SINGAPORE EYE RESEARCH INSTITUTE

SIGHT MATTERS

Annual Report FY2020/2021

SINGAPORE EYE RESEARCH INSTITUTE

CONTENT PAGE

ABOUT US

Established in 1997, the Singapore Eye Research Institute (SERI) is Singapore's national research institute for ophthalmic and vision research. It is the research arm of the Singapore National Eye Centre (SNEC), and affiliated to the National University of Singapore (NUS) and the Duke-NUS Medical School. In two decades, SERI has grown from a team of 5 to over 248 staff, encompassing clinician scientists, scientists, fellows, students, support staff, as well as more than 242 distinguished adjunct faculty members to become the largest eye research institute in the Asia-Pacific region. As of Mar 2021, SERI has published 4,353 peer-reviewed papers supported by S$346 million in competitive research grants. SERI has trained more than 210 current and past graduate students; and has been conferred over 714 national & international awards and 145 patents. SERI further undertakes eye research in collaboration with local & international ophthalmic medical centres and research institutions, which has ensured a high level of research competency & skills transfer. Notably, SERI's research has translated to actual patient success stories & significant improvements in eye care delivery. Today, SERI is recognized as a pioneering center for high quality eye research in Asia, with breakthrough discoveries that has translated to significant paradigm shift in eye care delivery.

CHAIRMAN'S MESSAGE

2020 has been a challenging year for our team, with most of us having to adapt to new norms constantly. With many of our employees working from home and our researchers/clinicians working with split schedules and shifts, it has not been an easy year, but we've persevered. Let me at the outset, congratulate each one of you for doing your best, amidst all the inconveniences. It is really encouraging to note that we have secured competitive grant funding worth approximately S$13.31 million this year in this climate and maintained our upward streak in publication record by publishing 462 scientific papers this year. Kudos to the entire SERI team.

Congratulations are in order to the recipients of the Four Distinguished and Faculty Professorships that were awarded in 2020 to augment EYE-ACP's strengths in leading innovative research and developing world-leading eye-care services. The recipients of the prestigious Professorships in Ophthalmology were:

i. Prof. Jodhbir Mehta, SNEC Professorship in Clinical Innovation in Ophthalmology
ii. Prof. Chee Soon Phaik, SNEC Professorship in Clinical Education in Ophthalmology
iii. Prof. Saw Seang Mei, SERI Professorship in Ophthalmology Research
iv. Assoc. Prof. Audrey Chia, Robert Loh Associate Professorship in Ophthalmology

The Professorships will enable them to accelerate discoveries in their areas of research and nurture future leaders in Ophthalmology through mentorship and education and in doing so, transform eye care in Singapore.

Two of SERI's spin-off companies did remarkably well in 2020. In June 2020, SERI spin off company PLANO secured a series B investment from Japanese pharmaceutical company Santen to help grow PLANO's user engagement, strengthen its AI capabilities and to drive its international expansion plans.

EyRIS, another of SERI's spin-off companies, has been actively pursuing commercialization of the world's first fundus imaging analysis AI system – SELENA+ that can detect 3 major eye conditions - referable diabetic retinopathy (DR), possible glaucoma suspect (GS), and age-related macular degeneration (AMD). The company has made significant progress on achieving important regulatory milestones for their lead AI product, having received approvals from Singapore HSA, EU CE Mark, Malaysia MDA, Brazil ANVISA and Indonesia RAMS (Jan 2021), now having a presence in 21 countries. Eyris recently launched a "Say No to Vision Loss" platform by partnering with the Singapore Optometric Association in March 2020, and was additionally named by The Silicon Review in October 2020 as one of the "50 Innovative Companies to Watch".

This is a difficult, challenging and unsettling time for us, our friends and colleagues, and our family and loved ones. I am mindful that everyone is affected differently and may react differently to this extremely stressful situation. We need to bear this in mind as we interact with each other in clinics, OT, in emails, zoom and other "virtual" interactions. I urge of all us to be mindful, kind, understanding and gentle.

In such difficult and trying times, I cannot emphasize that our own emotional, physical and mental health and personal wellbeing are crucial and of utmost importance. I urge you to pause, reflect, re-charge, re-engage with your friends and colleagues and seek support if you need.

I cannot tell you whether life may get easier or more forgiving, but we can, and will, get stronger and more resilient. The key to resilience is trying hard, then stopping and recovering, and then trying again.

I would like to once again thank you, and encourage you to rest, recover and take good care of your own wellbeing. Let us continue to work in pursuit of making SERI a global center of excellence in eye and vision research in Asia.

Professor Wong Tien Yin
Chairman

EXECUTIVE DIRECTOR'S MESSAGE

It's been more than a year since the start of the pandemic, and we are continuing to adapt and reinvent the way we function at SERI. It has certainly been a challenging period for all of us and as such, I'd like to convey my heartfelt gratitude and appreciation to all of you for your support and cooperation during this difficult period.

At the outset, heartiest congratulations to my colleagues Prof. Jodhbir Mehta, Prof. Chee Soon Phaik, Prof. Saw Seang Mei and Assoc. Prof. Audrey Chia on the conferment of the Distinguished, Faculty Professorships. The Professorships will allow them to advance and strengthen collaborations with international leaders in Ophthalmology and bring about advancements in the delivery of eye care.

On the collaboration front, SERI is working with the Yong Loo Lin School of Medicine at NUS to establish a world-class basic science program in ocular research called SERI-NUS BASIC SCIENCE PROGRAM IN OCULAR RESEARCH (ASPIRE), which will leverage on the strengths of NUHS and SERI to conduct cutting-edge basic research in Ophthalmology, and ensuring that they are globally competitive.

SERI has amassed an excellent track record of 462 scientific paper publications this year. Out of them, we had two notable, high impact-factor publications, with the visual neurosciences group publishing in the prestigious *New England Journal of Medicine* journal about their new, AI-based deep learning system that can look at multiple photographs of the back of the eye to infer if the eye is normal or if it has abnormalities.

The glaucoma team at SERI along with GIS researchers have identified a genetic mutation associated with exfoliation syndrome, the most common cause of Glaucoma. Their publication in the *Journal of the American Medical Association (JAMA)* has found the association of rare CYP39A1 variants with Exfoliation Syndrome involving the anterior chamber of the eye.

