



RANDWICK HEALTH &
INNOVATION PRECINCT

The future of lifelong health

INDUSTRY PROSPECTUS





CONTENTS

Welcome	04
Introduction to the Randwick Health & Innovation Precinct	05
RHIP Features	06
Randwick Health Innovation Network	07
Strategy on Industry Partnership	08
Interconnections	09
Co-location Opportunities	10
Capabilities	12
Neuroscience, Mental Health and Drug and Alcohol Disorders	13
Cancer	14
Digital Health	15
Genomics and Personalised Medicine	16
Medical Devices	16
Clinical Trials	19
The Kirby Institute	19
UNSW RNA Institute	19
Fertility & Research Centre	19
Surgical & Orthopaedic Research Laboratories (SORL)	19
Commercialisation Support	20
Facilities and Services	20



ACKNOWLEDGEMENT OF COUNTRY

Randwick Health & Innovation Precinct partners acknowledge the Traditional Custodians on whose land the Precinct stands and pay respect to the Bidjigal and Gadigal peoples who traditionally occupied the Eastern Suburbs Coast.



WELCOME

When our children come to reflect on the history of the global pandemic, perhaps the most redeeming and abiding story will be the worldwide effort to isolate and understand the causative virus, research ways to combat and control infection and translate those intellectual concepts into tangible commercial products, like point of care diagnostics and vaccines, that saved millions of lives.

While necessity may be the mother of invention, the midwives of invention are many, forming a complex network of expertise and infrastructure, with individual clinicians and fundamental researchers at one extreme and companies and governments at the other.

The Randwick Health & Innovation Precinct (RHIP) is a microcosm of that worldwide ecosystem, seeking to grow and develop our capability to improve lives and, indeed, save lives through translational medical research and industry collaboration.

RHIP is committed to engaging with our partners to deliver social progress and economic prosperity, generating impact and mutual benefit. Our dedication to establishing the critical elements of an innovation ecosystem underpins our Precinct development, creating future industries in health and clinical translation.

This document highlights RHIP from an industry perspective and presents a snapshot of the expertise, infrastructure and services we can provide, the mechanism for engagement and the benefits of collaboration and co-location.

As you read this Industry Prospectus, we encourage you to consider how we might work together towards our common goals, a healthier and more prosperous Australia, and a better world for our children.

Michael Still
Precinct Council Chair

Brooke Griffin
Executive Director



INTRODUCTION TO THE RANDWICK HEALTH & INNOVATION PRECINCT

RHIP's Innovation Partners: The four founding partners of RHIP, UNSW Sydney, South Eastern Sydney Local Health District, Sydney Children's Hospitals Network, underpinned by NSW Government's Health Infrastructure, are joined by fourteen medical research institutes and centres. The organised collective provides a rich ecosystem of clinicians, patients, researchers, professional staff, students, infrastructure and services that has a central focus in Randwick, but is also embedded in the local, national and international health science networks through all of the affiliations the Precinct maintains.

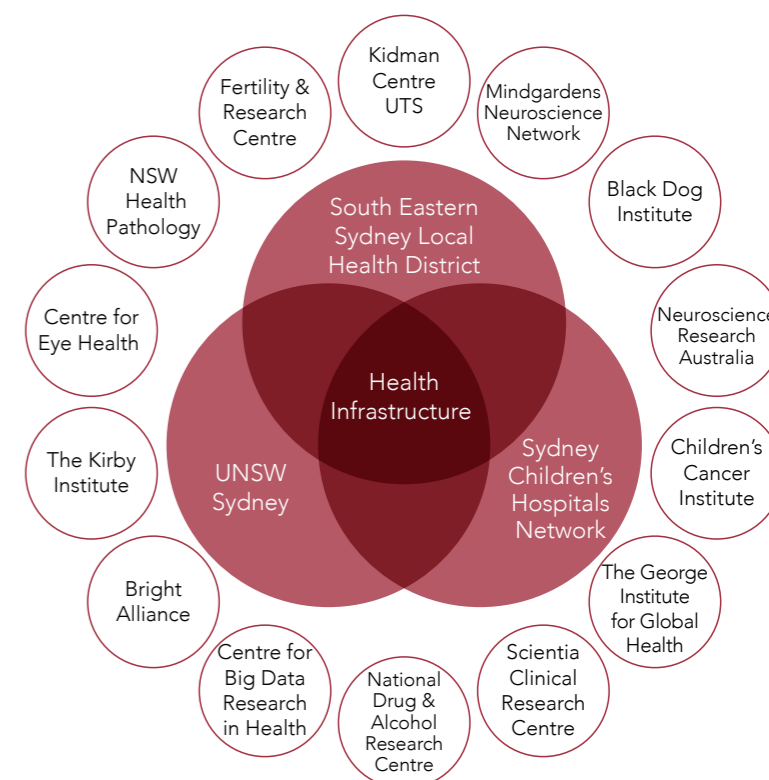
The Investment

The NSW Government has committed to develop Randwick as a liveable, productive, equitable and sustainable economic precinct. As part of NSW's innovation precincts, RHIP will play a key part in the state's COVID-19 Economic Recovery Plan to harness the lessons learnt during the pandemic and to build a more resilient and self-sufficient economy.

