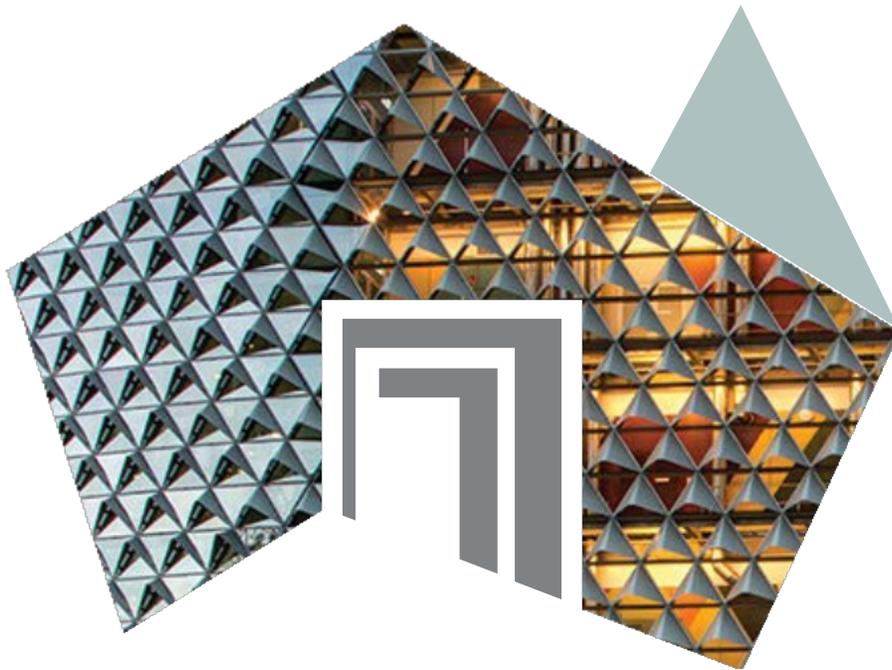


South Australia

Data driven health innovation





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Why South Australia

South Australia's world-class, highly connected health and life sciences precinct links the most complete clinical trial ecosystem in Australia with world-leading AI and data analytics capabilities and a thriving cluster of medtech companies.

This makes our state the perfect location to collaborate and innovate to develop and test new products to commercialise globally.

Adelaide BioMed City, an AUD\$3.8billion health and life sciences precinct, connects clinical research, education and care within the CBD with a focus on translation to advance patient outcomes globally. Companies can collaborate with clinicians who are co-located across research and patient care.

South Australia is the nation's leader for early phase clinical trials with a strong, sophisticated and diverse health and medical research ecosystem. We have a global reputation for clinical trials excellence with the most complete clinical trial ecosystem, globally recognised investigators and an existing and collaborative network of premium providers where repeat business has built an enviable standing amongst our peers. Our clinical trial capabilities, skilled workforce and specialised infrastructure make South Australia the leading state in Australia to conduct your business.

Our state is home to two of the world's leading artificial intelligence and data analytics capabilities – the Australian Institute for Machine Learning (AIML) and Massachusetts Institute of Technology (MIT) bigdata Living Lab. AIML has Australia's largest AI capability with more than 140 researchers and is the only Australian member of the Global Alliance of AI Centres in Medicine. The alliance includes Stanford University, Harvard University and Mayo Clinic. The MIT bigdata Living Lab links South Australia to one of the world's leading data analytics capabilities. Both capabilities are based at Lot Fourteen, Australia's premier hi-tech innovation precinct.

With Adelaide BioMed City and Lot Fourteen within walking distance of each other on North Terrace, South Australia has a unique environment where health and life science research and clinical care is deeply embedded with technology innovation.



South Australia is rapidly growing our medical product manufacturing industry with clinical trials being an essential path to commercialisation of medical devices. Our successful first-in-human clinical trial expertise provides the best incubator to test, validate and scale up opportunities for medtech commercialisation and growth. Our advanced manufacturing capability is combined with expertise in medical technology, biotechnology and pharmaceuticals, providing the ideal environment to develop world-leading medical products such as innovative devices, vaccines, drugs and diagnostics.

Our state offers a range of cost advantages that no other state in Australia can match, with a highly competitive environment and ease of doing business that supports and improves your bottom line.

South Australia has a deep talent pool, Australia's highest staff retention rates and an attractive and affordable lifestyle. Our capital city, Adelaide, is Australia's most liveable city and regularly recognised as one of the most liveable cities in the world. South Australia is proud to be the nation's Knowledge State with four highly regarded universities ranking in the top two per cent globally. Our state has the largest concentration of clinical research in the Southern Hemisphere.

Highly connected and collaborative, with strengths across clinical trials and medtech, supported by AI and data analytics' driven hi-tech capabilities, South Australia is the perfect location for your company to innovate.

South Australia's landscape



Complete clinical trial ecosystem

World's fastest regulatory framework for early-phase clinical trials for submission to global regulatory agencies, e.g. US FDA



World-class health and life sciences ecosystem

One of the largest and most technologically advanced in the Southern Hemisphere



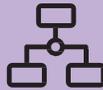
World-class hi-tech capabilities

World-leading AI and data analytics capabilities – top six in the world for computer vision



Pioneering medtech commercialisation

We're leading the way with a proven manufacturing track record buoyed by our clinical trial expertise and hi-tech capabilities



Australia's best longitudinal clinical data set

Single electronic medical record across a universal healthcare system for 1.7million people with a unique ID for each patient



World-leading R&D collaboration and education

Largest concentration of clinical research in the Southern Hemisphere



Leader in cancer research, clinical translation and care

The Bragg Comprehensive Cancer Centre (BCCC) will transform cancer research, care, support and preventative measures globally



Connected locale

Walk between our centres of excellence in health and life sciences, research and hi-tech innovation



Skilled and educated workforce

South Australia offers a highly-skilled talent pipeline for medical research, development and manufacturing



Competitive labour costs and high staff retention rates

Adelaide is ranked the most cost-competitive city in Australia by global services company KPMG

South Australia – your gateway for clinical trials in Australia

South Australia and Adelaide provide the best possible gateway for exploring and developing clinical trials in Australia. Our complete ecosystem delivers end-to-end across all elements of the supply chain, for trials of drugs, medical devices and digital health products. South Australia has the most established and experienced providers in the clinical trial field in Australia, including well aligned GMP manufacturing.

Adelaide is a hub for companies and researchers in biotech and clinical trials, medical devices, ageing well, research, digital health, AI and data analytics.

It provides deep skillsets and resource opportunities, particularly for frontier technologies such as use of artificial intelligence for health innovation, robotic vision and decision making, machine learning, as well as proton therapy. Our clinical research is highlighted by key opinion leaders such as Professor Guy L Ludbrook and Dr Ganessan Kichenadasse.

Our state has decades of experience in automotive, defence and aerospace manufacturing underpinning deep medical device manufacturing capability, with highly skilled workers and sustainable supply chains.

Based in South Australia, the Tonsley Innovation District is Australia's first innovation cluster, and focuses on advanced manufacturing, robotics, and materials, particularly for medical devices.



South Australia's cutting-edge innovation ecosystems deliberately pull together and connects capabilities from health and medical, space, defence and energy sectors. This provides an ideal resource for projects to leverage this depth across artificial intelligence, science, engineering, mathematics and nanotechnology in the life science sphere.

Our world-class creative industries ecosystem brings capabilities for simulation, augmented and virtual realities, as well as 3D and gaming technologies into our health and medical industries (as well as defence and our other key sectors). Medical tourism is providing opportunities for international healthcare treatments and showcases the state's world-class capabilities within the health and medical industries sector.



A complete clinical trial ecosystem in South Australia

Along with the most complete clinical trial ecosystem, South Australia provides the fastest pathway to early phase clinical trial conduct for submission to global regulatory agencies.

South Australia is an ideal location for clinical trials for both healthy individuals and patients including specialised patient populations.

The State's major hospitals have world-class infrastructure with dedicated clinical trial units allowing for access to dedicated investigators committed to clinical research.

South Australia is the best choice for early phase clinical trials due to:



Speed

You can commence your trial quickly in South Australia, our efficient regulatory framework and experienced clinical trial companies mean you can start in as little as six weeks.



Quality

Globally accepted data delivered in line with the highest quality standards for clinical trials, for submission to regulatory agencies, including the US FDA, UK HMRA, EU EMA and Japan PDMA.



Cost

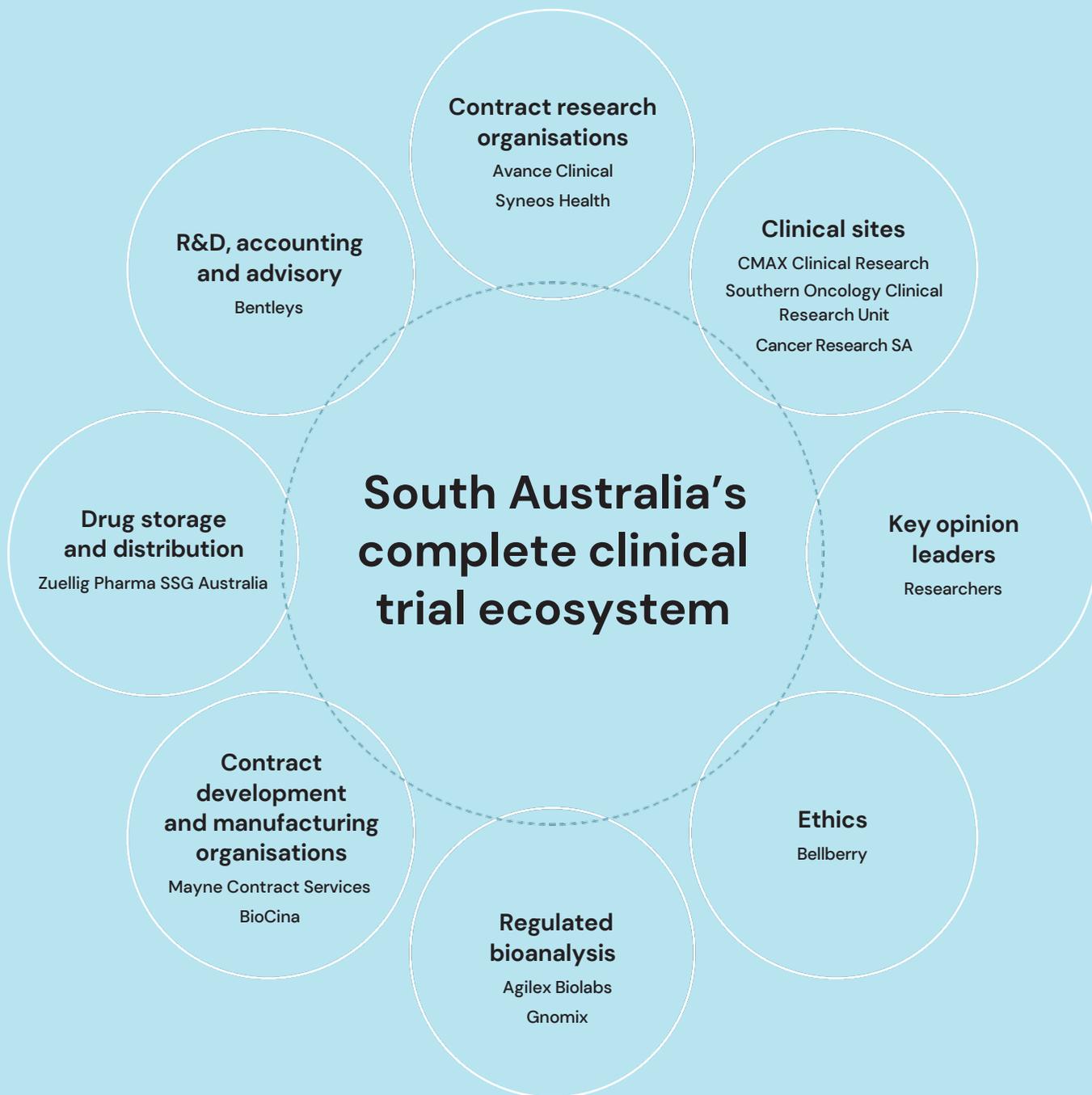
Globally, South Australia is extremely cost effective including efficiencies through our skill base, comprehensive ecosystem, and services scale and diversity. Your company might be eligible for a tax refund of up to 43.5 per cent.



Experience

We have the country's most experienced companies and they operate in a complete clinical trial ecosystem optimised for FIH to the highest global regulatory guidance. The high reputation is underlined by successful recent audits by FDA and EMA.

**Delivering end-to-end
clinical trial solutions through
innovation, collaboration and
thought leadership**



Contract research organisations



Avance Clinical

Avance Clinical is an Australian owned Contract Research Organisation (CRO) that has been providing high-quality clinical research services fit for global regulatory standards to the local and international drug development industry for 24 years.

Avance Clinical specialises in supporting biotech companies with their early phase clinical trials leveraging the world-class early phase clinical trials ecosystem in Australia.

Avance Clinical offers some of the most extensive in-house clinical services including:

- ClinicReady – pre-clinical services
- Clinical Monitoring Management
- Data Management
- eClinical Solutions
- Safety and Pharmacovigilance
- Medical Writing
- Project Management Statistics and Pharmacokinetics
- Quality Assurance

Avance Clinical has a global reputation for outstanding service to our biotech clients in the United States, United Kingdom, Japan, China, South Korea, Taiwan and Europe.



Syneos Health

Syneos Health is the only fully integrated biopharmaceutical solutions organisation. With both a Contract Research Organization (CRO) and Contract Commercial Organization (CCO) under the same roof, Syneos Health is purpose-built to accelerate customer performance to address modern market realities.

Syneos Health have a unique Biopharmaceutical Acceleration Model®, which supports companies at all stages in the development of their product or where their specific needs are, Syneos Health will act as a virtual pharma company, developing customised solutions that will help companies achieve a better valuation for their business or product by reducing time to market, increasing efficiency and reducing cost.

Clinical sites



CMAX Clinical Research

CMAX Clinical Research has been a leader in delivering early phase clinical trials for over 28 years, making it one of the most respected clinical trial businesses in Australia.

Since 1993 CMAX has delivered more than 700 early phase clinical trials, including more than 150 first time in human studies for our national and international clients which include pharmaceutical, biotechnology and device companies.

CMAX's modern facility is equipped with 66 inpatient beds, separate screening and outpatient clinic and has ready access to state-of-the-art facilities, equipment and world-class medical and pharmacology specialists. An expansion planned for 2022 will see more inpatient beds and specialist treatment areas added to the facility. CMAX has also recently launched a new service offering, Fusion Clinical Research, enabling later phase clinical trials in the community through engagement with General Practitioners. CMAX's services are eligible for the generous Australian R&D Tax Incentive scheme.



Southern Oncology Clinical Research Unit

Southern Oncology Clinical Research Unit (SOCRU) is a leading-edge research facility located in South Australia. Run by a team of five experienced oncologists, SOCRU provides people with cancer the opportunity to contribute to innovative cancer research whilst receiving the highest quality, evidence based clinical care from skilled health professionals.

SOCRU focuses on conducting early phase cancer trials which forge the path to breakthrough therapies, including a variety of interventions such as cytotoxic, targeted therapies, immunotherapy and oncolytic viral therapies. All research tasks are conducted by qualified and experienced staff in compliance with ICH-GCP and all other regulatory requirements.

Clinical sites



Cancer Research SA

The Cancer Research SA (CRSA) was conceptualised and brought to fruition by a team of medical oncologists who practice at a number of private and public hospitals in Adelaide and include members from Adelaide Oncology and Haematology (AOAH) and Icon Cancer Centre to deliver improved access for patients to clinical trials.

CRSA are committed to providing state-of-the-art care for cancer patients of today and ongoing advancements in the prevention, diagnosis, treatment and cure of cancer in the future. CRSA aim to accomplish this through research, education and clinical practice. With access to clinical trials being the cornerstone of oncology care, the CRSA hope to enable every South Australian affected by cancer an opportunity to discuss and participate in a clinical trial.

The CRSA team have a high level of expertise in solid tumours, including cancers of the breast, lung, male genitourinary system (prostate, bladder, kidney and testis), female reproductive system (ovary, uterus and cervix), gastrointestinal tract (oesophagus, stomach and bowel) and melanoma.

Working alongside specialist cancer surgeons, radiation oncologists and all major medical specialties, the team at CRSA will ensure each patient's cancer care is optimised, individualised, and of the highest standard.

Ethics



Bellberry Limited

Bellberry Limited is a national, private not-for-profit organisation providing streamlined scientific and ethical review of human research and social science projects across Australia. Bellberry's aim is to promote and improve the welfare of research participants and the quality, efficiency and effectiveness of research.

As a not-for-profit company, Bellberry donates surplus funds back into the research community.

National Health and Medical Research Council (NHMRC) certified and recognised in the McKeon review as a best practice example, Bellberry Human Research Ethics Committees (HRECs) are professionally managed and operate 24/7 through a dedicated electronic portal providing a paperless and secure HREC process. Bellberry HRECs provide high quality, independent ethics reviews.

Bellberry's 12 committees accommodate multiple meetings each week, with an application decision outcome typically achieved within 20 business days of the application residing with our HRECs. Dedicated staff provide support at every stage of the process.

Regulated bioanalysis



Agilex Biolabs

Agilex Biolabs is Australia's largest bioanalytical and toxicology laboratory supporting preclinical and clinical drug development.

With a 25-year track record of performing regulated bioanalysis, the Agilex team has successfully accelerated numerous biopharmaceutical and pharmaceutical clinical trials from around the world. Their FDA-inspected Australian bioanalytical facilities have OECD GLP recognition with NATA and ISO 17025 Accreditation.

Agilex Biolabs offers a range of toxicology services and have expertise with all types of molecules, laboratory species, routes of administration, and non-clinical studies. As a global leader in providing flexible solutions, Agilex Biolabs has expedited large and small molecule programs from APAC, USA and Europe.