Myopia has been garnering a lot of interest in the past few years and SERI's extensive work in the field has led to novel treatment regimens and industry collaborations in myopia. In order to channelise the institution's collective strengths in myopia, the SNEC/SERI leadership has mapped an overarching strategy that would guide our myopia research efforts for the next 3 to 5 years. We have identified "Prevention of Vision Loss from High Myopia" as the overall objective, and to achieve this, we have formed 3 vertical research pillars and 5 horizontal platforms which will help augment the research efforts, with inputs from the external Key Opinion Leaders (KOL) to formalise the framework

Due to the social distancing norms, we refrained from conducting any large-scale physical events this year, however SERI celebrated its first-ever SNEC/SERI Research Day on 19th March 2021. It was a first-of-its-kind hybrid event at SingHealth, with limited audience joining live at the SERI auditorium and online via Zoom. This was a unique way of connecting with all our staff, while still adhering to the social distance norms and safety precautions. The research day program involved participation from both the clinicians, research faculty, staff and post-docs and was immensely engaging and enjoyable.

As a part of our staff development initiatives, SERI has been partnering with the Duke-NUS Career Development Programme to conduct a series of Professional Development Webinars for SNEC/SERI staff since last year. We've been having several valuable workshops like "Scientific presentations: The small things that make a big difference" and "THINK ABOUT YOU – Build self-awareness and learn how to enhance workplace relationships remotely" and the recent webinar on "Managing stress for better health".

With successive waves of covid-19 outbreaks, it is imperative for us to stay resilient as a team and follow strict protocol to ensure safety of all our co-workers. It is crucial that we look out for each other at this juncture, be kind and take the challenges ahead of us, one step at a time. With the vaccinations in full swing, hopefully we have a better chance to bounce back faster to newer norms.

My heart-felt gratitude to all our healthcare and front-line workers, clinical and research staff, who are working hard to protect us, every single day.

Prof Aung Tin
Executive Director

INSTITUTIONAL REPORT

BACKGROUND

The Singapore Eye Research Institute (SERI), affiliated to the Singapore National Eye Centre, the National University of Singapore, and the Duke-NUS Medical School is a non-profit charitable organization tasked to lead and conduct research into vision and eye diseases based in Singapore and focused on Asia. It further works in collaboration with Ophthalmology departments of the various public healthcare entities and biomedical research institutions, as well as major eye centers and research institutes throughout the world. SERI has developed a world-leading reputation in broad-based clinical translational research and epidemiological programs for many eye diseases, specifically eye diseases endemic to Asia, such as myopia, angle closure glaucoma, and corneal diseases.

KEY PERFORMANCE INDICATORS

- SERI is one of the largest research institutes in Singapore and the largest eye research institute in the Asia-Pacific, with a faculty of 248, encompassing clinician scientists, scientists, fellows, students, and support staff.

- SERI has successfully secured external peer-reviewed competitive grant funding worth approximately S$13.31 million this year, and a cumulative quantum of approximately S$346 million.

- SERI continues its leading performance in publication, with 462 scientific papers this year, and with a cumulative publication quantum of 4,353 scientific papers.

- As of March 2021, the SERI faculty has received 714 national and international awards with 145 patent applications being filed during the same period.

- Since 1997, SERI has conducted 2,076 studies, encompassing the entire spectrum of eye research, from basic laboratory research, pre-clinical animal research, translational clinical research, and population health research. There are currently 462 ongoing research projects at SERI, of which approximately 70% cover clinical/translational research, 12 % basic research and 18% epidemiology, imaging and health service research.

- SERI has further contributed to the training of research manpower, including over 210 Masters, PhD and post-doctoral students, many of whom are now working in hospitals, biomedical sciences industry, academic institutions and research institutes locally and overseas.

ACHIEVEMENTS & INNOVATIONS

- **SNEC/SERI Myopia Master Plan**

  SERI had a pipeline of projects spanning basic science, laboratory work, animal studies, as well as epidemiological studies in myopia research and clinical trials. SERI's extensive work in the field had also led to novel treatment regimens and industry collaborations in myopia.

  There was also increasing interest in myopia as a disease area in the past few years, and as a result, more funding opportunities were available for myopia research. Given the wide expertise and increased available funding, SNEC/SERI leadership saw an opportunity to review the institution's collective strengths and map an overarching strategy that would guide SNEC/SERI's myopia research efforts for the next 3-5 years.

  Having identified Prevention of Vision Loss from High Myopia as the overall objective, the Myopia team formed 3 vertical research pillars to investigate key aspects of the natural disease development pathway:

  i. Myopia Prevention: Light and Epidemiology
  ii. Interventions for Myopia
  iii. Pathological Myopia

These pillars were supported by 5 horizontal platforms comprising specialized resources (tools/technologies) which augmented research efforts in all 3 pillars:

i. Translational/Preclinical
ii. Epidemiological and Clinical
iii. Imaging
iv. Patient Outcomes
v. Commercialisation Opportunities

To determine if the proposed focus areas and approaches were geared to achieve maximum impact in the field, external key opinion leaders (KOLs) were invited to share their opinions and perspectives over a series of roadmapping sessions.

This framework was endorsed by the Myopia EXCO on 17 August 2020, and the team was tasked to review the prioritized projects and craft proposals for relevant funding support.

- **Spin Off Company - PLANO**
  PLANO is SERI's third spin off company, the first start-up company from the SERI-SNEC ophthalmic technologies incubator.

  PLANO made major announcement on 30 June 2020 on its strategic alliance with a Japanese pharmaceutical company Santen Pharmaceutical and has secured series B investment from Santen.

  This funding and strategic alliance with Santen will play an instrumental role in growing PLANO's user engagement, strengthen its big data analytics and artificial intelligence capabilities, and drive its international expansion plans.

- **Spin Off Company - EYRIS**
  EyRIS is SERI's fourth spin off company, a joint venture between SERI, NUS and local veteran healthcare IT company NovaHealth, to commercialize the world's first fundus imaging analysis AI system that can detect 3 major eye conditions, DR, GS and AMD.

  The company had made significant progress in several fronts:

  i. obtained Singapore HSA regulatory approval on 15 October 2019.
  ii. cleared EN ISO13485:2016 in January 2020 and obtained CE mark certification on 10 March 2020.
  iii. received GDPMD Certification from Authority of Malaysia in December 2019 and Malaysia MDA approval in April 2020.

  EYRIS had also launched "Say No to Vision Loss" platform with the partnership with Singapore Optometric Association on March 2020.

  EYRIS had been actively pursuing commercialization of SELENA+ regionally (Malaysia and Vietnam) and globally (China, Europe and Middle-East).

- **Staff Development Initiatives**
  As part of young faculty development and SNEC-SERI integration, SERI had been partnering with the Duke-NUS Career Development Programme and conducted a series of career workshops for SNEC/SERI staff.

  1st Professional Development Webinar was on "Scientific presentations: The small things that make a big difference" and the 2nd Professional Development Webinar was on "THINK ABOUT YOU – Build self-awareness and learn how to enhance workplace relationships remotely".

Future workshops would include grantsmanship, intellectual property 101 and manuscript writing.

