Tertiary Education Commission
Te Amorangi Mātauranga Matua

Maurice Wilkins Centre
Plan and Impact Statement

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1. Purpose

Executive summary *

The Maurice Wilkins Centre (MWC) is a vibrant organisation that brings together the best research talent across New Zealand to focus on understanding and managing the major diseases affecting New Zealanders today. Centre of Research Excellence (CoRE) funding has enabled the Centre to grow into a dynamic, highly productive, large-scale collaborative network of researchers across New Zealand, since its establishment in 2002. A major achievement of the MWC is that it has broken down traditional barriers between institutions and disciplines and developed high-functioning, collaborative teams across different institutions. These teams encompass a wide range of capabilities in biomedicine, chemistry, and clinical research, and are further boosted by collaborative links to major research institutions globally. This is an interactive model unique to New Zealand and one that creates excellent synergies that maximise the productivity of the country's researchers. This includes building upon our established relationships with Māori organisations, and the subsequent development of a formal Māori engagement strategy in consultation with those groups. During 2025-2028, we anticipate further activities expanding our development of Māori researchers and outreach to communities, and providing greater opportunities for Māori leadership in our research.

The MWC effectively performs ambitious research that spans from basic discovery through to translational outcomes. The Centre has developed a balance of internationally-competitive research programmes combined with a series of innovative, cutting edge, pilot projects to foster new research directions. A key feature of these research programmes is to engage a collaborative, interdisciplinary network of researchers, aiming for larger scale programmes than would be possible in individual laboratory groups. MWC also leads the development of important new resources and data sets that will be of ongoing use to researchers and patients.

The Centre's goals are to (i) build on the current network of researchers to use multi-disciplinary approaches and teams to expedite the development of new knowledge about mechanisms driving a range of diseases of importance to this country and, (ii) empower its extensive collective expertise in the development of therapeutic advances by linking with its rapidly developing networks of clinical researchers to translate these into new patient-centric approaches to prevent, diagnose or treat the target diseases and, (iii) using these approaches to advance fundamental knowledge to inform tomorrow's precision medicine, particularly making sure Māori and Pacific Peoples are not left out of the precision medicine revolution.

The MWC is an instigator of new research directions and aims to maximise the effectiveness of its collaborative research teams and to potentiate the outputs of its research by synergising with and leveraging other funding mechanisms. The MWC will also use its position as a national research network to support and develop the future research workforce from school outreach through postgraduate studentships and supporting the career development of early career researchers (ECRs). Specifically, the MWC is conducting activities that will enable diversity in this future workforce in terms of gender balance and in terms of Māori and Pacific engagement in biomedical research. Going forward the MWC will focus on further boosting its ability to have impact on the health of New Zealanders by greatly expanding and strengthening the interactions of its researchers with clinicians and with communities, particularly Māori and Pacific communities.

2. Impact statement

Strategic impacts *

MWC impacts:

- Improved long term health outcomes and well-being of New Zealanders, particularly for Māori and Pacific Peoples
- Diverse range of young scientists with advanced capability and a greater awareness of cultural, economic, and community aspects of biomedical research
- Economic benefits for the country including growth in the investment and performance of the therapeutics industry in New Zealand
- Improved science education for school children, particularly in Māori and Pacific communities
- New Zealand scientists as good global citizens in contributing to global health outcomes
- Increased capability in Māori researchers and in our research community to engage with and undertake culturally appropriate research in a range of medical conditions

Outcomes *

MWC outcomes:

- Development of better ways of treating disease using inter-disciplinary and inter-institutional collaborations, biomedical and translational research, and facilitating clinical trials supported by relevant diagnostic biomarkers
- Advancing fundamental knowledge to inform precision medicine of the future, in particular to ensure that Māori and Pacific Peoples are not excluded from the benefits of the precision medicine revolution
- Development of young scientists who have skills in a broader range of experience and mentorship than would traditionally have been available
- A new generation of Māori and Pacific researchers in biomedical sciences to lead future activities with these communities who can collaborate safely with culturally aware tauiwi researchers
- Validation of new drug targets, development of new drugs or strategies for using drugs, development of diagnostics and vaccines and the development of clinical trials to test efficacy of such strategies
- Promotion of a greater understanding of biomedical science in the New Zealand community, particularly in schools and Māori and Pacific communities
- Enhancement of the scientific partnership between New Zealand and other nations that leads to increased opportunities for New Zealand researchers

Relationship of activities and outputs to outcomes and impacts *

Activity/Output	Outcome	Impact
Multidisciplinary research to identify predictors of disease or therapeutic outcomes	Development of better ways of treating disease using inter-disciplinary and inter-institutional collaborations, biomedical and translational research, and facilitating clinical trials supported by relevant diagnostic biomarkers	Improved long term health outcomes and well-being of New Zealanders, particularly for Māori and Pacific Peoples
A focus on unique genetic architecture of Māori and Pacific peoples, with attention to data sovereignty in an appropriately Māori governed environment	Advancing fundamental knowledge to inform precision medicine of the future, in particular to ensure that Māori and Pacific peoples are not excluded from the benefits of the precision medicine revolution	Reduction in health inequity among New Zealanders, particularly for Māori and Pacific Peoples
Participation of emerging researchers in multi-disciplinary and multi-institutional projects led by teams of New Zealand's top research leaders	Development of young scientists who have skills in a broader range of experience and mentorship than would traditionally have been available	Diverse range of young scientists with advanced capability to undertake biomedical research in a technologically AND culturally competent manner
Advanced training in biomedical research targeted to Māori and Pacific students and ECRs; and cultural competency training for established researchers	A new generation of Māori and Pacific researchers in biomedical sciences to lead future activities with these communities who can collaborate safely with culturally aware tauiwi researchers	Advanced capacity and capability for biomedical research within Māori and Pacific communities, and high quality interactions for tauiwi researchers with these communities
High quality biomedical and clinical research aimed at identifying causes of cancers, infectious diseases and metabolic diseases of importance to New Zealand with the aim of developing improved treatments for these diseases	Validation of new drug targets, development of new drugs or strategies for using drugs, development of diagnostics and vaccines and the development of clinical trials to test efficacy of such strategies	Economic benefits for the country including growth in the investment, performance and reinvestment in the therapeutics industry in New Zealand
Engagement of schools and communities through school-based programmes that combine research with novel participatory learning approaches	Promotion of a greater understanding of biomedical science in the New Zealand community, particularly in schools and Māori and Pacific communities	More scientifically literate school children regarding health conditions, particularly in Māori and Pacific communities
Connecting the MWC biomedical network and Māori partners to international researchers through increased science collaboration, joint publications and funding opportunities	Enhancement of the scientific partnership between New Zealand and other nations that leads to increased opportunities for New Zealand researchers	New Zealand scientists being good global citizens in contributing to global health outcomes

3. Research carried out by the Maurice Wilkins Centre

Outcomes, including equity and wellbeing outcomes in research

- Development of better ways of treating disease using inter-disciplinary and inter-institutional collaborations, biomedical and translational research, and facilitating clinical trials supported by relevant diagnostic biomarkers
- Advancing fundamental knowledge to inform precision medicine of the future, in particular to ensure that Māori and Pacific peoples are not excluded from the benefits of the precision medicine revolution
- Development of young scientists who have skills in a broader range of experience and mentorship than would traditionally have been available
- A new generation of Māori and Pacific researchers in biomedical sciences to lead future activities with these communities who can collaborate safely with culturally aware tauiwi researchers
- Validation of new drug targets, development of new drugs or strategies for using drugs, development of diagnostics and vaccines and the development of clinical trials to test efficacy of such strategies
- Māori health providers partnering and undertaking biomedical research for and with their communities

Vision Mātauranga *

The MWC research programme focuses on addressing major health issues contributing to health disparities for Māori. As such, the Centre will directly address one of the major themes of the Vision Mātauranga strategy through aiming to improve the health of Māori. In particular the Centre is already and will continue to partner and collaborate with Māori communities and organisations to ensure that its research is relevant and guided by the values these communities. For example, the MWC has world-leading expertise in developing new therapeutic products and bioactives from natural products. This has relevance to research to understand the properties of rongoa and we will work with Māori organisations to grow this new opportunity in MWC. To ensure this type of work is done appropriately, we have strived to have greater representation of Māori in MWC leadership and governance including representatives on the Board and the Directorate, and with the support of the Kaiārahi Māori, we are empowering and resourcing a growing cohort of Māori biomedical researchers. MWC has expanded our engagement with Māori partners and their communities in the delivery of high school research, outreach and engagement programmes, including translating resources into Te Reo Māori. We now have formal partnerships agreed with The Moko Foundation in Kaitaia, and Ngati Porou Oranga in Te Puia Springs.

A significant step achieved in the past four years has been the development and adoption of a Māori Engagement Strategy, which will guide the Centre in supporting Māori aspirations and advancing the impacts of health research within Māori communities. Through this strategy, we are building Māori research capability, as well as building cultural capabilities within our researchers and our organisation so that research can be conducted in a culturally safe manner. To implement this strategy, we have appointed a Kaiārahi Māori to help guide us through this engagement process. The Kaiārahi has established Te Rōpu Kōkiri, a collective of researchers within the MWC who have Māori whakapapa, and we have resourced that group to work collectively to provide support for one another and a safe place to discuss issues that might impact on their research. We have empowered that group to work alongside our Kaiārahi Māori to provide strategic input into all decision making within the MWC, thereby enhancing the mana of all researchers in Te Rōpu Kōkiri. The elected leadership of that group, Te Amorangi, has selected one of their members to represent the group on the Directorate of the MWC, ensuring that Māori voices are heard at all management levels within our

organisation. MWC will work with the Kaiārahi Māori and Te Amorangi to develop appropriate data governance and management plans for the different types of research that we do.

The MWC will grow the capability and expertise of Māori individuals and organisations to engage with science and innovation. This will be achieved by programmes to specifically improve educational and career outcomes for Māori. To support this, we have invested in a major new pilot program 'Nōna te Ao' in partnership with The Moko Foundation, to deliver biomedical science education into Kura Kaupapa Māori. This programme will be evaluated at the end of its pilot, with the potential to expand it out to other regions. The overall goal will be to encourage more students to take STEM subjects in high school so they can study STEM-related subjects at university or with other tertiary education providers. We have also provided funds to be administered through Te Rōpu Kōkiri to support Māori high school and both undergraduate and postgraduate University students to take up internships and short-term scholarships to promote engagement in biomedical sciences research. Within New Zealand Universities, the MWC will prioritise access to MSc and PhD scholarships for Māori students. These students will become part of the Centre and experience the advantages offered by being part of large-scale multi-disciplinary projects, with appropriate cultural guidance and support. The MWC will continue supporting initiatives such as the Summer Internship of Native Peoples in Genomics (SING) and national-level initiatives to support Māori postgraduate students to accelerate their rate of achievement.

Research plan

Understanding the processes causing disease and developing new treatments for them is a major challenge requiring the application of a wide range of specialist skills at the appropriate time in the process. This is hard to achieve using traditional, academic, investigator-led research structures as these tend to make it very difficult to achieve sufficient scale and continuity to tackle the wide range of scientific questions that need to be addressed in such a process. The MWC provides a unique model that brings together the best researchers available in New Zealand to overcome these issues, promoting national-level collaborations. This includes over 600 research scientists and clinicians based at six Universities and four other research institutes, thus encompassing a large proportion of New Zealand's capabilities in these areas and allowing the country to make the most of the resources it invests. Many scientific skills and technologies are agnostic to the particular disease area to which they are applied, so having access to such a wide range of skills provides a flexible capability to respond rapidly and effectively to challenges posed by a wide range of diseases. A notable feature of the MWC structure is that it also provides investment and expertise to develop large scale resources and datasets that will enable significant amounts of future research.

In 2025-2028, the MWC will continue its successful programmes in the three theme areas of metabolic health, infectious diseases and cancer immunology, and introduce a new "cross-theme" focus on how genomics and other big data-sets can inform understanding of these conditions. A major reason for this focus is that these are diseases that contribute most to health disparities and inequities facing Māori and Pacific Peoples. The Centre's investigators have extensive expertise and experience in all of the scientific disciplines needed to underpin these disease-focused research programmes. Firstly, it will fund large-scale nationally-collaborative research programmes based on existing skills in the Centre. These will be supported by allocation of postdoctoral fellows, studentships and funding for research working expenses. These are designed to generate important new knowledge that will provide a platform for further research that can align with and leverage other funding mechanisms to expand the scope of the research. At the same time as enabling targeted research programmes at national scale, we will support innovative multi-disciplinary collaborative projects. These smaller scale collaborations will provide a springboard for the kinds of advances in biomedical science that are difficult to anticipate. These new projects will be integrated into appropriate themes to capture the strategic focus of the MWC. We will continue to support other new areas of research as they arise to generate a pipeline of new research strands on which to develop major programmes in the future. The MWC will act as a conduit for groups of our researchers to build, support and sustain substantial international collaborations. The Centre will implement funding mechanisms to support the development of careers of the next generation of research leaders and to equip them with the wide range of skills required to undertake

globally competitive multi-disciplinary and translational science. These programmes will have a particular focus on Māori and Pacific Peoples. MWC's growing capabilities in clinical research and clinical trials will be employed to ensure research findings can be translated into health benefits for New Zealand patients. The MWC also has significant expertise in commercialisation and will use this to ensure capture of any economic benefit to New Zealand from its research and also to assist with the translation of the research to the clinic.

