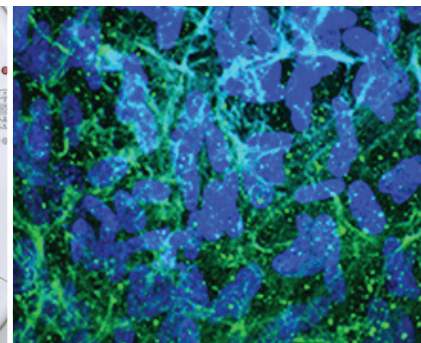
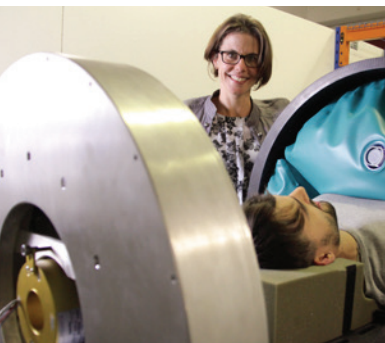


Medical Devices Fund

2016



Health

NSW
MAKING IT HAPPEN

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2016



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A Message from the Minister

October 2016

New South Wales is a world leader in the medical devices sector. We are home to many internationally recognised medical device companies, with more than half the Australian medical devices industry located in New South Wales. This sector significantly contributes to the economy of the State and, importantly, results in real improvements in patient care and health outcomes.

The NSW Government established the Medical Devices Fund in 2012 to help encourage and support investment in the development and commercialisation of medical devices and related technologies in NSW. I have no doubt that through the Medical Devices Fund we will see the next generation Cochlear or ResMed. It is my strong belief that a number of our grant recipients will grow to be international companies that develop world changing technologies.

We only have to look at some of our previous winners and the outstanding progress they have made since receiving funding from the NSW Government, to see the real world impact of the Medical Devices Fund. Atomo Diagnostics - which won a grant in the third round of the fund for a rapid 'self-test' HIV screening device - has received a \$6 million investment grant from the Bill and Melinda Gates Foundation this year. This is a company working throughout the world to eliminate HIV/AIDS.

Another MDF success story is Saluda Medical Pty Ltd which won a grant in the first round of the MDF for a closed loop spinal cord stimulation device for chronic pain. This makes it possible to measure the minute electrical responses from nerves immediately after they have been stimulated. This technology has been described as breakthrough and has been successfully implanted in patients suffering debilitating back pain.

By supporting the commercialisation of research and innovation through the Medical Devices Fund, the NSW Government will ensure we see the benefits of these devices in NSW and internationally. This year's grant winners offer NSW a new range of exciting and pioneering devices with the potential to not only transform the delivery of health care, but to deliver life-saving benefits for patients and comfort for their families.

I offer sincere thanks to Professor Mary O'Kane, NSW Chief Scientist and Engineer, the members of the Expert Panel and the support staff in the Office for Health and Medical Research who provided outstanding leadership throughout the evaluation process for the NSW Medical Devices Fund 2016.

To the many individuals and organisations who submitted applications this year as well as the grant recipients from previous years, I thank you for your innovative ideas and persistence. Your efforts provide hope for the creation of breakthrough solutions to real world health problems.

Hon Jillian Skinner MP
Minister for Health



A Message from the Chair

October 2016

Now in its fourth year, the Medical Devices Fund continues to prove very effective in supporting the development and commercialisation of new medical devices and technologies in New South Wales

The program, launched by the NSW Minister for Health, fosters collaborative links between NSW med-tech companies, research hubs and local and international investors. It also aims to streamline the clinical assessment of new medical devices to encourage greater uptake of innovative technologies within the NSW health system, and drive sales and bolster export opportunities.

The Expert Panel was impressed with the quantity and quality of this year's grant applications, with over of \$8.6 million in funding support awarded in this round.