- **The SERI-NUS BASIC SCIENCE PROGRAM IN OCULAR RESEARCH (ASPIRE)**
  SERI is collaborating with Yong Loo Lin School of Medicine, NUS towards the establishment of the SERI-NUS BASIC SCIENCE PROGRAM IN OCULAR RESEARCH (ASPIRE) programme, which aims to establish a world-leading basic science program in ocular research, by combining forces between one of the region's top universities, NUHS, and a world-leading eye research institute, SERI, in order to conduct cutting edge basic science research in the field of Ophthalmology, with an emphasis on, but not limited to, Cell Therapy, Regeneration and Gene Therapy.

  This will also serve as a broader initiative to engage with NUHS to further consolidate SERI's national role, and to ensure that SERI and eye research continue to be globally competitive.

- **License Deal – Spiralis To Geuder AG**
  Spiralis is disposable, novel, easy and safe to use pupil expander for cataract surgery. The patented technology uses biocompatible shape memory material for gradual deformation of the device from a small, compact sate to a predetermined expanded shape which can effectively reduce the traumatic damages to iris through even distribution of expansion force. It is currently in preclinical development stages.

  Spiralis is the product of a joint development between SERI and National University of Singapore. The technology has been licensed to Geuder AG, a German company which is one of leading manufacturers of ophthalmic surgical products.

- **High Impact Factor Publications**
  Visual Neuroscience Group devised an AI-based, deep learning system that can look at multiple photographs of the back of the eye and infer if the eye is normal or if it has abnormalities. Their research was published in the prestigious medical journal, New England Journal of Medicine in April 2020.

  SERI's Glaucoma team in collaboration with GIS, found the association of rare CYP39A1 variants with Exfoliation Syndrome involving the anterior chamber of the eye. This landmark discovery was published in JAMA in Feb 2021.

- **Named Professorships for Ophthalmology**
  Pursuant to the Academic Medicine mandate, SNEC/SERI in partnership with Duke-NUS established the Ophthalmology and Visual Sciences ACP (Eye ACP) in 2012.

  A number of Professorships in Ophthalmology have been established via the EYE ACP philanthropic endeavors.

  The following Professorships in Ophthalmology were awarded to distinguished SNEC/SERI faculties:

  i. Prof. Jodhbir Mehta, SNEC Professorship in Clinical Innovation in Ophthalmology
  ii. Prof. Chee Soon Phaik, SNEC Professorship in Clinical Education in Ophthalmology
  iii. Prof. Saw Seang Mei, SERI Professorship in Ophthalmology Research
  iv. Assoc Prof. Audrey Chia, Robert Loh Associate Professorship in Ophthalmology

PERFORMANCE OVER THE PAST TWENTY-THREE YEARS *(as of March 2021)*

- SERI has amassed an impressive array of publications over the years.

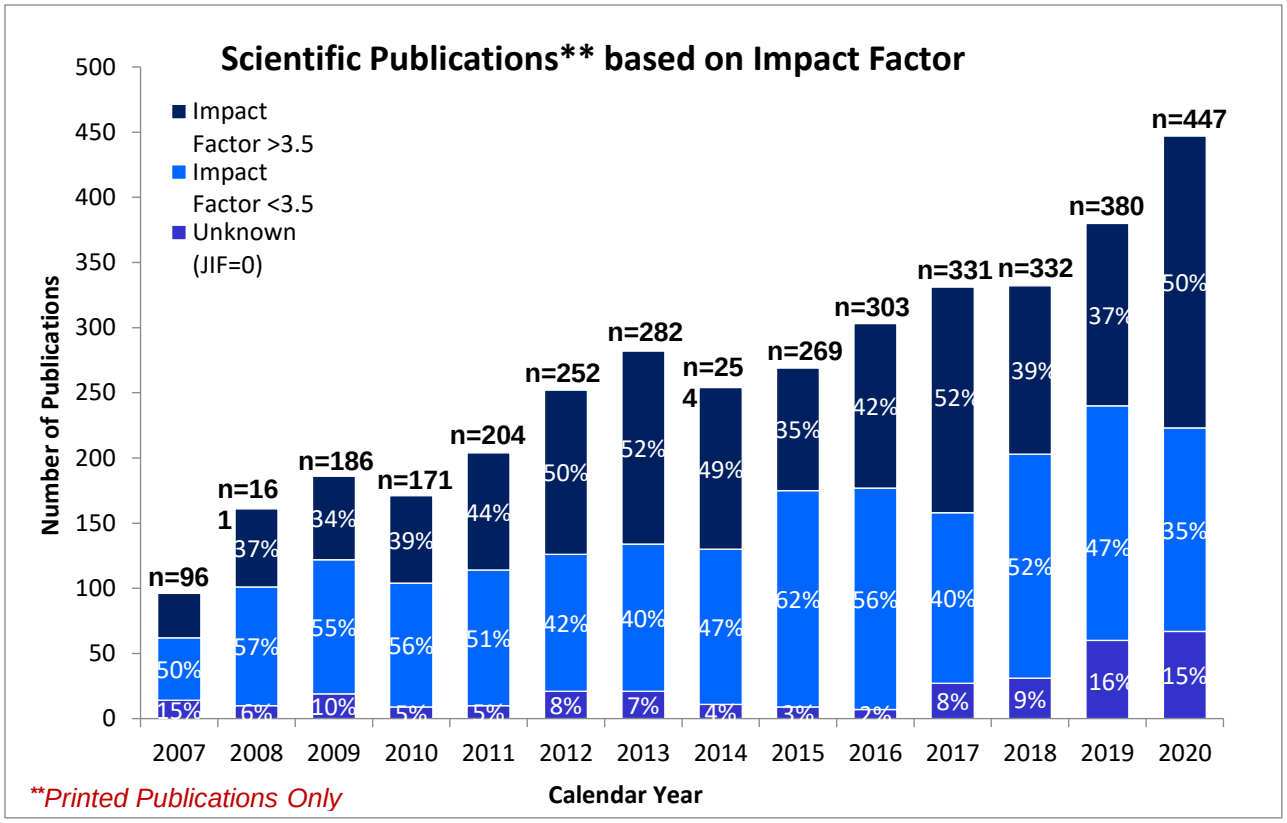


Figure 1: Number of yearly publications published at SERI

- SERI stands out as one of the most productive institutions and well holds up against global heavyweights in the field.