Theme 1 - Metabolic Health

Overview

The disproportionately high rates of the spectrum of related metabolic diseases including type-2 diabetes, obesity, cardiovascular disease and kidney disease in Māori and Pacific Peoples are a major contributor to health disparities in Aotearoa / New Zealand. As genetic factors contribute up to half of the risk of developing metabolic diseases, understanding how genetic factors contribute to this for Māori and Pacific Peoples will allow for development of precision medicine approaches adapted to an individual rather than using current "one size fits all" treatments. However, Māori and Pacific Peoples are poorly represented in current global genetic studies needed to inform precision medicine and the limited research conducted to date has identified genetic factors that are unique to Polynesian Peoples. This highlights the need to do this research in New Zealand where these Peoples are concentrated. Already, studies by MWC researchers has built on this evidence of unique genetic factors contributing to metabolic diseases in Māori and Pacific Peoples. To extend this research requires a large-scale multidisciplinary approach, including significant clinical involvement that can only be delivered by an organisation such as the MWC. This will involve supporting and building metabolic disease research capabilities and collaborations across the Centre through the various funding mechanisms that the Centre has available. In addition the MWC will bring together a wide range of expertise from across NZ to develop a large scale interlinked programme to study how genetic factors unique to Māori and Pacific Peoples could impact on the risk of developing metabolic diseases or on the efficacy of preventative strategies or of therapeutic interventions for these diseases.

Research Programme 1: Understanding genetic drivers of metabolic disease in Māori and Pacific women.

(i) Deep Metabolic Phenotyping: Work will continue to complete the in depth metabolic phenotyping studies in 1000 Māori and Pacific women and men started in 2021-2024. This includes body composition analysis, energy expenditure measurements and assays of key parameters in blood samples. The aim is to understand how genetic variants contribute to factors involved in the development of metabolic diseases with the main focus being on type-2 diabetes, kidney disease, cardiovascular disease and gout. Final sample collection should be completed within the next year, and then final analysis of data is expected to be completed by 2026.

Annual plan milestones

2025:

- Complete phenotyping of 500 women (to complement the 500 samples from men already collected) and begin assays on samples

2026:

- Complete assays and perform analysis of the data for entire phenotyping study
- Use expertise of MWC metabolic research experts to interpret the findings and identify future research directions

(ii) Use of genomic, transcriptomic and metabolomic data to identify new gene variants associated with trait clusters. We have initiated a new quantitative genetics project to identify key molecular drivers of metabolic disease, with a particular focus on genetic factors that are unique to Māori and Pacific populations. Importantly, for this work we will establish appropriate Māori governance over some legacy datasets (such as GoGDK) and hold and analyse the datasets in a Māori-governed environment consistent with the principles of indigenous data sovereignty and tikanga Māori, as well as existing ethics consents. These research methods and capabilities will be expanded in a new cross-theme programme to be developed (see below). However, the immediate objectives will feed directly into the Metabolic Health theme.

Annual plan milestones

2025:

- Complete acquisition and storage of multi-omic data and legacy clinical data from the GoGDK cohort, in an appropriately Māori governed environment, including transfer of existing ethics consents

2026:

- Complete genetic parameter (heritability and inter-trait correlations) and genome wide genetic risk/resilience estimation (i.e., GBLUP and PRS) in an appropriately Māori governed analytical platform (i.e., the recently developed the Rakeiora platform)

- Identify novel genetic variants (with associated trait information) relevant for metabolic health that could feed into functional studies

(iii) Understanding Impacts of Genetic Variants on Metabolic Disease: Studies have been undertaken to further validate the impact of gene variants initially found to be associated with metabolic disease risk in the MWC association studies and to define those likely to have the most impact on development of metabolic disease or on treatments for these diseases. For example, in depth studies have been performed to investigate the function of variants in CALCRL, SLC22A3, G6PC2, JAZF1, HK2, INSL5, CREBRF, CoQ6 and MTC variants (and 2 knock-in mouse models have been created to establish animal models for variants in CREBRF and SLC22A3). The aim of these studies has been to inform preventative or therapeutic strategies for metabolic disease that may have specific relevance to Māori and Pacific Peoples and has involved multidisciplinary biomedical approaches to study key processes regulating metabolism. To maximise efficiency of this process the MWC has supported the development of a pipeline approach that harnesses key capabilities found within the Centre including molecular biology, biochemistry, cell biology, cell models, physiology, animal models and other relevant approaches. The key next step is to review progress on the different variants to date and identify those that are the most important to progress. The best strategy will be to focus on a few variants and try to take these studies through to a level of understanding that will provide clinically actionable endpoints.

Annual plan milestones

2025:

- Have reviewed the outcomes of the previously funded studies and identified a limited number for further support based on having high potential to inform precision medicine strategies

2026:

- Develop further functional studies on the selected variants for the initial cohort of work

- Use final analysis of data from phenotyping identify new variants that have strong potential to inform precision medicine and begin functional studies of these.

- Determine whether additional new variants have been identified from new multi-omic studies that would be informed by additional functional studies

2027:

- Continue functional studies of gene variants selected for study

2028:

- Complete functional studies of genetic variants selected for study

Research Programme 2: Developing targeted clinical studies to apply knowledge from genetic and functional studies to improve health outcomes for Māori and Pacific Peoples.

We have been conducting pharmacogenomic studies involving evaluation of clinical records and other relevant approaches to understand the clinical efficacy in Māori and Pacific Peoples of modern medicines used to treat metabolic disease, with a specific focus on understanding how unique genetic factors might modulate this efficacy. We will continue to evaluate the new genetic variants that are identified as part of programme 1 and develop clinical studies to determine how this novel genetic and functional information could be translated into better or more targeted treatment options. This program builds on the idea that advancing our fundamental understanding of biology will inform precision medicine strategies, and for Māori and Pacific peoples to gain benefits from these strategies, we need to build on understanding of the unique genetic architecture of these peoples.

Annual plan milestones

2025:

- Complete initial pharmocogenomic studies started in 2021-2024

2026:

- Use final analysis of data from phenotyping, genomic studies and from previous functional studies to identify new variants that have strong potential to inform precision medicine and to develop a clinical study to investigate the impact of these on diagnosis or treatment of metabolic disease

2027:

- Continue clinical precision medicine study started in year 2

2028

- Complete clinical precision medicine study started in year 2

Theme 2 - Infectious Diseases

Overview

Infectious diseases are the main cause of acute hospitalisations in New Zealand. These diseases are also associated with significant health inequities for Māori and Pacific Peoples. Most recently we have observed the huge global impact of SARS-CoV2, starkly illustrating the importance of our need to be continually developing therapeutics and prevention mechanisms to combat infectious disease threats. Our risks are also compounded by antimicrobial resistance (AMR), which is seen as a global emergency threatening many of the achievements of modern medicine. The MWC's extensive network of researchers and international collaborators will develop novel strategies to combat infectious diseases through prevention (vaccine development), detection (molecular and serological diagnostics), and treatment (small molecule compounds and antimicrobial peptides). We will target microbial and viral pathogens leveraging the expertise of our

multidisciplinary team. The outcomes of this work will be the delivery of new fundamental knowledge of the causes and new methods of combating infectious diseases of great importance to NZ, including acute rheumatic fever, respiratory infections, skin and soft tissue infections, tuberculosis, enteric pathogens, and viral diseases.

Research programme 1: Prevention of infectious diseases.

In this programme, collaborative MWC projects will exploit novel antigens, adjuvants and chemistry to develop new vaccines for viruses and bacteria to improve disease prevention. We have evaluated libraries of novel antigens from key pathogens such as Group A Streptococcus and *Neisseria gonorrhoeae* and are now in a position to capitalise on this resource to guide the production of new vaccines by combining these antigens with innovative adjuvant technology. Additionally, we have developed novel multiplex serological assays which will enable us to better understand the dynamics of infection in the New Zealand population, which will inform the development of these vaccines in a systems immunology approach.

Annual plan milestones

2025

- Review the antimicrobial and viral targets for vaccine development from 2021-2024 and select targets to be carried over for continued development.
- Initiate work to characterise antigens from new targets for vaccine development.

2026

- Progress assay development for the evaluation of new antimicrobial and viral vaccine targets.
- Initiate work to characterise novel antigens.

2027

- Progress promising vaccine antigen characterisation and vaccine assays.
- Explore and optimise adjuvants for vaccine development.
- Evaluate new antimicrobial and antiviral antigens in vaccine assays.
- Advance systems immunology platform approaches as appropriate.

2028

- Progress promising vaccine assays into preclinical testing.

Research programme 2: Detection of infectious diseases

In this programme projects will develop new diagnostic methods for priority bacterial and viral pathogens. We have assessed new targets and methods for the improved diagnosis of key infectious diseases such as Group A Streptococcus and *Mycobacterium tuberculosis,* and are expanding that work into respiratory viruses. A significant body of planned work on the sero-surveillance of priority pathogens has been adopted and selected for further funding by the NZ Ministry of Health. We will continue developing new diagnostic methodologies for a wide range of current and potential infectious disease threats.

Annual plan milestones

2025

- Review antimicrobial and viral targets for diagnostic development from 2021-2024 and select targets for continued development.

- Initiate work to identify best approach for the development for new targets for diagnostic development.

2026

- Assess feasibility and clinical need for serosurveillance surveys of new diagnostic targets.
- Initiate work to characterise new antimicrobial and viral targets for diagnostic development.

2027

- Progress continued development and assessment of diagnostic targets.

2028

- Characterise initial diagnostic performance for new targets.
- Progress the most promising diagnostic tests from original targets into advanced preclinical testing, as appropriate.

Research programme 3: Treatment of infectious diseases

Projects in this programme will harness novel small molecule and peptide chemistry as well as synthetic biology-driven natural product approaches to develop new drugs for prioritized viral and bacterial diseases. We have selected and validated targets for new drugs in both bacterial (*e.g. M. tuberculosis*, *N. gonorrhoeae*) and viral (*e.g.* SARS-CoV2 and norovirus) diseases. We are synthesising potent new small molecules against these targets and are testing their efficacy against both their molecular targets and the identified priority pathogens. Informed by genomic mining of microbiome data, we have synthesised novel and potent antimicrobial peptides that are effective against incipient bacterial disease threats such as *Acinetobacter baumannii*, and have verified their lack of host toxicity using cutting-edge technology such as organoid screening. The most promising new candidate compounds are being taken forward for IP protection and testing in animal and pre-clinical models of the priority diseases.

Annual plan milestones

2025

- Review molecular targets from pathogenic bacteria and viruses from 2021-2024 and select targets for continued development.
- Progress biochemical and structural characterization of molecular targets of priority microbial and viral pathogens.
- Initiate and progress synthetic preparation of lead compounds.
- Initiate natural product discovery to identify new antimicrobial leads.

2026

- Continue molecular target validation and characterization.
- Develop synthesis and evaluation of putative small molecule inhibitors and antimicrobial peptides.
- Continue natural product discovery to identify new antimicrobial leads.

2027

- Continue molecular target validation and characterization Continue synthesis and evaluation of putative small molecule inhibitors, antimicrobials and antivirals against prioritized pathogens.
- Continue synthesis and evaluation of putative small molecule inhibitors and antimicrobial peptides.
- Progress natural product discovery to identify new antimicrobial leads.

2028

- Complete molecular target validation and characterization.
- Evaluate strategies for the development of antimicrobial peptides or natural products discovered from genome mining.
- Elaborate small molecule design for improved activity against viral or microbial targets.
- As appropriate initiate pre-clinical studies and plan for a move for animal studies.

Theme 3 - Cancer

Overview

The development of new therapeutic approaches that either target specific molecular pathways in tumours (targeted therapies) or stimulate each patient's own immune system to reject tumours (immunotherapies), have revolutionised the treatment of cancer. To address the most urgent and clinically-relevant scientific questions at that time, the MWC Cancer Theme 2021-2024 strategy focussed specifically on cancer immunology - the science behind immunotherapy. This work has generated valuable scientific advances and new capability in New Zealand, including new capabilities for Māori, Pacific and Clinical investigators within the MWC.