Over \$1.5 billion is being invested by state and federal Government, UNSW and philanthropic donors to strengthen health, research, education and innovation outcomes of the precinct. This will deliver a new Prince of Wales Hospital Integrated Acute Services Building (\$780m), including integration of UNSW health-related education, training and research spaces; the redevelopment of the Sydney Children's Hospital, Randwick including Australia's first Children's Comprehensive Cancer Centre (\$658 million); and the UNSW Health Translation Hub (\$250 million).

"Partnership, collaboration and co-location will create a crucible of ideas where unmet medical needs are identified, potential solutions are formed, tested and forged into life-changing and life-saving technologies."

Tobi Wilson,
Chief Executive, South Eastern Sydney Local Health District





RHIP FEATURES



Group of Eight university adjacent to major teaching hospitals and medical research institutes



UNSW one of the world's top 50 universities



Cutting edge research infrastructure and services



Industry co-location opportunities providing laboratory and office space



High quality talent pipeline for internships and employment



58,000+ students



1.8M patient encounters per year



9 medical research institutes



17,000 employees



Australia's first Children's Comprehensive Cancer Centre opening in 2025

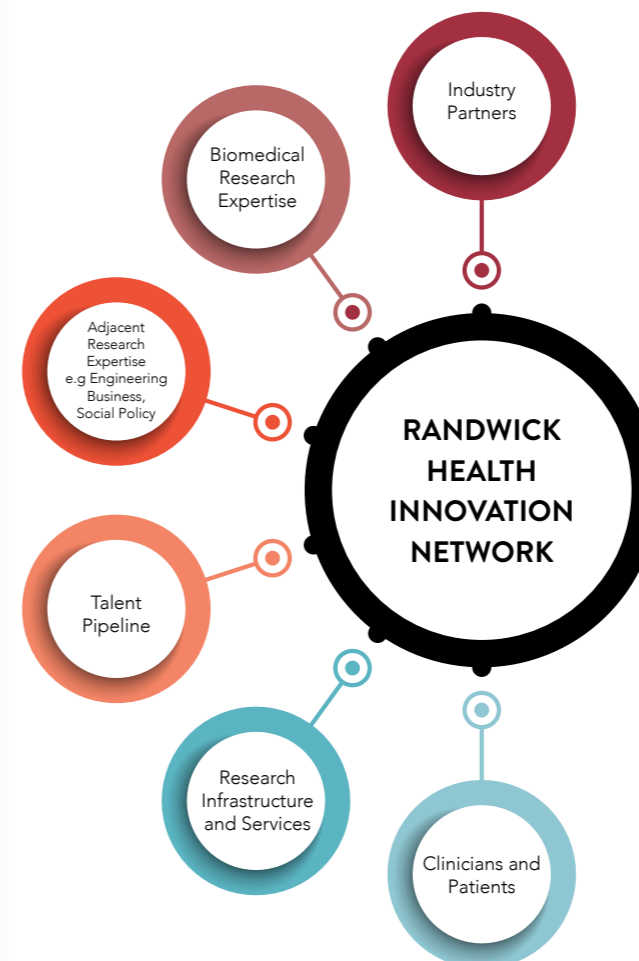


40% of all jobs within the Randwick Local Government Area are within health and education

RANDWICK HEALTH INNOVATION NETWORK

Our vision is to create a health-focused **Innovation District**, defined by the Brookings Institute (a nonprofit public policy organisation) as a *geographical area where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators and accelerators.*

We call this the **Randwick Health Innovation Network (RHIN).**



The Randwick Health Innovation Network (RHIN). The close interface between the research capability of the university and the healthcare environment provides an emphasis on the early stages of the innovation cycle and RHIN is committed to becoming a centre of ideation and invention for health technology.



How to do Business with RHIP

Begin the conversation: get in touch with Steve Palmer, our Industry and Innovation Lead (s.palmer@unsw.edu.au)

A variety of opportunities exist for access to new technology, IP licensing, contract research, consultancy work, collaborative grant applications, co-location on RHIP real estate and use of the extensive facilities and services, explored in the Capabilities section below.