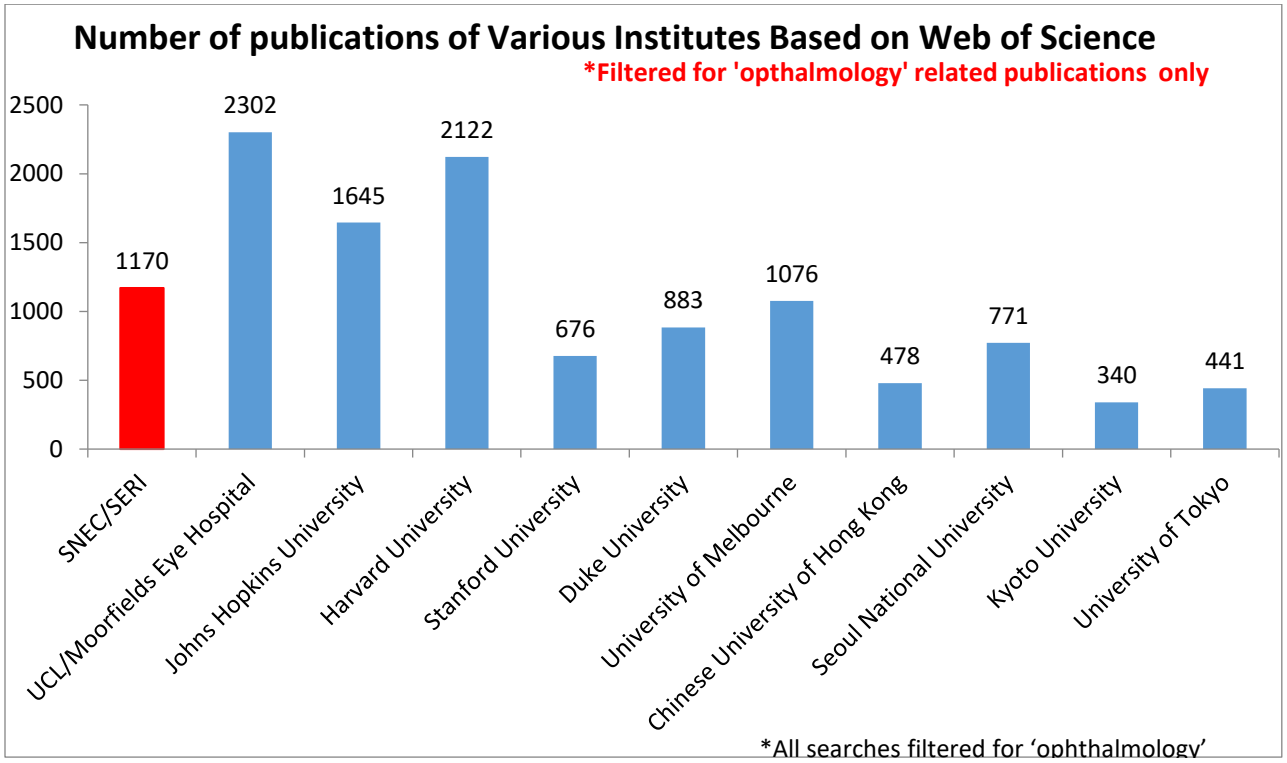


Figure 2: Number of publications by SERI and other institutions around the world, during the period of 2012 – 2020

- SERI's staff strength over the years.

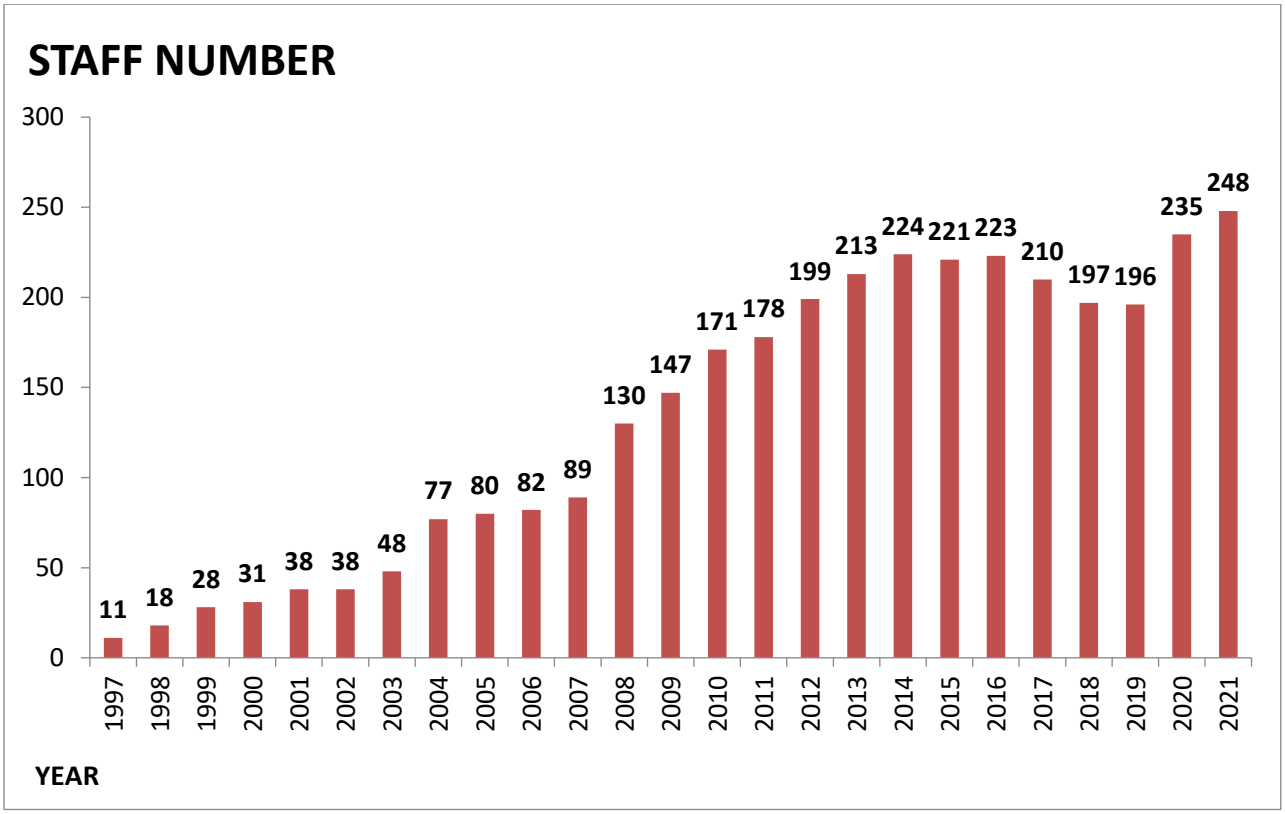


Figure 3: Number of staff members at SERI

- SERI boost of a diverse and global faculty that serves as melting pot of ideas that propels innovation.

