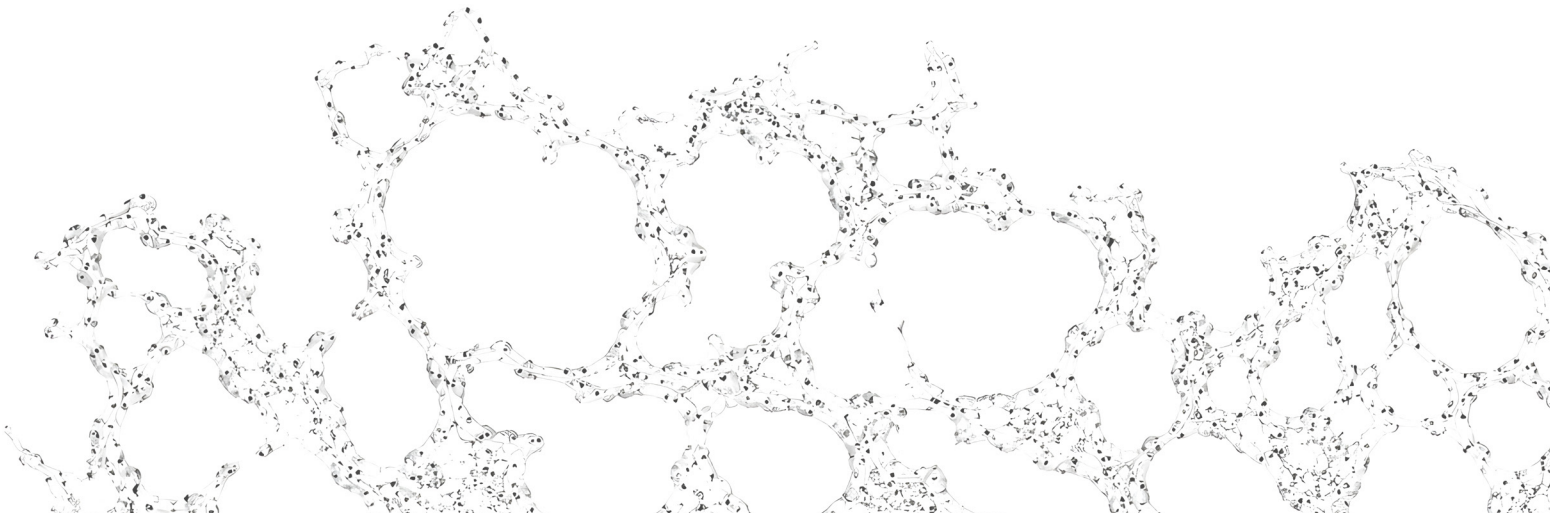
Theme 1 Early Melanoma 10–19

Theme 2 Advanced Melanoma 20–34

Theme 3 Prevention, Risk & Clinical Detection 35–46

Theme 4 Supportive Care & Survivorship 47–52

Keynote Presentations 53–54



RESEARCH RETREAT 2026



Message from the Medical Director

Prof Georgina Long, AO

Melanoma Institute Australia (MIA) is at the forefront of global advances in melanoma and skin cancer research and treatment. We are a not-for-profit organisation dedicated to curing melanoma through innovative world-class research, treatment and education programs. Our vision is zero deaths from melanoma.

Melanoma is the deadliest form of skin cancer and Australia has the highest melanoma rates in the world. One person is diagnosed with melanoma every 30 minutes and one person dies from the disease every six hours. It is the most common cancer affecting 20-39-year-old Australians.

Less than a decade ago, advanced melanoma was an almost certain death sentence. Today, close to 60% of advanced melanoma patients are effectively cured. MIA's research addresses the full patient journey, organised around three fundamental clinical questions.

Is it melanoma? Accurate diagnosis is the critical first step. ***MIAdx***, a genomic ancillary diagnostic test developed at MIA, supports pathologists in resolving challenging melanoma tumours. Our ***Melanoma Risk Prediction Platform***, validated internationally and used over 250,000 times annually, guides clinicians in early detection and risk stratification. MIA is also leading the Commonwealth-funded ***Roadmap for a National Targeted Skin Cancer Screening Program***, a $7.5 million initiative developing the evidence base for a population level screening program comparable to existing national cancer screening programs.

Will the melanoma recur when removed surgically? *MIApx* and our ***Liquid Biopsy Program*** focus on determining if surgery is enough for early-stage melanoma, or will patients recur after surgery? Additional tools on the ***Melanoma Risk Prediction Platform*** help clinicians assess risk of recurrence or sentinel node involvement after surgery.

If melanoma will recur, what drug therapies will work? *The Personalised Immunotherapy Program* delivers real-time multi-omic biomarker reports integrating tumour proteins, DNA,

RNA and clinical features to predict immunotherapy response, now guiding care for over 900 patients. Our ***NeoPredict*** biomarker tool identifies which patients are likely to respond to standard neoadjuvant immunotherapy and who requires escalation.

What management is optimal? Across 53 clinical trials, MIA is advancing surgery, radiation oncology and drug therapies in parallel. The ***MSLT-3*** trial is investigating surgical de-escalation after immunotherapy response. ***AXIOM*** and ***ABC-X*** are testing radiation-immunotherapy combinations. The landmark ***NADINA*** trial led to PBS-listed neoadjuvant combination immunotherapy, ***NeoReNi*** has extended neoadjuvant trial into earlier-stage II disease, and ***NeoIRENIE*** is targeting treatment-resistant "Third Space" patients through precision immunotherapy escalation. Next-generation approaches including tumour-infiltrating lymphocyte therapy, oncolytic viruses and mRNA-based treatments are advancing toward clinical trials.

Beyond treatment, our ***Supportive Care and Survivorship Program*** ensures that patients are supported across their entire melanoma journey. Our Clinical Psychology Service provides specialist psycho-oncology care, and our research team is advancing evidence-based strategies to address the unmet needs of melanoma patients and their carers through integration of quality of life endpoint in clinical trials, and the development of Australian clinical practice guidelines for melanoma supportive care and survivorship.

This retreat brings together our researchers, clinicians and trainees from across the diagnostic, biomarker, clinical trial and supportive care programs to share progress, identify gaps, foster new ideas, and align our efforts against a single goal. We look forward to the ideas and collaborations that emerge during the retreat.

Thank you to the 2026 Research Retreat Sponsors for their support of this year's event.

METAGENE

agrf

Pathtech
First Choice In Science

THEME 1
EARLY MELANOMA



Prof Sydney Ch'ng



A/Prof Alexander van Akkooi

This theme aims to

- Identify causes and drivers of melanoma
- Determine the best management of early melanoma
- Determine accurate prognosis
- Improve accuracy of melanoma diagnosis



THEME 1
EARLY MELANOMA



Achievable reconstruction outcomes for complex skin cancer defects

Prof Sydney Ch'ng

Advanced cutaneous malignancies can produce extensive composite defects involving the face, scalp, orbit, parotid region and neck. Management requires a balanced and individualised assessment of available treatment modalities, considering tumour biology, patient factors, systemic and radiation therapies, surgical morbidity, and the realistic potential for meaningful reconstruction. When major resection is appropriate, however, contemporary reconstruction should aspire beyond wound closure and restoration of basic function.

This presentation highlights selected complex reconstructions performed following resection of advanced skin cancers over the past 18 months. Through a series of illustrative cases, it demonstrates achievable outcomes using tailored combinations of free tissue transfer, local and regional reconstruction, nerve reconstruction and facial reanimation, skeletal and soft-tissue restoration, and staged secondary refinement.

These cases emphasise the importance of aligning oncological decision-making with reconstructive opportunity. Major surgery is not necessarily the appropriate treatment for every advanced skin cancer; equally, the anticipated complexity of reconstruction should not preclude potentially curative resection when meaningful functional and aesthetic outcomes are achievable. Careful patient selection, multidisciplinary decision-making and ambitious but realistic reconstructive goals remain central to achieving this balance.