Gnomix

GNOMIX is a molecular genetics laboratory and expert consultancy service that caters to clinical, research and commercial clients. With over four decades of growth and development in the molecular genetic industry, their vast experience in this industry has allowed GNOMIX to provide high quality accredited and customised services to clients for a range of molecular solutions, including:

- laboratory services
- clinical trials
- research projects
- independent testing for commercialisation
- food and agrigenomics
- consultancy to Allied Industries

GNOMIX is accredited by NATA to ISO/IEC 17025 standard for laboratory testing.

Molecular methods are being increasingly embraced for clinical trial testing due to significant benefits in information content, sensitivity, specificity and speed. GNOMIX is committed to developing the best molecular testing options for their partners, whilst being mindful of budgets and timeframes.

Contract development and manufacturing organisations



Mayne Contract Services

Mayne Contract Services is South Australia's largest full-service contract development and manufacturing organisation (CDMO).

They are experts in complex oral and topical dosage forms – from concept to commercialisation. With over 40 years of global compliance, Mayne Contract Services' 200-strong team is ready to support most pharmaceutical projects.

Expertise includes:

- bioavailability enhancement
- modified-release drug technologies
- spray drying
- taste masking
- handling select potent compounds and controlled substances, including cannabinoids.

From its TGA/FDA GMP certified facility, Mayne Contract Services partners with clients to deliver innovative pharmaceutical formulations and analytical services for clinical and commercial manufacture.



BioCina

BioCina is a biologics contract development and manufacturing organisation (CDMO) specialising in process development and cGMP manufacture of microbial-based therapeutics, from preclinical to commercial production.

Biocina's site, approved by the FDA for commercial manufacturing in 2020, has 35+ years of microbial fermentation experience and over the past 15 years, has worked on over 50 different products and has partnered with more than 30 customers globally. With customised services, BioCina has successfully performed multiple technology transfers and developed unique solutions to address technical issues for customers' programs.

BioCina strives to provide high-quality, cost-effective microbial process development and manufacturing solutions to customers worldwide.

In 2022, BioCina's capabilities and services will include end-to-end manufacture of mRNA vaccine and plasmids.

Drug storage and distribution



Zuellig Pharma SSG Australia

Zuellig Pharma SSG Australia (formerly Flinders CTS) is part of Zuellig Pharma, which is one of the largest healthcare services groups in Asia. The Australian depot has supported over 1000 clinical trials, predominately supplying sites in Australia and New Zealand and working with a wide range of research groups.

Services include storage and distribution of clinical trial supplies in a facility that is TGA GMP certified for clinical trial drug storage and secondary packaging, including release for supply.

Additional services include importation, export permits, controlled drugs, SAS and Direct to Patient supply. The depot is a modern purpose design with validated controlled ambient, cold chain and frozen storage facilities to GMP standards.

R&D, accounting and advisory



Bentleys

Bentleys is an international network of advisors and accountants with expertise in audit and assurance, business advisory, corporate recovery, financial planning, superannuation, wealth management, trusts and estates, taxation and R&D tax incentives.

Bentleys R&D Incentives delivers a best practice, full service and low-cost solution for non-Australian controlled Biotech/MedTech enterprises seeking to create a presence in Australia and make use of the R&D Tax Incentive, a program that enables up to 43.5 per cent of R&D expenses in Australia to be refunded to eligible entities.

Bentleys has been supporting foreign controlled R&D entities undertaking phase 1 and 2 clinical trials in Australia since 2012, with a full range of services under one roof including subsidiary incorporation, R&D Incentive registration, accounting and tax compliance, virtual CFO, resident director, inter-company agreements and international tax structuring.

Key opinion leaders

Professor Timothy P. Hughes

Oncology: chronic myeloid leukaemia

MD, FRACP, FRCPA, MBBS, FAAHMS

Professor Hughes had a significant leadership role in the establishment of the molecular response criteria and kinase domain mutation screening guidelines that are used world-wide to monitor response and resistance in chronic myeloid leukaemia (CML). He has been a principal investigator on many of the key Global and Australian CML trials that have shaped the way tyrosine-kinase inhibitors (TKI's) are selected and sequenced. He has been a leader in the area of treatment-free remission (TFR) and influential in the recent recommendations to make TFR a mainstream goal of therapy.

Professor Chris Karapetis

Oncology (lung, gastro-intestinal, colorectal cancer, predictive biomarkers, epidemiology)

MBBS, MMedSci (Clin Epi), FRACP

Professor Karapetis has been the principal investigator on over 160 clinical trials and specialises in medical oncology and innovation in cancer.

Dr Ganessan Kichenadasse

Oncology: (brain, gynaecological, genitourinary, sarcomas, breast, thyroid, rare cancers)

MBBS, FRACP

Dr Kichenadasse is an Oncologist and a Pharmacologist with special interest in the management of variety of cancers such as brain, gynaecological, genitourinary (bladder, kidney, prostate), sarcomas, breast, thyroid cancers, cancer of unknown primary and other rare cancers. His other passion is conduct and design of all phases of clinical trials for cancer therapies with a focus on early phase (first in human) drug trials.

Professor Guy L Ludbrook

Anaesthesia, neurology, First-In-Human

PhD, MBBS, FANZCA

Professor Ludbrook is Director of an early phase clinical trials unit, PARC Clinical Research, located within the Royal Adelaide Hospital. He has been principle investigator on multiple clinical trials, both commercial and investigator-initiated, and sits on data safety monitoring boards for multiple international clinical trials.

Professor Maria Makrides

Nutrition - mothers and babies

PhD, BSND, BS

Professor Makrides is the Theme Leader for SAHMRI Women and Kids at the South Australian Health and Medical Research Institute. Maria leads a multi-disciplinary research group of over 60 staff who are highly skilled in conducting and translating nutrition intervention trials involving mothers and babies. Maria has over 300 peer reviewed publications including a number in the prestigious journals The Lancet, The Journal of the American Medical Association and the British Medical Journal.

Professor Helen Marshall

Infectious diseases

MBBS, DCH, MPH, MD

Professor Helen Marshall is a medical researcher with specialist training in child health, public health and vaccinology and has been an investigator on 108 implementation, clinical and epidemiological studies. She was the recipient of the Australia Day Council, Inspiring South Australian Women Award in 2020.

Dr Tom Polasek

Clinical Pharmacology: modelling and simulation

BSc, BPharm (Hons), PhD, MD

Tom is a Medical Officer at CMAX Clinical Research Pty Ltd. Tom's research interests include all aspects of clinical pharmacology and is particularly focused on the clinical application of modelling and simulation approaches to improve the quality use of medicines. Tom is the author/co-author of more than 80 peer-reviewed articles and conference presentations.

Dr Amitech C Roy

Oncology (lung, gastro-intestinal cancer, melanoma, neuroendocrine tumours)

MD, FRACP, MSc (UK), AFRACMA

Dr Roy has been named as an investigator on a number of grants relating to medical oncology clinical trials and principal investigator in clinical trials.

Professor Sepehr Shakib

Clinical pharmacology, First-In-Human clinical trials

MBBS, FRACP, PhD

Professor Shakib has worked with CMAX as a Principal Investigator for more than 20 years and is a recipient of multiple awards and grants and has over 100 publications in a range of areas. He has been involved in over 250 first in human clinical trials in a wide range of therapeutic areas.

Leading registries

South Australia's quality data and patient information has, over decades, translated into some of the best registries in the world, with many bringing together unique insights, diversity, timeframes and research connectivity.

Biobanks and registries

State registries

- SA NT Datalink (SANT)
- Coronary Angiogram Database of South Australia (CADOSA)
- South Australian Cancer Registry (SACR)
- South Australian Prostate Cancer Clinical Outcome Collaboration (SA-PCCOC)
- South Australian Birth Defects Registry (SABDR)



National / ANZ registries – initiated/managed within Adelaide BioMed City Precinct

- Registry of Senior Australians (ROSA)
- Australian Cardiac Outcomes Registry (ACOR)
- Australia and New Zealand Dialysis and Transplant Registry (ANZDATA)
- Australian Spinal Cord Injury Registry (ASCIR)
- Orthopedics Joint Replacement Registry (AOANJRR)
- The Australian Corneal Graft Registry (ACGR)
- Australian Bone Marrow Donor Registry (SA)



National / ANZ registries – contributed to by South Australia

- National Mortality Database (NMD)
- National (Insulin-dependent) Diabetes Register (NDR)
- Australian Mesothelioma Registry (AMR)
- Australian Diabetes and Obesity Lifestyle Study
- Dental Implant Registry
- Australian New Zealand Clinical Trials Registry (ANZCTR)
- Australian Cancer Database (ACD)
- National Opioid Pharmacotherapy Statistics Annual Data (NOPSAD) collection
- National Perinatal Data Collection (NPDC)
- National Perinatal Mortality Data Collection (NPMDC)
- National Rheumatic Heart Disease Data Collection (NRHDC)
- National Staphylococcus aureus Bacteraemia Data Collection
- Australian and New Zealand Thyroid Cancer Registry (ANZTCR)
- Australian Bleeding Disorders Registry (ABDR)
- Myeloma and Related Diseases Registry



Biobanks

- South Australian Cancer Research Biobank (SACRB)
- Brain Cancer Biobanking Australia (BCBA)
- David Serisier Respiratory Biobank (DSRA)
- The Australian Cerebral Palsy Biobank
- Australian Prostate Cancer BioResource





Leading the nation in AI in healthcare

Adelaide is Australia's home for AI and data analytics driven innovation and is leading the nation in AI in healthcare.

The Australian Institute for Machine Learning (AIML), ranked in the top six globally for computer vision (csrankings.com), is Australia's largest AI capability. The Massachusetts Institute of Technology (MIT) bigdata Living Lab links South Australia through to MIT's world leading data analytics capabilities. Together they are the foundation of the state's knowledge ecosystem, generating new knowledge and technologies.

The Australian Research Centre for Immersive and Virtual Environments (IVE) completed more augmented reality research than any other institution or university globally and adds world-leading capabilities in narrative visualisation and human centred design to our innovation ecosystem.

The Australian Cyber Collaboration Centre (A3C) is also based in Adelaide and is a central connection point for organisations looking to improve their cyber resilience and data protection capabilities.

South Australia's position as a global leader in AI has attracted some of the world's most innovative and forward-thinking organisations. Amazon Web Services, Google Cloud, Microsoft Azure, Nokia, Accenture, Deloitte, PwC, MTX Group and Telstra Health (Dr Foster) have established operations in South Australia, focused on delivering AI innovation. By partnering with AIML and MIT bigdata Living Lab, these organisations will leverage innovation developed in Adelaide to deliver their competitive advantage and further their global ambitions.

South Australia's robust healthcare and data management systems see us uniquely positioned for developing, applying and commercialising AI solutions for global health problems.

South Australia is embracing the ability for AI to deliver the biggest transformative impact to health care in decades. Government, industry and academia work together to transform health system efficiency, driving better operational and clinical decision-making and improving patient outcomes.

World-leading AI research capabilities

- Amazon Web Services Applied Sciences
- Australian Institute for Machine Learning
- Centre for Augmented Reasoning
- MIT bigdata Living Lab; and
- Research Centre for Immersive and Virtual Environments (IVE).





Australian Institute for Machine Learning

The Australian Institute for Machine Learning (AIML) is working with companies including Roche, GSK, Siemens, Google, Apple, Lockheed Martin, BAE Systems and BHP Billiton. AIML is a key anchor tenant of Lot Fourteen, Australia's leading hi-tech innovation precinct.

AIML ranks in the top six worldwide in computer vision (csrankings.com) and is the top site in Australasia for AI research generally, with world-class expertise in the methods that support this; AI, computer vision and deep learning.

The institute is led by Professor Simon Lucey, who spent 10 years with Carnegie Mellon University's Robotics Institute and was the Principal Scientist at Argo AI - a USD\$1billion start-up company that builds self-driving cars.

AIML's Centre for Augmented Reasoning leads the research and development of new augmented systems and improves machine learning technology across a range of applications, which include:

- collaborating with world-leading companies and government, to develop hi-tech products and solutions
- carrying out world-leading research in one of the most competitive fields globally;
- machines that continually learn new things while interacting with the environment
- machines that work with data analysts to optimise business processes
- machines that can ask people questions in ways that are more natural and easier than filling in forms
- robots that can understand and follow instructions from people; and
- factories where people and machines work seamlessly together without the need for constant reprogramming of software.

AIML's major research themes:

- deep learning
- computer vision and robotic vision
- natural language processing and visual question answering
- medical machine learning
- space
- defence; and
- agriculture.

AIML is globally recognised as:

- largest Machine Learning Group in Australia – 140+ people, and growing
- top six in the world in publications in the key conferences in computer vision (csrankings.com)
- first - PASCAL Visual Object Classes repeatedly
- first - NIH - MEDICAL VQA CHALLENGE 2020 (IMAGECLEF)
- first - REFUGE Retinal Fundus Glaucoma Challenge 2019
- first - Nuclei Segmentation Challenge 2019
- first - European Space Agency Pose Estimation Challenge 2019
- second – Oz Minerals Explorer Challenge 2019
- first - Volkswagen Logistics Innovation Day in Shanghai, 2019
- first - Facebook Visual Question Answering 2.0 challenge
- first - CityScapes in 2018; and
- second - ImageNet Scene Parsing 2016.

Australian Institute for Machine Learning – Medical

AIML has established clinical research-focused partnerships with both state-funded and commercial organisations.

AIML is Australia's only member of the Global Alliance of AI Centres in Medicine. The alliance includes:

- Stanford University
- Harvard University
- Mayo Clinic
- Cleveland Clinic
- Duke University
- NYU Langone
- Children's Hospital of Orange County; and
- University of Bern.

Global pharma, biotech and technology partners:

- Roche
- GlaxoSmithKline
- Siemens Healthineers
- MIT bigdata Living Lab
- Amazon Web Services; and
- LBT Innovations.

AIML's local clinical research partners:

- SA Health
- South Australian Health and Medical Research Institute (SAHMRI)
- Royal Adelaide Hospital (RAH)
- Women's and Children's Hospital
- SA Pathology
- SA Pharmacy
- SA Medical Imaging; and
- BreastScreen SA.

AIML clinical areas of focus:

- clinical trials/drug development/testing
 - treatment response leukemia
- proteomics, lipidomics, metabolomics
 - lipidomics to predict cardiovascular disease and treatment response
 - breath analysis
- genomics/Statewide Genomics Centre
- immunotherapy response imaging
 - cardiovascular imaging
 - gastrointestinal colonoscopy
 - colorectal cancer
 - chest computed tomography/X-ray
 - orthopaedics
 - ophthalmology
 - critical care; and
 - breast cancer.

Centre for Augmented Reasoning

AIML's Centre for Augmented Reasoning leads the research and development of new augmented systems and improves machine learning technology across a range of applications, which might include:

- machines that continually learn new things while interacting with the environment
- machines that work with data analysts to optimise business processes
- machines that can ask people questions in ways that are more natural and easier than filling in forms
- robots that can understand and follow instructions from people; and
- factories where people and machines work seamlessly together without the need for constant reprogramming of software.

AIML is part of the University of Adelaide.

MIT bigdata Living Lab

One of only three such labs outside of the United States (the others being in Beijing and Istanbul), this collaborative research initiative led by the South Australian Government in partnership and participation with Massachusetts Institute of Technology (MIT), Bank SA, Optus and DSpark, the bigdata Living Lab works to better understand social interactions within the various communities across South Australia.

The bigdata Living Lab utilises MIT's world-leading secure data analysis tools and methodology to ensure data privacy is maintained and private and public organisations will be able to safely and securely analyse data to identify growth opportunities, improve government decision making and improve socioeconomic outcomes.

A raft of aligned projects is forming including blockchain, cyber security and health initiatives bringing in a wide range of stakeholders both locally and internationally.

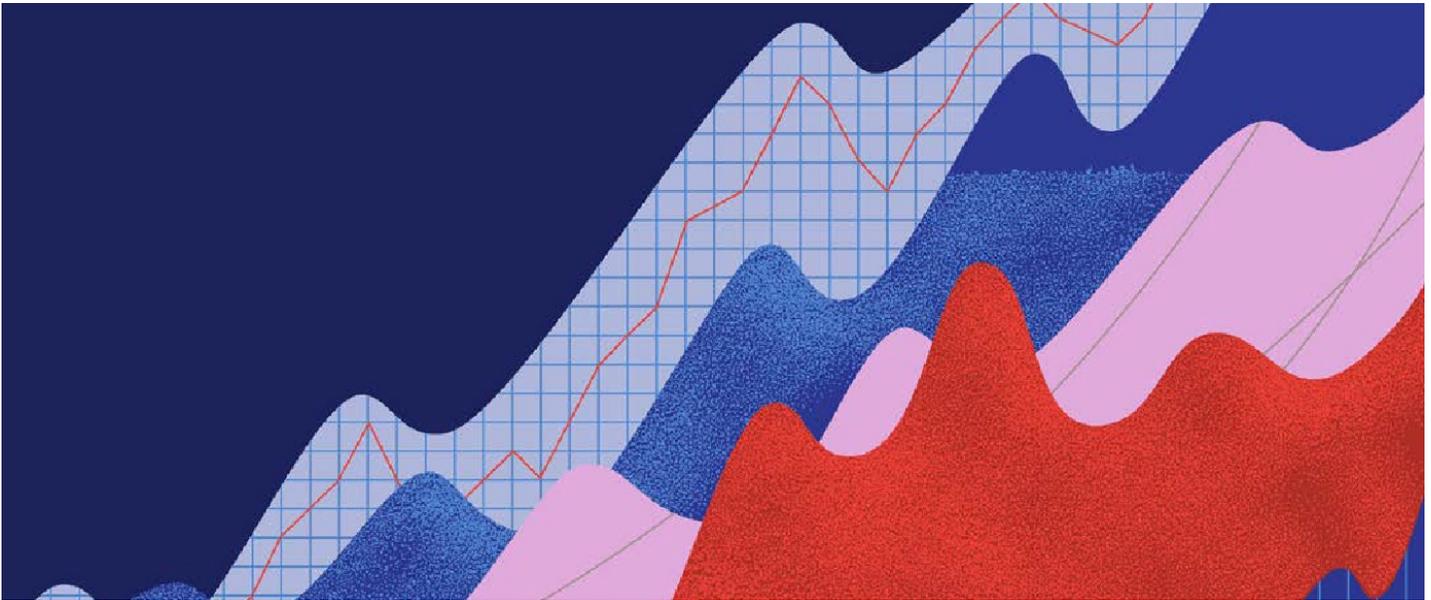
Global organisations at the forefront of digital transformation are choosing to base themselves in South Australia's innovation hubs to innovate, scale and commercialise.