We will initially explore the specific opportunities you are interested in and put you in touch with the appropriate subject matter experts and service providers to begin ideation and scoping.

No upfront commitment is required, and we will execute non-disclosure agreements to protect your background IP and confidential business plans during the discussions.

“Our mission is not just to understand the mechanisms that cause diseases but to find new ways to combat them. Industry partnership is one of the most efficient and effective ways we can convert world class research into worldwide impact.”

Professor Ian Jacobs,
President and Vice-Chancellor,
UNSW Sydney

STRATEGY ON INDUSTRY PARTNERSHIP

RHIP services and supports the entire lifespan with leading adult and children’s teaching hospitals, a cluster of medical research institutes and centres and a Go8 university within its community. UNSW’s history is steeped in a rich association with medicine, applied science and engineering with broad capabilities in adjacent disciplines such as social policy, law, business, social sciences and the arts.

These differentiating characteristics facilitate:

- a very broad and deep research capability
- an abundant talent pipeline that can be tapped for internships, progressing to skills development and employment opportunities
- a strong focus on bioengineering and biotechnology with abundant expertise and experience in the development of novel medical devices.

Consequently, RHIP is a centre for ideation and invention of new technologies. It accelerates translation to deliver improvements in health and medicine.

Our aim is to partner with companies who share a similar vision. Together, we will boost our capability to develop relevant commercial products with a clearly defined pathway to market.

To create the right environment for industry partnership, we aim to:

- **Simplify engagement:** we recognise it can be difficult to work and communicate with large institutions. We aim to provide a single door entry concierge approach for new business and clear mechanisms and communication pathways to facilitate and maintain ongoing relationships.
- **Create a sense of belonging:** RHIP seeks to provide a home for your business and a supportive community environment.
- **Increase the luck surface area:** for your business by insertion amongst a rich and varied clinical and research ecosystem.
- **Add value:** provide all the expertise, facilities and services you need to conduct your research and development work.

- **Cultivate open innovation:** the modern concept of agile, adaptive team structures tailored to project need.
- **Streamline intellectual property management:** we will establish clear boundaries for intellectual property ownership and sharing that maximise the opportunity for new technologies to reach the marketplace with the minimum of impediment. Creating competitive advantage and success for our industry partners is a guiding RHIP principle.
- **Enhance funding and investment opportunities:** public and private funding agencies recognise and reward collaborative research that is built on strong, multidisciplinary team structures incorporating clinical expertise, research quality and commercialisation skills, with access to the right tools, cutting-edge equipment, and infrastructure. The Precinct partners have a strong track record in attracting collaborative grants and a wealth of expertise in the assembly of compelling applications through UNSW’s Division of Research and Enterprise.

INTERCONNECTIONS

Although RHIP aims to become a vibrant, geographically located, health-dedicated innovation district, it is not circumscribed by that definition. It is interconnected in multiple ways. SESLHD has hospitals in Sydney CBD, Kogarah, Waverley and Sutherland. SCHN’s network combines the Children’s Hospitals at Randwick and Westmead. UNSW is a major partner of the Liverpool Innovation Precinct and is part of the NUW Alliance with the Universities of Newcastle and Wollongong. NSW Health Pathology Departments located at RHIP are nodes of a NSW statewide service.

Health precincts at Randwick, Camperdown, Westmead, Liverpool, Darlinghurst, Macquarie, and John Hunter are aligning their individual strengths to develop a state-based academic health science network. SESLHD, SCHN, UNSW, Children’s Cancer Institute, Centre for Eye Health, NeuRA and the Black Dog Institute all belong to Maridulu Budyari Gumal, The Sydney Partnership for Health Education Research and Enterprise (SPHERE). UNSW is a joint shareholder in Australia’s leading deep technology incubator, Cicada Innovations.

For collaborating industry partners, these few examples illustrate that RHIP is not just the sum of its named institutions. It is part of, and a portal into, the global health innovation ecosystem.

CO-LOCATION OPPORTUNITIES



“Randwick’s strong collaborative partnerships allow us to leverage investment from multiple parties, provide better health outcomes and build a truly innovative health precinct.”

Rebecca Wark,
Chief Executive, Health Infrastructure NSW

The changing landscape of health translational research offers an increased opportunity for collaborative grants and a focus on health and medicine commercialisation. We recognise that industry co-location and an integrated health innovation district creates greater opportunity to collaborate and ensures maximum usage of core facilities and services.

RHIP is committed to a program of industry co-location at the Randwick site. UNSW has already begun an industry co-location program called Entrepreneurial Campus.