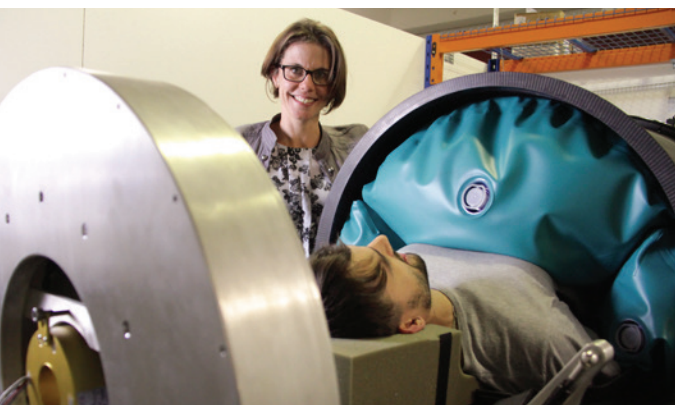
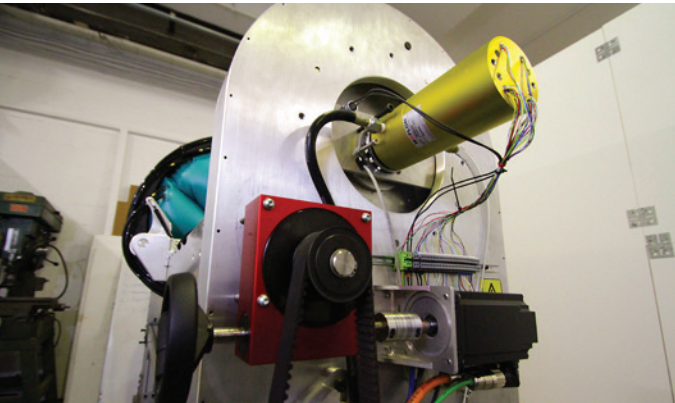
A clear priority again for us was to ensure that applicants worked closely with clinical experts across New South Wales to ensure the medical devices they're developing are actually addressing contemporary problems.

The task of assessing these terrific applications was not an easy job and I want to thank the members of the Expert Panel: Dr Bob Frater AO, Professor John Mattick, Mr Neville Mitchell, Dr Greg Keogh and Mr Michael Still. I also wish to thank the sub-committee, who assisted with the shortlisting and the assessment of the applicants and the MDF Secretariat, led by Dr Tony Penna.

Most of all, congratulations to the recipients of this year's MDF grants whose inspiring and inventive work will have a important and long-lasting impact on both the State's health system and the wider community.

Mary O'Kane
NSW Chief Scientist & Engineer

Nano-X Pty Ltd



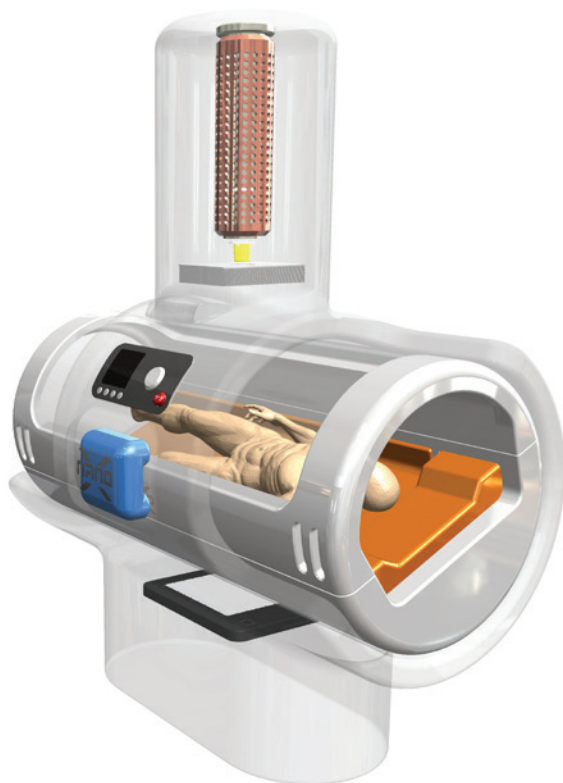
Nano-X is an Australian medtech company building novel radiotherapy systems for treating cancer. The Nano- X Latus device enables affordable, precision radiotherapy treatments to be decentralised and accessible in resource-limited locations where the large capital and operational costs and high staff-to-patient ratios of conventional radiotherapy systems limit their utilisation.