Working with MIT bigdata Living Lab will:

- protect the community's private data through world-leading tools, methodologies and data governance
- define the right question to ask of the data to give insights that lead to better decision making and improved socioeconomic outcomes; and
- Unlock greater insights by securely accessing multiple big data sets across government and industry without compromising privacy.

South Australia is the only Australian state to have a globally unique collaboration between Massachusetts Institute of Technology, Government and business with Adelaide's MIT bigdata Living Lab.





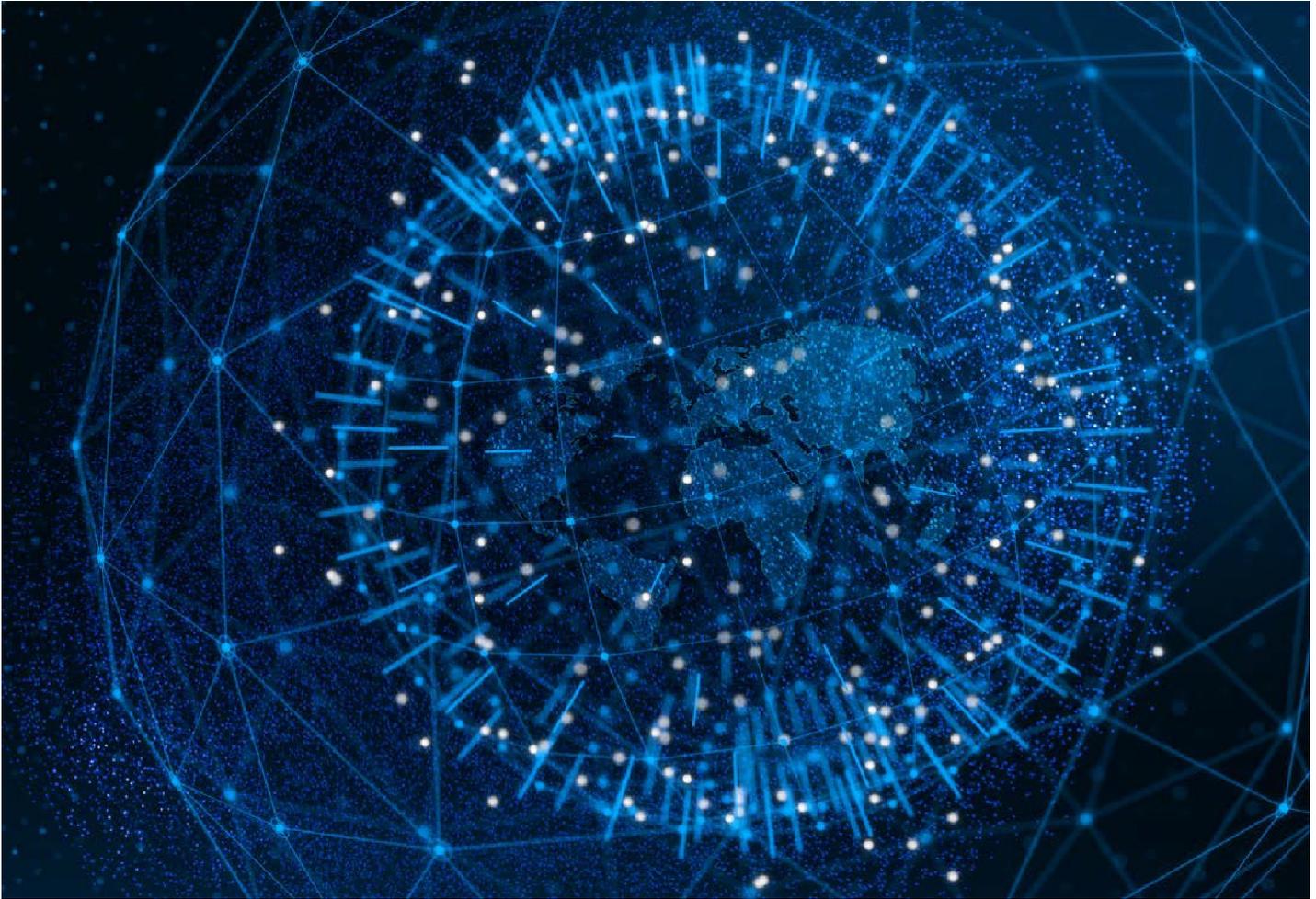
Case study – MIT bigdata Living Lab and SA Health

Partnering with MIT bigdata Living Lab, SA Health has initiated a project that leverages Adelaide’s AI ecosystem to improve capacity planning for the South Australian hospital network.

“The Office of the Chief Medical Information Officer, SA Health is developing innovative solutions to help clinicians access and use clinical data to improve patient care and patient outcomes.

By partnering with MIT bigdata Living Lab we are working to introduce ground-breaking protocols that protect the community’s data while linking clinical data with broader community trends to generate insights that can transform care across the entire health service. This project promises to revolutionise how we think about health treatment in South Australia, enhancing preventative care, while focusing resources.”

Dr Santosh Verghese,
Chief Medical Information Officer, SA Health



Australian Research Centre for Interactive and Virtual Environments

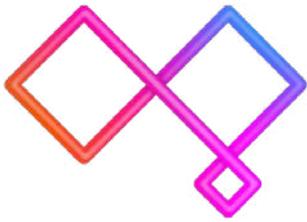
Leading-edge immersive capability, the Australian Research Centre for Interactive and Virtual Environments (IVE), is a world leader in augmented reality (AR) and virtual reality (VR) and have produced the most AR papers of any institute or university in the world.

Led by Professor Bruce Thomas as Director, IVE brings together a team of world-leading researchers in AR and VR. Professor Thomas is nationally and internationally recognised for his contribution to wearable computers, laptop interactions, augmented reality and user interaction. Also forming a part of the IVE leadership team is Deputy Director Professor Mark Billinghurst. Professor Billinghurst is recognised for his expertise in AR, exploring innovative computer interfaces that merge virtual and real worlds. He has received several accolades for his contribution to human interface technology research.

IVE explores how immersive technologies can be applied to improve the wellness of individuals through enhancing widely regarded therapies, the development of new therapies or creating environments that improve an individual's wellness. IVE looks to enhance health and medical procedures through applying mixed reality technologies in developing medical devices with AR and visualisation and sensory data analysis.

Working with IVE can put your company at the cutting edge of immersive environments for remote operations and delivers a deeply embedded user experience.

Combining computer science, industrial design, architecture, art and human factors, IVE applies a multi-disciplinary approach to solving challenging problems that helps pave the way for the delivery of new products and services.



digital
health
crc

Digital Health Cooperative Research Centre

The Digital Health CRC (DHCRC), the world's largest Digital Health Collaborative, is Australia's leading organisation for digital health innovation and commercialisation with a network of over 70 participants.

DHCRC connects the ecosystem of industry, government, providers, consumers, academia and research to solve the most pressing healthcare challenges.

Focused on a sustainable impact on health outcomes and increased efficiencies, DHCRC identifies, co-invests and supports projects, accelerating the implementation of digital health technologies, underpinned by research-driven evidence.

An incubator for partnerships, translation and commercialisation, the DHCRC has specific interest in the following themes.

Healthcare themes:

- chronic disease
- aged care
- women's health
- emerging infectious diseases
- Indigenous health
- cancer care transformation
- mental health; and
- neurological diseases.

Technology themes:

- virtual care
- telehealth
- consumer health; and
- data flow.

Digital Hive

Funded by the Commonwealth Government and industry partners with AUD\$200million, DHCRC is creating Digital Hive - Australia's first centre for digital health commercialisation.

Digital Hive will act as an intermediary service, intelligently connecting problem with solution, focusing on scalability and commercialisation.

A subsidiary of DHCRC, Digital Hive will solve national and global problems and accelerate digital health solutions and capabilities at scale.



AI in Health Hub

The South Australian Government has established the AI in Health Hub to catalyse use cases into projects that improve lives and deliver global commercial outcomes.

South Australia has world-leading AI and data analytics capabilities, the best longitudinal clinical dataset in Australia and a world-class universal healthcare system. This is complemented by the largest concentration of clinical research in the Southern Hemisphere, a complete clinical trial ecosystem and the presence of world-leading technology companies.

Working with the health system, research capabilities and commercial organisations, the AI in Health Hub will bring project partners together around use cases to develop proof-of-concept or pilot solutions that have the potential to solve global health problems.

Each project will aim to introduce a non-South Australian company to deliver the project in collaboration with at least one of the Australian Institute for Machine Learning (AIML), Massachusetts Institute of Technology (MIT) bigdata Living Lab or the Research Centre for Interactive and Virtual Environments (IVE); or any other approved research and development capability in South Australia.

The AI in Health Hub invites pharma, digital health and technology companies to leverage the State's health and hi-tech ecosystem and collaborate on innovation.

The South Australian Government has partnered with the Digital Health CRC (DHCRC) to optimise project success through applying the CRC's program management expertise and financial support.



Case studies – Digital Health Cooperative Research Centre

PreHaRM: a predictive harm response management algorithmic tool to reduce adverse events in healthcare settings.

Project Participants

Government of South Australia, Central Adelaide Local Health Network, Southern Adelaide Local Health Network and University of South Australia.

This project leverages the opportunity to apply advanced data science techniques to support clinical and executive decision-makers, including optimising patient data analytics to create value for health consumers and stakeholders.

It aims to develop, pilot-test and implement predictive harm algorithms for the two largest health networks in South Australia; Central Adelaide Local Health Network (CALHN) and Southern Adelaide Local Health Network (SALHN).

This tool will utilise existing software frameworks to build a visual, interactive program that will be accessible and reported via a dashboard summary for clinicians and administrators. This will allow them to view real-time insights that describe risk stratification in the hospital setting and produce their own assessments and predictions in real-time to forecast special considerations for safety measures to be implemented.

The project is using 18 months of source data from two major hospitals in CALHN, the Royal Adelaide Hospital and the Queen Elizabeth Hospital.

Pioneering medtech commercialisation

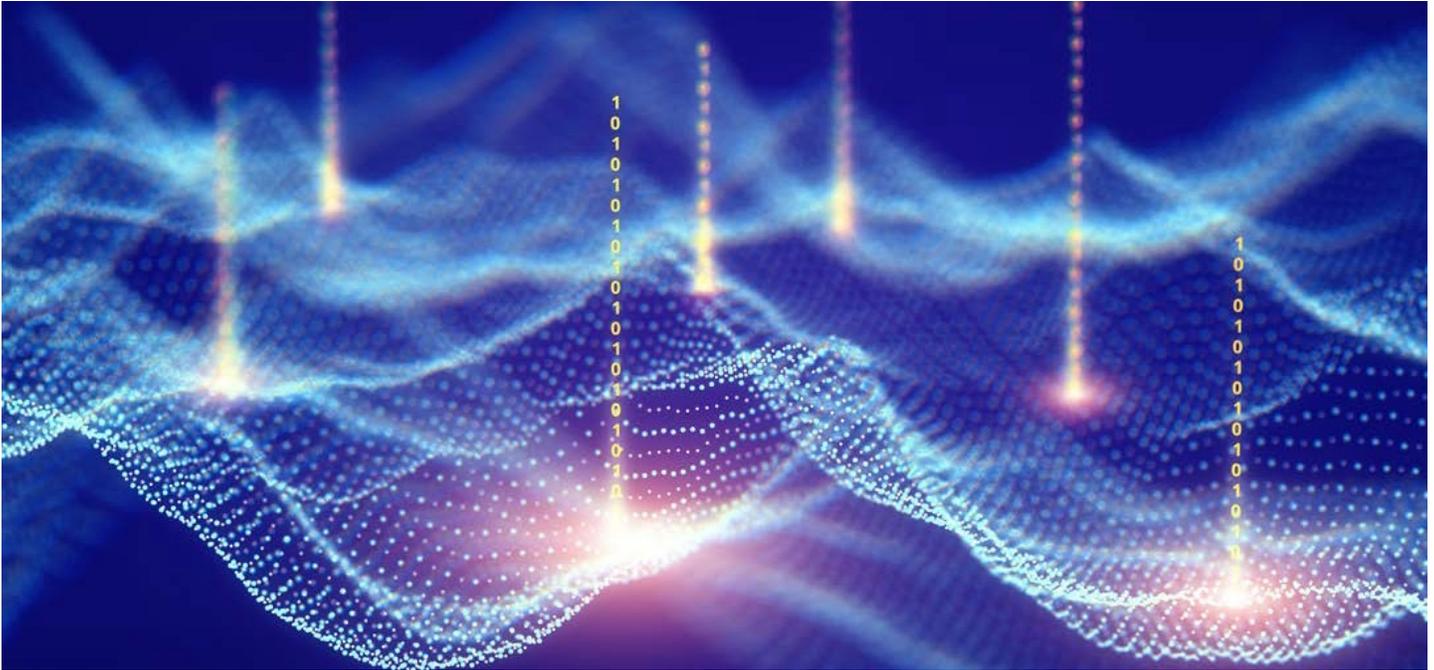


South Australia is pioneering excellence in medtech with a proven manufacturing track record buoyed by our clinical trial expertise and hi-tech capabilities. Our world-leading capabilities in artificial intelligence (AI), machine learning and data analytics are being leveraged by companies embracing innovation and transformation from product development to scaling business growth.

South Australia's highly connected medtech ecosystem is shaping the medtech landscape within Australia, from a company delivering 3D advanced manufactured, anatomically accurate, human body parts to an AI healthcare company improving pregnancy rates with a cloud-based AI system for patients receiving fertility treatments.

Recognised for their expertise in the design, development and manufacturing of medical devices, companies based in South Australia are supported by a highly collaborative network across research, industry and government. The Medical Device Partnering Program (MDPP) was established in 2018 to grow the state's medical technology sector and foster greater collaboration between industry and research. The initiative has been so successful that the MDPP is now operating nationally.

South Australia is the place for medtech companies to achieve key clinical milestones and accelerate the adoption and commercialisation of new devices.



Medical Device Partnering Program

The Medical Device Partnering Program (MDPP) is an award-winning industry and research engagement program established in South Australia. MDPP fosters collaborations between researchers, industry, end-users and government to develop medical technologies with global market potential.

The MDPP provides a mechanism to develop proof-of-concept, prototyping, clinical evaluation and commercialisation planning, enabling clients to leverage the best expertise, perspectives and networks.

The MDPP supports medtech solutions including;

- therapeutic devices
- diagnostics
- hospital equipment and accessories
- surgical instruments
- assistive technologies and software; and
- simulation tools.

The MDPP has considered over 650 ideas for new medical devices and completed over 170 collaborative workshops and 100 R&D projects since establishment.

Projects have included glasses that help frequent flyers and shift workers adjust their sleep cycle, a cancer-detecting probe that is improving surgical outcomes and a device to assist orthopedic surgeons when fixing bone fractures.

Medical Device Research Institute

The Medical Device Research Institute (MDRI) is uniquely multi-disciplinary, working closely with industry, the clinical community and government. MDRI collaborates on creative solutions to address global healthcare challenges.

Headquartered at Tonsley Innovation District within Flinders University's AUD\$120million hub, a dynamic environment that facilitates industry-researcher collaboration. MDRI is committed to advancing Australia's medtech sector and takes a holistic approach to research and teaching integrating engineering, medicine, allied health and information technologies.

MDRI operates with key themes:

- applied research
- facilities and equipment
- research translation
- workforce development.

Research capabilities include:

- Experimental biomechanics
- Motion analysis
- Computational biomechanics
- Sensors
- Signals and image analysis
- Data and cyber security
- Advanced prototyping
- Artificial intelligence and machine learning; and
- PPE testing.

Conducting research in close collaboration with industry and clinical partners, the MDRI also supports the Australian medtech sector through targeted initiatives including:

Alertness CRC

Alertness CRC is an industry-focused program addressing alertness, safety, productivity improvement and sleep research for the workforce. MDRI researchers work with Alertness CRC contributing to device planning, development and personalised sleep health management.

BridgeTech program

BridgeTech is a national professional development program training researchers and entrepreneurs on the commercialisation pathway of new medical technologies. MDRI is a consortium partner of the program led by the Queensland University of Technology.



Biomedical Translation Bridge (BTB) program

An initiative of the Medical Research Future Fund, the BTB program provides up to AUD\$1 million in matched funding for research translation of new therapies, technologies and medical devices. Flinders University, through the Medical Device Partnering Program, is one of three lead partners responsible for assessing and supporting eligible medical technology applications for funding.

Cisco Health IoT lab / Digital Health Design Lab

The new Flinders Digital Health IoT Laboratory is a unique space promoting medical simulation, digital health design and IoT (internet of things) in health. It is a collaborative initiative with Cisco, the Digital Health Research Centre and MDRI working together on emerging technologies to improve healthcare.

Australia-China Centre for Personal Health Technologies

The Australia-China Centre for Personal Health Technologies, led by Flinders University, is a partnership between MDRI, La Trobe University, Motherson Innovations (an Adelaide-based manufacturer) and Chinese partners Nankai University, Shandong Academy of Science, South China University of Technology and Shenzhen AIEgen Biotech. Together, they are developing state-of-the-art personal medical devices incorporating smartphone technology for e-health services, real-time health insights and illness management.

The MDRI is headquartered at Tonsley Innovation District within Flinders University's AUD\$120 million hub, a dynamic environment that facilitates industry-researcher collaboration.

Revolutionising 3D printing and fast prototyping

Australia is working towards becoming a focal point of medical 3D printing, and in line with this progressive scientific transformation the Australian government has funded a number of industry-orientated research centres to train the next generation of biomedical engineers with the skills in personalized 3D printed medical devices, implants, and biofabricated tissues.