In parallel, international gold-standard precision medicine for cancer patients has continued to advance and now increasingly uses deep molecular analysis of each patient's tumour(s) to direct a combination of immunotherapies and other treatment types. The NZ government is getting organised to provide central leadership and support for this approach, as evidenced by the precision health long-term insights briefing presented to the House of Representatives in early 2024. Reflecting this progress, the Cancer Theme 2025-2028 strategy will layer a set of additional research priorities onto our 2021-2024 cancer immunology focus, while continuing to advance the most promising of its current cancer immunology research projects. These additional priorities will focus on research that involves other forms of targeted treatments and advances in precision medicine for cancer patients in NZ (both diagnosis and treatment) and are unique to NZ. Projects that are likely to stand up strongly to international peer review and competition will be prioritised, as will projects that draw on current MWC interdisciplinary strengths across NZ and build capability of Māori and Pacific scientists and clinicians. Where possible selection will include projects in collaboration with the MWC Infectious Disease and Metabolic Health themes. As part of its natural evolution, over 2025-2028 the Cancer Theme will provide larger levels of support to a smaller number of programs than over 2021-2024 to achieve impacts in improving cancer diagnosis, treatment and clinical outcomes. It will also continue to support a range of research, from novel research by early- and mid-career investigators mentored by senior scientists, through to well established programs with substantial additional support beyond the MWC. Three broad Research Programmes will be supported:

Research programme 1: Targeted delivery of immune stimulants

Program 1 builds on a programme from the Cancer Theme's 2021-2024 plan. It supports continuation of a subset of immunomodulatory therapy projects already underway that have proved especially successful, while providing support for a small number of new targeted treatments, drug delivery systems, and immunomodulatory therapy projects and clinical trials. It may include immunomodulatory agents that work in synergy with targeted therapies, agents that can overcome resistance to immune checkpoint inhibitors, or novel immunotherapy approaches including personalised cancer vaccines and cell-based therapies.

Annual plan milestones

2025:

- Have reviewed process from 2021-2024 and initiated support for new projects that investigate therapeutic agents and their relevant companion biomarkers, which have evidence of anti tumour properties (including, but not limited to immune modulatory properties) in cancers relevant to Māori and Pacific Peoples.

2026:

- Have initiated proof of principle studies for the development of therapeutic agents for use in cancers preferentially relevant to Māori and Pacific Peoples.

2027:

- Have completed proof of principle studies for therapeutic agents and their relevant companion biomarkers in cancers relevant to Māori and Pacific Peoples

2028:

- Have generated outputs including publications, clinical trial results or Patent Cooperation Treaty filings for therapeutic strategies and their relevant companion biomarkers

Research programme 2: Advancing scientific understanding to underpin future precision medicine for cancer patients

Programme 2 will extend current MWC research into the molecular aspects of cancer, including research funded as part of the MWC Cancer Theme's 2021-2024 Precision Immuno-Oncology programme. Building on the success of that programme, it will broaden support to high impact research projects in the basic molecular mechanisms of cancer, such as research into oncogenes and tumour suppressor genes, new drivers of cancer progression (such as epi-drivers), cancer immunology research and research into the tumour stroma. This programme will identify especially promising research in these areas, prioritising research in cancers relevant to Māori and Pacific Peoples. This program may provide particular opportunities for research in collaboration with the Infectious Disease and Metabolic Health MWC themes, where understanding biological mechanisms, genes, biomarkers and drugs may have clinically important implications across a range of pathologies.

Annual plan milestones

2025:

- Have reviewed 2021-2024 outcomes, and initiated support for up to 5 projects that investigate molecular mechanisms or targets in cancers preferentially relevant to Māori and Pacific Peoples.

2026:

- Have tested in vitro proof of principle for the development of clinically relevant molecular mechanisms or targets in cancers relevant to Māori and Pacific Peoples.

2027:

- Have initiated and demonstrated in vivo proof of principle for the development of clinically relevant molecular mechanisms or targets in cancers relevant to Māori and Pacific Peoples.

2028:

- Have produced outputs such as publications, IP, and reports to stakeholders including Māori and Pacific communities
- Have analyzed and demonstrated relationships between companion biomarkers and clinical opportunities or outcomes

Research programme 3: The delivery and implementation of precision medicine for cancer patients in Aotearoa New Zealand

Programme 3 focusses on the delivery and implementation of precision medicine to cancer patients in NZ, prioritising the translation and clinical implementation of MWC research, including research from programmes 1 and 2 above. It positions the MWC to take advantage of the growing support of precision medicine by the NZ government, including international trials. For instance the program will provide a platform for identification and initial trials of novel biomarkers including blood plasma biomarkers as well as clinically relevant biomarkers of immune responses generated in our 2021-2024 research. It will facilitate fail-fast retrospective trials of companion diagnostic biomarkers for therapies developed by the 2025-2028 MWC Programme 1. It will support MWC scientists to apply their capabilities in bioinformatics and CRISPR technologies to determine the clinical relevance of DNA variants of unknown significance in the tumours of NZ patients. It will also facilitate MWC scientists with expertise in particular molecular classes to play a role in multi-disciplinary clinical meetings, where their expertise is clinically relevant (as several MWC biologists already do). The program will leverage MWC-supported capabilities such as its Clinical Associate Investigators, biobanking and clinical registers, commercialisation mentors and technology mentors, early and mid-career researchers, as well as MWC members who are Māori and Pacific leaders in oncology.

Annual plan milestones

2025:

- Have established capability networks, clinical implementation protocols and regulatory approvals to advance development of clinically relevant interventions and tests in cancers relevant to Māori and Pacific Peoples.
- Have initiated support of up to 3 projects that advance translation and implementation of clinically relevant therapies and biomarker tests in cancers relevant to Māori and Pacific Peoples.

2026:

- Have initiated testing of clinically relevant therapies and tests in pre-clinical cancer models and clinically relevant tests in cancer patients.

2027:

- Have reviewed outcomes of pre-clinical testing and initiated testing a limited number of most promising clinical interventions and tests for clinical implementation.

2028:

- Have completed evaluation of translation and implementation of clinically relevant therapies and tests in cancers relevant to Māori and Pacific Peoples**.**

- Have implemented some outcomes into the clinic or diagnostic sector with focus on reducing inequity in cancer outcomes of Māori and Pacific Peoples.

Theme 4 – Integration across the themes

Overview

Work during 2021-2024 has focused on the three themes described above, but it has become clear (and was particularly emphasised in the report from our international Science Advisory Board) that there would be benefits from further integration and interdisciplinary collaboration that bridges across the current themes, building on the expertise and technical developments across the breadth of the MWC network. To this end, during 2025-2028, significant effort will be placed into development of additional projects or programmes that use experience from researchers within more than one theme. At this stage, this is still under development, but some examples that have been identified for further discussion:

1) A programme focused on extending the population-specific precision medicine approach, currently being developed within the metabolic theme, to wider aspects of our research. This also includes extending the underpinning quantitative genetics and data science techniques. For example, this approach could be used to determine how genetic factors that are unique to Māori and Pacific populations may be informative in identifying risk and/or treatment options in cancer, and potentially in understanding the individual host response to infectious disease.

2) A project evaluating how a genetic variant in SLC22A3 might impact on use of platinum-based drugs in cancer treatment. This variant was identified in the screening studies completed within the metabolic health theme, and is currently under evaluation within that theme as it seems to alter rates of transport of the diabetes medication, metformin. However, other international studies have shown that this same transporter is also important for the transport of a class of platinum-based chemotherapy drugs. This means that Māori and Pacific individuals who carry this variant (up to 20% of individuals) may respond differently to these toxic compounds. Such knowledge could mean a simple genetic test could markedly alter selected modes of cancer treatments.

Annual plan milestones

2025:

- Identify opportunities for development of “cross-theme” programmes or projects

2026:

- Initiate programme or project that integrates fundamental biology across research themes

2027:

- Continue integrated cross-theme research started in 2026

2028

- Complete integrated cross-theme research started in 2026

4. The Maurice Wilkins Centre as an element in the tertiary education system

Outcomes, including equity and wellbeing outcomes in teaching

- Development of young scientists who have skills in a broader range of experience and mentorship than would traditionally have been available
- A new generation of Māori and Pacific researchers in biomedical sciences to lead future activities with these communities who can collaborate safely with culturally aware tauiwi researchers
- Promotion of a greater understanding of biomedical science in the New Zealand community, particularly in schools and Māori and Pacific communities

Development of human capital, including contribution to the priorities of the Tertiary Education Strategy *

Development of future leaders

The MWC acknowledges the key role that graduate students and postdoctoral fellows play in its research, and as a major part of its mission, the Centre is committed to developing their careers. While some will be future research leaders, others will migrate to other occupational pathways. Therefore, it is important to equip them with a wide range of skills, as well as excellent research training. The MWC will encourage the involvement of emerging researchers in the multi-disciplinary and multi-institutional projects that the Centre structure enables. They will benefit from being part of these teams alongside New Zealand's top research leaders. These emerging researchers will have significant opportunities to see their work recognised and gain a broader range of experience and mentorship than would traditionally have been available.

Emerging researchers also have access to a range of MWC funding schemes. We have removed all barriers to applying and all members (including affiliate members, who are predominantly early career researchers) are eligible to apply for all aspects of our flexible funding. This includes the facilities access scheme that allows emerging researchers to travel elsewhere in New Zealand or the world to learn new techniques and perform key experiments for their research. We will continue to actively foster emerging women scientists by ensuring equity in the types of support available and the processes for awarding project funding. All assessment panels are balanced for gender, as much as possible, and we actively assess outcomes in terms of equity and balance, for example geographical distribution and career stage.

The MWC will continue to support an Early Career Steering Committee that raises issues of relevance to emerging researchers (including postgraduate students) across the Centre and organises activities to benefit these researchers. Membership of this committee is refreshed regularly and provides an opportunity for emerging researchers to develop leadership experience and skills. This committee will decide the programme for the Emerging Researchers Showcase, held in association with an MWC annual meeting. This one-day symposia is open to all MWC emerging researchers and provides them an opportunity to present their work and build networks and collaborations.

In addition to this meeting, the MWC will continue to support additional workshops and initiatives specifically targeted at emerging researchers on topics of importance to their future development as scientists. These will include technological and methodological seminars and training. Other professional development initiatives include a national mentoring scheme and skills workshops on science communication, academic writing, grant writing and evaluation, as well as how to identify opportunities for the commercialisation of research. For example, we are currently investigating establishment of a short course (microcredential) in

Bioscience Enterprise, in collaboration with the group who have established a Masters in Bioscience Enterprise at the University of Auckland. This will offer our researchers an opportunity to learn more about the biotechnology industry, and the range of other skills needed for such work.

Postdoctoral research fellows

The Centre will support postdoctoral research fellows to conduct research within each of its research themes as well as providing support for postdoctoral research fellows with strategically important technical capabilities. Collectively we have budgeted 11 FTE per annum for postdoctoral researchers, and it is likely that this will be spread across up to 20 individuals. The MWC views support for postdoctoral researchers as being a key element of our research investment, with support awarded for excellent early career researchers to undertake research in interdisciplinary projects. Each position also carries an expectation that MWC-funded postdocs will be available to provide advice to others in the network, and in some cases, additional FTE support can be provided in areas where there is a broad need for maintaining specific research capabilities. Involvement in multi-disciplinary and multi-institutional MWC research programmes will enable these postdoctoral research fellows to build a wide collaborative network of peers within the New Zealand science system. Postdoctoral research fellows employed during 2025-2028 may already be MWC associate or affiliate investigators or may be new to the MWC.

Postgraduate research training

The MWC will support a cohort of postgraduate students including 11 fully funded PhD students and 3 Masters students to undertake interdisciplinary research projects between 2025 and 2028. The Masters scholarships have been added specifically with the intention to enable an additional pathway for Māori or Pacific students to enter postgraduate study. Working expenses will also be provided to MWC investigators to enable participation of Masters and Honours students in MWC research programmes, as well as PhD students who obtain stipends from other sources. These students will be co-supervised and mentored by leading New Zealand biomedical researchers embedded in the MWC network, so the students gain a broad vision of New Zealand biomedical research, and its international role.

All postgraduate students at Masters and PhD level associated with the MWC will be invited to self-register as 'Affiliate Investigators' and will be eligible to access many of the opportunities provided for emerging researchers outlined above.

Annual plan milestones

<u>2025:</u>

- Recruit and appoint a new cohort of fully-funded postgraduate students (some embedded within our major research themes, and additional scholarships not restricted to these areas)
- Provide support for additional post-graduate students through co-funding arrangements
- Appoint a cohort of postdoctoral research fellows to work on MWC research programmes
- Provide leadership opportunities for emerging researchers, such as leadership of research projects
- Provide appropriate competency and awareness programmes on Māori and Pacific culture and engagement with these communities
- Convene workshops and initiatives specifically targeted at upskilling and career development of emerging researchers
- Enable emerging researchers to travel nationally or internationally to access highly specialised facilities and training not available at their home institution

<u>2026-2028:</u>

- Support a cohort of postgraduate students and continue recruitment for any remaining studentships
- Provide support for additional post-graduate students through co-funding arrangements
- Support a cohort of postdoctoral research fellows to work on MWC research programmes
- Provide leadership opportunities for emerging researchers
- Provide appropriate competency and awareness programmes on Māori and Pacific culture and engagement with these communities
- Convene a biennial Emerging Researcher Showcase

- Convene workshops and initiatives specifically targeted at upskilling and career development of emerging researchers
- Enable emerging researchers to travel nationally or internationally to access highly specialised facilities and training not available at their home institution

Participatory Science Programmes for Schools

The MWC is committed to engaging with communities in ways that will allow them to understand the benefits of biomedical research. The Centre has decided that the best place to focus such efforts is in schools, as this has the potential to have long-term impacts on the next generation. The centrepiece of this commitment is a school-based programme that combines research with novel participatory learning approaches. The aim is to engage and enthuse students about science at an early stage, so they remain engaged with STEM subjects at later stages of their high school career. The pilot for this during 2021-2024 has been the MWC's "Sugar in Schools Study" which not only allowed the collection of research data on how fructose impacts on school children but also provided teachers and students a rare opportunity to experiment on themselves in a non-invasive manner. This is an approach which engages the students, driving a desire to understand the basis of their responses and so they begin to understand digestive processes and the metabolic effects of sugars on the body and. Importantly, it also arms them with knowledge to pass on to whanau. Teachers value this approach as they are able to integrate it into the curriculum and use it as a new way to engage students in science. This programme has been adapted for Kura Kaupapa Māori by The Moko Foundation and this has proven very successful in engaging students in such schools with science.