In the longer term, RHIP is undergoing major remodelling with the construction of the Integrated Acute Services Building and the planned Health Translation Hub, Sydney Children's Hospital Stage 1 and Children's Comprehensive Cancer Centre. This presents new opportunities and greater capacity for industry co-location and integration at RHIP.

RHIP wants to host companies who add value to Precinct activities: working collaboratively on research projects, leveraging collaborative grant funding opportunities, providing commercial pathways to market for co-created inventions, enabling work placement opportunities for students or staff, fostering teaching and advising through experience, ultimately creating an enterprise-oriented culture.

In return, location at RHIP provides daily access to some of the finest research minds, high quality infrastructure and services, cutting-edge analytical equipment and research tools, opportunities to develop future human resources through mentoring and an opportunity to drive a healthy research and development capability without having to commit to the full cost of an in-house R&D team.

Our Precinct community

Our Precinct advocates for the whole community, ensuring equal access to health, research and educational services. The Precinct actively addresses the needs of culturally and socially diverse communities and advocates for priority populations. Precinct partners value diversity and strive to achieve targets for diversity, inclusion and equity.

Our Precinct positively impacts all who connect with it. Our health-promoting Precinct supports connectedness and wellbeing for patients and their families, staff, students and visitors.

A day in the life at RHIP could include having a coffee with a group of researchers, meeting a colleague outside in the UNSW Plaza, taking a tour of a clinical facility, watching students explore a hands-on exhibit, meeting digitally with investors, listening to a thought leader at a lecture onsite. It could also include a quick trip to Royal Randwick Shopping Centre to pick up dinner, an afternoon swim at Coogee beach, a lunchtime run through Centennial Park, lunch or dinner at Randwick's 'The Spot', or a trip on the Light Rail to Surry Hills or the Sydney Central Business District.

CAPABILITIES

As a collaborating partner of RHIP, your business will have access to a wealth of expertise, infrastructure, human capital and services to support your R&D and IP commercialisation programs. This is a brief snapshot of some of the principal capabilities at RHIP that may be of interest. If you don't find what you're looking for, it is still worth reaching out, as we have strong connections with other national and international health precincts and peak bodies that may provide what you need.

Clinical Expertise

RHIP is home to a rich source of clinical expertise, including physicians and allied health professionals, providing healthcare in all disciplines across the lifespan. Our clinical staff are embedded in the following institutions, listed alphabetically:

- Central and Eastern Primary Health Network
- Centre for Eye Health
- Eastern Suburbs Mental Health
- Eastern Heart Clinic
- Fertility and Research Centre
- NSW Health Pathology
- Prince of Wales Hospital
- Prince of Wales Private
- Royal Hospital for Women
- Sydney Children's Hospital Randwick
- UNSW Medical Schools and Health Services

“We should never be satisfied with just delivering the health service we have now. We must look to a future where every child has a chance to live their life to their fullest potential, and to do that, we must innovate together.”

Cathryn Cox,
PSM, Chief Executive,
Sydney Children's Hospitals Network



Neuroscience, Mental Health and Drug and Alcohol Disorders

Black Dog Institute (BDI) is a medical research institute committed to creating a mentally healthier world for everyone through translational research. Integrating research studies, education programs, digital tools and apps, clinical services and public resources, BDI fosters connections and creates new solutions to create real-world change in mental health. The research programs include, suicide prevention, digital mental health, workplace mental health, youth mental health, treatments and models of care, translation and implementation and data analytics.

Neuroscience Research Australia (NeuRA) is a medical research institute dedicated to the prevention and treatment of nervous system diseases, disorders and injuries through medical research. Some of the many aspects NeuRA explores include, Parkinson's, Alzheimer's, other dementias, bipolar disorder, schizophrenia, autism, Asperger's syndrome, obstructive sleep apnoea, nerve damage, chronic pain, falls and balance, spinal cord injury and car travel safety.

UNSW National Drug and Alcohol Research Centre (NDARC) is supported by the Federal Government's Department of Health under the Drug and Alcohol Program. NDARC delivers novel, high quality research on alcohol and other drug use that includes Aboriginal and Torres Strait Islander Health, Drug Policy Modelling Program, drug trends, epidemiology, National Centre for Clinical Research on Emerging Drugs, neuropsychology, prisons and smoking.

UNSW Centre for Healthy Brain Ageing (CHeBA) is a premier research institution investigating brain ageing. CHeBA's work includes molecular neuroscience, stem cell research, neuroimaging, clinical, epidemiological and sociological research and ageing health policy.