The Nano-X Latus Device

Nano-X leverages real-time radiotherapy at the core of its devices to deliver world leading clinical precision radiotherapy. This technology has been developed in partnership with The University of Sydney and has demonstrated superior cancer targeting accuracy, reduced treatment margins, better tumour dose coverage and lower toxicity.

The Nano-X Latus device is an innovative Australian-designed and developed cancer treatment system changing the delivery of radiation therapy. Its advanced on-board system captures 3D images in real-time and uses that information to deliver the correct amount of radiation automatically to the cancerous tissue. Nano-X Latus is smarter and smaller than its competitors with smaller capital, operational and staffing overheads.

Nano-X is a portfolio company of ATP Innovations.



Public/Private Company	Private
Stage/Category	Early stage, medtech
Website	www.nano-x.com.au
Contact	Dr Ilana Feain Founder & CEO
	Email: ilana.feain@nano-x.com.au
	Phone: +61 2 9209 4444
	Address: Suite 145, National Innovation Centre Australian Technology Park, Eveleigh, NSW 2031



Respiratory Innovations has developed a device which utilises biofeedback to inform patients how to adjust their breathing. This biofeedback facilitates stable and regular motion of a patient's anatomy and treatment area. This increases the accuracy of medical imaging and cancer radiation treatment and also empowers patients to play an active role in improving their own treatment simply by breathing. This device will minimise radiation damage to the hearts of breast cancer patients leading to better post-cancer treatment outcomes.

The Breathe Well Device

Respiratory Innovations' flagship product: Breathe Well, guides breast cancer patients to perform breath holds so that their heart moves further away from the radiation beam, minimising cardiac complications that otherwise arise when radiation damages the heart. The design of the Breathe Well medical device has been informed by extensive customer engagement through 165 customer interviews representing over 60% of the Australian market.

Respiratory Innovations was recently awarded the NSW Industry Collaborative Solutions grant, fostering partnerships with NSW radiotherapy centres to be the first users of the Breathe Well device. Founder Sean Pollock recently moved from academia into a full time role with the company having completed his PhD in medicine at the University of Sydney, researching the Breathe Well technology. The Breathe Well device is protected by a granted patent, and two provisional patents have also been filed. Breathe Well is also a registered trademark. Respiratory Innovations has an executed IP licensing agreement with the University of Sydney.

The Respiratory Innovations team has taken Breathe Well through the Genesis and Incubate startup accelerator programs at the University of Sydney. Founders Paul Keall and Sean Pollock are 2014 and 2015 graduates of the Medical Device Commercialisation Training Program, respectively.

The immediate future of Respiratory Innovations is the Australian market launch of the Breathe Well product with radiotherapy centres and team expansion. NSW will be the launching pad to then scale across Australia and internationally.



Public/Private Company	Private
Stage/Category	Early stage, medtech-oncology
Website	www.breathewell.co
Contact	Sean Pollock, COO
	Phone: +61 404 759 239
	Email: seanpollock@breathewell.com



The Auditory Cortical Discrimination (ACORD) test module, to be implemented in the HEARLab® platform, is a world-first tool that will change clinical management for infants identified with hearing loss through newborn hearing screening programs. ACORD will provide objective evidence at the critical earliest possible age to assist clinicians in making recommendations to parents as to whether their hearing-impaired infants will develop the best language abilities through either use of hearing aids or receiving cochlear implants.

HEARLab system

Permanent childhood hearing loss has adverse developmental and health impacts on children's lives – including speech and language, literacy, mental health, educational achievement, employment and social-economic opportunity in life.

Through its technology engineering projects, HEARworks has already developed three test modules for the HEARLab system, enabling hearing loss to be automatically detected in infants, adults and the elderly, and reducing the number of appointments required for hearing aid fitting. Installed in Australian Hearing Centres across Australia, HEARLab is improving healthcare services for Australians, while saving precious healthcare clinical resources through more efficient services. HEARworks has continued to develop its NSW-based sound processing engineering team, creating new commercial and employment opportunities for NSW graduates.