An evolved school outreach programme "Nōna te Ao" has recently been developed by The Moko Foundation in partnership with the Centre, and will be rolled out in the next year. Nōna te Ao expands to cover all three MWC research themes (Metabolic Health, Cancer, and Infectious Diseases) and includes both an in-school programme and university visits. The impact and successes of this programme will be evaluated at the end of its pilot. The longer-term goal is to develop these programmes into forms that can be used more widely across the country, with a particular focus on schools that lack access to high-quality science education, such as those outside the main centres, and Kura Kaupapa Māori. This longer-term goal will require external funding, however. The aim is that these programmes will not be delivered in isolation but will be linked with other initiatives of the MWC that engage with communities to maximise the benefits of the MWC biomedical research and increase participation of Māori and Pacific peoples in biomedical sciences in tertiary institutions.

Support for Science Teachers

The second important strand of the MWC schools programme is a nationwide free professional development programme for secondary school biology teachers. This programme aims to lift the performance and engagement of biology teachers across the country. MWC scientists with specialist knowledge and expertise give talks directly relevant to the biology curriculum. The slides and supporting material are made available to local schools, and teachers take away material, ideas and discussion points they can use in the classroom. They will also make contacts within the MWC scientific community who can subsequently interact with individual schools. To date over 2000 teachers have attended more than 50 nationwide events, from Kaitaia to Invercargill, and, based on the consistent outstanding feedback, it is a very successful programme (for example, in 2018, 94% reported in a survey that the days were either "essential" or "very valuable" for their own professional development and 95% reported they would use material from the days directly in their own teaching). The MWC will continue this programme, with sessions both in major centres, but also taking the presentations into more provincial areas where teachers find it particularly difficult to access professional development. In 2023 (planned for 2024), we included one session on a marae in a relatively isolated rural setting, supported by our Kaiārahi Māori. This generated some excellent community engagement. Based on this experience, we plan to continue with this approach for at least one of our sessions each year from 2025-2028.

After receiving feedback from secondary school communities, we have committed to trialling a similar professional development programme for secondary school chemistry teachers. It is envisioned that MWC scientists with specialist knowledge and expertise would give talks directly relevant to the chemistry

curriculum, potentially through a biomedical lens (such as drug development and chemical biology-based research into disease).

The Centre will also continue to sponsor up to four annual Queenstown Molecular Biology Teacher Scholarships in partnership with Queenstown Research Week, enabling secondary school teachers to attend New Zealand's most successful and relevant annual biomedical conference to familiarise themselves with the latest biomedical research. These teachers often remain engaged with the MWC, becoming ambassadors for our professional development programmes.

Annual plan milestones

2025:

- Evaluate the new participatory schools' science programme initiated in partnership with The Moko Foundation in 2024.
- Run a series of professional development days for high school biology teachers
- Support up to four Queenstown Molecular Biology Teacher Scholarships
- Develop a trial professional development programme for high school chemistry teachers
- Investigate the feasibility of a participatory Pacific engagement programme with schools

2026-2028:

- Run a participatory schools science programme
- Run a series of professional development days for high school Biology teachers
- Support up to four Queenstown Molecular Biology Teacher Scholarships

Equity and wellbeing *

As a national centre, MWC funding will reach students from across the country and boost the number of further study opportunities within Aotearoa New Zealand's Tertiary Education System. MWC will offer early career researchers (ECRs) the opportunity to apply for contestable funding which will directly support their tertiary education. This will include full scholarships for MSc and PhD students and support for access to facilities and training in New Zealand and internationally. Students who travel to upskill will be fully supported by MWC financially and expected to disseminate skills and knowledge with collaborators across MWC who will also benefit from the information. This will remove barriers to upskilling students who may have caring responsibilities, or are otherwise less able to travel, by ensuring that the information is made available within the network.

MWC is committed to ensuring the well-being of its students and will continue to offer support through informal and formal mentoring opportunities, which are run primarily by the Early Career Steering Committee (ECSC). Our national network of investigators offers a large base of diverse support in terms of professional experience, personal background, gender and ethnicity. Mentors will assist their mentees with issues such as work/life balance, gaining tenured positions and writing grant applications, which disproportionately affect under-represented groups such as people with caring responsibilities. These opportunities will be offered in addition to the support students can access through their home institutions.

The opportunity to meet other ECRs at events organised by the MWC each year is another way in which we can support the well-being of its students. Providing financial assistance to ECRs, such as travel and accommodation and reimbursement of child-care costs, removes barriers to attendance and allows for full participation in MWC activities. Networking in this way will provide a sense of community for students dispersed across the country, increase opportunities for discussion, and raise issues with the ECSC, which feeds directly to the Research Leadership Forum.

MWC is making progress to contribute to increasing the participation of Māori and Pacific students in tertiary education. Research areas within the centre will have a particular focus on Māori and Pacific Peoples, as outlined in the 'Research Programme', which will present opportunities for Māori and Pacific students with an interest in these areas to undertake and eventually lead research directly affecting these communities. The Centre has also now also made some MSc scholarships available which may enable more Māori and Pacific students to take up postgraduate study. In addition to the support outlined, the Centre recognises the need to advance and nurture Māori and Pacific researchers specifically.

Guided by the MWC Māori Engagement Strategy, we are committed to providing holistic support to Māori emerging researchers and students. As part of the strategy, the Kaiārahi will continue to focus efforts on implementing opportunities to build Māori capability through the Te Rōpu Kōkiri. The Kaiārahi and Te Amorangi will also foster the wellbeing of emerging Māori researchers and students directly and by recommending initiatives to increase tikanga Māori and cultural competency within the MWC.

Support for Pacific students will be developed as part of the MWC Pacific Strategy, outlining further opportunities to develop equity for our students. Support will be offered for Pacific students through Pacific-led initiatives.

The CoRE will also seek new opportunities to engage students at the secondary and tertiary levels to boost achievement in these communities. It will aim to run initiatives in schools with Māori high school students as described in "Vision Matauranga" to create pathways to university for these students. A dedicated programme was also initiated by Te Amorangi to provide flexible support for Māori students studying biomedical sciences.

Representation of students

The Centre has a well-established Early Career Steering Committee (ECSC) which acts as a representative body for ECRs within the centre. The committee comprises a diverse group of ECRs who represent a range of disciplines, locations, career stages and personal backgrounds, and it is gender balanced. This includes representation from Māori and Pacific ECRs in keeping with the Centre's commitment to advancing equity for these groups.

Our ECSC will continue to identify and create opportunities for the ECR community to develop their skills, knowledge and networks within the framework of the MWC and beyond. These will include hosting specialist workshops, conferences, and mentoring opportunities for ECRs associated with the MWC. The group will work to ensure that invited speakers are diverse and representative of its cohort and will make these activities available to a wide audience of ECRs. The group will take steps to remove barriers to accessing events, such as hosting its activities in different locations and scheduling key events within working hours to support investigators with caring responsibilities.

Representation in Governance and Management

MWC acknowledges the importance of representation at all levels of the Centre's governance and management. Gender balance is considered in appointments to MWC leadership positions in the Directorate and the Research Leadership Forum (RLF). MWC will ensure new appointments to leadership positions favour women and recruit actively from our Affiliate and Associate investigator pools of female investigators. Ensuring gender balance will be a priority for us and we will commit to having a gender balance in the leadership team that reflects the balance of the entire centre. We will implement best practice and initiatives to address gender equality and barriers to progression of women. This will include continuing to record gender data about all levels of researchers in our programme from emerging researchers to senior researchers and leadership and management positions to monitor progress and reflection on both research processes and outputs.

The RLF is a representative body of researchers across MWC, including Māori and Pacific members and the Chair of the ECSC. Ensuring diverse representation within the Centre's management will promote aspirations within our diverse ECR community who will look to the Directorate and RLF as potential role

models and mentors within MWC, particularly with respect to Māori, Pacific, and female researchers who are traditionally underrepresented within management positions.

As outlined in the section 'MWC Board', MWC includes Māori representation at the Board level, as well as aims to promote greater female representation within its membership. Pacific representation may be included dependent on the recommendations of the MWC Pacific Strategy, once developed.

Māori oversight will be provided via at least two Māori members of the Board (appointed), specific governance mechanisms for Māori genomic resources and data that are consistent with best practice tikanga-informed frameworks, Māori representation on the Research Leadership Forum, and the MWC Māori leadership group, Te Amorangi.

Development of skills and education for Māori and Pacific Peoples, including contribution to Ka Hikitia *

The MWC aims to improve outcomes for Māori and Pacific students in science and research from the school level to the tertiary level. At the school level, this will partly be through its participatory science and internship programmes described above. The MWC is particularly targeting this to fit the needs of Māori learners and this fits well with the Ka Hikitia strategy. This programme is being led by The Moko Foundation through its Waharoa ki te Toi Research Centre in Kaitaia and run as partnerships with the schools involved. Resources are also being translated into Māori which will help to normalise the use of scientific terminology in Te Reo. Going forward the programme will seek to engage whānau to ensure that the benefits of the programme are more broadly distributed to address the social aspects of the Ka Hikitia strategy. The aim of these pilot programmes is to develop programmes that can also be implemented practically in other areas of the country.

The MWC's ability to support research and education opportunities for Māori will be enhanced by the Kaiārahi (guide/mentor/counsellor) within the Centre. This person will support engagement with Māori communities. They will also support cultural upskilling of MWC investigators to ensure they are well equipped for interacting with Māori communities, explain opportunities for translational and educational outcomes for Māori to communities, advise on cultural issues relevant to MWC research and educational projects and play a valuable role in instigating and running our various hui and educational programmes.

The MWC's plan also aligns with several aspects of the Pacific Education Action Plan. Moreover, the MWC Pacific strategy will build on existing culturally appropriate Pacific models and frameworks for growing Pacific capacity and capability in biomedical science. Our aim is to increase the numbers of Pacific people trained in STEM subjects including chemistry or biomedical research and thereby ultimately increase the numbers of Pacific graduates with experience in researching the health issues that particularly impact Pacific Peoples. This contributes to a key goal of the Pacific Education Action Plan ensuring Pacific Peoples are a highly skilled and educated workforce that fully contributes to the New Zealand economy and society.

The MWC also aims to increase the participation of Māori and Pacific students in advanced biomedical research. It will run internship programmes in MWC laboratories for Māori and Pacific high school students as described above with the aim of giving these students the confidence and motivation to undertake science-based programmes at University. MWC will also prioritise access to MSc and PhD scholarships for Māori and Pacific students. Once part of the Centre these students will have access to the advantages offered by being part of large-scale, multi-disciplinary projects as described elsewhere in the document. MWC will continue supporting annual initiatives such as the Summer Internship of Native Peoples in Genomics Aotearoa (SING-A), providing additional training for interns and researchers with interests in biomedical research. MWC will also support other national-level education initiatives in genomics of Māori healthcare.

5. CoRE collaboration and collaborative practices within the Maurice Wilkins Centre

Outcomes

- Development of better ways of treating disease using inter-disciplinary and inter-institutional collaborations, biomedical and translational research, and facilitating clinical trials supported by relevant diagnostic biomarkers
- Advancing fundamental knowledge to inform precision medicine of the future, in particular to ensure that Māori and Pacific peoples are not excluded from the benefits of the precision medicine revolution.
- Development of young scientists who have skills in a broader range of experience and mentorship than would traditionally have been available
- A new generation of Māori and Pacific researchers in biomedical sciences to lead future activities with these communities who can collaborate safely with culturally aware tauiwi researchers
- Validation of new drug targets, development of new drugs or strategies for using drugs, development of diagnostics and vaccines and the development of clinical trials to test efficacy of such strategies
- Promotion of a greater understanding of biomedical science in the New Zealand community, particularly in schools and Māori and Pacific communities
- Enhancement of the scientific partnership between New Zealand and other nations that leads to increased opportunities for New Zealand researchers
- Effective governance and management practices that that are responsive to the views of all partners and collaborative organisations and provide a framework for the MWC to achieve its goals

Governance *

The Maurice Wilkins Centre was established in 2002 and is hosted by the University of Auckland. The MWC has increasingly become nationally integrated and in this next phase the governance and management structure will further evolve to include Māori and Pacific representation. The routine administration will continue to effectively leverage the existing Host institution's infrastructure.

The MWC Board will monitor the progress of the MWC research programme and its compliance with its funding mandate and budget. Consultation on specific matters may also be sought from other stakeholders where appropriate. Ultimate responsibility for MWC decisions regarding strategy, policy, financial expenditure and staff line management will rest with the Directorate and the University of Auckland.