South Australia is leading this work with the The Royal Adelaide Hospital being the first public hospital in South Australia to house a 3D printer, which is shared with the Australian Craniofacial Unit and Plastics Department. The 3D printer uses CT scans to develop approximately 40 life size anatomical models each year, including skulls, jaws, hands and fingers for treatment planning and complex trauma cases improving patient outcomes by increasing accuracy and reducing operating times by approximately one hour on average.

Also based in South Australia is Fusetec, a revolutionary medical device company based in the Adelaide CBD that is 3D printing human body part models, complete with realistic, anatomically accurate bone, skin and muscle, for use as teaching aids during surgical training. Fusetec's medical devices can be designed and manufactured to simulate specific pathology, such as tumours, broken bones or defective heart valves, enabling students and surgeons to practice 'real world' specific procedures.



Fusetec

South Australian medical device company Fusetec is revolutionising medical training, using advanced additive manufacturing of human body parts for use as teaching aids during surgical training; complete with realistic and anatomically accurate bone, skin and muscle.

Fusetec opened the world's first 3D advanced surgical training clinic in January 2022, within Adelaide's BioMed City. This AUD\$6.8million investment is part of the company's AUD\$26.5million expansion plan in South Australia. The 25-bed clinic utilises Fusetec's fully operable, soft tissue, surgical training models to train surgeons to perform complex surgeries.

The 3D advanced manufactured, anatomically accurate human body parts disrupt the cadaver market by providing fully operable manufactured products with no harmful infectious diseases and pathology on demand. The clinic attracts surgeons and medical staff from around the globe to rehearse and upskill on rare and complex pathologies.

In a world-first, Fusetec's advanced medical devices and training facilities were demonstrated in 2021, with the University of Adelaide partnering with Hokkaido University to remotely train more than 200 surgeons in Japan in sinus surgical procedures using Fusetec's 3D models.

Fusetec's 3D clinic is the only location in the world where surgeons can upskill and rehearse on advanced manufactured models that translate to living patients and de-risk medical procedures for patients and medical professionals.

“There is a growing need globally for safe, affordable, customisable, and reusable medical devices... COVID has impacted the supply of ‘fresh’ cadavers for medical purposes, furthermore, the cost of purchasing them has risen substantially... Fusetec’s solution solves this and does not have any of the inherent risks associated with cadavers – there are no harmful bacteria, no strict storage and disposal protocols, and no regulatory burdens. Our medical devices are mass-produced, sterile, readily available, and come with pathology on-demand.”

Mark Roe, Chief Executive Officer at Fusetec



Additive Surgical

Additive Surgical is the first company in Australia to manufacture novel 3D printed titanium spinal implant products, using state-of-the-art, European IP. Established in 2020, they are the Australian subsidiary of Tsunami Medical SRL operating their manufacturing, marketing and sales of Tsunami Medical's second-generation implants to Australia.

Additive Surgical recently announced a move to South Australia to leverage our state's strengths in medical technology and advanced manufacturing capabilities to develop new products.

Additive Surgical works closely with Professor Karen Reynolds in the Medical Device Research Institute at Flinders University and six South Australian surgeons to perform R&D and develop new orthopaedic implant products which will be manufactured in South Australia.



AZ3D

AZ3D is a medical 3D printing startup aimed at enabling medical device companies, hospitals and research institutions to better integrate 3D printing for precision health care. AZ3D chose South Australia as the Asia-Pacific headquarters for its parent company Anatomiz3D.

Since establishing in South Australia in 2020, AZ3D has leveraged its expertise to contribute to South Australia's globally-networked medical 3D printing and bioprinting ecosystem. As a significant collaborator and innovator, AZ3D has enabled new developments in bioprinting together with South Australian universities and has secured partnerships and contracts domestically and internationally.

Products:

- anatomical models
- surgical guides
- implants
- cranial helmets; and
- education and simulation models.

Services:

- product design
- rapid prototyping
- research and development; and
- educational courses and workshops.



Nova Eye Medical

Formerly part of Ellex Medical Lasers Limited, Nova Eye Medical has more than 30 years' experience in ophthalmology and is committed to advancing clinical outcomes to improve patient quality of life. Nova Eye Medical designs, develops, manufactures and markets a portfolio of proprietary glaucoma treatment technologies.

Through close collaboration with teaching institutions, researchers and ophthalmic physicians, Nova Eye Medical is introducing a comprehensive portfolio of novel glaucoma treatment options which span the entire disease process – enabling physicians to intervene earlier, and more often, in the treatment of glaucoma. Its highly successful consumables, iTrack™ and Molteno3 devices, reduce intraocular pressure for patients with mild-moderate to severe and complex glaucoma.

AlphaRET, a wholly owned subsidiary of Nova Eye Medical Limited, has been established to drive commercial development of its 2RT® project. 2RT®, a rejuvenative retinal laser therapy that utilises a nanosecond laser pulse and unique pixelated laser beam profile, has the potential to provide selected patients with iAMD the opportunity to delay their progression to vision threatening, late-stage AMD.

In May 2022, through feedback from the United States Food and Drug Administration (FDA), AlphaRET announced that it has defined a clinical study plan and United States regulatory approval pathway for the 2RT® retinal rejuvenation laser for intermediate age-related macular degeneration (iAMD).

Nova Eye Medical is headquartered in Adelaide and has approximately 50 staff based in California and Adelaide.

MICRO-X

Micro-X

Micro-X designs, develops and manufactures innovative, ultra-lightweight, mobile x-ray imaging systems for medical and security applications using their world-leading proprietary carbon nanotube NEX Technology.

Their game-changing Electronic X-ray Tube technology delivers:

- long stable life with no degradation in electron current performance over at least 5 years of multiple daily exposures
- high current with a maximum emitter current of 180mA for up to 2 seconds; and
- simple, scalable, and repeatable fabrication processes.

The first company in the world to bring a medical product using an Electronic X-ray Tube to market, their technology is smaller, lighter and faster, enabling a more portable and precisely controlled imaging system.

Micro-X's hospital mobile X-ray machines increase manoeuvrability so technology can be taken to the patient, rather than the patient to the X-ray room.

Micro-X medical solutions include:

- Carestream DRX-Revolution Nano, distributed via Carestream Health
- Rover Medical, Micro-X branded X-ray machine; and
- CT Brain Scanner, currently in development, this lightweight CT scanner can be integrated into any ambulance.

Listed on the Australian Stock Exchange (ASX:MX1), Micro-X is an ISO13485 compliant operator. They assure exemplary medical device quality and employ rigorous management practices for the development and roll-out of all medical X-ray machines and systems.



PlasmaShield

PlasmaShield is a world-leader in the development of next generation air bio-decontamination technology for microbial elimination and treatment of all indoor environments.

South Australian based PlasmaShield has developed the only technology clinically proven to destroy pathogens transmitted through aerosolised droplets, thereby preventing the spread of infection through coughs and sneezes. It has the potential to eliminate airborne viruses, including COVID-19.

PlasmaShield is a TGA-listed medical device that can be integrated into existing heating, ventilation and air conditioning (HVAC) systems to treat indoor air and destroy bacteria and viruses that are being circulated.

A recent trial of PlasmaShield, in a 450metre² Better Medical general practitioner (GP) clinic in South Australia, was independently verified to have significantly eliminated airborne pathogens within the premises. There are now plans for PlasmaShield to be considered for the 90 Better Medical GP clinics across Australia.

PlasmaShield has partnered with all three South Australian universities to design and independently and extensively test the efficacy and efficiency of the product. In comparison to traditional filter systems and methods, including high efficiency particulate air (HEPA) filters and ultraviolet germicidal irradiation (UVGI), PlasmaShield has been proven to be more effective in destroying microorganisms, decomposing water droplets and removing volatile organic compounds (VOCs) and harmful gases. Results have also verified that PlasmaShield produces no harmful gases or bi-products whilst achieving 8-log reduction in airborne viral contamination. It is a more energy efficient solution, consuming 95% less energy than HEPA filtration.

PlasmaShield is currently exploring United States Food and Drug Administration approval for further commercialisation opportunities.



MAXM

MAXM Managing Director and Founder, Orthopaedic Surgeon, Dr Matthew Liptak developed rehabilitation device MAXM Skate to optimise Total Knee Replacement (TKR) patients self-managed rehabilitation at home.

TGA-approved MAXM Skate is designed to improve joint range of motion and muscular strength, while also decreasing pain and discomfort post-surgery. It is supplemented by the MAXM App and MAXM Watch, which used together, create one of the world's leading evidence-led e-health rehabilitation packages for TKR patients.

The MAXM Skate allows patients to perform low to high load strengthening exercises with minimal joint loading during their rehabilitation period. The skate, along with a sensor (MAXM Watch) and integrated mobile application (MAXM App) enables the patient and their health team to visually measure and track exercise frequency, improvements in range of movement and provide feedback and stay connected while the patient recovers at home.

The TGA-approved MAXM App includes instructional videos for each exercise and captures and reports exercise frequency and range of motion.

The MAXM Watch is one of the only devices of its kind to gain TGA approval and acts as the sensor for the patient's range of motion.

MAXM Skate was developed with assistance from the Medical Device Partnering Program (MDPP), an initiative of the Medical Device Research Institute (MDRI) at Flinders University that supports the development of novel medical devices and assistive technologies.



Presagen (Life Whisperer)

Presagen's innovative use of AI is reducing the time to become pregnant and the cost of fertility treatments. An AI healthcare company based in Adelaide's innovation hub Lot Fourteen, Presagen's Life Whisperer system analyses the quality and viability of embryos and selects the healthiest embryos to transfer during in vitro fertilisation (IVF).

Life Whisperer offers new hope to improve pregnancy rates with a cloud-based AI system, trained on over 20,000 globally sourced 2D embryo images; a powerful basis for the Life Whisperer AI to quickly identify features invisible to the human eye.

Clinics around the world use Life Whisperer to help skilled embryologists identify the most viable embryos to focus on for their patients. With greater IVF certainty, more people can attempt IVF to build their family. The technology is complementary to IVF clinics' current workflow and embryo selection techniques. It eliminates subjectivity and ensures standardised grading within and across clinics.

According to Presagen's chief executive and co-founder Michelle Perugini, an international clinical trial involving 1,600 embryo images found Life Whisperer Viability was 25 per cent more accurate in assessing an embryo's viability than highly experienced embryologists alone and reduced the time it took to become pregnant by 15 per cent.

Life Whisperer is currently approved for use in Australia, Canada, Europe, Hong Kong, India, Japan, New Zealand, Singapore, United Kingdom and Vietnam.



LBT Innovations

LBT Innovations is a medical technology company whose core capabilities include AI, image analysis and software engineering solutions that improve medical diagnostic workflows.

Publicly listed on the Australian Securities Exchange (ASX: LBT), LBT Innovations' first technology MicroStreak, is an automated culture plate streaking system. Brought to market as the PREVI® Isola, the technology initiated a new era in automation for clinical laboratories.

Partnering with the Australian Institute of Machine Learning, LBT Innovations developed the Automated Plate Assessment System (APAS®), the first artificial intelligence diagnostic medical device to achieve FDA Class II clearance. The platform technology streamlines the plate triaging stage of the microbiology workflow, delivering reliable and consistent plate results three times faster than a highly skilled scientist.

The company is developing a pipeline of AI-based solutions for microbiology, with APAS® Independence in early global commercialisation. Designed to alleviate the bottleneck in culture plate reading to provide a greater level of consistency, traceability and reliability, APAS Independence is a world-first instrument that uses artificial intelligence algorithms to autovalidate plates showing non-significant bacterial growth, freeing up time and resources to focus on clinically actionable data and other value-added tasks.

LBT Innovations' active product pipeline includes:

- APAS®-AMR - automated plate assessment system for antimicrobial resistance
- WoundVue - assists clinicians in the assessment and care of chronic wounds
- APAS® Pharma - automatically detects microbial growth on culture plates used for environmental monitoring
- Biofilm - device to detect presence of biofilms in the presence of mammalian tissue
- Automated Gram Stain Assessment – extension of APAS® technology for automation of gram stain image analysis; and
- MicroStreak - automates the process of culture plate streaking and inoculation for busy microbiology laboratories.

LBT Innovations is exploring opportunities to extend the APAS® platform and are always looking for new opportunities to apply their expertise in image analysis and software development to create new technologies to improve healthcare delivery.

For companies looking for an experienced partner to bring new technologies to market

LBT Innovations offer:

- end-to-end process management
- innovation to final product
- medical device software (IEC 62304)
- clinical trials
- regulatory know-how including FDA, CE and TGA
- patented technology
- commercialisation with a dedicated global sales team; and
- dedicated lab facilities designed to PC2 standards with a large collection of wild and reference strains for development activities.



Aged Care Research and Industry Innovation Australia

Aged Care Research & Industry Innovation Australia (ARIIA) is an industry-led organisation established to engage with the sector to collaboratively lead and facilitate the positive transformation of aged care nationwide.

ARIIA was established as an independent, not-for-profit organisation, set up to lead the advancement of the aged care workforce capability by promoting and facilitating innovation and research to improve the quality of aged care for all Australians. As the collaborative hub for our national aged care ecosystem, ARIIA aims to ensure the aged care sector is enabled and responsive to the needs of the community to deliver high-quality outcomes and increase the opportunity for all Australians to enjoy healthy, well-supported ageing.

Through collaboration with the aged care sector, ARIIA has developed three programs each with their own priorities and focus to enable improvements across the aged care sector. The Innovator Training Program, the Aged Care Partnering Program and the Innovator Network program have been established to train, educate and nurture our aged care workforce throughout their career.

The Innovator Training Program supports the aged care workforce to apply the best evidence available to improve care and service delivery. The Program is designed to provide the aged care workforce with the skills and tools to use available knowledge and evidence to solve a problem that they have identified in their workplace.

The Aged Care Partnering Program provides individuals and businesses to partner with experts to solve problems. The program combines intensive workshops with individual online meetings facilitated by ARIIA Innovation Managers and Research Fellows providing introductions to potential partners, industry experts and/or stakeholders that can collaborate to co-design the best project solutions.

The Innovator Network enables ARIIA Innovators to connect with others to build knowledge, skills and capability to implement evidence-informed practices within the workplace.



Global Centre for Modern Ageing

Global Centre for Modern Ageing

The Global Centre for Modern Ageing (GCMA) is not-for-profit and our purpose is to improve the lives of older people.

The GCMA provides research and insights, advisory and living lab services to support businesses and organisations to develop better products, services and solutions to meet the needs of the growing and changing older community.

With two key research themes of public benefit research projects and bespoke research projects, the GCMA have a deep expertise in end-user experience research, which brings fresh, evidence-based insights to the Ageing Well industry.

Located at Tonsley Innovation District, the internationally accredited, award-winning Living Laboratory is a leading, real-time test facility that allows organisations to invent and trial products and services in a simulated 'real-life' environment. Here, the GCMA's researchers work alongside older people and businesses to co-design and validate products, services and experiences that will better serve the lives of ageing people in Australia and around the world.



cura¹

cura1 is an established provider of electronic medical care products, used in hospitals, aged care homes, retirement villages, dementia wards, independent living and residential care. As well as being a leading manufacturer of these products, cura1 also provides in-house customer support and technical support to help distributors and customers with product application, system design and product technical support and repairs.

cura1 has developed an innovative range of devices and systems for use in:

- fall prevention for the elderly or people who are frail, convalescing or unwell,
- wandering resident and Patient care for people with Alzheimer's or other forms of dementia,
- staff alert and security for facility staff, visitors, residents and patients; and
- duress systems for high risk areas and call assist system for low and moderate risk areas.



Goldilocks

Goldilocks is an Adelaide start-up business that has developed a suit to measure the vital signs of babies. The garment presents like a bodysuit baby singlet with sensors screen printed on it that detect motion, activity and temperature. The sensors connect to a low-energy Bluetooth module that sits in a pocket on the tummy of the suit and connects to a mobile phone app, which passes the data through machine learning algorithms to predict what state your baby is in and also looks at temperature and breathing.

In 2021, Goldilocks entered into a partnership with aged care provider ECH to adapt the smart clothing product to help the elderly stay living at home longer. Goldilocks will adapt the technology to create smart clothing for older people that provides a comfortable way of assessing their wellbeing and quality of life in an unobtrusive way. ECH will be able to track are things like core temperature, skin temperature, breathing and location.



Ellex Medical

Ellex Medical designs, develops, manufactures and sells innovative products that enable ophthalmic surgeons the world over to effectively treat eye diseases and is a world-leader in this field. Ellex Medical has a range of products that comprises of lasers and ophthalmic devices for the treatment of glaucoma, retinal diseases caused primarily by diabetes, secondary cataracts, vitreous opacities and age-related macular degeneration.

Located in Technology Park Adelaide, Ellex Medical manufactures their products in a purpose built facility with state-of-the-art production capabilities. Ellex Medical has also expanded globally through subsidiaries in the United States, France and Japan



Austofix

Austofix is a leading manufacturer and designer of orthopaedic trauma medical devices with a particular focus on innovation, excellence and patient safety. Austofix has the expertise and experience in developing a new device from concept to a fully commercialised product with regulatory approval for world-wide distribution.

Austofix has gathered a team of world-class research and development specialists and together with orthopaedic surgeons, their specialists identify emerging techniques and innovations in the field of orthopaedic trauma and develop world-class solutions. Austofix is now one of Australia's key contributors to the world-wide medical technology industry. By focusing on specific market needs they can leverage their staff's expertise to develop effective solutions and successfully compete on the world stage.

Austofix products and innovations assist surgeons in performing accurate, efficient and safe procedures that result in better health outcomes for the patient.



Motherison Group

The Motherison is one of the world's leading auto component makers and have now developed advanced technologies for applications in a diverse range of additional industries including healthcare and medical, renewable energy, IoT, mining, defence and agriculture.

Motherison invest in, license and commercialise research-based devices and diagnostics from initial concept, through to a regulatory approved and validated market-ready product. From the preparation of clinical trial prototypes, to full scale manufacture and the integration of complex machine learning in automated diagnostics. Motherison can also support customers requiring the contract manufacture of medical devices in their ISO 13485 quality accredited facility.