THEME 1
EARLY MELANOMA



Electrochemotherapy vs standard surgical care for curative treatment of keratinocyte skin cancers (ELECure) pilot feasibility RCT

A/Prof Alex Varey

Electrochemotherapy (ECT) is a minimally invasive, outpatient alternative to surgery or radiotherapy for skin cancer. Low-dose bleomycin is given intravenously or intra-tumourally, then electric pulses are applied under local anaesthesia, creating reversible pores in cell membranes (electroporation) that concentrate bleomycin up to 1000-fold within tumour cells. This selectively kills cancer cells while sparing surrounding tissue; the wound heals by secondary intention over about six weeks. ECT is established in Europe but not widely available in Australia, despite high skin cancer prevalence.

This project is a pilot randomised controlled trial (RCT) of 40 patients to assess recruitment rate, acceptability, and appropriate quality-of-life outcomes, informing the feasibility and design of a larger Australian RCT.

THEME 1
EARLY MELANOMA



Comparison of sentinel lymph node biopsies in cutaneous melanomas of the head and neck and melanomas arising at other sites

Dr Andrew Li

Background: Cutaneous head and neck melanoma (CHNM) presents unique challenges for performing sentinel lymph node biopsies (SLNB) compared with cutaneous melanomas of other sites (CMOS) and may represent a biologically distinct entity. We aimed to compare the predictors of positivity, and disease control outcomes following SLNB in patients with CHNM and CMOS.

Methods: CHNM and CMOS patients with an initial diagnosis between 2000–2023 who underwent SLNB were identified and their clinicopathologic features compared. Univariable and multivariable regression analyses were used to examine for associations between known prognostic factors and SLNB positivity, locoregional control (LRC) and melanoma-specific survival (MSS). Kaplan-Meier analyses were conducted for LRC and MSS amongst patients undergoing SLNB and for node field recurrence-free survival (NRFS) amongst patients with a positive SLNB who underwent observation alone.

Results: 5418 patients (1070 CHNM and 4348 CMOS) underwent a SLNB. The factors independently associated with SLNB positivity, LRC and MSS differed between CHNM and CMOS. CHNM was independently associated with poorer LRC but not MSS. SLNB positivity was independently associated with poorer LRC and MSS in both the CHNM and CMOS subgroups and remained independently associated with poorer MSS amongst patients who underwent SLNB in the era of effective systemic therapy. CHNM and CMOS patients with a positive SLNB had similar 5-year NRFS following observation alone (58.7% vs. 59.5%, p=0.99).

Conclusions: CHNM is a distinct entity to CMOS in the context of prognostication with SLNB, with different predictors of positivity and outcomes. SLNB provides similar therapeutic benefits for regional node field control in both CHNM and CMOS.

THEME 1
EARLY MELANOMA



Surgery and/or radiotherapy for stage III MCC

Dr Lisanne Zijlker

Background: Patients with macroscopic nodal metastases of Merkel Cell Carcinoma (MCC) can be treated with primary radiotherapy (RT), lymph node dissection (LND) or LND and adjuvant RT. In this study we assessed the survival outcomes of single and combined modality treatment for macroscopic stage III MCC.

Methods: Patients with pathologically proven stage IIIB MCC, treated with LND, RT or both in The Netherlands and in Australia were included. The primary endpoint was recurrence free survival (RFS), data were collected retrospectively from prospectively-maintained databases.

Results: A total of 135 patients were included of whom 34 (25%) were treated with RT, 44 (33%) patients with LND and 57 (42%) received LND and adjuvant RT. The median age was highest in the RT group (76 vs 71 years), and 69% patients were male. The 5-year RFS was 39% for RT, 31% for LND and 45% for LND followed by RT (p = 0.25). 5-year MCC-specific survival was 67%, 79% and 76% (p=0.89), and 5-year overall survival was 61%, 68% and 72% (p=0.81), respectively.

Conclusions: Both RT and surgery are effective treatment options for stage IIIB MCC. Combined modality treatment was associated with numerically improved RFS compared with monotherapy.

THEME 1
EARLY MELANOMA



Sentinel lymph node biopsy outcomes in naevoid melanoma: A matched retrospective cohort study

Ashley Zhang

Background: Naevoid melanoma is an uncommon, histologically deceptive melanoma subtype that mimics benign naevi, often causing diagnostic delay. Its biological aggressiveness and sentinel lymph node biopsy (SLNB) outcomes remain poorly characterised.

Methods: We retrospectively analysed 13,850 melanoma patients (2000–2020) from Melanoma Institute Australia's Melanoma Research Database. Patients with naevoid melanoma were propensity-matched (age, sex, site) to non-naevoid controls who underwent SLNB. Demographics, tumour features, SLNB results, recurrence, and survival were compared using Kaplan-Meier and Cox methods.

Results: Of 13,850 patients, 477 (3.4%) had naevoid melanoma; 423 were matched to 956 controls. Naevoid tumours were thinner with lower mitotic counts but higher ulceration rates. SLNB rates were similar (43.7% vs 46.5%), but SLNB positivity was lower in naevoid melanoma (12.4% vs 22.5%, p=0.004). Naevoid recurrences were more often local, less often distant (p=0.004). Univariable analysis showed modestly improved OS (HR 0.72) and RFS (HR 0.74) with naevoid histology, but this did not persist after multivariable adjustment (adjusted HR 0.69, 95% CI 0.33–1.45, p=0.325).

Conclusions: Naevoid melanoma showed lower SLNB positivity and better unadjusted survival, likely reflecting favourable tumour characteristics rather than an independent protective effect. Findings do not support omitting SLNB in eligible naevoid melanoma patients.

THEME 1
EARLY MELANOMA



Neoadjuvant nivolumab and relatlimab in high-risk stage II cutaneous melanoma (NeoReNi II): The surgical experience

Dr Adam Hague

Introduction: The success of neoadjuvant immunotherapy (NAT) in stage III melanoma has prompted investigation of its potential benefits in stage II disease. Little data exists on the surgical implications of NAT. Our aim was to assess the impact of NAT on surgical management and perioperative complications of patients with stage II primary cutaneous melanoma.

Methods: Patients diagnosed with stage IIA[AVA1.1]-IIC primary cutaneous melanoma through a partial biopsy were eligible. Sentinel lymph node (SLN) mapping was performed at baseline and following 2 doses of nivolumab and relatlimab. Wide local excision and SLN biopsy was subsequently performed. Pre- and post-surgical questionnaires were completed by the operating surgeons.

Results: 20 patients were enrolled in the study. 60% (n=12) had a pathological complete response (pCR). In 16% (n=3) the surgeon reported the excision was easier with all these cases demonstrating a pCR. In 11% (n=2) increased levels of fibrosis were reported, however, there were no reports of more difficult resections. Only one case had discordant SLN mapping post NAT. 10% (n=2) had a positive SLN biopsy compared with the predicted 23% (n=4.6).

Conclusions: NAT for stage II melanoma does not appear to increase surgical complexity and additionally may reduce the risk of SLN metastasis.

THEME 1
EARLY MELANOMA



Updates on MSLT-3

A/Prof Alexander van Akkooi

Neoadjuvant immunotherapy (NAT) with immune checkpoint inhibitors (ICI) has emerged as a promising treatment strategy for stage III melanoma, with trials demonstrating superior outcomes compared to adjuvant therapy. Pathological response, particularly major pathological response (MPR; ≤10% viable tumor), strongly correlates with improved outcomes. The PRADO trial demonstrated that selective index lymph node (ILN) resection (RES) can safely de-escalate surgery in MPR patients, with only 4/60 (6.7%) MPR patients recurring after median follow-up of 28.1 months. ILN RES significantly reduced surgical morbidity and improved quality of life compared to therapeutic lymph node dissection (TLND). The MSLT-3 trial will definitively establish whether ILN RES is non-inferior to standard TLND for MPR patients.

This trial is now recruiting and during the research retreat an update on the current trial recruitment will be provided. Moreover, a recurring topic when MSLT-3 is being considered by other sites and countries, is with respect to the equipoise to perform this trial, this topic will also be discussed. Finally, the MSLT-3, although aimed at proving non-inferiority for ILN RES when compared to TLND, will also address important secondary questions, which will be part of the presentation.