MWC Board

An MWC Board has been established to assist the Host and Director in ensuring the research is of a high standard and meets the expectations of TEC. The MWC Board is comprised of the following members:

- An independent Chair appointed by the Vice Chancellor (VC) of the Host after consultation with all other parties. The current appointee is Mr William Falconer CNZM.
- The Host's Deputy Vice Chancellor-Research (or delegate)
- Up to three representatives of the other Parties (if there are more than three other Parties then those Parties must agree on three representatives)

- Up to four strategic appointments to strengthen the skills and capabilities of the Centre Advisory Board relevant to the scope and domain of the CoRE and to include Māori representation

The Host's Director of the Office of Research Strategy and Integrity (or delegate) may attend meetings of the MWC Board as an observer.

Roles and Responsibilities of the Board

The MWC Board is an advisory board to the Host Vice Chancellor, providing advice on the management of the CoRE while ensuring members are not unwittingly exposed to liability as they would be if Directors of a separate legal entity. The Host shall establish the MWC Board, with all Board appointments being made by the Vice Chancellor. The Board is predominantly an Advisory Board whose roles and responsibilities include:

- Provision of feedback to the Host on the appointment and performance of the Director(s)
- Provision of strategic and business advice to the Director(s) and management team
- Reviewing and approving plans and reports
- Raising the profile and reputation of the research and the collaboration
- Ensuring that the intent of the Collaboration Agreement is upheld, and no Party has an unfair advantage.

Terms of Reference

All Parties will provide input into the terms of reference for the MWC Board which will be agreed by the Chair of the MWC Board and the Host Vice Chancellor and will act as their guiding document. Any changes to the terms of reference will be discussed with all Parties and agreed by the Host Vice Chancellor and MWC Board Chair.

Scientific Advisory Board

The Directorate has established a Science Advisory Board that has met at approximately two yearly intervals and will continue to meet to provide an independent expert review of the research being undertaken within the programme and the research proposed for the next two year period to ensure it remains of high international quality. The board consists of a chair and currently six international experts bringing a balance of expertise across the disease theme areas and including relevant expertise in translational research, research commercialisation and in engaging with society (including one expert of indigenous descent and background).

The Panel may recommend modifications to the proposed work programme and bring any other matters to the attention of the Director and Host as they see fit. The Directorate considers the findings of the independent panel report, consult with the Research Leadership Forum and adjust the research plans accordingly or as they deem appropriate within the constraints of the funding contract. Where this results in proposed changes in funding to any party the Director shall recommend such changes to the Host for approval. As example of this process is reflected in the current plan, where recommendations of the Science Advisory Board have resulted in a significant shift in focus towards collaboration across the current research themes.

The independent panel reports have been and will continue to be made available to the Host and Partners (and TEC) along with the Directorate response and the final decisions for any changes by the Director or Host.

Management *

The MWC will continue to operate as a 'virtual' Centre with all members of the management team and investigators located within their host institutions. The central research operations team will be located at the University of Auckland. Due to the geographical locations of team members, meetings of the Directorate, Research Leadership Forum, Project Review Committee and Advisory Boards will be conducted either by video conference or in person, as appropriate. To ensure equitable outcomes are achieved, the MWC will consider gender balance and involvement of under-represented groups wherever possible in planning membership of all Centre committees. Specific MWC management and advisory positions, committees and forums are described below.

Directorate

The Directorate will comprise of the Director and up to four Deputy Directors and will have responsibility for the routine management of the Centre.

Director

The MWC Director for 2025-2028 will be Professor Dave Grattan for a term of four years, subject to Board review of performance, or until any replacement is required due to employment or personal circumstances. Prof Grattan was selected following a competitive process to replace the previous Director, Prof Greg Cook, upon his resignation in 2024. Any subsequent appointment or reappointment of the Director shall be determined by the Host in discussion with the Partners and considering any recommendation by the MWC Board.

The Director will have the following responsibilities:

- Implement the funding agreement in collaboration with the Partners
- Meet all reporting, review and record keeping requirements under the funding agreement
- Coordinate, support and monitor management of the subcontracts to the Partners
- Performance management of the overall programme of work to ensure the outcomes sought by TEC are achieved over the term of the contract

The Director will report to his/her academic head for their substantive academic role (including the undertaking of research under any sub-contract to the Host) but will report to the host DVC(R) for the "Director" portion of the role.

The Director is able to apply to the Flexible Research Programme for support of new projects (eligible for all categories).

Deputy Directors

The Director will be supported by up to four Deputy Directors who will take responsibility for specific roles to assist in achieving the contractual goals of the MWC. The current proposal is that the Director will coordinate a process to select three of the Deputy Directors from the theme coordinators, with one Deputy representing each research theme (taking into account gender representation and regional representation, as appropriate, and also succession planning). At least one Deputy Director will be a nominee from Te Amorangi, to ensure Māori representation on the Directorate. The Deputy Directors will serve a renewable term of 2 years, subject to Board review of performance, or until any replacement is required due to employment or personal circumstances. Any subsequent appointments or reappointment of any Deputy Directors shall be recommended by the Director after discussion with the Research Leadership Forum and approved by the MWC Board in consultation with the Host and Partner institutions. The Deputy Directors will have responsibility for roles in the following areas:

- Assist the Director in overall research and financial management and leadership of the MWC
- Be responsible for specific MWC roles (e.g. communications, coordination of training, outreach programmes diversity and inclusiveness programmes and international relationships) as required
- Implementation of the Māori Engagement Strategy
- Participate in the leadership of defined areas of the MWC research programme
- Attend meetings of the Directorate, Research Leadership Forum and Project Review Committees
- Assume the duties of the Director in the Director's absence

Deputy Directors are able to apply to the Flexible Research Programme for support of new projects (eligible for all categories).

Directorate meetings

The Directorate will meet every 2 weeks and consider items including:

- Coordinating MWC work to ensure contract deliverables and research objectives are met
- Agreeing to changes in research priorities, activities and funding which may be required to achieve programme goals including proposing contract variations.

The Director shall chair the meetings of the Directorate and seek consensus decision making on all issues:

- Where a consensus is not able to be achieved the Director may seek other advice and inform the Directorate members of their proposed decision.
- If the decision of the Director is not acceptable to any of the Directorate members they may request a justification of the decision be prepared by the Director noting the dissenting views and sent to the Chair of the Board for the record within 7 working days
- If any party wishes to dispute the Directors decision, they may initiate the dispute resolution mechanisms of the Collaboration Agreement

Research Leadership Forum

The Director will also establish a Research Leadership Forum. This Forum is the representative body for researchers from the Parties with proposed membership including:

- The Directorate members
- Up to eight Principal Investigators, representing the theme coordinators of the major research programmes (2-3 coordinators per theme, with one of these serving on the directorate, and the other 1-2 serving on the RLF)
- Up to five Principal or Associate Investigator nominees, with an eye to succession planning among the theme coordinators or representing other developing research areas.
- An additional Te Amorangi representative
- The Chair of the Early Career Researchers Committee or their nominee
- A Clinical researcher representative
- Up to Three Māori and Pacific Partner nominees
- Other representatives may be co-opted to the forum by the Directorate as required.
- (Some individuals may fulfil more than one role on the RLF)

The Forum will meet every three to four months to report on both research progress and other activities. It will be responsible for:

- oversight of the research within established projects and/or subcontracts i.e. receiving progress reports from thematic research areas and flexible funding projects
- assisting the Directorate in identifying strategic opportunities for the CoRE and new research projects
- assessing commercial, translation or outreach opportunities
- raising any issues of concern (and, if possible, resolving them by mutual agreement.)
- ensuring that funds are spent in accordance with MWC research strategy
- creating pathways for implementation of Māori and Pacific strategies
- providing oversight on outreach strategy, including training and student initiatives, symposia and workshops
- providing oversight on strategy for media engagement and social media

Early Career Steering Committee

This committee provides a means for emerging researchers to have a voice in the strategy and activities of the Centre. The Early Career Steering Committee will consist of at least six researchers at the postgraduate and postdoctoral levels. They will be tasked with providing advice and developing initiatives focused on the training and career development of early career researchers within the MWC. The committee will also be represented on the Research Leadership Forum by the Chair (or their delegate) and have input into the overall strategy of the Centre. The current Chair of this committee is Dr Georgia Lenihan-Geels (Victoria University of Wellington). Vacancies in the committee membership are generated as current members move on or step down. They will be filled by selecting a suitable candidate/s from a pool of self-nominated early career researchers from within the MWC.

The Directorate will allocate resources to this committee based on approved proposals for specific initiatives.

Te Amorangi

As outlined in the MWC Māori Engagement Strategy, Māori researchers connected to the MWC have been brought together by establishing Te Rōpu Kōkiri. Te Amorangi is the designated leadership group, consisting of at least five senior Māori researchers as well as the Kaiārahi. They will provide a collective and independent voice representative of the Māori cohort within MWC. A rotation of Te Amorangi members will occur every two years.

The Kaiārahi and Te Amorangi will meet three to four times per year. Te Amorangi will work closely with the Kaiārahi to generate opportunities to build Māori capability and wellbeing, and to assist the Kaiārahi in implementing the Māori Engagement Strategy.

The Directorate will allocate resources to this committee to support initiatives that will achieve outcomes and impacts as stated in the Māori Engagement Strategy.

Project Review Committee

The Director will establish project review committees of at least five to seven members, including representation from the Directorate, the Research Leadership Forum, the associate investigator group, and an early career researcher representative. These committees will meet between 2 and 4 times annual (for the different categories of Flexible Research Funding, see below), and will be responsible for:

- Review and evaluation of contestable proposals for emerging areas of research and career development schemes
- Making funding recommendations to the Directorate and MWC Board

Conflicts of interest will be declared at each meeting of the committee, and appropriate actions will be taken to mitigate these conflicts of interest during each meeting based on an established MWC process.

Te Tiriti O Waitangi

The Parties are committed to meeting their obligations to Māori on behalf of the Crown under Te Tiriti o Waitangi in relation to Mātauranga Māori. The Parties will respect and adhere to Te Tiriti o Waitangi and subsequent Waitangi Tribunal recommendations, including those in the Wai 262 Report. This includes:

- seeking expert advice from Māori to identify kaitiaki relationships
- making specific reference to a consultative mechanism or group from which the parties could obtain/seek 'expert Māori' advice
- taking into account the advice received pursuant to subsection (a), ensuring that any use of Mātauranga Māori, Taonga Works and Taonga Species is agreed in advance with the originating whānau, hapū and/or iwi groups and documented in access and benefit sharing agreements developed in partnership with the originating whānau, hapū and/or iwi groups, and acknowledged in publications relating to the research with the consent of the originating whānau, hapū and/or iwi groups

The centre will also implement Te Tiriti-based expectation in regard to tāonga, which includes tissue and data derived from tissues.

Managing Conflicts of Interest

The MWC Directorate and Research Leadership Forum members, principal and associate investigators have a broad involvement in New Zealand science. In addition to MWC committee roles and MWC-affiliated research, they may propose projects for contestable MWC programmes, and may be involved in other academic and commercial research initiatives in New Zealand. This extensive research connectedness is a testament to the calibre of MWC researchers and generates positive network links for the MWC. However, it also generates real and perceived conflicts of interest.

To manage these, the MWC will form and annually update a Register of Interests, for all investigators with decision-making mandates, i.e. MWC Board members, members of the Directorate and the Research Leadership Forum. The Director will review this register and discuss any significant conflicts of interest with the MWC members concerned, recommending appropriate action.

With regard to members of the Project Review Committee conflicts of interest will be declared at each meeting of the committee and appropriate actions taken to mitigate these conflicts of interest during the meeting based on an established MWC process.

In general, MWC members will not take part in decisions that may be seen to advantage or disadvantage themselves or those in their immediate research spheres. Potential conflicts of interest with potential to influence funding decisions will be noted and minuted at the start of every meeting.

Structure and management of the MWC research programme

Strategic research programmes

The MWC research programme will include strategically targeted research programmes at a national scale. These projects, led by principal investigators, will also involve associate, affiliate and clinical associate investigators with relevant expertise and capabilities. The projects will be planned in a consultative and collegial way by the theme coordinators and their wider theme leadership groups, typically involving hui open to all MWC members aligned with that theme. Project resources to cover fully costed research staff salaries, postgraduate student stipends and working expenses will be allocated by the Directorate in consultation with the Research Leadership Forum, dependent on the approval of the MWC Board. All programmes will be reviewed by the Scientific Advisory Board. Programmes will be initiated at the beginning of each 4-year cycle and run for up to four years. They may be renewed, but may also be discontinued by the Directorate and Research Leadership Forum at any time if they are not making appropriate progress.

Flexible Research Programme

The Flexible Research Programme, initiated in 2008, enables the MWC to take advantage of exciting new ideas as they evolve, while simultaneously building links across its network, especially between institutions. The criteria and settings of the programme are regularly reviewed and updated to ensure they are fit for purpose in the current research environment. The next review will be done in late 2024 to determine whether any further amendments are required.