Sydney Children's Hospitals Network (SCHN) has a comprehensive, integrated and multidisciplinary clinical research program that guides evidence-based application of novel therapeutics in child neurology. The SCHN Neurology team is internationally recognised for their work in neuromuscular disorders and is an established leader of clinical trials in gene and molecular therapies in spinal muscular atrophy (SMA).

Eastern Suburbs Mental Health Service is a specialised clinical service provided within hospital and community settings and includes multiple programs including acute care, child and adolescent mental health, the early psychosis program, headspace, rehabilitation, older person's mental health, perinatal and infant mental health and the psychiatric emergency care centre.

UTS The Kidman Centre is a not-for profit organisation and is dedicated to the understanding, prevention and reduction of mental health problems in young people aged 5 to 25 by delivering mental health education in school settings, providing evidence-based psychological treatment to young people and families and evaluating treatments through the application of quality research in real-world community settings.

The Mindgardens Neuroscience Network (Mindgardens) is a unique alliance established to revolutionise prevention, treatment and care for people who experience mental health, drug and alcohol or neurological disorders. Bringing together the strengths of its four Founding Partners (BDI, NeuRA, South Eastern Sydney Local Health District and UNSW) and other RHIP stakeholders, Mindgardens is taking a national leadership role in translational research, education and enhancing mental health, drug and alcohol and neurological disorder healthcare services.





Cancer

Children's Comprehensive Cancer Centre (CCCC): is a new program financially supported by the State and Federal Governments, UNSW, Sydney Children's Hospitals Foundation and CCI that involves the construction of the new home for CCI and an expanded Kid's Cancer Centre at Sydney Children's Hospital. Over 500 researchers and clinicians, focused on the challenge of curing children's cancer, will be working side by side in the same centre.

The Sydney Children's Hospitals Network expansion will provide research space as well as adolescent, genetics and clinical support services.

Children's Cancer Institute (CCI): is the only independent medical research institute in Australia wholly dedicated to curing childhood cancer. At CCI, the focus has always been on translational (bench to bedside) research and close collaboration with clinical partners has been a cornerstone of success. Research themes include, blood cancers, gene regulation, molecular targets and therapeutics, personalised medicine and translational cancer nanomedicine.

Together with clinical collaborators at the **Kids Cancer Centre, Sydney Children's Hospital Randwick**, CCI have established the Zero Childhood Cancer initiative (ZERO); Australia's first-ever personalised medicine program for children and young people with high-risk cancer. ZERO operates on a hub and spoke model, centred in Randwick and linked to all childhood cancer treatment facilities in Australia. Implementing cutting-edge clinical genomics techniques, ZERO is based on the premise that every child's cancer is unique and therefore treatment needs to be tailored to the individual to increase effectiveness and reduce side effects.

The Lowy Cancer Research Centre: is an integrated childhood and adult cancer medical research institute containing Children's Cancer Institute and UNSW's Adult Cancer Program located on the UNSW campus.

The Adult Cancer Program is part of UNSW's Prince of Wales Clinical School and brings together internationally recognised teams of basic science, population health and clinical researchers, sharing a strong relationship with the RHIP hospitals. Research programs include, chemotherapy-induced peripheral neuropathy, cancer metabolism, leukaemia, cancer cell immortality, pancreatic cancer, cancer and the cytoskeleton, ovarian cancer and breast cancer.

The Nelune Comprehensive Cancer Centre (NCCC): provides coordinated inpatient, outpatient and ambulatory care to patients with cancer and blood disorders in NSW. As part of a major teaching hospital, the NCCC trains oncologists, radiation therapists, physicists and nurses. Located in the Bright Building of POWH, it provides, haematology clinics, a hereditary cancer centre, medical oncology, palliative care, radiation oncology, a wig library, youth cancer service and conducts clinical trials and clinical research projects on the prevention and treatment of cancers (excluding blood cancers). Blood cancer research is undertaken by the Haematology Clinical Trials Unit.

Digital Health

RHIP is a leading centre of digital health with research offerings that span hardware and software solutions, including remote monitoring, virtual care, wearable devices, artificial intelligence (AI) and machine learning (ML) tools, augmented reality and big data analytics.

UNSW's Centre for Big Data Research in Health (CBDRH) contains internationally recognised expertise in data science, data analytics, biostatistics, epidemiology and bioinformatics. Their knowledge of the ethical, legal and policy framework of health big data allows secure management, sharing, curation and stewardship of health data. The E-Research Institutional Cloud Architecture (ERICA) secure cloud-based platform was developed at CBDRH in collaboration with DiUS, an advanced consulting partner of Amazon Web Services. CBDRH research areas include health system performance, value and waste in healthcare, evaluating policies and programs using linked data, innovative analytic methods for health big data.