In 2013, HEARworks was awarded a NSW MDF Grant to develop an Automated Cortical Assessment Test module for the HEARLab® platform. This module uses the electrical responses from the brain to automatically assess a patient's hearing capabilities to produce an audiogram – a graphical measure of a patient's hearing status.

The ACORD test module will be the game changer - clinicians will be able to identify infants (age 3 months) for whom a hearing aid will not effectively support normal language development. The ACORD test will monitor a baby's brainwaves when speech sounds change from one sound to another and will automatically determine whether the baby's brain can tell the sounds apart.

Despite early detection through newborn hearing screening programs and early device fitting, the decision on whether hearing aids are sufficient, or a cochlear implant is required, must often wait until a child has used hearing aids for their first critical years of life. Currently, half of hearing-impaired children present with delayed language skills by 5 years of age. It is currently not possible to identify which children should proceed to cochlear implants before they present with language delays at 3 years of age.

The ACORD module in the HEARLab® system will empower clinicians to (1) evaluate and fine-tune hearing aids so they have proper access to sound and can tell them apart, which both are crucial for language development; and (2) refer infants for cochlear implant candidacy at the earliest possible age (3 months) with confidence. The objective evidence will support counselling for families to make informed decisions about the best strategy for managing hearing loss in their child.

Use of The ACORD module will increase the efficiency of clinical management of infants with hearing loss, enabling precious hearing healthcare resources to be applied more effectively to serve NSW's growing population. The ACORD module will be developed by HEARworks highly skilled engineering software development team based in NSW at the National Acoustic Laboratories.



Public/Private Company	Private
Stage/Category	Medical and Health Technology Research and Translational Activity
Website	www.hearworks.com.au
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	Phone: +61 3 9035 5347
	Email: rcowan@hearingcrc.org



Elastagen is a highly innovative NSW medical device company and a world leader in the development and application of products based on its unique tropoelastin-based biomaterial platform. Tropoelastin is the building block of elastin, a critical component of tissues such as skin, arteries and the lungs, providing physical properties of elasticity, resilience and recoil. Elastin and its precursor, tropoelastin, also play a significant role in the tissue repair process following injury or disease, attracting and guiding the growth of cells involved in tissue repair. This technology was founded on the work of Prof Tony Weiss at the University of Sydney who is a world leader in this field. This tropoelastin platform and products are underpinned by a strong portfolio of granted and pending patents in the major global markets as well as significant proprietary know-how.

Tropoelastin protein

Elastagen's medical devices are focused on atrophic scars (including stretch marks and acne scars), aesthetics and skin regeneration. The Company's injectable products for the treatment of stretch marks, acne scars and the rejuvenation of aging skin are all progressing through clinical development. Elastagen also has an advanced preclinical product for skin regeneration and wound repair that is ready to enter the clinic.

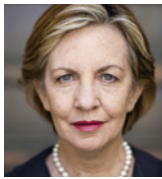
As a result of a previous NSW MDF award in 2013, Elastagen was able to establish proof of concept for a skin regeneration product that enabled the Company to attract additional funds from the Wellcome Trust. This was followed by an international Series B equity raise and securing a major development and commercialisation partnership with a leading international player in the wound repair space. Elastagen have previously shown that by incorporating the proprietary tropoelastin protein into dermal regeneration, the key biological and structural cues prime the device with improved vascularisation, dermal regeneration and re-epithelialisation – critical for the regeneration of healthy skin and healing of chronic wounds. As such it is expected that this technology will create a second generation of the market leading products of Elastagen's partner and improve medical outcomes for patients suffering from severe burn scar contractures and chronic wounds.

The 2016 MDF award will provide the funding for the commercial-scale manufacture of our proprietary tropoelastin protein and support the Company's ongoing evolution. The corporate partnership in wound repair and the MDF award represent a transformative milestone in establishing Elastagen as a commercially successful NSW device company.



Public/Private Company	Private
Stage/Category	Clinical Stage/ Medical Device
Website	www.elastagen.com
Contact	Robert Daniels, CEO Email: rob@elastagen.com

Medical Devices Fund Expert Panel



Professor Mary O'Kane AC

Professor Mary O'Kane is the NSW Chief Scientist and Engineer and also a company director and Executive Chairman of Mary O'Kane & Associates Pty Ltd, a Sydney-based consulting practice.