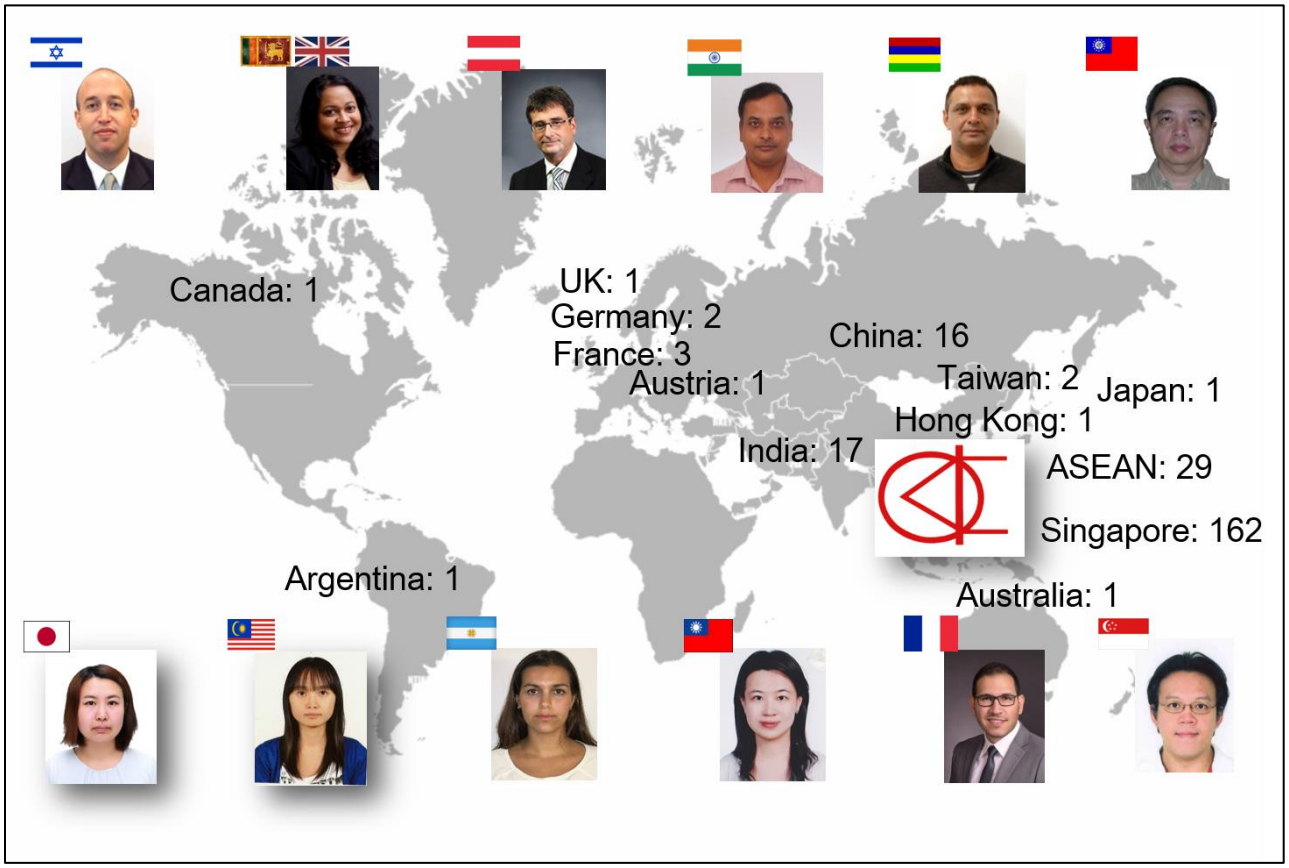


Figure 4: Nationalities of staff members at SERI

- The stellar achievements of SERI have been well endorsed with numerous international and local awards.

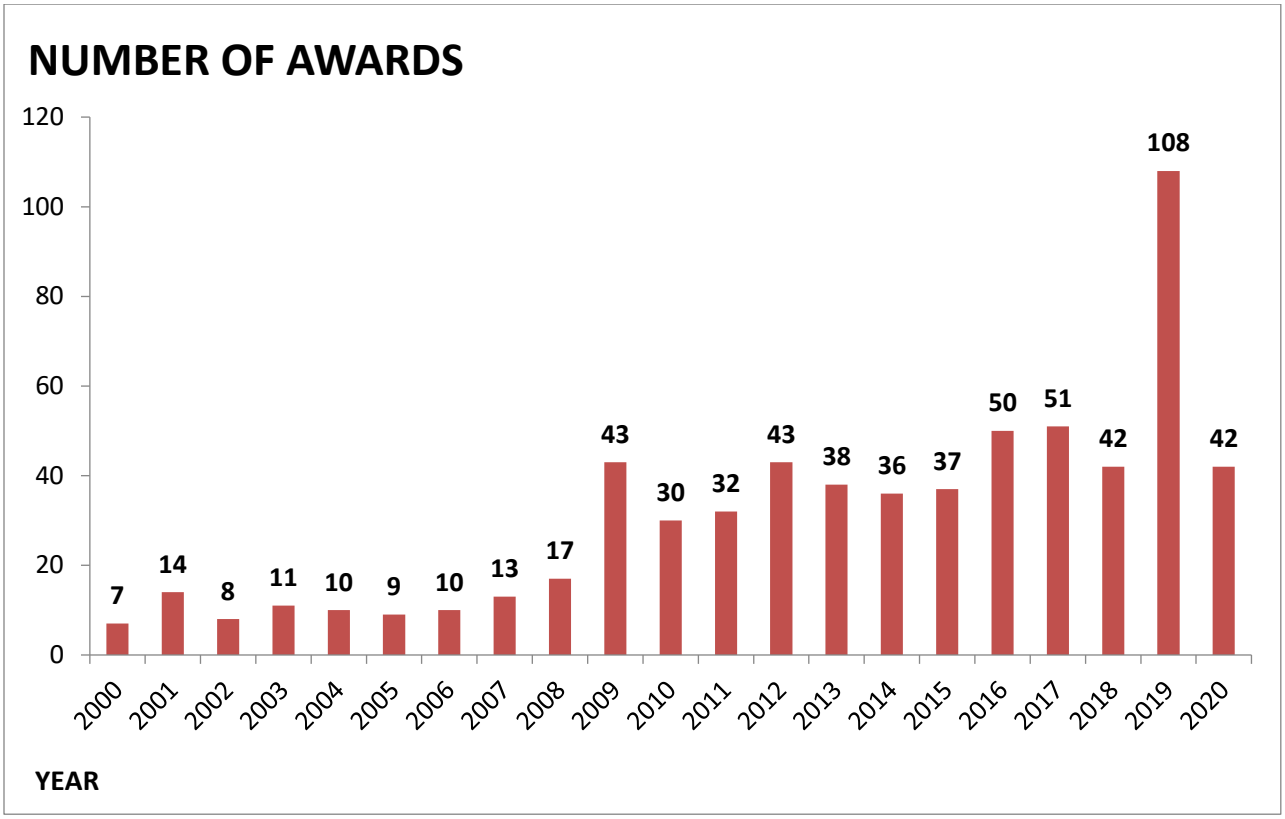


Figure 5: Number of awards received by SERI and its staff (Data from 1997-1999 are not available)

APPRECIATION & ACKNOWLEDGEMENT

SERI owes its success to its people – the honorable SERI Board of Directors, our eminent academic collaborators, the senior management, and clinicians of the Singapore National Eye Centre (SNEC), as well as, very importantly, the SERI faculty and staff members.