THEME 1
EARLY MELANOMA



Improving response assessment in soft tissue and cutaneous malignancies

Dr Elan Novis

Measuring treatment response is crucial in melanoma in-transit metastasis (ITM) to determine treatment efficacy, yet no specific response assessment method has been validated specifically for this disease subtype. Several treatment options are available for ITMs, including systemic immunotherapy and targeted therapy, regional therapies (isolated limb infusion/perfusion), intralesional and topical therapies, as well as surgery and other local ablative techniques. Measuring response in a standardised way can be difficult as many of these treatment options do not induce response in a simple linear pattern. ITMs can also have a clinically heterogenous pattern of disease, such as subcutaneous or cutaneous disease, or combined with lymph node metastasis. Therefore accurate response assessment is difficult to standardise across clinical trials and can limit true efficacy assessment. Currently used measures of response such as RECIST/iRECIST, metabolic response with FDG-PET and clinical examination do not often reflect the true biological behaviour of ITMs particularly in the setting of systemic, regional and intra-lesional therapies, or when lesions are not measurable on imaging.

We aim to assess the currently used measures of treatment response in patients with melanoma ITMs and propose potential novel methods of response assessment which can more accurately determine treatment efficacy in ITMs.

THEME 1
EARLY MELANOMA



Beyond the black box: Explainable AI for cutaneous melanocytic tumour triage

Dr Nigel Maher

Pathological analysis of melanocytic tumours can be challenging and prone to subjectivity. Additionally, pathologists face busy workloads with high numbers of skin specimens. AI image analysis may offer triage and ancillary diagnostic support for pathologists. However, for AI adoption in healthcare, transparency and explainability is critical. We present an AI classifier to support pathological analysis of cutaneous melanocytic tumours, designed with enhanced explainability.

THEME 2
ADVANCED MELANOMA



Prof Helen Rizos



Prof Georgina Long, AO

This theme aims to

- Find the best treatment for melanoma that has spread or is locally advanced
- Overcome treatment resistance
- Predict treatment response



THEME 2
ADVANCED MELANOMA



Modelling resistance to immune checkpoint therapy in melanoma

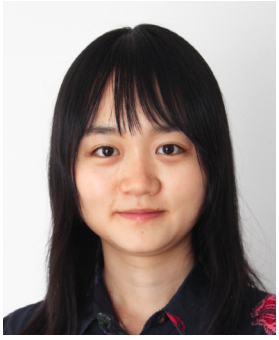
Bernadette Pedersen

Approximately 50% of melanoma patients derive limited benefit from immune checkpoint inhibitor (ICI) therapy. While several mechanisms of ICI resistance have been characterised, effective strategies to overcome resistance remain limited.

In this project, we developed a panel of genetically engineered mouse melanoma models using the ICI-sensitive Y3.3UVRc34 cell line to recapitulate clinically observed resistance mechanisms, including impaired antigen presentation (B2M loss), disrupted interferon signalling (JAK2 or SEC24C loss), and impaired intratumoral immune infiltration (PTEN or MTAP loss). These models provide a platform to define how genetic alterations associated with ICI resistance reshape tumour-immune interactions and immune responses during ICI therapy, enabling the identification and evaluation of rational strategies for ICI-resistant melanoma.

Using these models, we demonstrate that loss of B2M or JAK2 results in complete resistance to combination anti-PD-1/anti-CTLA-4 therapy. Despite treatment resistance, immune profiling revealed evidence of preserved T-cell activation within peripheral immune compartments, including blood and lymph nodes. These findings suggest that systemic immune priming is not sufficient for tumour eradication and support the development of combination therapies designed to enhance effector activity within the tumour microenvironment. Ongoing studies are using these models to evaluate novel combination strategies and identify approaches capable of overcoming distinct mechanisms of ICI resistance.

THEME 2
ADVANCED MELANOMA



Spatial transcriptomics reveals distinct cellular niches of resistance to immune checkpoint blockade in melanoma

Dr Helen Fu

Immune checkpoint blockade (ICB) has transformed melanoma treatment, yet a large proportion of patients fail to respond, and resistance signatures remain poorly defined. Here, we utilised a 480-gene single-cell spatial transcriptomics panel to profile 287 pre-treatment melanoma specimens from two independent cohorts, including patients treated in the advanced (n=91) and adjuvant (n=58) settings. We developed NIMO, a highly predictive deep learning-based framework to capture the spatial-molecular landscape of the tumour microenvironment. We reveal multiple resistant niches exhibiting distinct phenotypes, and melanoma cells showing proliferative and survival programs, with elevated endothelial signalling. We further reveal distinct molecular profiles of lymphoid aggregates in non-responders, highlighting a subniche rich in B and CD4+ T cells exhibiting a molecular signature failing to support effective antitumour immunity, including elevated immunoregulation and diminished chemokine expression. This study provides novel insights into the spatial heterogeneity of ICB resistance to inform patient stratification and personalised therapy.

THEME 2
ADVANCED MELANOMA



Identifying and targeting tumour antigens to overcome immunotherapy resistance in melanoma

Akshaya Ramanathan

This project aims to identify, validate, and functionally characterise tumour antigens in stage III melanoma patients resistant to neoadjuvant immunotherapy. By combining in silico tumour antigen prediction and mass spectrometry-based immunopeptidomics peptide identification with patient-derived T cell assays, this project will discover immunogenic antigens capable of driving anti-tumour responses. These findings will provide the foundation for personalised therapeutic strategies, including cancer vaccines, to improve outcomes in patients at high risk of recurrence after neoadjuvant immunotherapy.

THEME 2
ADVANCED MELANOMA



Neoadjuvant immunotherapy reshapes the splicing landscape in stage III melanoma

Jayden Beckwith

Neoadjuvant immunotherapy improves outcomes in stage III melanoma, but the splicing changes underlying early response and resistance are unknown. We profiled the splicing landscape in baseline and on-treatment lymph node samples from stage III melanoma patients across six neoadjuvant PD-1-based treatments, quantifying splicing events, diversity, isoform switching, and splice-altering mutations within the first six weeks of therapy. Patients treated with combination Ipilimumab and Nivolumab (IPI+NIVO) who achieved MPR showed the most extensive isoform remodelling (4,328 differential isoforms, baseline to week 6). Within this arm, *ACOT7* underwent a selective isoform switch exclusive to IPI+NIVO MPR patients, from a baseline mitochondrial isoform to a cytoplasmic isoform by week 6. IPI+NIVO patients retaining high mitochondrial isoform usage at week 6 had worse recurrence-free survival (p=0.015), whereas high cytoplasmic isoform usage predicted better outcome (p=0.013), consistent with failure to escape a lipid metabolism-driven, immune-evasive state. This data provides an overview of the therapy-induced splicing landscape in melanoma and implicate isoform switching in immune-metabolic genes such as *ACOT7* in therapeutic response and resistance.

THEME 2
ADVANCED MELANOMA



Predicting who benefits from immunotherapy in advanced melanoma: A blood-based multi-omic signature

Dr Nurudeen A. Adegoke

Background: About half of patients with advanced melanoma derive durable benefit from immune checkpoint inhibition (ICI), while others gain little but risk immune-related toxicity and cost. Precision medicine approaches that identify likely responders can improve clinical outcomes. No individual biomarker has shown sufficient accuracy for routine clinical use, but response appears determined by complementary biological pathways, providing rationale for integrated multiomics models.

Methods: We developed a blood test from 144 ICI-treated patients: discovery (n=100; 60% with clinical benefit) and validation (n=44; 61%). Clinical variables were combined with cell-free DNA methylation (regions and CpG sites) and serum miRNAs (baseline, on-treatment, and change). Twenty omics combinations across five tiers were evaluated using linear predictor offsets, retaining layers improving cross-validated discrimination. Twelve combinations passing all criteria were averaged into one ensemble score.

Results: The ensemble achieved AUC 0.962 (95% CI 0.917–0.990) in discovery and 0.943 (0.872–0.996) in validation. At a 0.5 threshold, it identified 93% of patients with clinical benefit and 90% of those without in discovery, and 78% and 88% in validation. Clinical variables alone achieved AUC 0.612 (0.505–0.729) in discovery and 0.607 (0.436–0.758) in validation.