In its present form the programme supports (Category 1) fully-costed inter-disciplinary PhD and Masters projects linking at least two laboratories in the MWC network, and (Category 2) research expenses for innovative, interdisciplinary projects that will also promote progress in scientific areas of importance to the MWC. It also supports (Category 3) Access to Specialised Facilities and Equipment across all MWC sites in New Zealand, covering any user charges attracted by these facilities or equipment, as well as travel and accommodation necessary to enable MWC investigators (including affiliates) to work in facilities away from their host institution. Investigators will also be able to access specialised international facilities on a fee-for-service basis where these facilities are not available in New Zealand. Investigators are also supported

(Category 4) to access specialised training internationally, either to attend specialised workshops not available in New Zealand, or to work in leading laboratories overseas on collaborative projects involving advanced technology. Support is also provided to access specialist training opportunities in New Zealand. A condition of funding for Category 4 is the inclusion of a communication plan for the dissemination of the knowledge acquired throughout the MWC network on return. Clinical and/ or Māori led research projects will be preferentially supported in the flexible funding scheme, recognising a wish to increase the proportion of projects in these categories.

Resources will be allocated by the Director following approval by the MWC Board, based on the recommendations of the Project Review Committee following consideration of competitive applications. This committee will consider proposals for support two or three times per year, with one of the requests for proposals optimally timed for the recruitment of post-graduate students through the universities (typically November). Key features of the Flexible Research Programme include:

- All projects should be associated with the main themes of metabolic health, infectious diseases, and cancer and should align with or complement other proposed research programmes in the Centre or be an outstanding new research opportunity that warrants a new research programme. Projects with a high degree of collaboration between research teams/disciplines and institutions will also be prioritised.
- A significant proportion of working expenses provided for collaborative projects are aligned with available support for post-graduate students, thereby enhancing the training environment for post-graduate students within each institution
- The Access to Specialised Facilities and Equipment scheme aims to support acquisition of new equipment by providing a source for the user charges necessary to underpin running expenses; and as a driver to minimise duplication of advanced equipment and facilities across New Zealand by providing mobility for leading researchers to access specialist equipment items and facilities outside their host institution.

Tracking progress of MWC research projects

Progress of all MWC research projects will be tracked against specific project objectives set by the investigators (and approved by a member of the Directorate) prior to the start of each project. For all active research projects, lead investigators will be expected to report on progress against these objectives every January. After the completion of each project, the lead investigator will complete a final report on progress against objectives and at the completion of all project outcomes and outputs.

An annual summary progress report of the major research programmes within each theme will be provided by the Research theme coordinators to the Directorate, the Research Leadership Forum and the MWC Board to enable them to assess research progress. Projects where investigators are not achieving agreed milestones will be flagged for more detailed review, and remedial action by the Directorate or Research theme coordinators. Regular interim progress reports will also be provided by theme coordinators to the Research Leadership Forum during each year to monitor progress and identify opportunities for cross-theme synergies.

The Directorate will monitor progress of research projects supported through the Flexible Research Programme and prepare an annual summary of progress for the Research Leadership Forum and MWC Board.

For research projects that are funded from multiple sources including the MWC and are deemed by the lead investigator and the Directorate to be integrated with the goals of the MWC research programme, progress may be reported alongside MWC-funded activities in a consolidated report with full accreditation of the funding sources.

Annual plan milestones

<u>2025:</u>

- Confirm membership of the MWC Board and Scientific Advisory Board, and determine that these members are prepared to continue for a further 4 years.
- Implement new MWC management structure

- Convene two to four meetings of the MWC Board
- Convene four meetings of the Research Leadership Forum
- Convene three to four meetings of Te Amorangi
- Convene meetings of the Early Career Steering Committee as required
- Convene up to six meetings of the Project Review Committee to allocate resources from the Flexible Research Programme
- Prepare an annual report

2026-28:

- Convene three to four meetings of the MWC Board per year
- Convene four meetings of the Research Leadership Forum per year
- Convene three to four meetings of Te Amorangi
- Convene meetings of the Early Career Steering Committee as required
- Convene up to six meetings of the Project Review Committee per year to allocate resources from the Flexible Research Programme
- Prepare an annual report

Personnel *

MWC Investigators

Principal Investigators (PI)

Principal Investigators will be appointed as theme coordinators, or as member of the wider theme leadership groups with the expertise to lead specific areas of the MWC research programme or to lead initiatives of strategic importance e.g. co-ordination of the Centre's clinical network. Members of the Directorate are also Principal Investigators. Contribution of Principal Investigators to the Centre programmes will be reviewed internally by the Directorate, concurrently with the mid-term review of the Centre. Recommendations will be provided to the MWC Board for approval, with continuation for years 5-8 being subject to this review. New Principal Investigators will be added at the same time as this review, based on contributions to MWC programmes and projects during the first 3.5 years. We will ensure transparency in gender diversity figures and commitment to altering this to attract more talented female researchers to the MWC as an organization that places high value on a gender diverse workforce as well as research focus that includes women's health.

The initial cohort of Principal Investigators who have served between 2021-2024 includes;

- University of Otago: Professors Antony Braithwaite, Rebecca Campbell, Michael Eccles, Dave Grattan, Debbie Hay, Kurt Krause; Associate Professors James Ussher and Phil Wilcox.
- University of Auckland: Professors Margaret Brimble, Rod Dunbar, Cris Print, Peter Shepherd; Associate Professors Shaun Lott, Rinki Murphy, Adam Patterson and Nikki Moreland
- Victoria University of Wellington: Professors Gary Evans and Emily Parker
- University of Waikato: Professor Vic Arcus
- Malaghan Institute of Medical Research: Professor Ian Hermans

Roles of Principal Investigators may include:

- Being involved in leadership of at least one major MWC research programme or strategic area.
- Line management of MWC research fellow/s
- Participating in the Research Leadership Forum and/or Project Review Committee.
- Additional strategic roles in areas where the investigator has demonstrated scientific leadership.
- Supervision of MWC postgraduate students
- Application to the Flexible Research Programme for support of new projects (eligible for all categories)
- Hosting visiting academics from New Zealand and overseas

- Promotion of the MWC nationally and internationally

Emeritus Principal Investigators (EPI)

Two Emeritus Principal Investigators, Professors Ted Baker and Bill Denny, were appointed as part of the 2021-2024 phase of MWC operation. These investigators were founding Principal Investigators of the MWC and have a wealth of experience in managing large collaborative research programmes. We will continue to use this process to provide a mechanism for some of our senior Principal Investigators to stay involved with the MWC after their roles as active Principal Investigators come to an end. We envision using these investigators to form an internal advisory board, who may be involved in reviewing MWC research programmes and advising the Directorate and Principal Investigators on MWC management matters. They may be directly involved in research programmes, are eligible to attend MWC symposia and workshops and to apply to the Flexible Research Programme. They may also be involved in hosting visiting academics from New Zealand and overseas as well as promotion of MWC nationally and internationally.

Associate Investigators (AI)

The MWC also currently has a cohort of 238 Associate Investigators. These are experienced researchers who make significant contributions to the Centre's research and/or outreach programmes. Associate investigators must be based in New Zealand. They may be self-nominated or nominated by existing AIs or PIs and are appointed by the Directorate based on criteria that include the fit of the nominee's research interests and skills with the MWC research themes, their willingness to collaborate with other MWC investigators, and their capacity for research leadership and independence. The roles of Associate Investigators may include at least one of the following:

- Participation in MWC research and training programmes e.g. career development events for young scientists, and individual mentoring
- Participation in the Research Leadership Forum and/or Project Review Committee
- Line management of MWC research fellow/s
- Supervision of MWC postgraduate students
- Application to the Flexible Research Programme for support of new projects (eligible for all categories)
- Hosting visiting academics from New Zealand and overseas
- Promotion of the MWC nationally and internationally

Affiliate Investigators

The MWC currently has a cohort of over 320 Affiliate Investigators. New affiliates may be self-nominated or nominated by existing AIs or PIs and nominations will be approved by the Directorate. Key criteria are that they are postgraduate or postdoctoral level researchers based at New Zealand institutions with research interests and skills that align with the MWC research themes, that they demonstrate a willingness to participate in MWC activities or programmes and to collaborate with other MWC investigators where appropriate. These investigators may be directly involved in research programmes, are eligible to attend MWC symposia and workshops and to apply to the Flexible Research Programme to support their career development. They may also participate in strategy discussions in relevant research themes and outreach activities as well as in relevant advocacy initiatives.

Clinical Associate Investigators

The MWC currently has a cohort of 38 clinical associates and aims to increase this. They may be self-nominated or nominated by existing AIs or PIs and nominations will be approved by the Directorate. Key criteria are that they are clinicians who are based in New Zealand and are willing to contribute to the development and implementation of MWC research programmes and collaborate with other MWC investigators. These investigators may be directly involved in research programmes and are eligible to attend

MWC symposia and workshops and to apply for the dedicated clinical research pool of funding. They would also be eligible to participate in relevant strategy discussions and advocacy initiatives.

Community Associate Investigators

The MWC will instigate a community associate investigator scheme that will include people that are not necessarily scientifically trained but who have strong interest and/or involvement in research or outreach activities of the Centre. They will be based in New Zealand and may be self-nominated or nominated by existing AIs or PIs with nominations to be approved by the Directorate. Key criteria will be that they are willing to contribute to development and implementation of MWC research or outreach programmes. Examples would include teachers involved in leading schools-based research, persons from patient advocacy groups and from Māori and Pacific community organisations. These investigators may be directly involved in research programmes and are eligible to attend MWC symposia and workshops and to participate in strategy discussions in relevant research themes and outreach activities as well as in relevant advocacy initiatives.

Research Operations Team

The Directorate will be supported by a research operations team that will be led by a Research Operations Manager (1.0 FTE). The team will include a Senior Research Operations Coordinator and up to two Research Operations Coordinators (up to 2.0 FTE) based at the University of Auckland. The team's duties will include providing support to meet all reporting, review and record-keeping requirements, logistical arrangements for meetings of MWC Boards and Committees, support and co-ordination of outreach activities and public communication initiatives, coordinating the teacher professional development programme and financial management in association with the Host and Partner institutions.

Funding is also budgeted (1.5 FTE) to engage specialist staff as required in the area of communications and to oversee and run specific community outreach activities.

Research Staff

Postdoctoral research fellows and research technicians are important members of the MWC research team and will be appointed to carry out research in each of the three main themes of the MWC and to develop capabilities that will be used in MWC research. Postdoctoral research fellows may already be either MWC associate or affiliate investigators or may be new to the MWC.

Postgraduate Students

The MWC plans to support 11 fully funded PhD students and 3 Masters students to undertake interdisciplinary research projects between 2025 and 2028. Scholarships will be allocated through a contestable process.

Collaborating organisations *

- The University of Auckland
- The University of Otago
- The University of Canterbury
- Victoria University of Wellington
- Massey University
- The University of Waikato
- Auckland University of Technology
- Malaghan Institute of Medical Research
- The New Zealand Institute of Plant and Food Research Limited
- Institute of Environmental Science and Research Limited
- AgResearch Limited
- The Cawthron Institute
- The Moko Foundation
- Ngāti Porou Oranga
- Tongan Health Society Inc
- Pacific Health Plus
- Scientific Research Organisation of Samoa

Host and Partner Contributions

The MWC will be a hosted research collaboration embedded within the management structure of the University of Auckland, operating as a separate cost centre and according to a collaboration agreement signed by all Partners. Management of MWC staff, students and project expenditure will comply with the policies and guidelines of the Host and Partner organisations. The Host and Partner institutions will provide access to infrastructure, accommodation, and support services to allow MWC research activities to be carried out within agreed timeframes.

Specific support provided by the Host will include:

- Specialised laboratory space, facilities and equipment
- Access to a suite of tools, services and training (unique within New Zealand), provided by the Centre for eResearch, encompassing computing, research data, analytics and visualisation and extending to high-performance computing (HPC) provided by NeSI
- IT solutions, systems and support
- Research support and services
- Financial support and services
- Legal services
- Human resource policies, systems and support

Financial Management Systems

The University of Auckland operates financial management systems designed to ensure that transactions are captured completely and accurately and are reported in the correct financial period in accordance with the accounting policies and practices adopted by the University which are in compliance with International Public Sector Accounting Standards (IPSAS) as applied in New Zealand. The University's financial statements and internal controls are subject to review by both external and internal audit.

These systems will enable the University to prepare the relevant financial information necessary to fulfil the reporting requirements of the TEC. The financial reporting, analysis and insight will also provide to the Board and management the information to enable informed decision making. The CoRE will agree with collaborating institutions and organisations the protocols and assurances required to support the consolidation of financial

data from these organisations with the data from the Host to prepare financial information of the CoRE as a whole.

Capital equipment and specialised facilities

In addition to fundamental resources MWC investigators also have access to specialised research resources provided by the Host and Partner institutions at academic rates. Major facilities are primarily overseen by highly trained managers familiar with all operating requirements. MWC investigators also have established linkages to major international facilities, e.g. the Australian Synchrotron, which further expands access to cutting-edge technologies and expertise to support the MWC research programme.

Purchase of new capital equipment

The MWC will work with both its Host and Partner institutions to enable the purchase of new capital equipment necessary for advancement of the MWC research programme.