UNSW's Graduate School of Biomedical Engineering (GSBME) is developing telehealth technologies to support those suffering from chronic disease, continuity of care from the hospital to the home and promote preventative health and wellness strategies. GSBME are also involved in the Virtual Care Centre planned for the Prince of Wales Hospital.

Using various imaging techniques including hyperspectral microscopy, new techniques are being developed to train machine learning systems to detect key determinants of cell health in applications for IVF, diabetes and chronic kidney disease.

Advanced computational methods are being used for automated biomedical image analysis, health informatics and downstream data analytics to improve the reliability and throughput of imaging and multimodal data. Methods are also being developed to use signal information such as speech and bio-signals to determine if patients are at risk and provide feedback on the effectiveness of therapy.

Centre for Eye Health (Guide Dogs NSW and UNSW) is developing software to identify and classify the risk of progression in age-related macular degeneration by applying pattern recognition to multi-modal images of the retina.

Sydney Children's Hospitals Network has recently implemented the Cartula Health solution integrated with its Cerner electronic medical record system that provides a direct communication link between multiple clinicians and their patients to set appointments, provide advice and information and notify admissions staff.

SCHN are also developing leading-edge technology in wearable sensors and dynamic video analysis (using smartphones) for virtual reanimation of a child's avatar, which can be reviewed in real-time by specialist clinicians to assist kids with disabilities secondary to cerebral palsy, brain injury, spinal cord injury and movement disorders.

The George Institute for Global Health is conducting research to prevent injuries and improve safety for older people with age-related eye disease, implementing a large-scale interventional trial using in-vehicle monitoring for road safety and accelerometers to investigate activity in older people at risk of falls.

SESLHD Virtual Care Centre to be located in the Integrated Acute Services Building, which will house clinical functions of the Prince of Wales Hospital including an expanded adult emergency department, intensive care unit, digital operating theatres and a rapid assessment unit.

Genomics and Personalised Medicine

RHIP has strengths in genomics that span clinical service provision, high volume sequencing services to cutting edge genomics research.

The NSW Health Pathology SEALS Genetics Laboratory is a major centre for genetic diagnostics, providing a comprehensive genome diagnostic service in a consultative pathology context. The laboratory conducts molecular genetics, cytogenetics, genetic biochemistry, bioinformatics and medical genomics. Main areas of interest include the genomic basis of human disease, prenatal diagnosis, neuromuscular disorders, cancer, intellectual disability, craniofacial disorders, haematological disorders and community genetics.

The Ramaciotti Centre for Genomics is the largest genomics facility at any Australian university. It is comprehensively equipped with the latest next-generation sequencing technology, single-cell genomics platforms and high throughput microarray systems. It is funded by the Australian Government as infrastructure of national significance and is accredited to ISO/IEC 17025.

Areas of interest include, the genome and epigenome, gene expression and the transcriptome, the microbiome and the metagenome, single cell genomics, accredited services and bioinformatics.

The School of Biotechnology and Biomolecular Sciences is a hub of fundamental and applied genomics research in the areas of gene regulation, systems biology and neurogenomics. In gene regulation, combinations of molecular cell biology, cell culture gene expression analysis, RNA sequencing, flow cytometry CRISPR gene editing and bioinformatics are used to study the control of gene expression on a grand scale. Systems biology incorporates computational biology, mathematics and engineering and studies genes and proteins as a series of interconnected networks. Neurogenomics uses a combination of genomics science and neurobiology to advance the development of personalised medicine and neuroprotective therapies that can slow or stop psychological and neurological disorders.

The Zero Childhood Cancer personalised medicine program (ZERO) led by CCI and SCHN is the most comprehensive genomic analysis program for childhood cancer in the world. ZERO's profiling platform includes whole genome sequencing, RNA sequencing, methylation array data and aggregate base clinical information and was originally targeted to children with very high-risk cancer of various tissue origins.



Medical Devices

UNSW's tradition of excellence in applied engineering is reflected in a rich vein of innovation and expertise in medical devices that are being developed within the RHIP envelope, often in collaboration with clinical collaborators at the adjacent hospitals and medical research institutes. Prominently, UNSW's Graduate School of Biomedical Engineering (GSBME) positions itself at the intersection of technology and human biology.

The research themes of GSBME include optogenetic electrodes for muscle stimulation, surgical robotics, tactile sensors for robots and prosthetic devices, brain-machine interfaces, bionic eyes, tissue engineering, fall detection devices, implantable heart pumps, X-ray induced drug delivery systems, smart materials, vascular biomaterials, microfluidic bioreactors for cell and gene therapy, telehealth technologies, cardiovascular simulation devices, AI/ML diagnostics, nanoparticles, biomechanical imaging and hyperspectral microscopy.