She is also Chair of the CRC for Spatial Information and the Space Environment Management CRC and is a Director of Capital Markets CRC and Business Events Sydney.

Professor O'Kane was Vice-Chancellor of the University of Adelaide from 1995-2001. She is a former Chair of the board of the Australian Centre for Renewable Energy, a former member of the Commonwealth's Review of the National Innovation System, the Australian Research Council, the Co-operative Research Centres (CRC) Committee, the board of FH Faulding & Co Ltd and the board of CSIRO. She is a Fellow of the Academy of Technological Sciences and Engineering and an Honorary Fellow of Engineers Australia.



Mr Michael Still

Michael Still has enjoyed a 30 year career in investment banking, corporate finance, equity investment and infrastructure in Australia and globally.

As well as being engaged in broad range banking and business roles including M&A, reconstruction and corporate advisory, he has been responsible for the leadership of infrastructure and property companies and for projects of many types. These have included Public Private Partnerships, social infrastructures as well as major economic infrastructures. He has significant experience in project and long term financing and direct ownership.

Over a long period Michael has advised governments, offshore corporates and investment funds on strategic matters and ownership and financing issues across many industries and asset types. He brings to bear significant experience in dealing with equity investors and debt financiers globally.

Michael is Chairman of the South Eastern Sydney Local Health District, boardmember of the New South Wales Cancer Institute and is a Committee Member of the Medical Devices Fund Expert Panel (NSW Govt). He is also a director of the Silverchain Group and the Silverchain Foundation. He holds a Masters in Business Administration from the Macquarie graduate School of Management.



Dr Greg Keogh

Dr Keogh is a Senior Staff Specialist Surgeon at Sydney's Prince of Wales Hospital, and a Fellow of the Royal Australasian College of Surgeons (FRACS). His clinical interests include the management and treatment of gastrointestinal cancer, particularly in the upper gastrointestinal tract.

He is currently surgical director of the Prince of Wales Hospital Operating Theatres. He also currently fills the role of Clinical Stream Director for Surgery, Anaesthetics and Peri-operative Medicine for the South East Sydney Area Health Service.

His other roles include National Director of the CPMEC Australian Curriculum Framework for Junior Doctors Project, and a senior medical adviser to HETI (Health Education Training Institute). He is a member of the NSW Surgical Services Taskforce, and the NSW Acute Care Taskforce.

He has been a former Director of Clinical Training at the Prince of Wales Hospital, chair of the Postgraduate Medical Council of NSW and state director of basic skills courses for RACS.



Mr Neville Mitchell

Neville is Chief Financial Officer and Company Secretary at Cochlear Limited (1995 – present). His responsibilities include;

- Part of Senior Management Team charged with the setting of Cochlear's global strategic development and its implementation.
- Responsible for financial management for Cochlear Limited world-wide including revenue, working capital control and disclosure reporting.
- Principal role in evaluation and subsequent acquisitions by Cochlear Limited.
- Risk Management and Treasury functions including FX strategy and execution.
- Company Secretarial duties including ASX and statutory requirements in Australia and overseas. Attendance at all Cochlear Limited Board meetings with direct input on financial and operational matters, also attendance and participation at all Board Committee meetings.
- Investor Relations management including formulation and execution of IR strategy for Cochlear Limited. This includes direct contact with fund managers / investors, analysts and financial press in Australia and abroad.
- Government Relations strategy and relationships.



Dr Bob Frater AO

Dr Bob Frater AO is one of Australia's most respected scientists. He has researched electronics, telecommunications, radio astronomy instrumentation, electro-acoustics and biomedical devices.

In 1996, he was made an Officer of the Order of Australia for his contributions to science in Australia and internationally. His career went from industry (AWA, OTC, Ducon) to academia (Electrical Engineering at Sydney University), then to CSIRO from Chief of Radiophysics Division to Deputy Chief Executive, and then to ResMed as VP Innovation.

He is currently Chief Technology Officer for Innovation Capital and an Adjunct Professor at Macquarie University. He is a member of a number of advisory committees.