Re-Timer

Re-Timer uses light therapy to help people influence their sleep times by suppressing melatonin production. Through collaboration with Flinders University, Motherison helped to develop Re-Timer from the early prototype models, through structural analysis and hazard assessments to final regulatory certification. Motherison manufactures Re-Timer to ISO 13485 medical device standards and manages the end-to-end supply of this Class 2a device to customers world-wide. This ergonomically designed product can be worn for 60 minutes per day to achieve desired results.

Re-Timer is assembled in a state of the art clean room, in Adelaide, South Australia and has been sold in more than 40 different countries worldwide and is the world's number one selling wearable light therapy device.





Axiom Precision Manufacturing

Axiom Precision Manufacturing has built a long-standing reputation delivering high-quality products for industry. They work with clients to understand the varied needs of the industries they work with, and build sector-specific solutions for medical devices, defence, aerospace and space, mining, rail and energy. Their medical devices project include the delivery of:

- Implant components, including bone plates and nails
- dental implant components,
- eye & laser surgery machine components,
- specialised surgical equipment,
- medical testing equipment (hexapod robotic simulator); and
- tooling and injection moulding for medical components, including sleep apnoea masks, syringe components, DNA sample test plates, and components for Micro-X; the mobile X-ray medical and security imaging system.

Axiom Precision Manufacturing was approached by a leading international neurologist to assist in taking a revolutionary Autonomic Nervous System clinical electronic device, the Cold Glove, from prototype to small-scale production of working samples for testing. The Cold Glove is a device that helps regulate certain body processes, such as blood pressure and rate of breathing, which significantly decreases the risk of any permanent damage after injury.



TekCyte

Based in Adelaide, South Australia, TekCyte emerged from the Cooperative Research Centre (CRC) for Cell Therapy Manufacturing. TekCyte is a medical coating company which develops and manufactures advanced nano-scale coatings that can be applied to various implantable and nonimplanted medical devices. It's lead technology, BIOINVISIBLE™, is safe and biocompatible and can reduce the likelihood of patients developing complications from implanted devices. It can be used on vascular and non-vascular implants to improve their performance and durability. TekCyte also has a contract service business which develops bespoke coatings for customers seeking to enhance their products' performance or to develop novel materials that can be used in devices or biomedical applications such as research and diagnostics.

TekCyte have developed exciting advanced medical coatings that have the potential to transform the implantable device industry. Partnering with global device companies TekCyte aims to bring to market better and safer products to improve the outcome for patients requiring surgical intervention. TekCyte will also undertake contract research with companies to develop bespoke coatings tailored to their commercial needs.



RehabSwift

RehabSwift is a MedTech research and development company born from revolutionary Neural Engineering PhD research at the University of Adelaide. Their ground-breaking technology gained TGA approval in 2021. RehabSwift has spent the past ten years developing a rehabilitation approach for enhancing motor, sensory and cognitive capabilities for survivors of neural injuries. This brain-computer interface (BCI) technology has created a neuro-feedback training service for stroke survivors

Incorporating BCI technology into an innovative software and hardware system, electroencephalogram (EEG) signals are processed to transform an individual's intention to move into the robotic-assisted physical movement of the affected hand, completing the motor-sensory loop and encouraging neural pathways to strengthen. The repeated practice of this neurological training has shown an increase in sensation, grip, pinch strength and reaction time of the affected arm and hand.



Flourish Pharma

Flourish Pharmaceuticals Australia is one of Australia's leading contract manufacturers of listed medicine, dietary supplements, functional skincare and medical devices. Flourish work with a range of companies to create a wide variety of products including tablets, capsules, powders, liquid and sachets. Flourish differentiate themselves by not having a minimum order quantity requirement so are ideal for clients seeking small batch production.

Their inhouse analytical testing facilities cover all aspects of testing, ensuring full product quality, purity, safety and compliance with full traceability.

The group has a subsidiary brand namely Evermax Nutraceutical which focuses on AUST L products, medical nutrition product (FSMP), Manuka Honey sachet product, baby shampoo, baby oral care and functional Skincare.

With a new built state-of-the-art pharmaceutical manufacturing and research facility at Royal Park, South Australia, Flourish has a full range of machinery and technologies to provide a custom manufacturing solutions tailored to your needs. They are dedicated to providing a customer-centered solution from development to distribution.



BIONAT

BIONAT Australia Pty Ltd is an innovative and unique customised packaging solutions company with a difference, specialising in honey-specific products including manuka honey consumable sachets in liquid, powder & freeze-dried products.

Their state-of-the-art facility offers market-leading sachet packaging using highly advanced and specialised custom-built machinery. They offer flexibility in the development and manufacture of premium natural health food supplements and offer product customisation to suit the individual needs of export honey related products in the health and wellness space.

The company's forward-thinking ideas, new-age machinery, and collaboration with local and international resources, gives BIONAT the advantage to offer low cost, and high-quality white label products and solutions with speed and agility, without compromising on quality.

BIONAT offer competitive packaging solutions with full documentation as mandated by relevant government, customer, and industry requirements for assured and efficient export. Their facility follows strict HACCAP regulations, ISO accredited and GMP accredited standards. They follow stringent quality control processes to ensure all food safety standards and regulations are adhered to through the implementation of testing protocols to ensure the compliance of high standard and high quality packaged products.

Bionat Australia is also the parent company of ManukaOz who offer Australian manuka honey in various ranges of pure, native botanical infusions and superfood blends.

Delivering with inventive biotech companies



South Australia presents a thriving biotech network, with a competitive edge across clinical trials and pharmaceutical innovation.

Our state is known for our strengths in medical technology and advanced manufacturing capabilities to develop new products.



Biomebank

BiomeBank is a clinical stage biotechnology company developing a pipeline of microbiome-based therapies to treat unmet medical need. BiomeBank's mission is to treat and prevent disease by restoring gut microbial ecology.

Backed by a world-leading team of translational microbiome experts, BiomeBank's platform uses a unique combination of machine learning and microbiology to identify bacterial strains which influence disease, leading to the discovery and development of new therapies.

The company is taking an eco-system approach to developing microbiome-based therapies and has developed a complex synthetic bacterial community similar to microbiota transplantation. This complex community is subsequently enriched with key bacterial strains which carry targeted functions for treating certain chronic diseases. Importantly this synthetic bacterial community can be manufactured in a bioreactor and therefore scaled to meet patient unmet medical need globally.

In partnership with world-leading organisations running large-phased clinical studies, BiomeBank is building a pipeline of microbiome-based therapies to treat diseases ranging from recurrent *Clostridioides difficile* infection (*C.difficile*), to Ulcerative Colitis and Crohn's disease.

The logo for Sementis, featuring the word "sementis" in a bold, lowercase, purple sans-serif font, with a small "TM" trademark symbol to the upper right of the "s".

Sementis

Sementis Ltd is a biotechnology company based in Adelaide, South Australia and dedicated to research and development of new vaccines to tackle viruses and diseases globally. Sementis conducts its research and development activities in partnership with the University of South Australia.

They use their proprietary Sementis Copenhagen Vector (SCV) and associated manufacturing system for the rapid development of effective vaccines to tackle infectious diseases of highest unmet medical needs as well as vaccines for pandemic preparedness. Their vaccine technology is also under evaluation for the prevention of allergies, with potential future applications also in cancer.

Sementis is developing a vaccine for allergies for prophylactic and therapeutic use. With peanut allergy being one of the most common food allergies worldwide (with potentially fatal consequences), Sementis has a candidate for a peanut allergy vaccine and is exploring other areas of allergy.



Vaxine Pty Ltd

Vaxine is an Australian-based biotechnology company that over the last 20 years has developed an extensive portfolio of vaccines and immunotherapies, including vaccines against Covid-19, influenza, hepatitis B, and Japanese encephalitis plus immunotherapies against allergy and cancer.

Underlying all these successful vaccines is Vaxine's powerful vaccine adjuvant technology including its capabilities in applying artificial intelligence to rapid drug design.

Vaxine developed the first swine flu pandemic vaccine in the world in 2009, the first AI-designed vaccine in the world in 2019, and the first approved recombinant spike protein vaccine in 2021.

At the same time as managing these successful product launches, Vaxine continues to successfully publish 15-20 scientific research papers every year.



BTG Specialty Pharmaceuticals

BTG Specialty Pharmaceuticals provides rescue medicines typically used in emergency rooms and intensive care units to treat patients for whom there are limited treatment options.

BTG Specialty Pharmaceuticals' current portfolio of antidotes counteract certain snake venoms and the toxicity associated with some heart and cancer medications. They actively research new uses for their products and explore opportunities to license or acquire additional products that enable specialist physicians to serve their patients better.



Bionomics

Bionomics is a clinical-stage biopharmaceutical company developing novel, allosteric ion channel modulators designed to transform the lives of patients suffering from serious central nervous system (“CNS”) disorders with high unmet medical need. Ion channels serve as important mediators of physiological function in the CNS and the modulation of ion channels influences neurotransmission that leads to downstream signaling in the brain.

Utilising their expertise in ion channel biology and translational medicine, Bionomics is advancing its lead product candidate, BNC210, an oral proprietary selective negative allosteric modulator of the $\alpha 7$ nicotinic acetylcholine receptor, for the acute treatment of Social Anxiety Disorder (“SAD”) and chronic treatment of Post-Traumatic Stress Disorder (“PTSD”).

Bionomics has a strategic partnership with Merck & Co., Inc with two drugs in early-stage clinical trials for the treatment of cognitive deficits in Alzheimer’s disease and other central nervous system conditions.



Helixa Proprietary Limited

Helixa Proprietary Limited, a South Korean genetic analysis company, uses leading artificial intelligence on cancer samples for individualised treatment to predict the best outcome options. It offers a new generation of personalised care and is the first of its kind for cancer therapy in Australia.

Helixa Proprietary Limited is a commercial entity of the Samsung Genome Institute and is establishing in South Australia's Tonsley Innovation District.

The company's initial focus will be the introduction of services using Cancerscan and Liquidscan for in-vitro cancer sample analysis to predict treatment outcomes. Going forward, the company will also establish laboratory services and training in South Australia.

The company's capability and technology will have broad benefits to South Australia's health and medical industries' ecosystem through interactions with artificial intelligence, research and development and clinical trials.

Helixa Proprietary Limited chose to establish their laboratory in South Australia due to its leading health and medical facilities and valuable professional networks and associates.

“Helixa uses the most advanced methods known to deliver precision therapy, we use the genetic sequence of each cancer to predict the optimal validated drug that will improve the outcome of treatment. This avoids needless suffering for patients and increases doctor’s productivity.”

Dr Clay Matthews, Chief Executive Officer at
Helixa Proprietary Limited

Adelaide innovation and research hubs



Health and life science innovation precinct

Adelaide BioMed City

With more than 2,000 researchers and 10,000 staff, the AUD\$3.8billion Adelaide BioMed City precinct is home to expertise and capabilities that can deliver immediate value for your company. This health and life sciences precinct brings together institutes and centres from health and life sciences, clinical care, research, education and industry.

The precinct is built around the Royal Adelaide Hospital (RAH) and the South Australian Health and Medical Research Institute (SAHMRI), offering a true bedside-to-bench capability with a key focus on research translation to improve health outcomes for patients.

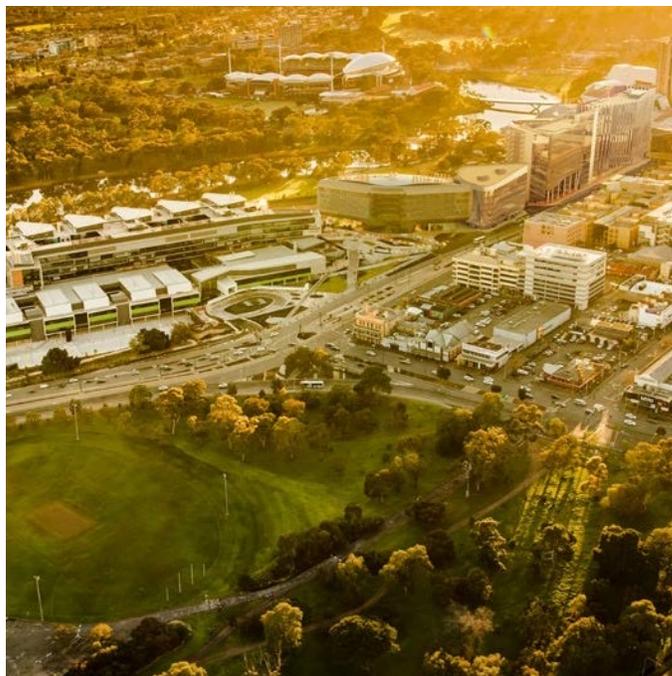
Opened in 2017, the RAH is one of the world's most expensive and technologically advanced healthcare facilities. With a single electronic medical record (EMR) and a statewide single patient identifier, the RAH is part of a healthcare network that includes three major teaching hospitals, the Women's and Children's Hospital, three acute care metropolitan hospitals and more than 67 regional facilities.

SAHMRI, the state's flagship research institute, has a key focus on research translation with precision medicine, lifelong health (mind and brain, nutrition and metabolism and heart health), women and children, and Aboriginal health as the major themes. SAHMRI hosts Australia's largest and most successful data registries.

The precinct is home to a range of specialist research institutes and organisations that are supported by a world-class genomics capability, a cancer research biobank and the country's largest public pathology and medical imaging capabilities.

In addition, Adelaide BioMed City incorporates state-of-the-art, FDA-accredited Good Manufacturing Practice (GMP) manufacturing, servicing research and development to commercial scale. This is supported by Line Zero, an Industry 4.0 research, development and innovation centre.

Combining Australia's most experienced end-to-end clinical trial supply chain with a regulatory framework that provides the fastest pathway to First-In-Human (FIH), Adelaide BioMed City enables clinical trial conduct for submission to global regulatory agencies.



With South Australia ranked above the number one Organisation for Economic Co-operation and Development (OECD) country for impact of research citations in chemical engineering, chemical science, mathematical science and computational theory, mathematics, ICT, artificial intelligence and image processing, the Adelaide BioMed City research and university capabilities produce the largest concentration of clinical research in the Southern Hemisphere and are ranked in the top two per cent globally.

The University of Adelaide is ranked in the top one per cent of global universities, the University of South Australia is ranked 25 in the world for universities under 50 years old and 90 per cent of research at Flinders University is rated world-class.

Adelaide BioMed City has a pipeline of new projects that will soon position and deliver the AUD\$6billion precinct as one of the world's largest and most advanced including the Australian Bragg Centre for Proton Therapy, the South Australian immunoGENomics Cancer Institute (SAiGENCI), hi-tech new Women's and Children's Hospital (nWCH) and a new highly specialised pathology facility including pneumatic tubes to the RAH and nWCH.



Royal Adelaide Hospital

The Royal Adelaide Hospital (RAH) is the state's flagship hospital and is one of the world's most technologically advanced healthcare facilities. The RAH integrates the latest innovations across health, education and research to deliver high-quality care. It is the home to one of the biggest automated pharmacy distribution systems in the nation and is at the forefront of automated medication technology.

Celsus, the consortium that manages and maintains the RAH, has secured the world's largest healthcare sector green and social loan. This is groundbreaking, both in Australia and internationally, with the scale of the financing reflecting extraordinary credibility in the green and social market.



new Women's and Children's Hospital

Co-located with the RAH, the world-class new Women's and Children's Hospital (nWCH) will be Australia's first all-electric hospital, helping to avoid an additional 2,178 tonnes of greenhouse gas emissions each year. It will be entirely powered by the South Australian electrical grid – the cleanest in the country, through on-site electricity generation and storage.

The new hospital will improve the transition of care to adult services for adolescents, enhance mental health care facilities, and will further education, training and research capabilities with access to contemporary health services in a single location within Adelaide BioMed City.

Critical data for clinical care

Statewide Clinical Support Services

Statewide Clinical Support Services (SCSS) is the umbrella organisation that oversees pathology, pharmacy, breast screening and medical imaging. These services provide critical data to clinicians and patients to facilitate diagnosis and treatment. The SCSS governance structure provides a single point for engagement in relation to clinical trials and digital health. Combined, these four services capture 80 per cent of this health data from South Australia's population, including data from every child born.

SCSS has an ongoing partnership with AIML focused on leveraging these data assets to improve health outcomes for all South Australians.

SA Pathology

SA Pathology is the largest laboratory network in terms of volume, infrastructure and staff in South Australia. Performing over 42 million tests for the previous three financial years, complementing 80 years of historical pathology data, the organisation provides a critical service to clinicians and patients across the state, both within the community and across the vast public hospital network.

The ability to innovate and implement unique solutions is evidenced in SA Pathology's response to COVID-19. This included the world's first drive-through collection centre, with overall efforts and successes recognised with numerous awards including special recognition from the International Hospital Federation's Beyond the Call of Duty for COVID-19 response recognition program.

SA Pharmacy

SA Pharmacy provides a pharmacy service to South Australia's metropolitan public hospitals and at country hospitals with on-site pharmacy departments and associated outreach sites. This equates to over 650,000 patient interactions and over 1.15 million medications dispensed each year.

BreastScreen SA

BreastScreen SA is South Australia's dedicated breast cancer screening program, providing free screening mammograms (breast X-rays) every two years to women aged over 40.

This state wide service has seven fixed screening clinics and three mobile screening units throughout South Australia, screening around 100,000 women each year with the aim to detect breast cancer in early stage.

Since opening in 1989, BreastScreen SA has performed more than two million screening mammograms and reduced deaths from breast cancer by 52 per cent.

South Australian Medical Imaging (SAMI)

Established in 2012, South Australian Medical Imaging (SAMI) is the largest public imaging provider in Australia and provides specialist, integrated, multi-disciplinary medical imaging to public and private inpatients, outpatients and emergency department patients within seven metropolitan and four country South Australian hospitals.

SAMI provides a 24/7 service and performs over 660,000 examinations each year, equally divided across inpatients, outpatients and emergency patients.