However, our greatest gratitude is reserved for our patients and their families. They are the driving force behind all that we do. Indeed, their journey and courage spur us on in our research endeavors and make us determined to make a positive difference to their vision and their lives.

SERI would also like to extend our appreciation to the National Medical Research Council, the Biomedical Research Council, the National Research Foundation, as well as our industry collaborators for their generous funding and support. It enables us to continue in our pursuit of impactful research with the ultimate aim to alleviate vision loss and blinding eye diseases.

OUR PEOPLE

SERI's BOARD OF DIRECTORS

The Board of Directors is the governing body of the institute and SERI's Constitution stipulates that the SERI Board of Directors shall have at least one representative each from the Ministry of Health, the National University of Singapore and the Singapore National Eye Centre. Today, besides representation from the above three organizations, SERI's Board additionally has Directors from the Duke-NUS Medical School, as well as M C Tong Cardiothoracic Surgery Pte Ltd. The board will review the institute's KPIs, budget and expenditures for the year, ongoing research and development, as well as develop strategies to further progress the future direction of the institute.

Prof Wong Tien Yin
Medical Director,
Singapore National Eye Centre

Chairman,
Singapore Eye Research Institute

Prof Ang Chong Lye
Senior Advisor,
SingHealth

Senior Consultant,
Singapore National Eye Centre

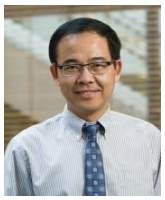
Prof Tan Sze Wee
Executive Director,
Agency For Science, Technology and Research

Prof Benjamin Seet
DGCEO (Education & Research),
Group Chief Research Officer,
National Healthcare Group

Prof Chong Yap Seng
Dean, Yong Loo Lin School of Medicine
National University of Singapore

Prof James Best
Dean,
Lee Kong Chian School of Medicine

Prof Thomas Coffman
Dean,
Duke-NUS Medical School



Prof Wang Linfa
Program Director,
Emerging Infectious Diseases
Duke-NUS Medical School

Prof Vernon Lee
Senior Director (Communicable Diseases),
Ministry of Health

Dr Geh Min
Consultant Eye Surgeon,
M C Tong Cardiothoracic Surgery Pte Ltd

Ms Ooi Chee Kar
Chartered Accountant (*Singapore*)

SERI's DIRECTORS / STRATEGIC PLANNING COMMITTEE

The SERI Directors/Strategic Planning Committee serves as the highest governing body at SERI, working closely with the Executive Director, SERI to ensure the overall stewardship of the Institute, including setting a strategic vision for the Institute; leading and promoting research within the Institute; ensuring sufficient funding to ensure its future viability; safeguarding overall governance and integrity of the Institute; and proactively increasing the visibility and broadening of research collaborations with national and international agencies.

The Committee's purview includes:

- Review of promotion/ performance award recommendations
- Approval for overseas conference travel funded via core funding
- Approval for unbudgeted expenses

Prof Aung Tin
Executive Director

Prof Jodhbir Mehta
Deputy Executive Director

Prof Leopold Schmetterer
Scientific Director

Prof Ecosse Lamoureux
Director, Population Health and Epidemiology

Assoc Prof Eranga Vithana
Director, Laboratory Translational Research

Prof Tina Wong
Director, Clinical Translational Research

Dr Vandana Ramachandran
Director, Research & Academic Affairs

Dr Danny Belkin
Director, Technology Development & Commercialisation

Prof Jonathan Crowston
Director, Centre of Vision Research, Duke-NUS Medical School

SERI's RESEARCH HEADS

This committee serves as a principle body actively engaged in the review and implementation of SERI's research policies and strategies, as well as is the team conceptualizing SERI's research framework, in consultation with the SERI Senior Leadership, as the Institute moves onwards to face new challenges in its strive for continued research excellence.

Prof Aung Tin
Executive Director

Prof Wong Tien Yin
Chairman

Prof Jodhbir Mehta
Deputy Executive Director
Head, Tissue Engineering & Cell Therapy Research Group
Head, Cornea & Refractive Reseach Group

Prof Leopold Schmetterer
Scientific Director
Head, Ocular Imaging Research Group

Prof Eccosse Lamoureux
Director, Population Health and Epidemiology
Head, Population Research Group

Assoc Prof Eranga Vithana
Director, Laboratory Translational Research
Head, Ocular Genetics Research Group & Experimental & Basic Sciences & Genomics Research Platforms

Prof Tina Wong
Director, Clinical Translational Research
Head, Ocular Therapeutics & Drug Delivery Research Group

Dr Vandana Ramachandran
Director, Research & Academic Affairs

Dr Danny Belkin
Director, Technology Development & Commercialisation

Prof Dan Milea
Head, Visual Neuroscience Research Group

Dr Kelvin Teo
Director, Research Clinic
Head, Clinical Research / Trials Research Platform

Assoc Prof Audrey Chia
Co-Head, Myopia Research Group

Prof Cheng Ching-Yu
Head, Ocular Epidemiology Research Group & Data Science Research Platform

Prof Louis Tong
Head, Ocular Surface Research Group

SERI's RESEARCH HEADS (*continued*)

Prof Saw Seang Mei
Co-Head, Myopia Reearch Group

Prof Gemmy Cheung
Head, Retina Research Group

Assoc Prof Lakshminarayanan Rajamani
Co-Head, Ocular Infections & Anti-Microbials Research Group

Assoc Prof Shamira Perera
Co-Head, Bioengineering & Devices Research Group

Dr Amutha Barathi
Head, Translational Pre-Clinical Model Research Platform

Adj Assoc Prof Rupesh Agrawal
Co-Head, Ocular Infections & Anti-Microbials Research Group

Prof Jonathan Crowston
Director, Centre of Vision Research, Duke-NUS Medical School
Head, Glaucoma Research Group

Prof Chee Soon Phaik
Head, Cataract & Uveitis Research Group

Assoc Prof Michael Girard
Co-Head, Bioengineering & Devices Research Group

Dr Anita Chan
Head, Translational Ophthalmic Pathology Research Platform

Assoc Prof Daniel Ting
Head, AI & Digital Innovations Research Group

Dr Zhou Lei
Head, Proteomics Research Platform

Ms Sangeetha Nagarajan
Co-Head, Data Management Research Platform

SNEC's RESEARCH & INNOVATIVE COMMITTEE

Terms of reference:

- Plays a pivotal role in the review of research budgets, as well as the evaluation and endorsement of the appropriateness of research projects, including the scientific merit of such projects.
- Oversight over the review/ approval of the SNEC Health Research Endowment Fund (HREF) / SingHealth Foundation (SHF)-SNEC Fund / SERI-Lee Foundation Grant / Heroes Fund / Lee Foundation Donation Fund for research projects.
- Provides directions for the development of SERI's translational and clinical research capabilities.