The Sir William Tyree Foundation Institute of Health Engineering (IHealthE) is dedicated to healthcare transformation. IHealthE will be located in the RHIP Integrated Acute Services Building, enriching collaboration co-location and innovation to co-design novel engineering solutions to unmet clinical needs. IHealthE has an initial focus on connected (digital) health technologies but will expand to include bionics and biorobotics, medical imaging analytics, bioengineered materials and biomolecular innovations.



Imaging

Research Imaging NSW (RINSW) is a Precinct partnership to provide state of the art magnetic resonance imaging (MRI), utilising a 3T MRI human imaging facility and an expert team of technical and scientific support staff, working towards analysis methods that permit personalised approaches to treatment.

Prince of Wales Hospital (POWH) is developing XRAIT technology to detect minimal trauma fractures using natural language processing of radiology reports to allow risk stratification of patients, to reduce the impact of osteoporosis and the incidence of future fractures. POWH is to become one of the three sites in Australia to acquire the 4Dx medical scanners allowing lung structure and function to be assessed using a brief scan requiring radiation exposure equivalent to a chest x-ray.

Royal Hospital for Women is developing novel ultrasound algorithms to image, evaluate and quantify perfusion and impedance in organs and tumours.

The Expanded Perception and Interaction Centre (EPICentre) is a pioneering high-performance visualisation facility. The EPICentre promotes cross connection of visualisation with applied computational simulations, artificial intelligence and creativity in arts, science design, engineering medicine and education.

Neuroscience Research Australia (NeuRA) novel magnetic resonance imaging and ultrasound imaging and analysis methods are being developed to improve research on disease mechanisms, diagnosis and disease progression. The techniques include the world's first large deformation elastography methods, novel 'tagged' MRI methods for quantifying upper airway and skeletal muscle function and real-time fluid flow techniques for quantifying cerebrospinal fluid flow.

Imaging Analytics in addition to imaging capabilities, the development of medical imaging analytics using artificial intelligence and machine learning is a strong focus across RHIP with collaborations encompassing UNSW's Graduate School of Biomedical Engineering, Centre for Big Data Research in Health and School of Computer Science and Engineering.



Clinical Trials

In addition to clinical trial capabilities described in other sections, RHIP has strong expertise in clinical trial design and management through:

Scientia Clinical Research Centre has world-class clinical trial experience and state of the art facilities. Located in the Bright Alliance Building, it has on-site laboratory and pharmacy facilities and conducts a wide range of trials, with a focus on early-stage studies.

The George Institute for Global Health with access to an international network operating in 45 countries, the George Institute for Global Health conducts large-scale clinical trials, epidemiological studies, health systems research and population-based studies to bring affordable, evidence-based solutions to some of the world's major health problems, including but not limited to cardiovascular and metabolic disease, diabetes, mental health, cancer and kidney disease.

The SCHN Clinical Research Centres (CRC) provide investigators and industry sponsors with support for all types of clinical research for children, aside from oncology, ranging from novel therapeutics to large public prevention trials. Current trials include a range of clinical specialties including immunology, neurology, respiratory, gastroenterology and endocrinology.

Investigator Led Clinical Trials RHIP conducts many investigator-sponsored trials and there are established frameworks for testing devices and therapeutics either independently or in partnership with industry.

The Kirby Institute

The Kirby Institute is a leading global research institute dedicated to the prevention and treatment of infectious diseases. The Institute focuses on coordination of national surveillance programs, population health, epidemiological research and clinical and behavioural research. The Kirby also designs and conducts clinical trials for infectious diseases, particularly viral hepatitis, sexually transmitted infections, HIV and COVID-19, often in collaboration with major pharmaceutical companies.

UNSW RNA Institute

UNSW will lead a new institute which will aim to establish an RNA-based manufacturing hub in Sydney. It will be a science, therapeutics and translational facility driving cross-disciplinary approaches to global challenges in RNA chemistry, biology and medicine. A \$25M investment by UNSW forms part of broader Bioscience Alliance between NSW universities that is supported by the NSW Government.

Fertility & Research Centre (FRC)

The FRC is an agile, integrated, cutting-edge fertility service provider and research centre with a strong track record of prior industry engagement, willing to provide expert advice and engage in contract and collaborative research on any topic relating to fertility.

In addition to the typical services provided by an IVF centre, it is the leading oncofertility service in NSW, preserving fertility for those undergoing cancer treatment and now provides in vitro maturation (IVM) approaches for those couples who wish to avoid the side effects of IVF hormonal stimulation.