Conclusion: A blood-based multi-omic classifier predicts clinical benefits of ICI and may support biomarker-guided treatment selection.

THEME 2
ADVANCED MELANOMA



Integrative multi-omics and spatial tumour microenvironment modelling predicts immunotherapy resistance: Results from the PIP-PREDICT study

Dr Paola Cornejo Paramo

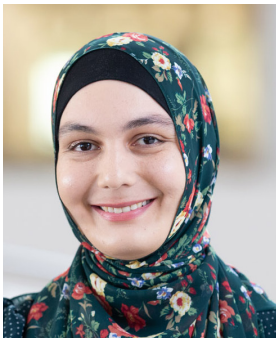
Immune checkpoint inhibitors (ICIs) have transformed the treatment of advanced melanoma, yet approximately half of patients either fail to respond or ultimately develop resistance. There is an unmet need for predictive biomarkers that allow us to accurately identify patients that would benefit from the standard of care or innovative treatment strategies.

PIP-PREDICT (NCT06536257) is the first prospective multicentre study where we developed and validated ensemble machine-learning models to predict ICI resistance in patients with advanced melanoma. We analysed 435 patients with unresectable stage III/IV melanoma treated with anti–PD-1 ± anti–CTLA-4. Clinical, genomic, transcriptomic, and tumour microenvironment features were integrated into machine-learning models to identify ICI resistance defined based on 6-month PFS.

We showed that multi-omics models substantially outperformed models trained on clinical features alone (validation AUC 0.84 vs 0.63 and sensitivity for non-responders 0.84 vs 0.47). Among individual models, the tumour microenvironment model provided the greatest improvement in sensitivity for identifying non-responders (+30% compared with the clinical model). We identified biologically meaningful genomic and spatial biomarkers associated with response and resistance.

Our results demonstrate that multi-omic data substantially improves prediction of immunotherapy resistance. These findings support biomarker-guided treatment selection and the development of precision immunotherapy strategies.

THEME 2
ADVANCED MELANOMA



Baseline immune and spatial tumour microenvironment features associated with response to combined LAG-3 and PD-1 blockade in advanced melanoma

Dr Tuba Nur Gide

Dual blockade of lymphocyte activation gene-3 (LAG-3) and programmed cell death receptor-1 (PD-1) has emerged as an effective treatment for advanced melanoma; however, many patients experience primary resistance and predictive biomarkers remain poorly defined. We aimed to characterise baseline immune, transcriptomic, and spatial features associated with response to anti–LAG-3-based immunotherapy in metastatic melanoma. Pre-treatment biopsies from patients with unresectable stage III/IV melanoma treated with anti–LAG-3 and anti–PD-1-based therapy underwent multiplex immunofluorescence (mIF), spatial transcriptomic profiling using the Xenium platform (10X Genomics), and whole-transcriptome sequencing. Patients with progression-free survival (PFS) >6 months were classified as responders (n=92) and those with PFS ≤6 months as non-responders (n=47). Responders exhibited significantly higher proportions of peritumoral LAG-3$^+$, PD-1$^+$, and LAG-3$^+$CD8$^+$ T cells, while increased baseline LAG-3$^+$ T-cell infiltration was associated with longer PFS. Spatial transcriptomic analysis revealed enrichment of immune and complement activation pathways, tertiary lymphoid structure-like organisation, and enhanced antigen presentation and T-cell activation signalling in responders. In contrast, non-responders displayed increased stromal and angiogenic signalling and elevated VEGFA-mediated interactions. Whole-transcriptome sequencing was also performed, with analysis ongoing. These findings identify baseline immune activation and spatial immune organisation as potential biomarkers of response to combined LAG-3 and PD-1 blockade.

THEME 2
ADVANCED MELANOMA



Development of digital PCR assays to predict immunotherapy response in advanced melanoma

Suzanah Boyd

Immune checkpoint inhibitors (ICIs) have improved outcomes in advanced melanoma, with more than half of patients responding to combined CTLA-4/PD-1 blockade. However, many patients fail to respond, highlighting the need for predictive biomarkers. While clinical, genomic, and immune-based models improve response prediction, their complexity has limited routine clinical use. Whole-genome sequencing of pre-treatment tumour and matched blood samples from patients with advanced cutaneous melanoma identified recurrent somatic mutations in two non-coding genomic regions, termed Gene 1 and Gene 2, that were strongly associated with favourable outcomes following ICI therapy. A clinical-genomic model incorporating Gene 1 and Gene 2 mutation status, age, ECOG performance status, and lactate dehydrogenase (LDH) outperformed an equivalent model incorporating tumour mutational burden (TMB) in place of Gene 1 and Gene 2. These findings provided the rationale for developing a clinically applicable digital PCR (dPCR) assay for mutation detection in these regions.

Here, we describe the design, optimisation, and analytical validation of highly sensitive dPCR assays employing a drop-off probe strategy to detect Gene 1 and Gene 2 mutations. This work establishes a practical platform for the clinical translation of these predictive genomic biomarkers.

THEME 2
ADVANCED MELANOMA



AI pathological assessment of neoadjuvant treated locoregional metastatic melanoma

Dr Nigel Maher

Pathological response categorisation of neoadjuvant treated melanoma informs prognosis and management of patients. This requires proportionate calculation of viable melanoma and tumour bed areas, which are irregular in shape, and usually distributed over multiple slides. AI assessment of digital pathology slides has the potential to assist pathologists in accurately determining pathological response categorisation as it offers objective, more detailed quantification of areas, compared to human visual estimates of areas. We showcase the development of an AI classifier for this purpose.

THEME 2
ADVANCED MELANOMA



Neoadjuvant PRADO ipilimumab and nivolumab: Longitudinal spatial analysis of tertiary lymphoid structure-like niches in stage III melanoma

Angel Guan

Neoadjuvant ipilimumab and nivolumab achieve major pathological response (MPR) in around 60% of patients with resectable stage III melanoma, yet recurrence remains common, occurring in 26% of PRADO trial patients within 5 years. Tertiary lymphoid structures (TLSs) support antigen presentation and antibody responses in several cancers, but their role in neoadjuvant immunotherapy is unclear.

Using 41-plex PhenoCycler Fusion imaging, we profiled 23 metastatic lymph node samples from 16 PRADO trial patients (16 baseline biopsies, 7 matched week-6 samples), stratified as MPR without recurrence, non-MPR without recurrence, or non-MPR with recurrence. A computational pipeline identified cellular niches, focusing on TLS-like niches, which were enriched for B and T cells alongside myeloid, plasma, and endothelial cells.

At baseline, TLS-like niche presence was associated with longer recurrence-free survival (5-year RFS: 100% TLS-positive vs 50% TLS-negative, p=0.0498). In week-6 samples, four distinct TLS-like clusters emerged; one, marked by co-localised proliferative B cells, CD38+ plasma cells and CD14+ cells, appeared in 3 of 5 MPR without recurrence samples but none of 5 non-MPR with recurrence samples. These findings suggest that the composition and spatial organisation of TLS-like niches, rather than presence alone, may underlie effective anti-tumour immunity and protection from recurrence.

THEME 2
ADVANCED MELANOMA



Dynamic prognostic modelling in stage II, advanced and neoadjuvant melanoma

Dr Alessandra Perrone

Background: Dynamic prognostic tools can improve clinical decision-making by providing time-updated estimates of recurrence and survival. Building on the dynamic prognostic model for resected stage III melanoma developed by Boutros et al. (Eur J Cancer, 2025), this project will extend the framework to stage II, advanced melanoma and the neoadjuvant setting, where equivalent tools are not available despite major advances in systemic therapies.

Aim: To extend the existing dynamic prognostic modelling framework to stage II, stage IV and neoadjuvant melanoma using contemporary clinical trial data.

Methods: Pivotal clinical trials and their major long-term updates across these disease settings have been systematically identified. Kaplan–Meier survival curves and accompanying published data will be used to reconstruct individual patient-level survival data. Time-dependent and conditional survival analyses will then be performed to estimate recurrence, progression and survival according to disease stage, treatment and, where applicable, treatment response or pathological response.