The MWC will continue to support the purchase and use of significant capital equipment through its Specialised Facility Access scheme, which funds equipment user charges on a competitive basis. This scheme allows MWC investigators from any institution to request funding to access equipment across New Zealand. This scheme also co-ordinates access to specialised technical capabilities nationally across the network, by compiling and maintaining a database of specialised facilities across the Host, Partner and collaborating institutions and making this available to all MWC investigators. Where investigators need to travel to use equipment at another institution, the scheme will cover these travel costs. This scheme will not only enable higher productivity from using the available facilities nationally but will also provide an additional funding source for institutions to consider when purchasing high value equipment.

Funding

The primary aim of the MWC is to foster interdisciplinary collaborations between New Zealand scientists and build scale in the area of biomedical science. In achieving this aim the MWC realises it has limited resources and to maximise our impact we will help to develop of projects to the stage where they can also secure competitive funding from public good, charitable or commercial sources to further their development. The MWC will also use the CoRE funding to strategically enhance projects funded from other sources, where they are in alignment with MWC themes and goals, thereby making the research programme more valuable than the sum of its parts.

Budget *

The budget for 2025-2028 is detailed in the table below.

A surplus of $6.4M is expected from MWC operations up to the 31st December 2024. The MWC research, capability and outreach programmes experienced significant Covid related delays over 2021 and early 2022. Of the total budget for 2021-2024, 94% is committed for use with allocation of the remaining 6% currently under consideration to meet the needs of the Centre in 2025. In line with permission granted by the TEC, the majority of this surplus ($6.12M) is forecast to be spent down by the end of 2025 with the balance being carried forward, primarily to support ongoing PhD student projects ($236K) in 2026/2027 and two research projects that are due to finish in early 2026 ($35K).

The overall expenditure to 2023 and forecast expenditure to 2028 is shown in the supplementary table submitted with the 2025-2028 plan 'MWC 2021-2028 budget and forecast as of June 2024'.

		2025	2026	2027	2028	2025	2026	2027	2028
		$000	$000	$000	$000	FTE			
Income									
	CoRE Funding	6,200,000	6,200,000	6,200,000	6,200,000				
Expenditure									
Salaries	**Total Salaries & Salary-related costs**	**1,995,128**	**2,020,076**	**2,069,188**	**1,422,416**	**18.81**	**18.81**	**18.81**	**12.06**
Other Costs									
Indirect Costs	Overheads	2,113,253	2,152,763	2,192,454	1,511,127				
Direct Costs	Project Costs	1,758,400	1,753,400	1,758,400	1,317,235				
	Travel	357,500	324,500	357,500	309,500				
	Postgraduate students	438,196	445,863	453,662	103,053	11.00	11.00	11.00	3.00
	Total Other Costs	**4,667,349**	**4,676,526**	**4,762,016**	**3,240,915**				
Total CoRE Expenditure	**Total Expenses**	**6,662,477**	**6,696,602**	**6,831,204**	**4,663,331**	29.81	29.81	29.81	15.06
	Surplus/(Deficit)	**-462,477**	**-496,602**	**-631,204**	**1,536,669**				

Risks and Mitigation *

Identified risks and associated mitigation plans are specified in the template below.

Risk	Likelihood[1]	Potential impact[2]	Risk[3]	Mitigation plan in place
Loss of key leadership *MWC principal investigators may leave the CoRE either through retirement or to take up other career opportunities.*	4	2		**The centre is engaged in active recruitment and mentoring of the next generation of science leaders, and succession planning for MWC Principal Investigators** ● The MWC will continue to actively recruit new investigators who have capabilities of relevance to the MWC research programme and want to collaborate in a multi-disciplinary environment, extending the breadth of research expertise within the MWC investigator membership ● The Director and Deputy Directors are involved in routine management of the MWC. This ensures that institutional knowledge is shared between all members. ● The membership of the new Research Leadership Forum includes both existing and new principal investigators as well as associate investigator representatives. This enables both continuity with the previous MWC leadership group as well as development of new leaders. Membership of the principal and associate investigator members of the forum (with the exception of the Director and Deputy Directors) will be refreshed on a regular basis allowing a larger group of MWC investigators to gain leadership experience within the MWC.
Inherent risks in discovery of new therapies, diagnostics and vaccines. *New drug, diagnostic and vaccine candidates may fail at any point along the development pathway and not reach the clinic*	3	1		**A pipeline of drug, diagnostic and vaccine candidates will be developed, over a range of applications, to avoid having all our efforts directed to one particular candidate** ● MWC academic outputs continue even if translational project and clinical trials fail to progress to drug market ● MWC involves clinicians in research projects to increase relevance of research to clinical practice and will be advised by a Clinical Advisory Board ● MWC diversifies the research programme over 3 research themes and subthemes within these in order to mitigate the risk of major failure in any one programme ● MWC investigators will work closely with their institutional technology transfer offices on individual projects to develop pathways to commercialisation.
Capital equipment may become obsolete *Access to highly specialised scientific equipment is vital to maintain a world class research and training*	3	5		**International engagement will ensure that we are aware of current technology and new opportunities. As existing equipment is depreciated we will advocate for purchase of new state-of-the-art equipment from institutional funds.** ● MWC will use knowledge gained from international experts visiting New Zealand, international collaborators,

programme. Capital equipment can quickly become obsolete in areas where technology is advancing at a fast pace				scientific literature and from MWC investigators travelling overseas to conferences to maintain awareness of new technologies ● MWC investigators will work with Host and Partner institutions to replace equipment that has reached the end of its lifetime with suitable modern equipment ● The MWC will provide an expanded national programme to support the use of highly specialised scientific equipment
Financial risk - CoRE funding is flat-line and will lose value *The annual MWC allocations of CoRE funding as granted are flat-line and therefore do not allow for increased annual costs, particularly the increased cost of research staff salaries per year. As costs increase the MWC funding may not be able to support the same number of projects and research staff as the previous year.*	5	2		**The MWC budget has been structured to allow for increases in salaries and associated costs over the 2021 to 2028 period of the CoRE grant.** ● MWC investigators will seek opportunities to leverage MWC project funding by securing funding from other sources
Financial risk - Risk of Fund underspend *The MWC may not spend all the CoRE funding allocated to it within the contract period ending 31st December 2028*	1	3		**The budget is structured so that there is a zero balance at the end date of the funding contract (31st December 2028).** ● Expenditure will be monitored on a regular basis to identify significant variations from budget and appropriate plans put in place to re-allocate any underspent funding as required
Financial Risk - Loss of CoRE funding *Loss of CoRE funding may result in the MWC not being able to meet contractual commitments to staff and post-graduate students and research projects that have not been completed may need to be terminated prematurely.*	1	5		**The MWC will not enter into any contractual commitments with end dates beyond any current CoRE contract with the TEC, unless these are underwritten from another funding source** ● Projects in MWC research programme will be monitored and managed to ensure end dates are met wherever possible to mitigate the risk of incomplete research projects
Key collaborations may run into disputes or other difficulties *The MWC research programme includes projects and activities involving investigators at several*	1	3		**Mitigated by active governance and by having agreements with all partner and collaborating institutions and sub-contracts in place for all research projects based at collaborating institutions.** ● Sub-contracts are put in place for all specific research projects based at collaborating institutions, describing the terms and conditions of the project and expected research

collaborating institutions and these relationships are key to the success of the MWC				milestones and the expected reporting framework against which performance of research staff and students will be measured ● Relationships between the MWC and the Host and collaborating institutions are monitored by the MWC Directorate and any difficulties reported to the MWC Board ● A collaboration agreement between the Host and Partner institutions setting out the terms and conditions of collaboration will be activated on the 1st July 2021. ● The MWC will operate a dispute resolution process to address any issues associated with governance, management and the research programme including intellectual property
Difficulties may arise with management of a large research team *The MWC research programme will involve a large research team with staff and students located at several institutions across New Zealand, which carries a risk of difficulties in managing this team.*	3	2		**Mitigated by delegation of operational management of research staff and students to their host institution and delegation of scientific management to project leaders who are required to report progress regularly to the management committee and MWC Board.** ● Research staff will be employees of their host institution and will be managed according to the policies of that institution ● Students will be enrolled to study through their host institution and will be managed according to the policies of that institution ● Sub-contracts or agreements are put in place for all research projects, staff and students funded through the MWC research programme. These will describe the terms and conditions of the project including the expected research milestones and reporting framework against which performance will be measured as well as any additional expectations i.e. participation in MWC events. Project leaders will be expected to report on progress regularly to the MWC Director and Management Committee to ensure any difficulties that arise are resolved ● The MWC Board and Management Committee will ensure that appropriate governance and management processes are in place to manage the research team.
Conflicts of interest *MWC board members, committee members and investigators have a broad involvement in New Zealand science as well as the MWC and this may raise real and perceived conflicts of interest.*	3	2		**Mitigated by having a process for the notification and management of conflicts of interes**t ● The MWC will form and annually update a register of interests, for all investigators with decision-making mandates and for board members ● MWC members will not take part in decisions that may be seen to advantage or disadvantage themselves or those in their immediate research spheres

Poor Reputation with Māori and Pacific entities *Specific activities are required to develop a positive reputation and build confidence that MWC4.0 will deliver outcomes and conduct its activities in a culturally appropriate manner.*	2.5	4		**Specific strategies will be developed with both Māori and Pacific Peoples by MWC to mitigate/eliminate risks. This will include:** ● Maintain at least two Māori Board members ● Commit to Māori representation at all levels of MWC leadership, and also indigenous representation on the board ● Establish a Māori researchers roopu that has a direct line to advise the Directorate and MWC Board ● Appoint Pacific Board members if recommended as part of MWC Pacific Strategy ● Define specific mechanisms for governance of Māori data and resources that are consistent with tikanga-informed frameworks, Te Tiriti o Waitangi, and the MWC Māori Engagement Strategy ● Define specific mechanisms for governance of Pacific data and resources that are consistent with Pacific research models ● Ensure narratives arising from research activities take into account cultural appropriateness ● Develop and implement training of researchers (and Directors) in cultural competencies ● Be cognisant of relevant national Māori and Pacific health strategies ● Develop additional relationships with Māori and Pacific health providers
Lack of recognition of the value of the Maurice Wilkins Centre by the politicians and people of New Zealand *Many of the research projects supported by the MWC involve basic scientific discoveries that while significant, may take many years of further development before being used in the treatment of humans with disease. It is often difficult for non-scientists to recognise the value of this research*	3	1		**A communications strategy will be developed to improve communication and liaison with target audiences in New Zealand.** ● As well as traditional media approaches, co-ordinated by a professional communications specialist, the MWC will exploit additional internet-based communication channels, led by MWC investigators experienced with these media ● MWC members will also be encouraged to seek opportunities to speak to non-scientist audiences to further promote their own research and the research and capabilities of MWC ● The secondary schools programme will be continued, and feedback from the programme used to adjust the communications strategy, including developing opportunities to communicate with students, teachers and parents at the same fora

[1] **Likelihood** *(scale 1-5, 5 being highly likely)*

[2] **Potential impact on the CoRE** (scale *1-5, 5 being a major impact)*

[3] **Risk** *(determined from likelihood and potential impact, as low (green), medium (orange), high (red))*

6. Engagement by the Maurice Wilkins Centre with end-users and stakeholders

Outcomes

- Development of better ways of treating disease using inter-disciplinary and inter-institutional collaborations, biomedical and translational research, and facilitating clinical trials supported by relevant diagnostic biomarkers
- A new generation of Māori and Pacific researchers in biomedical sciences to lead future activities with these communities who can collaborate safely with culturally aware tauiwi researchers
- Validation of new drug targets, development of new drugs or strategies for using drugs, development of diagnostics and vaccines and the development of clinical trials to test efficacy of such strategies
- Promotion of a greater understanding of biomedical science in the New Zealand community, particularly in schools and Māori and Pacific communities

Engagement Plan *

Involvement of Stakeholders

To identify areas of research focus, the MWC works closely with key stakeholders and will involve them in the major forums of the Centre. Key to this is engagement with practising clinicians, patients and communities, particularly Māori and Pacific communities. Māori and Pacific communities will also be engaged through direct research partnerships and collaborations such as those already piloted by the Centre. Together this will ensure the MWC will continue to address research questions that are of major importance to maintaining the wellbeing of New Zealand communities. The Centre will also fund community engagement programmes to share the scientific knowledge we have gained so as to garner societal support for the ongoing research. The two foci here will be on Māori and Pacific community engagement through marae-based hui, and a programme to engage with schools across the country.

Translation of Research Findings

Translational of research into meaningful benefits for society requires a range of factors. One is the support and engagement of the affected communities and patient groups involved. A second is the input of clinicians to participate in research design, clinical research studies and development of clinical trials. The third is the specialist scientific and commercial skills required for the clinical development of human therapeutic products. The MWC brings together all these factors.