Prof Tina Wong
Head & Senior Consultant, Glaucoma Dept, SNEC

Director, Clinical Translational Research, SERI

Prof Jodhbir Mehta
Head & Senior Consultant,
Corneal & External Eye Disease Dept, SNEC

*Deputy Executive Director***,** SERI

Prof Louis Tong
Senior Consultant, Corneal & External Eye Disease Dept, SNEC

Head, Ocular Surface Research Group, SERI

Prof Dan Milea
Senior Clinician, Neuro-Ophthalmology Dept, SNEC

Head, Visual Neuroscience Research Group, SERI

Prof Gemmy Cheung
Head & Senior Consultant, Medical Retina Dept, SNEC

Head, Retina Research Group, SERI

Prof Jonathan Crowston
Senior Consultant, Glaucoma Dept, SNEC

Head, Glaucoma Research Group, SERI

Assoc Prof Shamira Perera
Senior Consultant, Glaucoma Dept, SNEC

Co-Head, Bioengineering & Devices Research Group, SERI

Clin Assoc Prof Lee Shu Yen
Head & Senior Consultant,
Surgical Retina Dept, SNEC

Clin Assoc Prof Sharon Tow
Senior Consultant,
Neuro-Ophthalmology Dept, SNEC

Assoc Gavin Tan
Senior Consultant, Surgical Retina Dept, SNEC

Clinician Scientist, SERI

TEACHING & TRAINING

During this period no research seminars, courses and talks were conducted due to the Covid-19 pandemic.

OUR COLLABORATIONS

Local Institutions

- Bioinformatics Institute (BII)
- Bioprocessing Technology Institute (BTI)
- Changi General Hospital Pte Ltd
- Duke-NUS Medical School
- Genome Institute of Singapore (GIS)
- Health Science Authority (HSA)
- Institute for Infocomm Research (I2R)
- Institute of High Performance Computing (IHPC)
- Khoo Teck Huat Hospital
- KK Women's and Children's Hospital
- Nanyang Polytechnic
- National Cancer Centre (NCC) Singapore
- National Dental Centre of Singapore Pte Ltd
- National Heart Centre of Singapore Pte Ltd
- National Healthcare Group Pte Ltd
- National Neuroscience Institute of Singapore (NNI)
- Nanyang Technological University (NTU)
- National University Hospital (Singapore) Pte Ltd
- National University of Singapore (NUS)
- Sengkang General Hospital (SKH)
- Singapore Clinical Research Institute
- Singapore Chung Hwa Medical Institution
- Singapore General Hospital Pte Ltd (SGH)
- Singapore Health Services Pte Ltd (SHS)
- Singapore Management University
- Singapore-MIT Alliciance for Research and Technology
- Singapore National Eye Centre (SNEC)
- SingHealth Polyclinics (SHP)
- Singapore Translational Immunology and Inflammation Centre (STIIC)
- Tan Tock Seng Hospital (TTSH)

Overseas Institutions (Academic)

- Asian Eye Institute, Inc
- Asahikawa Medical University
- Beijing Tongren Hospital

Overseas Institutions (Academic)

- Cardiff University
- Columbia University
- Duke University
- Harvard Medical School
- Hyderabad Eye Research Foundation
- IBM TJ Watson Research Centre
- Imperial College London Diabetes Centre
- Institute for Biomechanics, ETH Zurich
- Institute for Innovative Ocular Surgery
- Johns Hopkins University
- King Khaled Eye Specialist Hospital (KKESH)
- LV Prasad Eye Institute
- Maastricht University
- Monash University
- Moorfields Eye Hospital
- New York University, USA
- Ningbo Institute of Materials Technology and Engineering
- Ohio State University
- Riverside Research Institute
- Save Sight Institute, University of Sydney
- Shinchon Severance Hospital
- The Chinese University of Hong Kong
- The First Affiliated Hospital of Kunming Medical University
- The Queen's University of Belfast
- The University Court of the University of Edinburgh
- The University of Tokyo
- Tianjin Medical University Eye Hospital
- University of Auckland
- University of Copenhagen in Denmark
- University of Lublin
- University of Sheffield
- University of Southern Denmark
- University of Newcastle
- Vietnam National Institute of Ophthalmology
- Wenzhou Medical University
- Yonsei Medical Centre
- Yonsei University