Expected outcomes: The study will generate setting-specific dynamic prognostic models that provide clinically relevant, personalised estimates of patient outcomes over time. By extending an established Melanoma Institute Australia prognostic framework, this work has the potential to support risk stratification, patient counselling, follow-up planning and clinical decision-making across multiple melanoma settings.

THEME 2
ADVANCED MELANOMA



Is adjuvant therapy for resected melanoma dead? A retrospective cohort analysis and expert practice survey

Dr Francisco Aya

Adjuvant anti–PD-1 therapy improves recurrence-free survival in Stage III melanoma, but long-term follow-up has shown no overall survival (OS) benefit to date. With neoadjuvant therapy now standard for macroscopic Stage III disease, adjuvant decisions are increasingly restricted to resected microscopic Stage IIIB–D melanoma, where its clinical utility remains debated.

The primary objective of this study is to evaluate longitudinal trends in adjuvant therapy uptake versus active surveillance in microscopic Stage IIIB–D melanoma, identify predictors of treatment selection, and characterize international expert practice patterns.

This study comprises: (1) a retrospective cohort of ~550 patients with resected microscopic Stage IIIB–D melanoma at Melanoma Institute Australia (2020–2026), comparing adjuvant treatment uptake across historical (2020–2023) and contemporary (2024–2026) eras anchored to published 5-year OS trial data; and (2) a cross-sectional survey of ~40 international melanoma specialists.

This study will provide real-world benchmarking of adjuvant therapy de-escalation in microscopic disease, informing future clinical guidelines and minimising unnecessary treatment toxicities.

THEME 2
ADVANCED MELANOMA



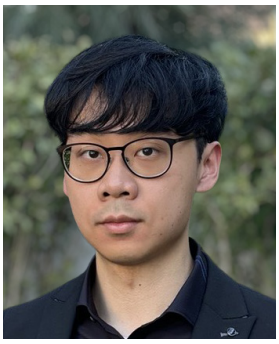
DNA methylation and response to neoadjuvant immunotherapy in melanoma

Laura Smith

Epigenetic dysregulation, particularly DNA methylation, is increasingly recognised as a key mechanism of immune escape in melanoma. Aberrant DNA methylation can silence genes involved in antigen presentation, interferon signalling, and immune recognition, potentially enabling tumours to evade immune checkpoint blockade. However, whether specific methylation changes drive resistance to immunotherapy and whether they can serve as predictive biomarkers of treatment response remains poorly understood. Most methylation studies in melanoma have been performed in the adjuvant setting, meaning methylation associations with outcome primarily reflect prognostic biology rather than direct treatment response. These studies have also predominantly used Illumina MethylationEPIC BeadChip arrays, which interrogate approximately 850,000 pre-selected CpG sites and provide only partial coverage of the methylome.

Leveraging the MIA Neo-Platform, this project addresses both limitations by analysing pretreatment tumour samples from patients receiving neoadjuvant combination immunotherapy, alongside matched pathological response and RNA sequencing data. Whole-genome enzymatic methylation sequencing will provide comprehensive, single-base resolution profiling of the methylome, enabling integration with transcriptomic data to identify epigenetic mechanisms associated with treatment sensitivity and resistance. Ultimately, this work aims to determine whether DNA methylation signatures can serve as clinically relevant predictive biomarkers of immunotherapy response and provide new biological insights into mechanisms of resistance in melanoma.

THEME 2
ADVANCED MELANOMA



Liver metastasis and the failure of anti-tumour immunity in melanoma

Wesley Yiu

Advancements in the treatment of melanoma, particularly the advent of immunotherapies, have resulted in more than 55% of advanced melanoma patients being effectively cured. However, the remaining 45% of patients either don't respond to or develop resistance to these treatments. Melanoma patients with liver metastases represent one of the most challenging subgroups, with inferior overall response rate, progression-free survival, and overall survival when treated with immune checkpoint inhibitors (ICIs) compared to patients without liver involvement. Clinical and translational data show that liver metastases suppress local response to immunotherapy and induce systemic immunosuppression, dampening responses in distant sites. This project aims to investigate the unique biology of liver metastases as a major site of immunotherapy resistance. By developing and applying advanced preclinical mouse models of metastatic melanoma, combined with high-dimensional immune and spatial profiling, the project will comprehensively characterise how the liver microenvironment suppresses immunity both locally and systemically. Building on these mechanistic insights, novel therapeutic strategies that target hypoxia, abnormal vasculature, and metabolic reprogramming will be tested to restore response to ICIs. This study will elucidate mechanisms of liver metastasis-induced immunosuppression, test therapeutic targets, identify predictive biomarkers, and improve outcomes for patients with liver metastases across primary cancer types.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION


Prof Anne Cust


Prof Pascale Guitera


A/Prof Linda Martin

This theme aims to

- Prevent people developing melanoma
- Identify people at highest risk of developing melanoma
- Accurately diagnose melanoma



THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Theme 3 overview & screening roadmap update

Prof Anne Cust

Research Theme 3 focuses on Prevention, Risk and Clinical Detection of Melanoma. We conduct discovery and translational research addressing key questions such as:

- What causes melanoma – what are the risk factors?
- How can we improve prevention of melanoma?
- What is the best way to identify individuals' risk level?
- How can we improve the accuracy of melanoma diagnosis?
- What is the optimal clinical management of people at different risk levels?
- How effective are multimodal, non-invasive diagnostic technologies and how are they best implemented?
- How do we best guide the implementation of artificial intelligence for diagnosis?
- What training, communication and resources are required to effectively prevent and diagnose melanoma?

I will give a brief overview of the current research priorities in theme 3, including the Roadmap for a National Targeted Melanoma Screening Program, which Melanoma Institute Australia is leading.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Tailored prevention support: Advancing personalised approaches to melanoma prevention and early detection

Dr Amelia Smit

Supporting Australia's transition to risk-based melanoma prevention and early detection requires evidence across the continuum of care, from risk assessment and communication through to behaviour change support. This presentation will explore how these components fit together within emerging models of risk-based melanoma care. Findings from the Tailored Surveillance Project will be presented, including the implementation of personalised melanoma risk assessment, preventive counselling and risk-tailored surveillance recommendations within specialist dermatology clinics. Mixed-methods findings highlight the importance of effective risk communication, demonstrating that patients highly valued personalised risk information and counselling. Emotional responses, trust and prior beliefs influenced how recommendations are interpreted. Patients reported high satisfaction with the personalised risk information and discussions with clinicians. These findings reinforce that successful implementation of risk-stratified care depends not only on accurate risk assessment, but also on how risk information is communicated and supported in practice. The presentation will conclude by discussing emerging approaches to personalised prevention, including the Sun Wise Study, which is evaluating whether real-time UV feedback and tailored behavioural prompts can support sun-safe behaviours among people with a history of skin cancer. Together, this body of work seeks to better understand how personalised information and technologies can support risk-based melanoma care.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Tailored surveillance project update & melanoma in priority populations

A/Prof Linda Martin

Tailored surveillance project (TSP): This is a prospective risk-stratified melanoma screening cohort study, conducted at Melanoma Dermatology and Sydney Melanoma Diagnostic Centre, with patient recruitment from February 2021–July 2023. Risk-stratified surveillance was implemented, with patient follow-up until May 2025. We present the results of two TSP sub-studies.

Characteristic of melanomas diagnosed in the TSP: Among 938 participants (median follow-up 3.9 years), 206 new primary cutaneous melanomas were diagnosed in 146 patients. The clinical and pathological features of these melanomas, as well as predictors of histological uncertainty will be presented.

Cost Analysis of Risk-Stratified Melanoma Screening: Costs of melanoma screening over a consecutive three-year period including consultations, procedures, pathology services, and prescriptions were calculated from the healthcare system perspective. 590 participants with minimum 3 years follow-up were included. Median annualised per-patient cost was AUD $185 (IQR: $93–$369) and the mean annualised cost per melanoma diagnosed was $2964. Low risk patients (<10% melanoma risk, no prior melanoma) had lowest cost per patient screened, but highest mean cost per melanoma diagnosed of $7080. Highest risk patients (prior melanoma, >75% melanoma risk) had highest cost per patient screened, and lowest cost per melanoma diagnosed of $2158.