Current research projects include clinical trials for drug companies wishing to assess fertility impact of their medicines, genetic screening methodologies, image-based AI/machine learning approaches to assess oocyte or embryo quality and biomarker identification and analyses.

Surgical & Orthopaedic Research Laboratories (SORL)

SORL's research interests encompass the biology and biomechanics of connective tissue healing and strategies to improve clinical outcomes using biomaterials and biotechnology in injured and diseased states. A major interest is in the development of innovative surgical devices, including novel spinal implants, connective tissue repair devices, surgical tools, antimicrobial coatings and bone substitutes. With a strong track record in end-to-end fundamental research, innovation, spin-out formation and commercialisation, SORL is a leading example illustrating the potential future of the RHIN.

Commercialisation Support

The Precinct partners provide several commercialisation support programs and services that can be accessed by industry collaborators:

UNSW Founders Program helps UNSW students, staff and alumni to turn their ideas and research into startups. This free support service includes 1:1 coaching, mentoring, skill building workshops and a range of incubator and accelerator programs that supports participants at all stages – from building foundational entrepreneurial skills, to ideation, business model validation all the way through to helping established startups accelerate their growth and attract investment.

UNSW, The George Institute - Health 10X

Health 10x is one of the accelerator programs delivered by UNSW Founders in partnership with The George Institute for Global Health. It is a national 3-month program run annually, that accelerates the growth of start-ups developing affordable and scalable solutions for major health challenges, particularly the growing burden of non-communicable diseases (NCDs) and injury in underserved populations.

UNSW Knowledge Exchange is the university's technology transfer office connecting UNSW's experts with external partners in industry, government and communities. They have an extensive team of business development managers available to discuss collaborative opportunities and will act as primary liaison for any potential projects with UNSW. Knowledge Exchange also acts as the university's intellectual property (IP) management function and has extensive experience in supporting IP protection and IP development strategies.



Facilities and Services

The Australian Cancer Research Foundation (ACRF)

Drug Discovery Centre features advanced technology and expertise in high-throughput chemical small molecule screening as well as access to a 320,000-compound small molecule library. It plays a pivotal role as a node for preclinical drug testing within the Zero Childhood Cancer Program and has expanded to incorporate the Therapeutic Innovations for Kids (THINK) program, an initiative dedicated to paediatric cancer drug development.

The Mark Wainwright Analytical Centre (MWAC)

manages major instrumentation for the study of biological, chemical and physical materials and is available to external industry partners (www.analytical.unsw.edu.au).

The facilities are grouped into units and facilities and include:

- Bioanalytical Mass Spectrometry Facility (BMSF)
- Electron Microscope Unit (EMU)
- Nuclear Magnetic Resonance Facility (NMR)
- Spectroscopy Laboratory (SPECLAB)

UNSW Biorepository containing tissue samples taken with consent from healthy volunteers and patients diagnosed with cancer.

Biomedical Imaging Facility (BMIF) core and advanced microscopy including, 2-photon and intravital microscopy, atomic force microscopy (AFM), confocal microscopy, epifluorescence for live cell imaging, fluorescence correlation spectroscopy (FCS), fluorometer and lifetime spectroscopy, spinning disc microscopy, stimulated emission depletion (STED) microscopy, stochastic optical reconstruction microscopy (STORM) superresolution fluorescence microscopy including photo-activation localisation microscopy (PALM), time-resolved single molecule imaging including fluorescence lifetime imaging microscopy (FLIM) and total internal reflection (TIRF) microscopy.

Biological Resources Imaging Facility state of the art in vivo and ex vivo imaging including, CT, PET, MRI, ultrasound, bioluminescence, fluorescence, laser speckle and photoacoustic. Of particular note, the BioSpec Avance III 94/20 MRI is one of the most powerful small-animal MRIs in Australia.

The Australian Centre for Nanomedicine (ACN)

combines medicine, science and engineering to deliver therapeutic solutions to research problems in medicine.

The Optics and Radiometry Laboratory (ORLAB) is a test, calibration and research facility for light, colour and optical testing. It is NATA accredited for ISO 17025.

The Recombinant Products Facility (RPF) provides protein production and purification services.

Research Imaging NSW (RINSW) provides state-of-the-art MR imaging capabilities. It provides a 3T MRI human imaging facility with expertise and support for collaborative projects.

CONTACT US

Steve Palmer
Industry and Innovation Lead | Randwick Health & Innovation Precinct
s.palmer@unsw.edu.au

PRECINCT FOUNDING PARTNERS