His CSIRO achievements included construction of the highly successful \$50 million Australia Telescope at Narrabri and sponsorship of the WLAN developments by his former students from University of Sydney. He is a Fellow of the Australian Academy of Science and a Fellow of the Australian Academy of Technological Sciences & Engineering.



Professor John Mattick
AO FAA FAHMS FRSN HonFRCPA

John Mattick is the Director of the Garvan Institute of Medical Research. He spent much of his career at the University of Queensland, where he was Foundation Director of the Institute for Molecular Bioscience and the Australian Genome Research Facility.

He was recently named by NHMRC as one of the all-time high achievers in Australian health and medical research, and by Thomson Reuters as one of the world's most influential scientific minds.

His honours and awards include the inaugural Gutenberg Professorship of the University of Strasbourg, the Order of Australia and Australian Government Centenary Medal, Fellowship of the Australian Academy of Science and the Australian Academy of Health & Medical Sciences, Honorary Fellowship of the Royal College of Pathologists of Australasia, the International Union of Biochemistry & Molecular Biology Medal, the Human Genome Organisation Chen Award for Distinguished Achievement in Human Genetic & Genomic Research, and the MD Anderson Cancer Center Bertner Memorial Award for Distinguished Contributions to Cancer Research.

He has overseen the development of a number of startup enterprises, including most recently one of the world's first clinical genomics companies.



Mr Adam Spencer

Adam Spencer began his career in radio by winning the Triple J Raw Comedy championship in 1996. From there, Adam took over the *Triple J* breakfast time slot, co hosting with Wil Anderson from 1999 - 2004.

From 2006 to 2013 Adam was the host of the coveted radio slot ABC 702 Breakfast Show. Adam holds a first class honors degree in Pure Mathematics and has an immense interest in science. These passions lead Adam to hosting the ABC program *Quantum* and *FAQ* from 1998 to 2001. Other TV credits include hosting *Hit & Run* for Foxtel's Comedy Channel; *Joker Poker* for Channel Ten; two series of *Sleek Geeks* with Dr Karl Kruszelnicki for ABC TV and team captain on the ABC TV's sports show *The Trophy Room*. The author of *The Little Book of Numbers*, Adam explained his love of prime numbers and the magic of maths to an enraptured TED audience in early 2013.

Since being posted online, his talk has had over a million views. Adam is the ambassador for many charities including Redkite and in 2014 was appointed University of Sydney's Ambassador for Math's and Science.

He also co-hosts Australia's No 1 podcast, *Sleek Geeks* with Dr Karl. Adam's latest books, *The Big Book of Numbers* and *World of Numbers* have been released and are available from www.adamspencer.com.au.

NSW Office for Health and Medical Research

Health and medical research play a vital role in the continued growth and better health of our community and economy. From increased life expectancy and new treatments for disease, and technologies that change the way we live and work, to addressing environmental challenges - scientific research and the knowledge it generates affects us all.

The Office for Health and Medical Research (OHMR) plays a crucial role in supporting the State's leading health and medical research efforts. OHMR helps support the broad range of outstanding health and medical research efforts being carried out in NSW.

OHMR works with the health and medical research communities, the higher education sector and business to promote growth and innovation in research to achieve better health and environmental and economic outcomes for the people of NSW.

For more information please see www.health.nsw.gov.au/ohmr

Medical Devices Fund

The NSW Health and Medical Research Strategy recommended that NSW be enabled to contribute to the discovery and application of new treatments and diagnostic techniques and devices that will be major contributors to health reform into the future. The NSW Government established the Medical Devices Fund (MDF) to help encourage and support investment in the development and commercialisation of medical devices and related technologies in NSW.

The key objective of the MDF is to promote new and innovative medical devices and technologies within NSW that may have a global benefit. Broadly, the MDF aims to:

- provide support to individuals, companies, public and private hospitals, medical research institutes, universities, other public sector research organisations, and the medical devices industry, to take local innovation to market; and
- increase the uptake of NSW medical devices by the health system where they are cost effective and contribute to improved patient outcomes.

Notes

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