Melanoma in priority populations: As Australia considers a national targeted melanoma screening program, equitable inclusion of the priority groups identified in the Australian Cancer Plan is important. We present a retrospective study from MRD and relevant hospital databases to characterise the clinical and pathological features and prognosis of melanomas in children, and melanomas in individuals of South-East Asian ancestry.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Diagnostic technologies: Pathways to implementation

Prof Pascale Guitera

This Theme 3 presentation (Prevention, Risk & Clinical Detection, Research Retreat 2026) outlines the pathway from diagnostic accuracy to clinical implementation across three areas of skin cancer diagnosis tools.

1. **Screening** covers total-body photography and dermoscopy, highlighting Australia's updated 2025 teledermatology guidelines, the IMAGE trial, and MIA dermatology five-year audit setting a new national benchmark for diagnostic accuracy. In the field of artificial intelligence tools, progress spans automated ID/ISIC collaboration, a multimodal foundation model published in *Nature Medicine*, and a position statement guiding responsible models and AI scribes in Australian dermatology.
2. **In vivo confocal microscopy** is presented as a tool to reduce unnecessary biopsies, anchored by the III RCT (targeting a 40% biopsy reduction), supporting evidence for remote reading acceptability to expend access. Progress toward reader/technician courses and accreditation. For lentigo maligna, a new Spectrum Score for a more precise confocal reading of these heterogeneous lesions and the radiotherapy-versus-imiquimod cost-comparison and patient reported outcomes study inform de-escalation of treatment. New evidences/practice in Australia and Europe.
3. The third pathway addressed **morphology and biology correlations** to understand tumour growth and regression through neoadjuvant trials (basal cell carcinoma and melanoma), and an ex vivo confocal microscopy biomarker (PARP1)

In conclusion: The diagnostic-tools field is a strong example of translational research: Moving from accuracy studies to implementation (Medicare item number); working on access, extending precision, reducing harm and building AI responsibly.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Amelanotic lentigo maligna: Features on dermoscopy and reflectance confocal microscopy

Dr Sophie Hu

Amelanotic lentigo maligna (ALM) is a rare, non-pigmented variant of lentigo maligna (LM) that lacks the classic pigmentary features of LM, making diagnosis challenging. Literature describing the dermatoscopic and reflectance microscopy (RCM) features of ALM compared to pigmented LM remains limited, particularly for clinically near-completely amelanotic lesions. Histopathologically confirmed ALM cases from at Melanoma Institute Australia and Sydney Melanoma Diagnostic Centre (2010–2025) were retrospectively collected and reviewed. Lesions with >10% clinical pigmentation, invasive melanoma, or recurrent disease were excluded. Dermatoscopic images were independently assessed by four expert reviewers using 43 predefined features, with interobserver agreement assessed using Fleiss' kappa. RCM images were independently evaluated by a beginner and an expert confocalist using 25 established criteria. On dermoscopy, linear irregular vessels demonstrated the highest interobserver agreement and on RCM hyporeflective, atypical cells in an interfollicular distribution were identified as a potential diagnostic clue. Recognition of these complementary dermatoscopic and RCM features may improve diagnostic confidence and facilitate earlier identification of clinically near-completely amelanotic lentigo maligna. Building on these findings, future prospective studies and artificial intelligence-assisted analysis may further enhance recognition and diagnostic accuracy for clinically amelanotic lentigo maligna.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Dermoscopic features of subsequent melanomas following immunotherapy: A descriptive study

Dr Rina Buxbaum

Background: Immune checkpoint inhibitors (ICIs) have transformed the management of advanced melanoma, resulting in improved long-term survival and an increasing number of patients undergoing ongoing dermatological surveillance. These patients may develop subsequent primary melanomas, however their dermoscopic characteristics remain poorly described.

Objective: To describe the dermoscopic features of subsequent primary melanomas diagnosed following treatment with ICIs.

Methods: We conducted a descriptive observational study of patients treated at Melanoma Institute Australia with ICIs for melanoma, who subsequently developed new primary cutaneous melanomas. Dermoscopic images of eligible lesions were assessed in consensus by two specialist dermatologists using standardised dermoscopic terminology. Pigmentation, colours, dermoscopic structures, vascular morphology and regression were evaluated.

Results: Subsequent primary melanomas demonstrated dermoscopic features consistent with conventional melanomas arising on chronically sun-damaged skin. Most lesions exhibited established melanoma-specific dermoscopic structures, while amelanotic and hypomelanotic melanomas comprised a minority. No distinctive dermoscopic pattern attributable to prior immunotherapy was identified.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



External validation of an integrative risk prediction model for invasive melanoma in the 45 and Up Study

Philip Ly

Population-wide melanoma screening is not currently recommended, given uncertainty in mortality benefit, overdiagnosis and cost. Targeted screening of high-risk individuals has been proposed as a more cost-effective alternative, and identifying suitable risk tools will be critical to the Australian Government-funded Roadmap for a National Targeted Melanoma Screening Program. Polygenic risk scores (PRS) have emerged as promising tools for population risk stratification, and integrative models combining clinical risk factors with PRS may provide more accurate estimates to guide screening decisions. Wang et al. (2026) developed one such model in the QSkin cohort; adding the PRS improved discrimination (C-index increase from 0.713 to 0.729). Assessing transportability to an independent cohort is the next step toward informing its use in practice.

Using newly generated genomic data for a subset of the 45 and Up Study, a large NSW prospective cohort, we externally validated the Wang/QSkin model. We are assessing discrimination (i.e. the ability to predict who will and won't develop an invasive melanoma within 10 years) using the concordance statistic, and calibration by comparing observed with expected cases, accounting for the case-subcohort design. Establishing whether this model generalises beyond its development setting is an essential step toward risk-based melanoma screening in Australia.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Optimising non-invasive imaging in cutaneous oncology: From diagnostic accuracy and clinical workflows to in vivo treatment response monitoring with LC-OCT

Dr Luisa Santos e Silva Caldeira Marques

Line-field confocal optical coherence tomography (LC-OCT) — non-invasive, near-histological imaging — is established for basal cell carcinoma, including AI-assisted diagnosis. This PhD extends it into two domains with limited evidence: other keratinocyte cancers and, principally, melanocytic lesions.

In keratinocyte cancers, a systematic review consolidated the evidence for actinic keratosis, Bowen's disease and squamous cell carcinoma and proposed a standardised workflow, extending LC-OCT beyond BCC.

In melanocytic lesions — the principal contribution, a field whose LC-OCT criteria appeared only in 2024 — a multi-reader study (8 readers, 100 equivocal, histologically verified lesions) showed adding LC-OCT to dermoscopy after structured training improved accuracy from 35.5% to 44.5% (OR 1.60), more than tripled it in the hardest lesions, nearly doubled melanoma-in-situ recognition, and enabled safe biopsy avoidance in 15.6% of benign lesions.

Within Neo ReNi II (neoadjuvant relatlimab–nivolumab in clinical stage II melanoma), a prospective histopathology-matched imaging study — the first in any neoadjuvant setting — showed LC-OCT tumour-feature resolution tracking pathological response (AUC 0.97; n=14), outperforming RCM (AUC 0.82; n=20), with resolution maximal in deep dermal nests unreachable by dermoscopy or RCM and extending to amelanotic melanoma — a candidate non-invasive biomarker of immunotherapy response.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Immune landscape mapping of cutaneous toxicities of ICB with spatial transcriptomics

Beattie Sexton

Cutaneous toxicities (CUTOX) are the most common immune-related adverse events of immune checkpoint blockade (ICB) in melanoma. Mechanisms underlying diverse CUTOX remain poorly defined, despite their clinical importance, impact on quality of life, and potential effect on cancer response. Current guidelines recommend systemic corticosteroids for all presentations, with limited consideration of specific clinicopathological features. As a highly structured, immunologically rich organ, skin is well-suited to spatial approaches that enable characterisation of cell states and interactions while preserving tissue architecture. Here, we mapped the immune landscape of ten common CUTOX using spatial transcriptomics. We found phenotypes were characterised by distinct multicellular endotypes, with varying combinations and densities of innate and adaptive immune cells. T helper differentiation was a key determinant of CUTOX phenotype, and ICB treatment type had minimal impact on the immune repertoire. We developed a Th1/Th2 scoring system that segregated CUTOX subtypes. High-dimensional approaches, such as spatial transcriptomics, may help identify cellular drivers of inflammation within diverse CUTOX and help inform future steroid-sparing strategies for the management of these common toxicities of ICB.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



Can cutaneous toxicity phenotype predict systemic toxicity?