To engage with affected communities the MWC will expand its programme of engaging with patient advocacy groups and with Māori and Pacific communities going forward. The purpose of this will be both to seek input on the design and running of research studies and to feedback results of research. One important conduit for engagement with Māori and Pacific Peoples will be through Māori and Pacific organisations directly involved in the research. Currently this includes Waharoa ki te Toi/The Moko Foundation, Pacific Health Plus, the Tongan Health Society and a joint research centre with the Scientific Research Organisation of Samoa in Apia. The Centre will actively seek to increase this cohort of partners. The MWC Kaiārahi Māori has a primary role to support engagement with Māori communities. They will also support cultural upskilling of MWC investigators to ensure they are well equipped for interacting with Māori communities, explain opportunities for translational outcomes from the research to Māori communities, advise on cultural issues relevant to

MWC research projects and play a valuable role in instigating and running the various hui and educational programmes that the centre will support.

The MWC will focus on inclusion of clinicians with expertise in oncology, infectious disease/immunology, metabolic diseases (including diabetes, obesity, PCOS, renal disease, cardiovascular disease and gout). In addition to involvement of research active clinicians in the main body of the MWC membership, individual clinicians who may not have research experience but a wealth of clinical experience will be engaged through the Centre's Clinical Associate membership category. This provides access for clinicians who have been less directly involved in research to have input into MWC research design through attendance at meetings, forums and research support. Importantly, dedicated funds for clinicians in the responsive funding will allow them to apply for funding for their own new research ideas that could in turn inform wider research in the Centre. The MWC research programmes also involve current or future collaborations at the institutional level with important health care providers. In addition to the direct inclusion of specific expertise in research programmes, the MWC will use this mechanism to create a forum for all of clinicians associated with the Centre to advise MWC researchers on clinical research, to formulate new research strategies, and to identify opportunities for a combined national level advocacy voice across different disciplines on important issues.

7. The role of the Maurice Wilkins Centre at a national and international level

Outcomes

- Development of better ways of treating disease using inter-disciplinary and inter-institutional collaborations, biomedical and translational research, and facilitating clinical trials supported by relevant diagnostic biomarkers
- Development of young scientists who have skills in a broader range of experience and mentorship than would traditionally have been available
- A new generation of Māori and Pacific researchers in biomedical sciences to lead future activities with these communities who can collaborate safely with culturally aware tauiwi researchers
- Validation of new drug targets, development of new drugs or strategies for using drugs, development of diagnostics and vaccines and the development of clinical trials to test efficacy of such strategies
- Enhancement of the scientific partnership between New Zealand and other nations that leads to increased opportunities for New Zealand researchers

National networks *

The MWC aims to understand the complexity of the causes of diseases and make progress towards developing new therapeutic strategies. This goal is greatly accelerated using a multidisciplinary, collaborative approach that brings together the best available teams of researchers. The MWC comprises a national network of >600 researchers and clinicians including many of New Zealand's best biomedical and clinical researchers from across the country. The Centre also has extensive expertise in the skills required to translate the research findings through the experience of its members and through contacts with commercialisation organisations and companies. The network spans a wide range of disciplines and fosters the collaborative development of these through funding of interdisciplinary scholarships and projects, and through supporting researchers with key research capabilities with specific FTE to enable them to commit time to share their skills with others in the network. The MWC network makes a valuable contribution to the overall research capability of the eleven leading research institutions as well as six different clinical organisations linked with the Centre. The MWC leverages this network to foster the development of ambitious, large-scale, multi-disciplinary research programmes that focus on health issues of major importance to New Zealand and that deliver research outcomes that will be considered excellent at an international level. The overarching aim is to harness the best of New Zealand's biomedical and clinical research capability to collectively deliver meaningful improvements in health outcomes for New Zealanders. The MWC will have a particular focus on addressing areas where Māori and Pacific Peoples suffer disparities and inequities.

Maintaining research capabilities

Research in different projects and disease theme research programmes of the MWC often requires the use of the same advanced expertise and technologies. Pockets of expertise of such capabilities exist across New Zealand but are not always readily accessible at all institutions or to all investigators. MWC research will thus benefit from efforts to support and develop such capabilities and make these more widely accessible to MWC researchers. Therefore, where appropriate, the MWC will allocate specific FTE funding to researchers who have expertise in capabilities that span across the different themes of the Centre, to enable them to have the time available to share their expertise supporting other researchers. These researchers will act as a points of contact for other MWC researchers needing access to these capabilities, to ensure appropriate safeguards are in place as required by communities and to ensure these capabilities are continually updated to be at the international cutting edge. The MWC will provide resources to support and develop these capabilities. In addition, we will support symposia, workshops and training sessions where required to ensure the wider

MWC network is able to benefit from technological advance. This will also have significant benefits for the New Zealand University research sector as a whole.

Key forums of the Centre

A key point of difference of the MWC is that it provides a unique nationally-integrated network of over 600 biomedical and clinical researchers from different disciplines and different institutions. This provides New Zealand with a unique vehicle to rapidly and effectively tackle big picture health issues of importance to the country in an integrated way. The MWC will continue a range of current and new mechanisms to ensure this network thrives and to actively foster the development of new ideas and collaborations that harness the capabilities of the network. To allow engagement from the wider membership the MWC will run the following events that will update investigators on progress of the Centre's activities and allow investigators to showcase their own research as it relates to the MWC as well as actively develop new ideas for collaboration and research. These will also provide an opportunity for the wider membership and wider New Zealand society to have input into the direction of the Centre.

- Annual meetings will be held for each disease theme area and for the outreach activities that will involve MWC researchers involved in these areas. To ensure the research links well to the needs of society these meetings will also include clinicians, representatives from patient advocacy groups and from Māori and Pacific communities.
- A more general annual symposium will be held giving a broader overview of the Centre's progress and to discuss its interaction with society. This will also be open to interested parties outside the Centre including patient advocacy groups, community groups, Māori and Pacific representatives and government agencies.
- A specific Emerging Researcher's Forum will be held and will showcase the next generation of researchers.
- On an as-needs basis workshops will be held that bring together MWC researchers across the country to discuss important topical health challenges facing New Zealand. This will provide a united and coherent voice in developing new research strategies for the Centre and also provide a united voice in advocacy to government and society in relation to policy relevant to important health issues.
- To engage directly with Māori and Pacific communities the MWC will also continue to run an active programme of hui and fono based at marae and in the community.

The MWC will consider gender balance and involvement of under-represented groups in planning programmes for all Centre forums.

International networks *

International collaborations are a very important means for MWC researchers to access research capabilities that are not available in New Zealand. The researchers in the MWC network have extensive international collaborations with more than 120 institutions in over 30 countries. Important ongoing collaborations relevant to the MWC's research are detailed in the research programmes described above.

The MWC will fund visits by international science leaders to give seminars and to discuss research collaborations where they are important for MWC activities. The visitors will be required to travel to more than one site in New Zealand to increase impact and cost effectiveness of such visits.

A major issue for New Zealand researchers has been the inability to fund the costs of accessing facilities that are only available overseas. The MWC will fund access to facilities overseas where that access is crucial to MWC research. To gain further benefit from such interactions the MWC will require those funded in this way to provide a plan as to how they will disseminate the knowledge from their visit through the capability clusters.

While MWC researchers individually have good research links in many countries, cultural and systems issues are a major limiting factor in developing collaborations in some countries. The MWC has a focussed scheme to specifically develop research collaborations in countries where collaborations would normally be difficult and where these have a significant advantage for New Zealand.

One area is to develop research links with countries in Polynesia as these countries are directly relevant to Pacific communities in New Zealand and share many of the same health issues so joint research programmes will be mutually beneficial. This will also assist in the development of scientific research capacity in these countries. The MWC has already established a joint research Centre with the Scientific Research Organisation of Samoa in Apia and this is being expanded to include the National University of Samoa. Further developing these links will be discussed as part of developing our Pacific strategy, in 2024.

The MWC has piloted a scheme to overcome cultural barriers focussing on building collaborations with China. This has resulted in the development of ten funded collaborations between New Zealand scientists and researchers in the Chinese Academy of Science Institutes or Chinese universities. These collaborations in Shanghai and Guangzhou would not otherwise have occurred without MWC support. It has also resulted in the establishment of the "National Joint International laboratory on novel drug development" between the MWC and the Guangzhou Institute of Biomedicine and Health (CAS) and the "National Joint international laboratory on modernization of traditional Chinese Medicine" between MWC and Jinan University. This has resulted in the development of the first joint China-New Zealand patent filing in the drug discovery area and introductions made by this scheme have resulted in the first ever availability of CART cell therapy in New Zealand through a new clinical trial led through the Malaghan Institute. The MWC has also become a focus for China-New Zealand science collaborations and has regularly been included in visits to New Zealand by senior Chinese political delegations. The success of the MWC in building and maintaining collaborative relationships with Chinese colleagues resulted in the MWC securing independent funding in 2019 through the Catalyst Strategic fund, run by the Ministry of Business, Innovation and Employment. The aim of the China-Maurice Wilkins Centre Collaborative Research Programme is to support scientific collaboration in areas of cancer, metabolic, infectious, neurologic and degenerative disease.

Commercialisation

The first stage of translation is the development of drugs from academically interesting projects through a process of pre-clinical development to identify drugs and vaccines that have true potential to be clinically useful. The MWC network has extensive expertise in the specialist pharmacological techniques (e.g. pharmacokinetics and pharmacodynamics). MWC researchers have extensive experience in successfully patenting discoveries and commercialising therapeutics. The MWC will aim to make these capabilities available to the wider MWC network to enable development of products with therapeutic and commercial potential. It will also assist Māori organisations involved in developing therapeutic products.

Intellectual property

Ownership of IP

Project IP will be owned by the Party or Parties (MWC Host and/or Partner institutions) carrying out the research from which the IP arises, who will be responsible for protection, management and commercialisation of the IP.

Jointly created IP shall be assigned to one Managing Party (by agreement between the parties involved in its creation) who will be responsible for protection, management and commercialisation of the IP. (In this document, "Managing Party" is used to mean the Party who either owns Project IP from creation or is assigned the Project IP by one party by mutual agreement.) Generally, the Managing Party will be the Institution which is best placed to create value from the IP and/or with any firm or firms involved in the project. Benefits will be shared between the creating partners (after costs of commercialisation have been deducted) in shares reflecting the relative input to the IP, including Background IP and know how provided, inventorship and commercialisation and after recognising the different risk profile of the Managing Party. If the Parties involved in the joint creation of Project IP are unable to agree they shall use the dispute resolution clauses to resolve the matter.

Parties will report all Project IP to the Director, who will keep a log of Project IP for reporting purposes.

Where Project IP is developed in collaboration with co-funders/industry partners, it is expected that the Parties involved will enter into appropriate agreements to:

- ensure IP is developed in a manner that will advance the purposes of the CoRE, and
- agree commercialisation and revenue sharing

Project IP will be made available to all parties for the purposes of the Research Programme and other non-commercial research.

The Parties will ensure that any applications for the protection or commercialisation of New IP disclose the origin of the Mātauranga Māori, Tāonga Works and Tāonga Species if relevant to the application.

Article 2 of Te Tiriti affirms the protection of Māori data through the acknowledgement that data about, from or for Māori is considered as a "tāonga or treasure", therefore subjecting it to ownership and control under a Māori world view. We will develop and implement policies that reflect Article 2 as well as best practice internationally when it comes to managing intellectual property.

IP Protection

Protection of Project IP shall be the responsibility of the Managing Party.

Commercialisation/end user engagement

The underlying purpose of the CoRE is to contribute to the future development of New Zealand. It is expected that commercialisable Project IP may be directed to the Commercialisation Partner Network (Kiwinet and/or Return on Science) for advice on the best route for commercialisation, including whether the IP should be:

- made available to stakeholders for no additional fees other than covering costs of IP protection,
- made available for licence on normal commercial terms, or
- publicly disseminated.

The Managing Party shall consider any such advice but is not bound by it.

An IP owner and Managing Party may have antecedent agreements for how IP needs to be dealt with and in the event of any conflict, antecedent agreements will prevail.

Progress on commercialisation or translation or implementation plans shall be reported annually to the Director(s), Research Leadership Forum and MWC Board for further feedback and for the purposes of reporting outcomes to the TEC.

Post contract reporting may also be required to provide TEC with information on subsequent impacts and the Parties shall maintain sufficient information to support such reporting.

Background IP

Background IP is owned by the Party which provides it. Parties will grant a license of relevant background IP to each other to the extent that they are able, for the purposes of the Research Programme. Use of Background IP for commercialisation of Project IP shall be by agreement between the relevant Parties.

Health impact

A major goal of the MWC is to accelerate the development of new knowledge about mechanisms driving a range of diseases of importance to this country. We will empower our extensive collective expertise in the development of therapeutic advances by linking with rapidly developing networks of clinical researchers to translate these into new patient-centric approaches to prevent, diagnose or treat the target diseases. The health impact will be improved health care and better long-term health outcomes for New Zealand patients, especially Māori and Pacific patients and their whānau leading to elimination of Māori health inequities.

The New Zealand therapeutics industry grows through demonstration that new drugs, diagnostics and vaccines can be taken from discovery to clinical trials from within New Zealand (and ultimately globally), accompanied by growth in the investment and performance of this industry in New Zealand. Development of an entrepreneurial acumen within the New Zealand workforce through promoting translational research in biomedical research, with significant growth in Māori and Pacific research leadership and participation. These outcomes will benefit the New Zealand economy through formation of biotechnology companies and out-licensing of discoveries leading to better health impacts through greatly improved drugs, diagnostics and vaccines.