Research

SCSS and its research partners investigate many forms of cancers, immune and genetic disorders, infectious, lung and endocrine diseases, transplant treatments, burn therapies, spinal, joint and bone conditions, and advances in neuropathology and microbiology.

SCSS researchers conduct fundamental and translational research in world-class facilities to actively foster research and its translation into diagnostic testing. The fields of genetic and molecular pathology and cell imaging are areas where significant advances are being made in personalised medicine through innovative technology.



South Australian Genomics Centre

The South Australian Genomics Centre (SAGC) is a state-wide genomics facility that delivers state-of-the-art, end-to-end genomics services to the research and clinical communities in South Australia, nationally and internationally.

The SAGC is a partnership between SAHMRI, University of South Australia, Flinders University, the University of Adelaide, the Australian Genome Research Facility (AGRF) and the Australian Wine Research Institute (AWRI).

The SAGC provides a broad range of services including RNA sequencing, small RNA sequencing, exome and genome sequencing, epigenomics, metagenomics, single cell genomics and a range of custom methods.

These services are supported by a dedicated bioinformatics platform that supports users of the facility by developing advanced and customised approaches for data analysis, integration and visualisation. The SAGC supports researchers and clinicians from partner institutes, industry partners and other external clients.

All areas of genomics including animal, plant, environmental, microbial, and human genomics are supported.

The SAGC central hub is located in the SAHMRI building in Adelaide Biomed City and has additional nodes at the University of Adelaide's Waite Campus and Flinders University.



South Australian Cancer Research Biobank

The South Australian Cancer Research Biobank (SACRB) is the largest haematological disease biobank in Australia in terms of the total number of patients, specimens and individual diseases collected.

SACRB is a physical repository for biospecimens and clinical data collected from patients attending South Australian hospitals for a number of haematological and oncological disorders.

The repository includes existing and prospectively collected biospecimens and data. The key goal of SACRB is to provide infrastructure for the support of cancer research in South Australia to enhance scientific knowledge and improve patient treatment outcomes.

The SACRB has dedicated staff for specimen processing, storage and release, data management and quality assurance under the supervision of a scientific manager.

SACRB's biospecimen access policy and procedure focuses on the timely release of biospecimens for ethically approved projects.



SA-NT DataLink

SA-NT DataLink provides high quality data linkage services to support research, policy development, service planning and evaluation.

Located in Adelaide Biomed City at SAHMRI, the SA-NT DataLink provides access to accurate and unbiased information held by Government agencies and other organisations, enhancing SAHMRI's capacity to perform large-scale critical data linkage studies.

Using de-identified data linked for large or entire populations is more inclusive, representative and unbiased and more cost-effective and efficient than conventional studies based on sampling.

SA-NT DataLink's population research infrastructure has been established with high levels of security and best practices protecting the privacy of individuals while enabling widespread access to researchers.

SA-NT DataLink is a collaboration between South Australia and Northern Territory partners and part of an Australia-wide national data linkage network - the Population Health Research Network (PHRN).

Health and life sciences research



South Australian Health and Medical Research Institute

The South Australian Health and Medical Research Institute (SAHMRI) is our state's flagship health and medical research institute.

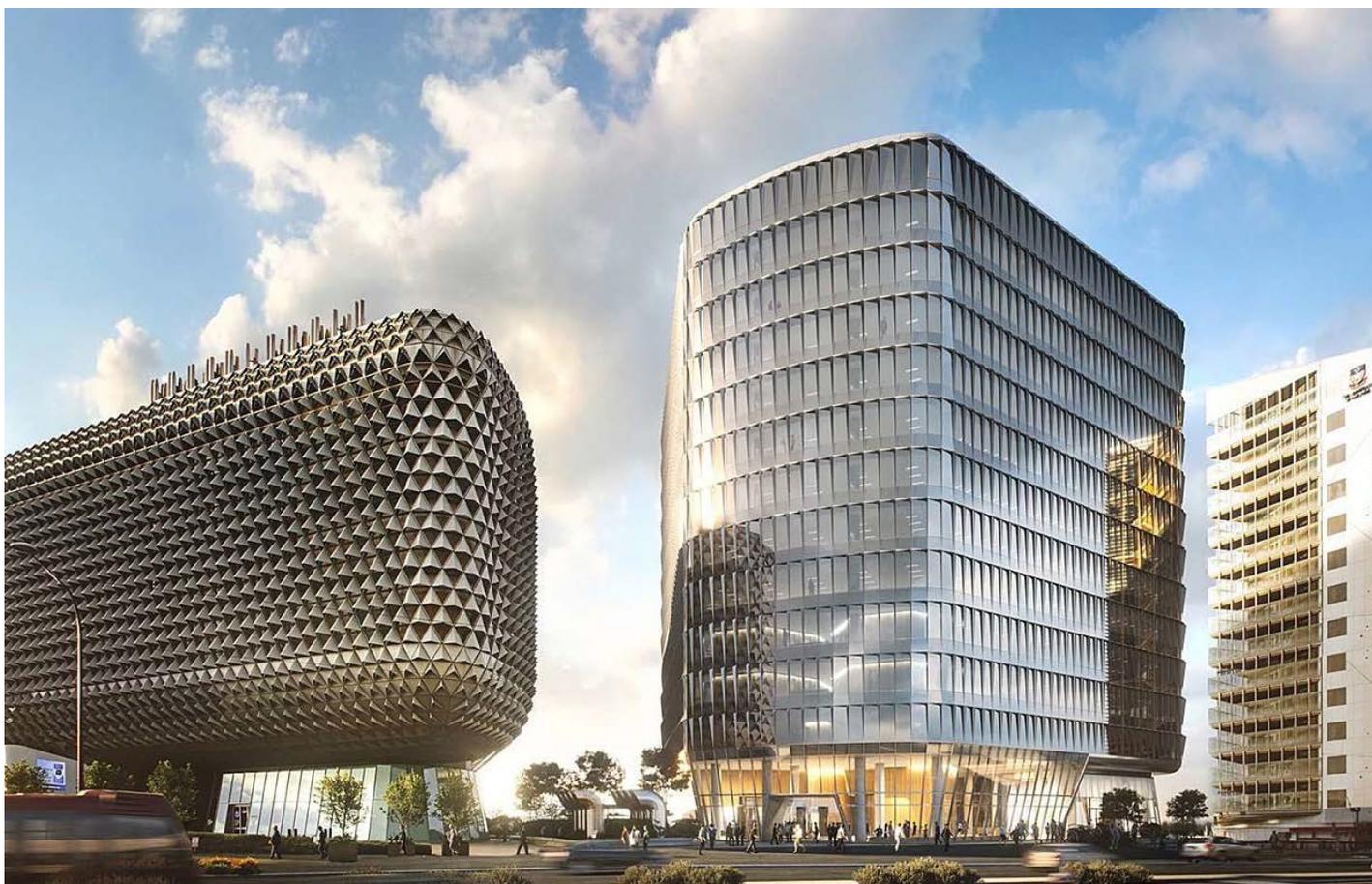
SAHMRI's key research themes are precision medicine, lifelong health (mind and brain, nutrition and metabolism and heart health), women and children, and Aboriginal health.

Within SAHMRI's precision medicine theme, the Blood Cancer Program researches in the areas of acute lymphoblastic leukaemia, acute myeloid leukaemia, chronic myeloid leukaemia, myelodysplastic syndromes and myeloproliferative neoplasms.

SAHMRI has significant clinical trial expertise and provides a central resource for conducting and coordinating clinical trials. The Institute's ability to collect, manage and store real life, large data sets coupled with its ability to apply AI including machine learning for insight and prediction through collaboration with AIML are central to SAHMRI's reputation as an internationally recognised leader in clinical trial coordination and completion.

Professor Steve Wesselingh, SAHMRI's Executive Director, asserts that AI has the potential for the greatest transformational impact on healthcare in decades and the Institute is working in partnership with AIML to realise this potential.

Data and AI are increasingly large parts of SAHMRI's diverse research programs. Data analytics, registries, data linkage, clinical trials and high-performance imaging are key components of the Institute's broader vision of ensuring the quality and sustainability of health care in Australia and globally.



The Australian Bragg Centre for Proton Therapy

Located within Adelaide BioMed City and set alongside SAHMRI, the Australian Bragg Centre for Proton Therapy will be Australia's first proton therapy unit and the first of its kind in the Southern Hemisphere. The centre will provide the most advanced precision proton radiation treatment to paediatric, adolescent and adult patients with rare cancer types.

Housing an additional 500 researchers, including key opinion leaders, over 14 levels, the building is expected to be completed in 2023.

The proton therapy machine will undergo 12-18 months of installation and testing before patient treatment commences.

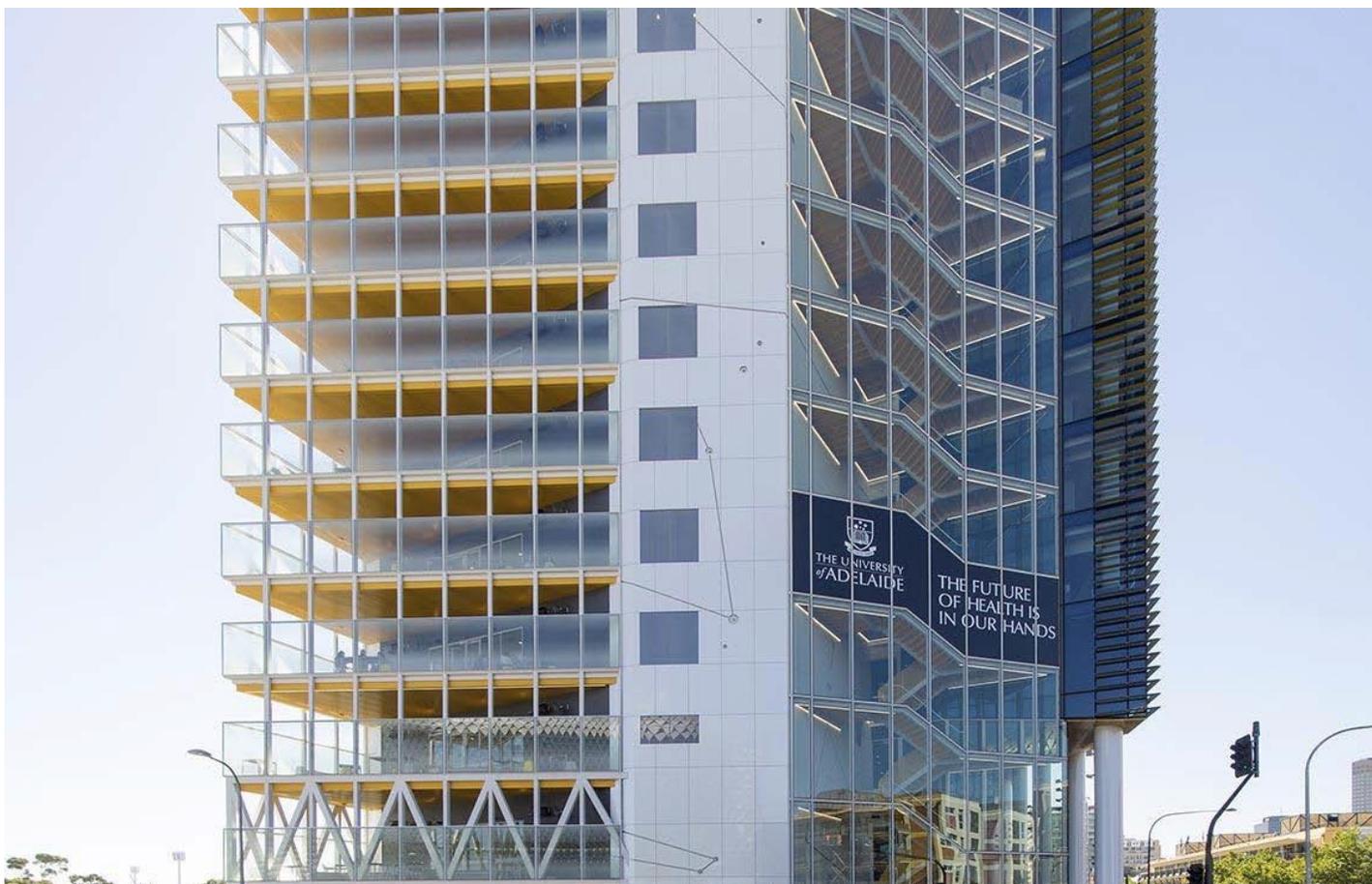
Proton therapy delivers precise, non-invasive radiation that has the capacity to eliminate previously inoperable tumours while minimising exposure to surrounding healthy tissues. This will enable safer treatment of cancers in younger patients and cancers that are close to vital organs.

The Australian Bragg Centre for Proton Therapy will become Australia's primary capability for paediatric oncology and will incorporate a paediatric cancer biobank. The Centre will be an integral part in a global network undertaking proton therapy research. The technology is potentially beneficial in treating many other diseases and more research is set to be undertaken to consider and review this capability.

The Bragg Comprehensive Cancer Centre (BCCC) will be the new hi-tech cancer research centre to operate within the Australian Bragg Centre. The federal government recently announced it would invest AUD\$77million to establish the BCCC. The BCCC will transform cancer research, care, support and preventative measures for South Australians and people everywhere.

BCCC's principal partners are SAHMRI, the Central Adelaide Local Health Network, Women's and Children's Health Network and the University of Adelaide and is due for completion in 2025.

The centres will further position Adelaide as the best location for oncology patient treatment, clinical trial conduct and clinical research.



South Australian immunoGENomics Cancer Institute

The South Australian immunoGENomics Cancer Institute (SAiGENCI) is an independent cancer-focused medical research institute focusing on cancer research and clinical trials, which includes new cutting-edge technologies in immunotherapies and genomics.

SAiGENCI will be integrated with SAHMRI and the University of Adelaide to propel oncology drug development and enhance patient outcomes. Key opinion leader Professor Christopher Sweeney will lead the Institute, moving from Harvard University/Harvard Medical School/Dana-Farber Cancer Institute to Adelaide.

CRC for Cell Therapy Manufacturing

The CRC for Cell Therapy Manufacturing, through CTM@CRC Ltd., facilitates the cost-effective manufacture and rapid translation of cell therapies into clinical practice.

The CRC provides new treatments and develops new materials-based manufacturing technologies to increase the affordability, accessibility and efficacy of cell therapies for the treatment of conditions such as diabetes, chronic wounds, cardiovascular disease and immune-mediated diseases such as graft versus host disease.

Their national and international partners include research providers, manufacturers, hospitals and charities. Underpinning this partnership is a newly established cGMP manufacturing facility, designed to deliver cell-based therapeutics for the CRC for Cell Therapy Manufacturing's first-in-human clinical trials.

Headquartered at the University of South Australia's Mawson Lakes campus, the CRC for Cell Therapy Manufacturing brings together the skills and facilities required to turn a promising cell into a viable cell therapy.



Carina Biotech

Carina Biotech was formed in 2016, as a spin-out of the highly successful CRC for Cell Therapy Manufacturing. They are a pre-clinical immunotherapy company established to research and develop chimeric antigen receptor T cell (CAR-T) therapies to treat solid cancers.

Carina Biotech are working towards producing broad-spectrum CAR-T therapies that can be used to treat multiple solid cancers yet are patient-specific and result in little, if any, off-cancer damage. Additionally, Carina Biotech are developing supporting technologies that will make T cell therapies more effective and economically viable.

Carina's proprietary manufacturing process shortens the time required for CAR-T cell generation, producing higher numbers of highly active CAR-T cells.

Using its proprietary platforms, Carina Biotech is also developing technologies to improve access to, and infiltration of, solid cancers, and to enhance CAR-T cell manufacturing.

Headquartered in Adelaide, South Australia, Carina has strong T cell R&D capability across a network of research providers and collaborators including leading scientists at the University of South Australia, the Women's and Children's Hospital, the University of Adelaide, the Royal Prince Alfred Hospital in New South Wales and the Seattle Children's Hospital in the United States. Carina Biotech is a spin-out company from the CRC for Cell Therapy Manufacturing (CTM@CRC Ltd).

Cancer Research Institute

The University of South Australia Cancer Research Institute (UniSA CRI) is focused on personalised precision treatments, better diagnostics, prevention and survivorship. Research extends from discovering and developing new drugs, novel treatments, methods of detection and diagnosis, to improving prevention, screening, treatment and supportive care strategies. Researchers include specialists in associated areas such as health economics, drug engineering, data and population health data.

The following research centres are within UniSA CRI:

The Centre for Cancer Diagnostics and Therapeutics has seven research groups in drug discovery and development; mechanism in cell biology and diseases, experimental therapeutics, bone growth and repair, pharmaceutical innovation and development, nanostructure and drug delivery, and bioinorganic synthesis and imaging.

The Centre for Translational Cancer Research comprises of the Psychosocial Oncology Research Group conducting research into finding ways to improve the quality of life of people affected by cancer and the Medical Radiations Group consisting of research expertise across medical imaging, nuclear medicine and radiation therapy – all playing specific roles in diagnosis, staging, treatment and follow-up of cancers.

The Australian Centre for Precision Health (ACPreH) brings together a multidisciplinary group of leading experts in genomics, population health and evidence translation to create the next generation of solutions for global health problems.



Aucentra Therapeutics

A spin-out company of UniSA Ventures, Aucentra Therapeutics discovers and develops oral small molecules for some of the most severe cancers.

Established in 2017, their deep pipeline of proprietary anti-cancer drugs, developed in partnership with the University of South Australia, includes candidates for the treatment of leukemia, ovarian cancer, glioblastoma, colorectal cancer, breast cancer, prostate cancer, liver cancer and lung cancer.

Aucentra Therapeutics are experts in drug discovery and development and in particular, kinase inhibitors for oncology. Their unique capabilities in target validation, drug design, medicinal chemistry, cancer biology and in vivo pharmacology enable the rapid development of novel inhibitor compounds that are highly potent and selective. Aucentra Therapeutics can demonstrate their safety and efficacy in their advanced in vivo and in vitro cancer models and fast-track candidates to the clinic.