A/Prof Linda Martin

Background: Cutaneous toxicities (CUTOX) are the most common, and often the first toxicity of immunotherapy to manifest. There is little known about the relationship between cutaneous toxicities and subsequent systemic toxicities.

Methods: We conducted a retrospective cohort study in 176 patients with dermatologist confirmed ir-CUTOX clinicopathological phenotype. Univariate logistic regression was performed to identify association between ir-CUTOX subtype and other organ toxicities.

Results: Cardiopulmonary toxicities demonstrated a significant association with cirAE subtype (p=0.030). Cardiopulmonary irAEs occurred in 10.1% of patients and were most frequent among patients with pruritus without rash (40.0%; 6/15). They were also observed in patients with lichenoid drug eruption (8.7%; 6/69), whereas no cardiopulmonary toxicities were reported among patients with Grover's disease, psoriasis, or urticarial drug eruption. The proportion of patients with involvement of three or more organ systems differed significantly between cirAE phenotypes ($p < 0.001$). Multi-organ toxicity was most frequently observed in patients with acne–rosacea (100.0%), pruritus without rash (50.0%), and urticarial drug eruption (42.9%).

Conclusions: These findings support the concept that cirAE phenotypes may reflect the magnitude of immune activation rather than predict toxicity affecting a particular organ system, although confirmation in larger cohorts is required.

THEME 3
PREVENTION, RISK & CLINICAL DETECTION



A pilot study to evaluate short-term neoadjuvant sonidegib followed by surgery or imiquimod in the management of basal cell carcinomas in cosmetically challenging locations

Dr Christoph Sinz

Basal cell carcinoma (BCC) at cosmetically sensitive facial sites often requires complex reconstruction, whereas continuous Hedgehog-pathway inhibition is limited by cumulative toxicity. In this single-arm, open-label Phase 2 pilot, 16 adults with resectable invasive BCC of the head — 75% infiltrative/morphoeic, all with ill-defined borders and all planned for flap or graft repair — received sonidegib 200 mg once daily for 12 weeks. Clinical examination, dermoscopy, optical coherence tomography (OCT) and histology were performed at baseline, week 6 and week 12, with response-adaptive management thereafter. The primary endpoint, pathological complete response on the OCT-guided week-12 punch biopsy, was met in 8/16 participants (50%; 95% CI 25–75); median OCT tumour-area reduction was 85%, and 6/16 (38%) had a complete OCT response. OCT and biopsy agreed on residual disease in 13/15 evaluable participants (87%). Eleven participants (69%) were de-escalated to topical imiquimod and four (25%) proceeded to surgery. All adverse events were grade 1–2 except five grade 3 events in four participants; none were serious, none led to discontinuation, and 94% resolved. One local recurrence (6%) occurred by 12 months. A fixed 12-week neoadjuvant course converted uniformly complex anticipated surgery into topical therapy or simpler surgery for most patients, warranting confirmation in a larger controlled trial.

THEME 4
SUPPORTIVE CARE & SURVIVORSHIP



A/Prof Robyn Saw



Jake Thompson

This theme aims to

- Identify needs of people with melanoma
- Identify impacts of medical treatments on patients' quality of life
- Identify how to notice, assess and respond to unmet needs
- Improve health and wellbeing outcomes



THEME 4

SUPPORTIVE CARE & SURVIVORSHIP



Creating a model for risk-based individualised melanoma follow-up

Dr Daniel Oh

Melanoma follow-up is largely guided by expert opinion, with limited supporting evidence and substantial international variation. This project aims to develop an individualised, evidence-based follow-up strategy using Threshold Surveillance.

Retrospective data from Melanoma Institute Australia will be used to estimate each patient's risk of first recurrence. Variables will include primary tumour histology, sentinel lymph node status, age, sex, melanoma site, comorbidities, particularly immunosuppression, neoadjuvant or adjuvant therapy, and the timing, type, and mode of detection of first recurrence, together with relapse-free survival. An appropriate surveillance schedule, including modality, frequency and duration, will then be determined according to each patient's position on the threshold risk curve. The model will be externally validated using data from Norfolk and Norwich, United Kingdom.

The project will also include a pre-implementation systematic review of current melanoma surveillance approaches; development and validation of a prospective patient survey assessing quality of care, experiences of surveillance and areas for improvement; and a post-implementation evaluation of patient and clinician perspectives. A health economic evaluation will assess the impact of the tool.

The final outcome will be a clinically applicable model supporting personalised melanoma surveillance.

THEME 4

SUPPORTIVE CARE & SURVIVORSHIP



Physical activity engagement among patients receiving checkpoint inhibitor immunotherapy for melanoma

Sarah Marvin

Background: Relationships between physical activity (PA) and fatigue are established across several cancers and treatment types, yet many patients are inactive. However, the extent to which patients with melanoma are physically active whilst receiving immune checkpoint inhibitor (ICI) immunotherapy and the relationship this has with fatigue are not well understood.

Methods: Adults (N=44) commencing ICI immunotherapy were followed across four immunotherapy cycles. PA levels were measured using a Fitbit activity monitor. Meeting guidelines of 150-minutes moderate or 75-minutes vigorous activity was determined for each cycle. Fatigue was measured at each infusion and 1-week following using the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F). Clinically significant fatigue was defined as FACIT-F <34.

Results: There was no significant effect of time on PA (p=0.697) or fatigue (p=0.199). Average weekly minutes of PA was 112-minutes (±124-minutes). PA guidelines were met by 34% in ≥1 cycle, however only 14% met guidelines every cycle. Participants who met PA guidelines reported significantly lower fatigue levels (p=0.026). Those not meeting PA guidelines were more likely to experience clinically significant fatigue (p=0.038).

Conclusions: PA levels in this population are often below guidelines. Preliminary findings suggest a positive relationship between PA and fatigue. Further analyses will be conducted in a larger sample.

THEME 4

SUPPORTIVE CARE & SURVIVORSHIP



Psychological distress across melanoma stages: Emerging trends, research priorities, and clinical implications

Dr Lisa Gomes

Following a diagnosis of melanoma, people can experience a range of feelings such as shock, fear, anger, sadness, disbelief or a combination of these emotions. These emotional reactions are common, understandable, and occur across melanoma stages. This presentation draws on Clinical Psychology Service parameter data from 2023 onwards to examines emerging trends in clinician-reported psychological distress according to melanoma stage. We explore the similarities and differences in the nature of psychological distress between people with different melanoma stages, the difference in complexity in psychological distress for people with early-stage versus advanced-stage melanoma, and highlight the often overlooked psychological impact of melanoma in situ, challenging assumptions that favourable prognoses necessarily equate to minimal distress. These emerging trends have implications for clinical practice, prompting consideration of whether communication, education and integration of psychological care should adopt a generic model across the melanoma continuum or be tailored according to melanoma stage and patient needs.

THEME 4

SUPPORTIVE CARE & SURVIVORSHIP



Cutaneous toxicities of immunotherapy are associated with long-term impairment on quality of life

A/Prof Linda Martin

Background: Cutaneous toxicities (CUTOX) are the most common adverse event of immunotherapy. There is little data on chronicity of CUTOX, nor the long-term impact of CUTOX on quality of life (QoL).

Methods: We present results from a prospective cohort study of melanoma patients treated with immunotherapy (of any stage or treatment setting) with CUTOX, who were referred for free rapid access dermatology review between July 2021 and July 2025. Long-term outcomes were assessed between October-December 2025 including peak pruritus numeric rating scale (pp-NRS_11) and Dermatology Life Quality Index (DLQI).

Results: Of 189 patients seen in the CUTOX service, 136 (72%) were included, with 27 (14%) patients deceased and 26 (14%) unable to be contacted. At median follow-up of 119 weeks after first dermatology presentation (IQR 74–171), 39% patients had persistent cutaneous symptoms and 46% remained on treatment for skin toxicity; in 76% whose rash improved or resolved, symptoms lasted months to years before improvement. Specific CUTOX subtypes strongly predict QoL impact, pruritus and systemic treatment requirements (p=0.0001). Chronic pruritus correlated with impaired QoL (ρ=0.46, p<0.0001). Chronic pruritus was common in lichenoid drug eruptions, eczematous eruptions, and Grover's disease.

Conclusion: CUTOX are commonly chronic toxicities. Persistent pruritus has profound impact on quality of life.

THEME 4

SUPPORTIVE CARE & SURVIVORSHIP



Preliminary phase I results from the MelQUEST study

Jake Thompson

Patient-reported outcome measures (PROMs) are increasingly used in melanoma research and clinical practice. However, PROM utilisation is heterogenous, with few validated for use in melanoma populations. The MelQUEST Study aims to create a brief, validated, melanoma-specific PROM for use in clinical settings. Phase I of the MelQUEST Study involves the recruitment of melanoma clinicians and patients to provide detailed feedback regarding the provisional version of the MelQUEST Scale through semi-structured, in-depth interviews. A total of 8 clinicians and 6 patients have been interviewed thus far. The MelQUEST Scale currently consists of 19 items utilising a 5-point Likert scale. Three sub-categories have been molded by participant feedback, being emotional wellbeing, physical wellbeing, and functional wellbeing and quality of life. Items rated as most important to participants involved measures directly asking about the impact of melanoma diagnosis and treatment to daily life, as these questions are directly relevant to providing additional supportive care services and are lacking in pre-existing PROMs. Furthermore, specific items have been included in the MelQUEST Scale to act as screening items for the provision of longer, more detailed PROMs, reducing patient burden from unnecessarily completing these PROMs.

KEYNOTE PRESENTATIONS



Project RenAIssance: A secure, AI-assisted architecture for large-scale melanoma research database enrichment

Dr Nicole Caixeiro

MIA maintains the world's largest melanoma research database, providing a critical resource for translational and clinical research. To scale data extraction across millions of historical and ongoing structured and unstructured clinical records, Project RenAIssance introduces a hybrid architecture combining automated artificial Intelligence with rigorous human governance. Deploying an enterprise Large Language Model (Claude Sonnet) strictly within a localised, non-persistent Australian cloud perimeter (AWS Sydney), the pipeline utilises an ephemeral "read-and-strip" process to extract research endpoints while immediately discarding identifying data.

To eliminate systemic "black box" risks and ensure database integrity, raw AI outputs are intercepted by a deterministic, custom-engineered 20-Component AI Management Layer. This mechanism governs all workflow rules, applies pre-defined opt-out suppression lists, and quarantines low-confidence records for review. Final dataset curation remains strictly under the oversight of trained data managers and human-in-the-loop validation workflows. Governed by the National Statement on Ethical Conduct in Human Research, the Australian Privacy Principles (APPs), and Australia's 8 Artificial Intelligence Ethics Principles, project RenAIssance provides a secure, compliant, and scalable framework for enriching large clinical research databases. This project substantially increases data extraction capacity while maintaining rigorous uncompromised standards for privacy, governance, and research quality.

KEYNOTE PRESENTATIONS

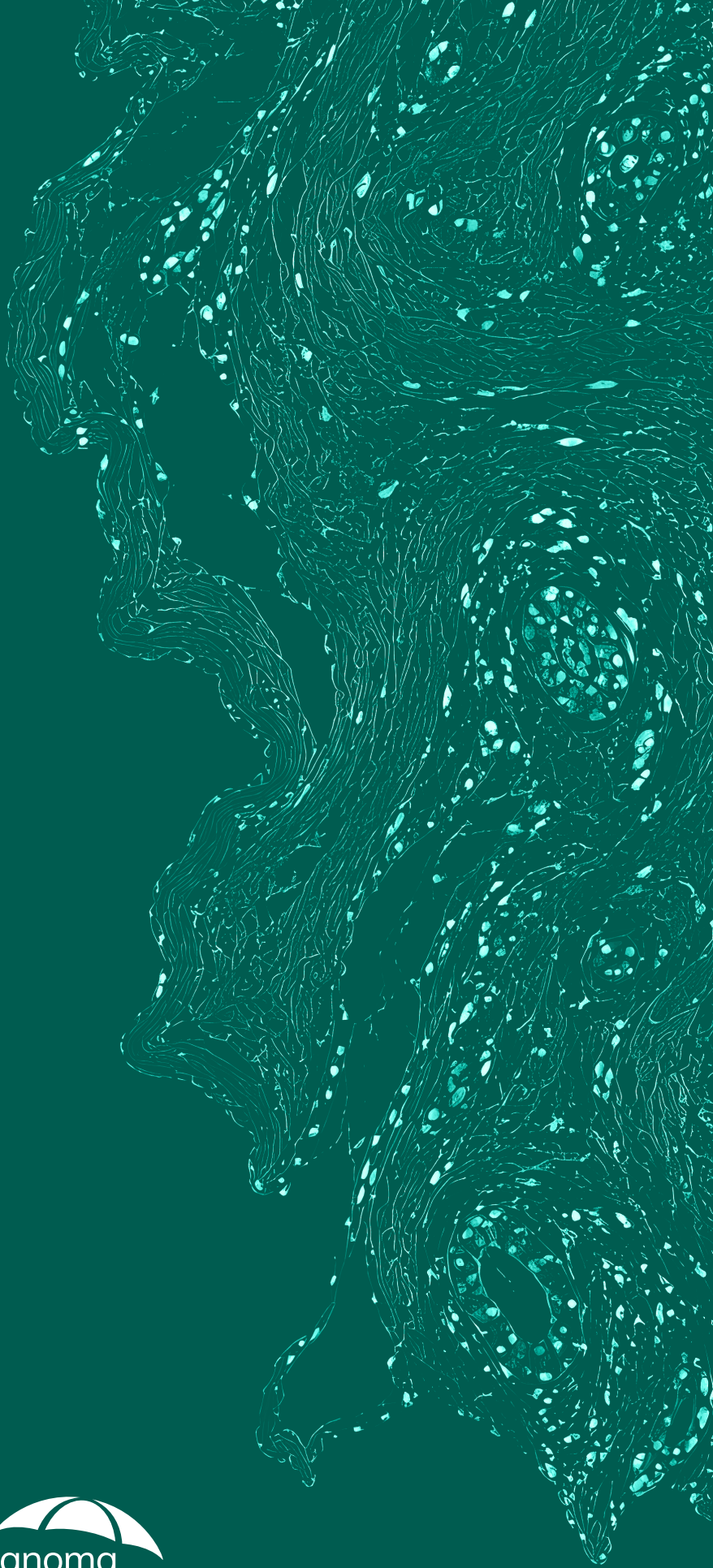


From bench to patent to public good: Commercialising research through university–hospital collaboration

Dr Yagiz Aksoy

Clinician-researchers often generate work with genuine commercial and translational potential but rarely get a clear view of how an idea moves from the lab toward protection, funding, and the clinic. This session offers a practical, experience-based account of that journey. Drawing on his own path founding two ventures, EosGene Therapeutics and PanaceAI, and securing non-dilutive government funding through collaborations between the University of Sydney and NSW public hospitals, Dr Aksoy walks through what the process actually looks like in practice. The talk maps the non-dilutive funding landscape available to researchers, from NSW MVP Ventures to Australia's Economic Accelerator and the Cooperative Research Centre programs, and shares candid, hard-won lessons along the way, including why timing around patents and publication matters more than most expect.





Melanoma
Institute Australia

Melanoma Institute Australia The Poche Centre, Cammeraygal Land, 40 Rocklands Road Wollstonecraft NSW 2065
P 1300 882 353 **E** info@melanoma.org.au **ABN** 35 123 321 148 **CFN** 20341 **www.melanoma.org.au**