In-house expertise is complemented with global academic, clinical and pharmaceutical industry partnerships aimed at advancing their drug candidates and rapidly bringing products to patients.

Aucentra Therapeutics is actively seeking new partners and take a range of approaches including licensing, co-development, joint ventures and consulting arrangements.

Their unique capabilities in target identification, drug design and evaluation in oncology can be aligned to your company's development strategy through research collaboration.

Centre for Cancer Biology

The Centre for Cancer Biology (CCB) is an alliance between SA Pathology and the University of South Australia, currently hosting 22 full-time research group leaders and their teams.

CCB laboratories carry out research in leukaemia, breast cancer, prostate cancer, skin cancer, brain cancer and colon cancer, focusing on the specialised areas of gene regulation, molecular signaling, translational oncology and cancer genomics.

In addition to these laboratories, the Australian Cancer Research Foundation Cancer Genomics Facility provides access to state-of-the-art genomics research, equipment, computing technology and bioinformatics expertise to the Adelaide BioMed City precinct and the wider research community.

Translation of new discoveries into clinical practice is strengthened by the co-location of the laboratories within a single Institute, as well as its proximity and close collaboration with the Royal Adelaide Hospital, University of South Australia, the University of Adelaide and SAHMRI.

The CCB also has alliances with leading pharmaceutical companies to rapidly develop new discoveries.

Envision Sciences

Envision Sciences was formed in 2017 at the University of South Australia and is a cell biology company focused on diagnostics, prognostics, live cell imaging and identification of targets for therapeutic treatments.

Providing high specificity and sensitivity outcomes across various forms of cancer, the products Envision Science is developing provide much clearer advice on the status of cancer in pathology samples from the human body.

Giving more detailed information on the level and activity of a cancer will allow clinicians to make much more specific diagnosis and improved treatment decisions for their patients across a complete diagnosis and prognosis spectrum.

Envision Science's novel biomarker discovery program will define new targets for specific therapeutic intervention in cancer patients.

Envision Sciences have used this cutting-edge discovery to identify three biomarkers that define prostate cancer pathogenesis and developed accurate tests to improve clinical practice.

Envision Sciences' is developing a complete pathology solution for prostate cancer, involving two blood tests that will be used to detect the cancer and provide an indication of prognosis, as well as tissue biopsy tests to confirm the diagnosis and prognosis.

By interrogating cell biology pathways, which define the primary pathogenesis of cancer, Envision Sciences has developed clinical tests that are objective, verifiable and quantifiable.

Envision Sciences works with numerous high-end partners and affiliates who are leaders in their field. They

Envision Sciences was formed in 2017 with a foundation based on high potential cancer research outcomes in cell biology that had their genesis in the University of South Australia. Their research team is located in the University of South Australia's Cancer Research Institute.



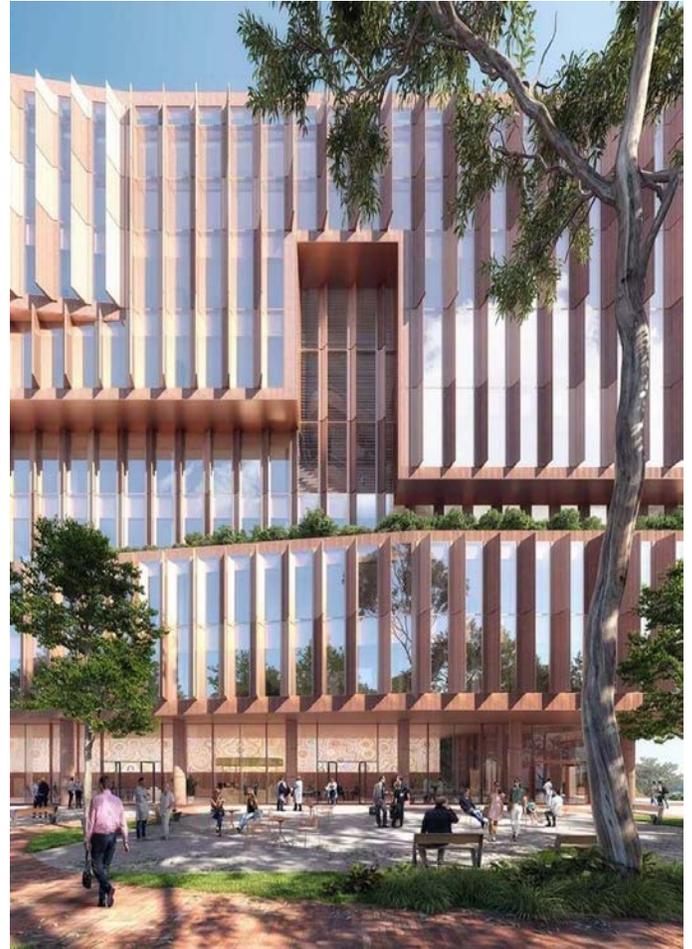
Flinders Health & Medical Research Institute Cancer

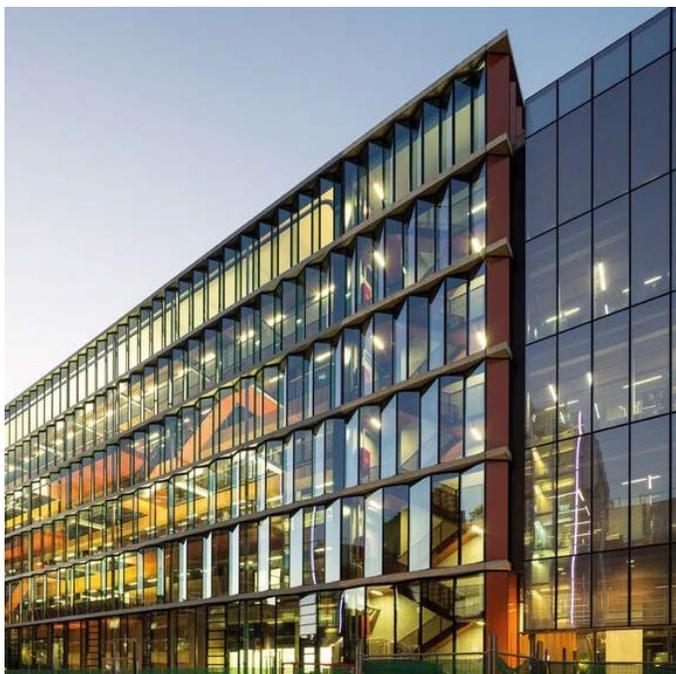
Flinders University is world-renowned for its cancer research, rated at well above world standard by the Australian Research Council's ERA 2018 assessment.

FHMRI Cancer brings together research laboratories, clinical and behavioural research facilities, state-of-the-art hi-tech research infrastructure, clinical trials and treatment in one flagship facility with more than 150 cancer-focused researchers and clinicians and patients.

FHMRI Cancer has made pivotal clinical discoveries that help prevent unnecessary chemotherapy through personalised medicine. The establishment of several biobanks, including the Flinders Biobank and the SA Neurological Tumour Bank provide an extensive library of tumour and matched normal tissue for analysis.

Flinders has been at the forefront of cancer prevention and early screening, with a significant role in the implementation of the National Bowel Cancer Screening program and the development of newer screening technologies, including the 2017 Eureka prize-winning Colvera blood test.





Institute of Photonics and Advanced Sensing

The University of Adelaide's Institute of Photonics and Advanced Sensing (IPAS) is a world-class research institute that brings together transdisciplinary teams of biologists, experimental physicists, chemists, material scientists, experimentally driven theoretical scientists and medical researchers to create disruptive new sensing and measurement technologies.

Their research is creating new approaches to sensing to solve real world measurement challenges for:

- health and biotech
- space science and astrophysics
- defence and security
- energy, mining and resources
- advanced manufacturing; and
- agri-food and wine.

IPAS is led by global thought leader Professor Andre Luiten, with a focus on the development of state-of-the-art instruments across diverse fields of physics. Professor Luiten is also the co-founder and managing Director of QuantX Labs, developing the highest precision timing and sensor products including the world's most precise clock.

ARC Centre of Excellence for Nanoscale BioPhotonics

The ARC Centre of Excellence for Nanoscale BioPhotonics (CNBP) focuses on creating new light-based imaging and sensing tools to measure the inner workings of cells inside the living body, as well as in other dynamic biological systems.

Led by the University of Adelaide, the CNBP has international partners and draws from a pool of expertise in fields as diverse as engineering, physics, chemistry, materials science and medicine. This collaboration aims to create the biomedical and biosensing tools of tomorrow.

The advanced tools and techniques that the CNBP develops enable living cells and tissues to be examined in unprecedented detail, deepening our understanding of the human body and other living organisms.

BioManufacturing and Materials Engineering Laboratories

The University of Adelaide has strong capabilities in biomanufacturing supported by AIML and the Institute for Photonics and Advanced Sensing (IPAS) and the BioManufacturing and Materials Engineering Laboratories.

Global leaders in the field have been recruited to add to the existing capabilities including Professor Chun-Xia Zhao concentrating on microfluidics and nanomedicines. The University is offering a new Master of Biopharmaceutical Engineering program which will further strengthen the capabilities in Adelaide.



Tonsley Innovation District provides important connections between companies, researchers, grant programs, policy makers and market opportunities in the medical devices and assistive technologies sector.

Located in the middle of the southern hemisphere’s largest corridor of health-related research institutions, companies and medical facilities including Adelaide BioMed City, the new Royal Adelaide Hospital and Flinders Medical Centre, Tonsley is ideally situated for businesses to develop, test, commercialise and manufacture next generation medical and assistive devices.

Tonsley is home to:

- Zeiss, an international optical and optoelectronics firm, is a leading developer, producer and distributor of microscopes, medical technology, eyeglass, camera and cine lenses, binoculars and semiconductor manufacturing equipment.
- Micro-X develops and manufactures innovative, ultra-lightweight, mobile x-ray imaging systems for medical and security applications in global markets.
- Medical Device Research Institute supports companies in the health and medical devices sector with research, development, testing and commercialisation of new technologies.

The Global Centre for Modern Ageing is creating an ecosystem that empowers people, businesses, researchers and governments to seek and develop solutions that reflect the opportunities for modern ageing.

Line Zero Factory of the Future

Line Zero Factory of the Future at Flinders University brings together education, industry and government to facilitate the implementation of industry 4.0 technologies.

Bridging research, development and innovation, Line Zero Factory of the Future delivers a world-class, reconfigurable advanced manufacturing test bed, training and industry growth facility – the first of its kind in Australia. It connects industry with enabling technologies, research capabilities and training to modernise and transform manufacturing with advanced robotics, AI and customised technology allowing partners to integrate industry 4.0 tools into production.

“The value of Tonsley Innovation District is that it has established a connected ecosystem in medical devices; a cluster of research, industry, service providers and government organisations co-located within the same location. To identify opportunities for manufacturing within this sector you need to be part of that ecosystem.”

Professor Karen Reynolds – Director Medical Device Research Institute, Flinders University



Lot Fourteen is Adelaide’s new innovation precinct. The precinct is home to the Australian Institute for Machine Learning (AIML) providing defence and security agencies with a means of handling large volumes of data more efficiently.

Focused on growing the industries of the future, from space and defence to cyber security, machine learning, health and medical. It’s home to innovative companies like Life Whisperer employing non-invasive, artificial intelligence driven image analysis for IVF and Presagen creating diagnostic web-based medical imaging software.

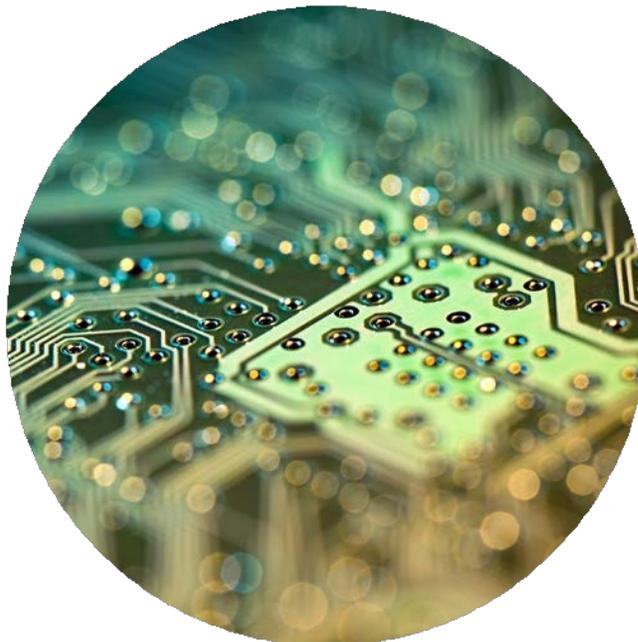
Lot Fourteen is also home to Australian Institute of Machine Learning (AIML), MIT bigdata Living Lab and Stone and Chalk Start-up Hub.

Other precinct partners:

- Australian Institute for Machine Learning
- Australian Cyber Collaboration Centre (A3C)
- Australian Space Agency
- Amazon Web Services
- Digital Health CRC
- Google Cloud
- Life Whisperer
- Microsoft Azure
- MIT bigdata Living Lab; and
- Presagen.

All your partners are here

The world's largest technology companies have established AI-focused innovation hubs in Adelaide. These organisations are aligning their strategy for the next decade on the ability to deliver AI-focused projects and have selected Adelaide as the best location for cyber, AI and big data capabilities.



- **Accenture** announced a 2000-person practice in Adelaide driving innovation in AI, data analytics and cyber security for the Asia Pacific region.
- **Amazon Web Services** established their Australian applied sciences team in Adelaide to work with the Australian Institute for Machine Learning to develop new AI applications.
- **Cognizant** are expanding operations into South Australia with the opening of a global delivery centre in South Australia, creating 1,600 digital roles.
- **Boeing Defence Australia** has grown to over 250 employees in South Australia supporting various RAAF information warfare platforms.
- **Defence Science and Technology Group** develop military capabilities and critical technologies, such as artificial intelligence and quantum technologies for the land, maritime, air, space, and information and cyber warfare domains.
- **Deloitte** announced a 1,500-person Centre for Innovation and Technology in Adelaide.
- **Google** established an innovation team in Adelaide to focus on AI applications.
- **Microsoft** established their Azure Space team in Adelaide.
- **MIT bigdata Living Lab**, the world's leading data analytics capability, are partnering with the State to build our hi-tech capabilities.
- **MTX Group** announced their first technology innovation hub in the APAC region for 500 staff will be based in Adelaide.
- **Nokia** announced their Australian 5G industrial incubator will establish in Adelaide.
- **PwC** established 2,300 staff with an innovation focus in Adelaide.
- **Rigetti**, a world leading quantum computing company who pioneered hybrid quantum-classical computing systems, merged with Adelaide-headquartered QxBranh in 2019.
- **Telstra Health's** digital innovation and international growth functions are both led from Adelaide.

Global technology companies in Adelaide for innovation



“We are incredibly proud of the success of our Adelaide Hub and the jobs growth we have been able to deliver in South Australia over the last year. Adelaide is a highly attractive destination for companies and first-class talent looking to deliver technological and scientific excellence and we are privileged to be a part of this momentum.”

Peter Burns,
CEO Accenture Australia and New Zealand



“Amazon Web Services recognise that Adelaide has a really rich community of both innovation and entrepreneurship, and we are excited to be expanding our presence in South Australia.”

Adam Beavis,
Managing Director for Amazon Web Services ANZ



“Adelaide’s vision to become a centre for innovation and technology aligns with our focus to accelerate the digital agenda and sustainability ambitions of Australian businesses.”

Jane Livesey,
CEO, Australia and New Zealand



“We have chosen Adelaide as the home of our first Australian Centre for Innovation and Technology because we have enormous confidence in the South Australian economy and the exceptional talent market that exists in the region.”

Hendri Mentz,
Adelaide office Managing Partner



Google Cloud

“Google Cloud immediately recognised the potency of Adelaide’s technology ecosystem as a platform for globally relevant innovation and collaboration.”

Michael Grantham,
Director Public Sector,
Google Cloud AUNZ



“Adelaide has established itself as the very heart of Australia’s space industry. We’ve signed this agreement with South Australia’s Department for Trade and Investment, and we have joined Adelaide’s Lot Fourteen precinct where we are focused on innovating with and investing in the space industry.”

Lynn McDonald,
Azure Space Lead, Microsoft Australia



“We identified Adelaide early on as the prime location for a Living Lab in Australia and the Indo-Pacific region due to its leadership in data analytics and machine learning.”

Professor Alex ‘Sandy’ Pentland,
Massachusetts Institute of Technology



“Nokia is delighted to establish our National 5G Industrial Incubation Lab in South Australia, an important step forward to harnessing the power of 5G for all Australian industries.”

Anna Wills,
Nokia Managing Director of Australia and New Zealand

Hear why global tech companies choose Adelaide for AI



invest.sa.gov.au/ai

Advanced technology infrastructure

Cloud infrastructure

Cloud infrastructure in Adelaide is comprised of 24 colocation data centres, 72 cloud service providers, four network fabrics and 46 service providers.

Adelaide hosts one of Equinix ISO Certified Green ISO 14001:2015 data centres. This data centre has been awarded the Australian Data Centre of the Year three times (Frost and Sullivan).

Advanced bandwidth network Ten Gigabit Adelaide

Ten Gigabit Adelaide is a revolutionary high-speed, high-performance fibre optic data network that has been rolled out to commercial buildings across the city of Adelaide. It is Australia's first city-wide fibre optic network, enabling businesses and organisations to share and receive high volumes of data at ten gigabits per second (Gbps) data speeds.

The transformational network delivers a wide range of new possibilities for businesses and organisations, without being inhibited by the restrictions and congestion often experienced with traditional internet services. Each service in the Ten Gigabit Adelaide suite has its own, dedicated and uncontested connection, meaning businesses can access the same upload and download speeds via a clean, superfast, low-latency connection.

SABRENet

SABRENet is a fibre only telecommunications network constructed to link South Australia's major education, research and innovation sites, including university campuses, innovation precincts, teaching hospitals, TAFE campuses and schools. SABRENet's purpose is to raise South Australia's education, research and innovation performance through its fibre network, enabling specialist broadband and related services on behalf of its members and customers.

The SABRENet network extends over 400km of fibre optic cable and connects more than 230 locations in the greater Adelaide metropolitan area, typically at data speeds from one gigabit to 100Gbps.

Removing constraints on available bandwidth for education, research and innovation to create a critical mass of interconnected sites, users and applications, is the advantage that SABRENet has helped create in South Australia.



Low-carbon future



Technology is critical to South Australia's net zero ambitions, to support the transition to sustainability. With strengths in AI, green energy and data capabilities, South Australia is an innovation hub that continues to attract some of the largest global technology partners and environmental, social and governance leaders to the state.

As announced in mid-2022, the South Australian Government will commit AUD\$593 million towards construction of a new world leading hydrogen power station, electrolyser and storage facility in the state.

South Australia is home to the Hornsdale Power Reserve, the world's original lithium-ion "big battery" and Hydrogen Park South Australia's 1.25MW electrolyser, Australia's first renewable gas project blending hydrogen and natural gas into the existing gas network.

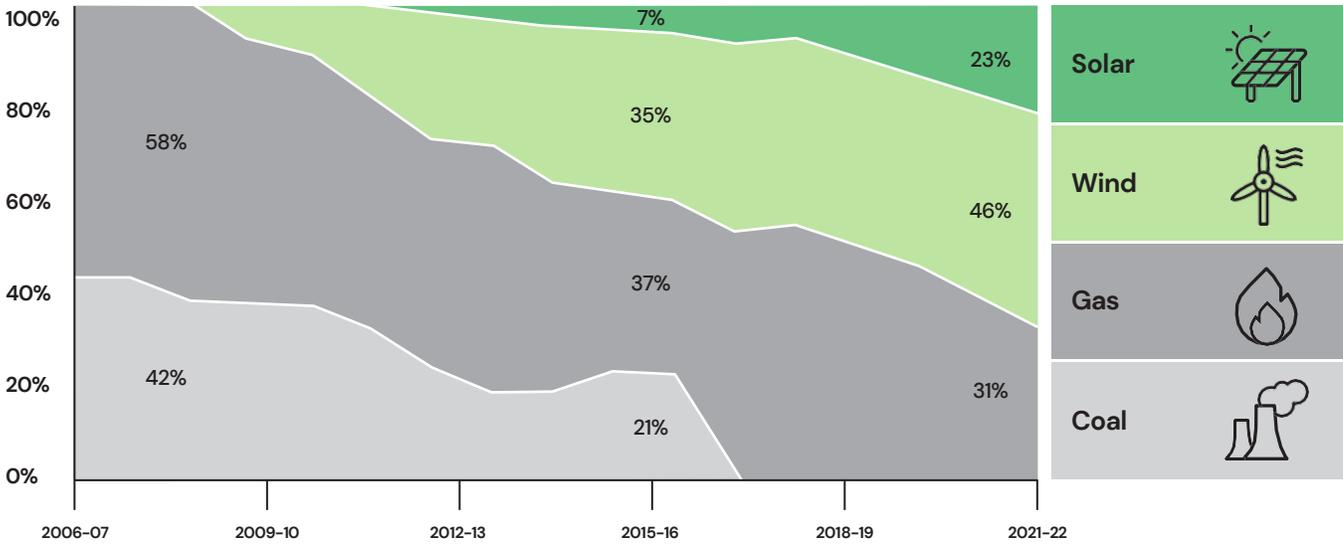
Sustainably conscious organisations are increasingly rewarded through greater:

- employee attraction and retention
- customer and shareholder satisfaction
- opportunities to work with the world's largest sustainability businesses; and
- opportunities to reduce costs.

With leading technology partners already here and ready to partner, South Australia has cemented the perfect ecosystem for you to build a global presence in the green economy, meet emissions targets and bolster your brand's sustainability goals and credentials.

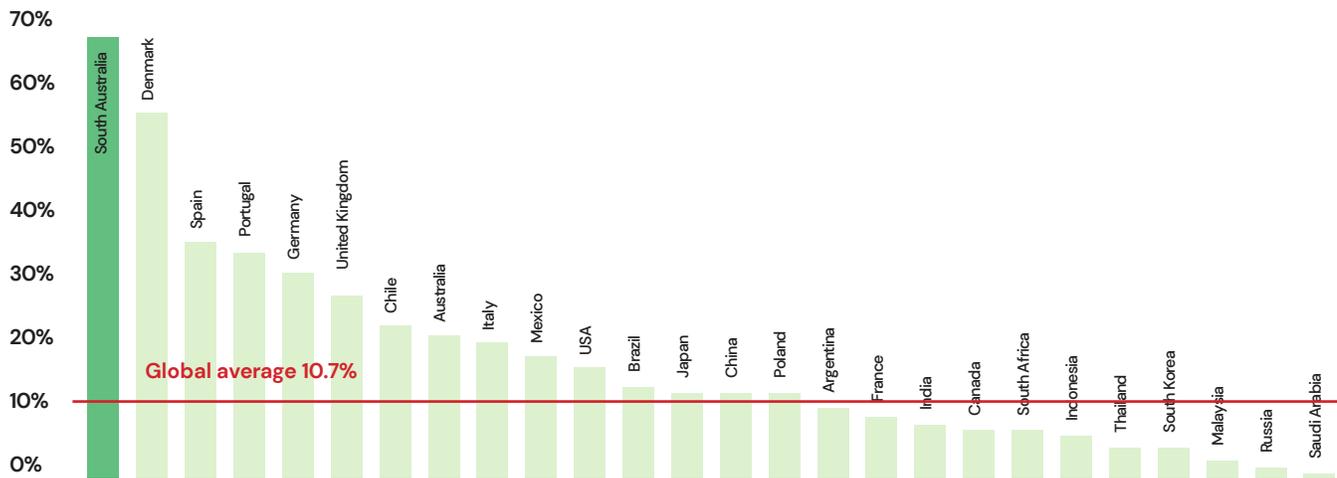
South Australia leads the world in renewables

South Australia's energy journey



Source: OpenNEM, DTI analysis, excludes imports/exports, battery charge/discharge cycles, distillates

South Australia leads the world in wind and solar renewables



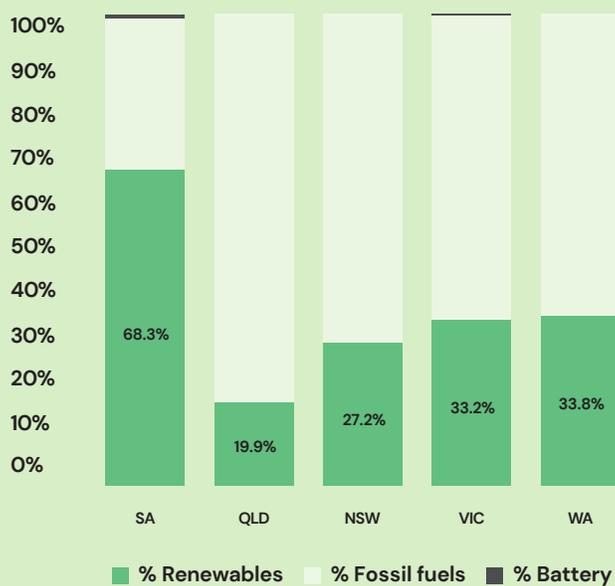
2021 share of wind and solar electricity production by region

Source: Enerdata 2021, DTI analysis



Contribution to electricity generation by state

(1 July 2021 to 30 June 2022)



Source: OpenNEM (2021-22)

“South Australia is better equipped to respond to the challenges and opportunities of climate change than any other Australian state and nearly all of the world’s sub-national jurisdictions.”

Professor Ross Garnaut, September 2020

Skilled talent pipeline



South Australia has demonstrated the capacity to respond to the skilled knowledge-based workforce needs of at-scale companies and changing industries.

Our state prides itself on being the nation’s ‘knowledge state’, with four world-class universities and vocational training providers that work in partnership with business and the South Australian Government to co-design innovative programs that supply workforce-ready graduates.

Universities in Adelaide are ranked within the top 2 per cent in the world and have produced numerous Nobel Laureates and Rhodes Scholars, leading the world in their various fields of expertise.

South Australia ranks higher than the top performing OECD country for citation impact* in the following STEM research fields: physical sciences, macromolecular and materials chemistry, mathematical sciences, ICT, chemical engineering, interdisciplinary engineering, materials engineering, artificial intelligence and image processing, computational theory and mathematics, and applied mathematics.



*Citation impact reflects the extent to which researchers across the world cite research publications with South Australian authors relative to the citation rate for all research publications in the world in the requisite field or subfield. This measure is used as a measure of research excellence by national and international bodies including the OECD.



Industry research collaboration drives innovation

South Australia drives innovation through access to and engagement with research excellence. Industry PhD collaborations are available through the Australian Institute for Machine Learning and through the Office of the Chief Scientist South Australia's EXCITE Industry Doctoral Training Centres.

Australian Institute for Machine Learning iPhDs

Sponsorship of AIML industry PhDs (iPhDs) provides companies with a unique opportunity to:

- bolster the pipeline of domestic AI and machine learning talent
- access exceptional AI research talent, in particular academic supervisors who are leaders in the field
- engage a 6-month internship with the PhD student; and
- non-exclusive IP arrangements (negotiable).

Along with sponsorship of AIML iPhDs, mechanisms for industry engagement with AIML can also take the form of strategic partnerships, hybrid appointments of early to mid-career AIML academics and funding research projects.

EXCITE Industry Doctoral Training Centres

Following the model's success in the United Kingdom, South Australia's Office of the Chief Scientist is co-funding Industry Doctoral Training Centres through its EXCITE program, leading the way for government to deliver real innovation for industry through partnerships with South Australia's leading research capabilities.

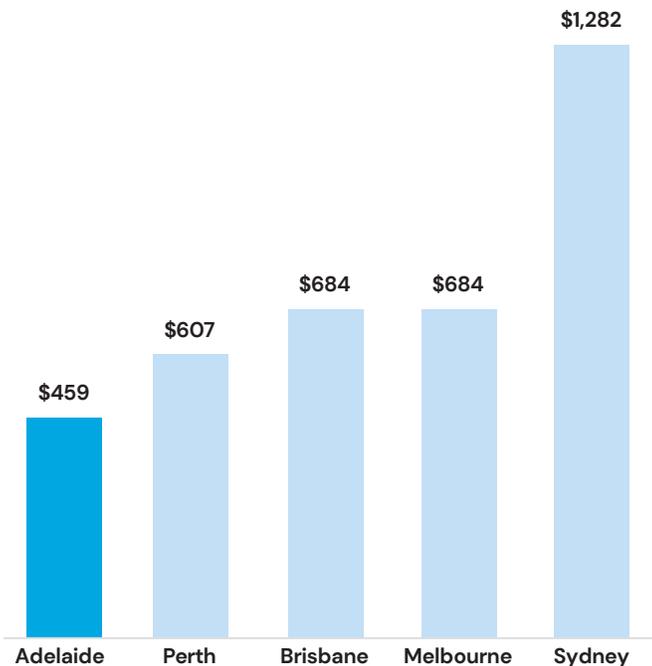
“Centres for Doctoral Training have already proven to be successful in attracting the world's brightest minds and industry support to address the scientific and engineering challenges we face.”

Professor Lynn Gladden, Executive Chair, Engineering and Physical Sciences Research Council, part of UK Research and Innovation.

Australia's most cost-competitive city



A-grade CBD office – net face rent (\$/sqm pa)



Source: CBRE Research - Australian Office Q2 2022



Adelaide CBD office rental space is:

64% lower than Sydney
33% lower than Melbourne
and Brisbane
24% lower than Perth

Competitive labour market



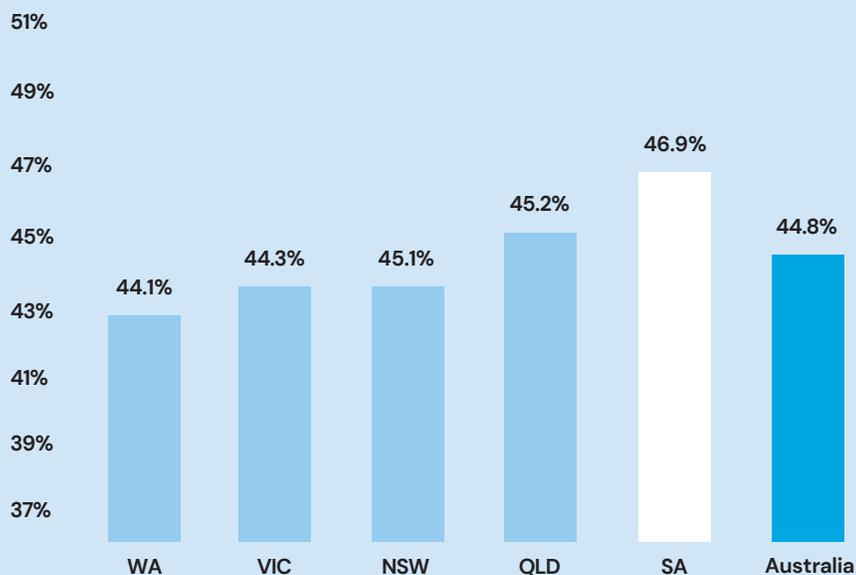
Access to staff, competitive labour costs and high staff retention rates rank as important attributes, unique to the South Australian workforce.

Private sector labour costs in South Australia are 9.1 per cent below the Australian average and our staff retention rate is among the highest in Australia.

Source: Australian Bureau of Statistics – Average Weekly Earnings, May 2022

Better staff retention

% of employed persons with their current employer for 5+ years



Source: Australian Bureau of Statistics – Job mobility, February 2022

Enviably lifestyle

South Australia is famous for its cultural attractions, iconic nature experiences and world-class wine and food.

WOMADelaide 2015, photo by Grant Hancock

Immersive nature and wildlife experiences

The Flinders Ranges, the Outback and Kangaroo Island are home to incredible national parks and wildlife reserves, combining stunning scenery with once-in-a-lifetime wildlife encounters. The South Australian coastline is more than 3,800 kilometres long, offering fantastic fishing, boating and surfing on Yorke Peninsula, while Eyre Peninsula is one of the only places in the world where tourists can cage dive with sharks and swim with sea lions.

South Australia offers warm, dry summers and short, mild winters with over 300 days of sunshine per year. Summer runs from December to February with an average temperature of 28.3 degrees Celsius.

Family-friendly

South Australia boasts excellent public and private education, a family-friendly culture and amazing family experiences. From dedicated children's festivals like DreamBIG Children's Festival, Adelaide Writers' Week Kids Day program and free entry for children under 12-years-old for WOMADelaide world music festival, safe and clean swimming beaches, adventure playgrounds and national parks, South Australia is the best state in Australia for your staff with families to live and work.



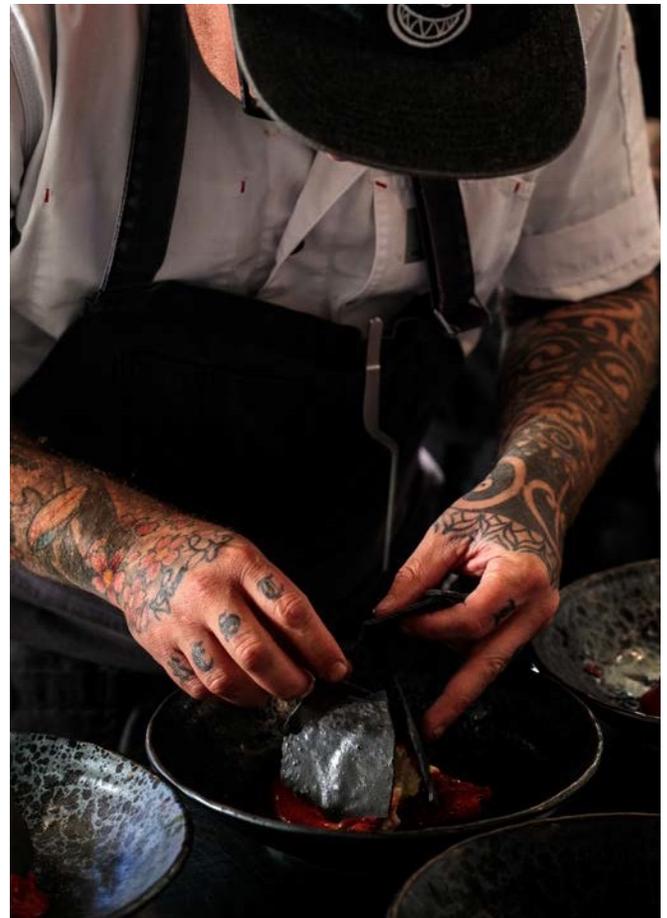
Coffin Bay, Eyre Peninsula, photo by Adele Barnes

Culture and events

Adelaide has a cosmopolitan culture with more live music, bars, restaurants and cafes per capita than any other Australian city. Adelaide's music scene has been recognised by UNESCO as an international City of Music joining the Creative Cities Network, with cities such as Seville, Bogotá, Hamamatsu, Glasgow and Hannover. South Australia's world-class events include Adelaide Festival, WOMADelaide and Adelaide Fringe.

Exceptional gourmet experiences

South Australia has a well-deserved reputation for delivering the best food and beverage experiences across the country, from culture rich Adelaide to the lush Adelaide Hills; the bountiful Barossa to the Eyre Peninsula; South Australia produces 80 per cent of Australia's fine wine and has been named a Great Wine Capital of the World. It is home to 18 distinctive, internationally recognised wine regions with more than 200 cellar doors and an all-star cast of world-famous chefs, winemakers and producers.



South Australian Tourism Commission, Tasting Australia 2019, Limestone Coast, photo by Duy Dash



Let's talk

With strengths across health and life sciences, supported by AI and data analytics driven hi-tech innovation, South Australia is the perfect location for your company.

Please contact Mark Wheeler, Tani Tabiin or Sid Mehta to discuss the investment opportunity detailed in this document.

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January 2023