Industry Collaborations

- AceVision
- Advanced Eye Centre
- Aier Eye Hospital Group Cop. Ltd
- Alcon Pte Ltd
- Allergan Singapore Pte Ltd
- ASAN Medical Center
- Astatine Ventures Pty Ltd
- Bayer (South East Asia) Pte Ltd
- Belle Healthcare Medical Technology Co. Ltd
- Biolight Life Sciences Ltd
- Boehringer Ingelheim International GmbH (BI)
- Boehringer Ingelheim Singapore Pte Ltd
- BSI Group Singapore
- CapaBio Pte Ltd
- Carl Zeiss Pte Ltd
- Chiltern International Pte. Ltd
- CLINREG Consulting Services
- Cylite Pte Ltd
- D.O.R.C. Dutch Ophthalmic Research Center (International) B.V.
- Dompe
- Experimental Biotherapeutics Centre
- Exonate Limited
- Financiere De L'ombree (EOLANE)
- Formugenix Pte Ltd
- Gemini Therapeutics, Inc
- Geuder AG
- Gilead Sciences, Inc
- Gobiquity Inc
- Graybug Vision Inc
- Grey Innovation Pty Ltd
- Heidelberg Engineering GmbH
- HistoIndex Pte Ltd
- Hogan Lovells US LLP
- HOYA Medical Singapore Pte Ltd
- INC Research LLC
- InnoVealth Pte Ltd
- Integrated Decision Systems Consultancy Pte Ltd
- Inteq Communications Pte Ltd
- Interactive Micro-organisms Laboratories Pte Ltd
- International Agency for the Prevention of Blindness (IAPB)
- Johnson and Johnson Vision Care, Inc.
- Kowa Company Ltd
- Lars Nelleman Consulting
- L'occitane Singapore Pte Ltd
- Leave a Nest Singapore Private Ltd
- Life Bridge Partners Pte Ltd
- Matrix Medical Consulting, Inc
- Medi Whale Inc.
- Menarini Biomarkers Singapore Pte Ltd
- MuPharma Pty Ltd
- Nidek Co., Ltd
- Novartis (Singapore) Pte Ltd
- Leica Microsystems (Schweiz) AG
- Medi Whale Inc
- Merck Sharp & Dohme Corp
- Microsoft
- NOXXON Pharma AG
- O.D. Ocular Discovery Ltd
- OliX Pharmaceuticals, Inc
- ONL Therapeutics, Inc.
- Optomed Oy
- Parexel International (Singapore) Pte Ltd
- Pharmaceutical Research Associates Singapore Pte Ltd
- Physio-Logic Ltd
- Pixium Vision
- Quark Pharmaceuticals, Inc.
- Roche Singapore Pte Ltd
- Samie Intellab Pte Ltd
- Sanofi- Aventis Singapore Pte Ltd
- Santen Pharmaceutical Asia Pte Ltd
- Santen Pharmaceutical Co. Ltd
- Seoul Semiconductor Co. Ltd
- SinSA Labs Inc
- Taggle Pte Ltd
- Thesis Pte Ltd
- Topcon Corporation
- Ushio Asia Pacific Pte Ltd
- Verily Life Sciences LLC
- Yukti Bioscience Pte Ltd
- Zicom Medtacc Pte Ltd
- Zig Ventures Limited

EVENTS

INTERNATIONAL & LOCAL ACTIVITIES

SERI staff and associates participated actively in both overseas and local conferences during the year to establish links with overseas institutes, meet up with overseas collaborators and to promote and enhance SERI's presence in the international scene.

Conferences / meetings participated includes:

INTERNATIONAL ACTIVITIES		
TOPIC	**DATE**	**VENUE**
Japanese Ophthalmological Society 124th Annual Meeting 2020	16 – 19 Apr 2020	Virtual conference
Webinars Essilor Portugal	1 – 30 May 2020	Virtual webinars
Association for Research in Vision and Ophthalmology (ARVO) 2020	3 – 7 May 2020	Virtual conference
ASCRS 2020 Annual Meeting	15 – 19 May 2020	Virtual conference
King Khaled Eye Specialist Hospital (KKESH) Ocular Genetics Virtual Symposium 2020	6 Jun 2020	Virtual conference
XIX S.I.C.S.S.O Congress	25 – 27 Jun 2020	Virtual conference
37th World Ophthalmology Congress (WOC)	26 – 29 Jun 2020	Virtual conference
5th Hong Kong Ocular Surface Workshop in Conjunction with the 2020 Santen Asia Pacific Ocular Surface Summit	6 Jul & 13 Jul 2020	Virtual conference
42nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society	20 – 24 Jul 2020	Virtual conference
Moorfields UCL Glaucoma Seminar	22 Jul 2020	Virtual seminar
AUSCRS 2020	29 Jul – 1 Aug 2020	Virtual conference
Jakarta Eye Centre Webinar	1 Aug 2020	Virtual webinar
53rd Annual Retina Society Meeting	26 – 28 Aug 2020	Virtual conference
Refractive Surgery 360° - 2020	28 – 30 Aug 2020	Virtual conference
Collaborative Community on Ophthalmic Imaging (CCOI) Virtual Meeting	4 Sep 2020	Virtual meeting
64th Brazilian Congress of Ophthalmology - CBO2020	4 – 7 Sep 2020	Virtual conference
2020 IEEE International Ultrasonics Symposium	7 – 11 Sep 2020	Virtual conference
The 'Sixty Minutes of Glaucoma' - G60 Program Organised by Suraj Eye Institute	13 Sep 2020	Virtual webinar
31st Meeting of the Japan Glaucoma Society Symposium	2 – 4 Oct 2020	Virtual conference
38th Congress of the ESCRS	2 – 4 Oct 2020	Virtual conference
EU Cornea Meeting	2 – 7 Oct 2020	Virtual conference
The Joint Asia-Pacific Glaucoma Society (APGS) EGS (European Glaucoma Society) Webinar	2 – 11 Oct 2020	Virtual webinar
42nd Annual North American Meeting	6 – 27 Oct 2020	Virtual conference
Santen Asia Webinar	12 Oct 2020	Virtual conference
The 74th Annual Congress of Japan Clinical Ophthalmology	15 – 18 Oct 2020	Virtual conference
APACRS Webinar: Phaco Essentials	22 Oct 2020	Virtual webinar
20th Annual Meeting, Egyptian Society for the Glaucomas (ESG 2020)	30 Oct 2020	Virtual conference
Santen Glaucoma Expert Meeting (GEM): Future Frontier	07 Nov 2020	Virtual conference
American Academy of Ophthalmology (AAO) 2020 Virtual Meeting	13 – 15 Nov 2020	Virtual conference
INTERNATIONAL ACTIVITIES		

TOPIC	DATE	VENUE
11th Congress of Asia Pacific Society of Ophthalmic Plastic and Reconstructive Surgery	25 – 27 Nov 2020	Virtual conference
APACRS Webinar: What's New in Cataract & Refractive Surgery (Held in Conjunction with the Bangladesh Society of Cataract & Refractive Surgeons (BSCRS) Annual Conference 2020)	27 Nov 2020	Virtual webinar
UK and Eire Glaucoma Society (UKEGS) 2020 Conference	27 Nov 2020	Virtual conference
The 47th Annual Conference of the Kerala Society of Ophthalmic Surgeons Drishti 2020	27 – 29 Nov 2020	Virtual conference
Glaucoma Summit 2020 (Sun Pharma)	29 Nov 2020	Virtual conference
44th Macula Society Meeting	6 – 7 Feb 2021	Virtual conference
ICHOM 2021 Virtual Learning Series	24 Mar – 10 Nov 2021	Virtual conference
Ophthalmology Futures Virtual Asian Forum 2021	25 – 26 Mar 2021	Virtual conference
LOCAL ACTIVITIES		
TOPIC	**DATE**	**VENUE**
Artificial Intelligence & Digital Innovation in Eye (EYDIA): Insights from Google AI and Eye Experts	25 Sep 2020	Virtual webinar
Health Innovations Designed to Tackle Challenges Emerging Due to the COVID-19 Pandemic – Identifying Community Based Healthcare Innovations from the ASEAN Region in Response to COVID-19	21 Oct 2020	Virtual webinar
Career Seminar – Research and Academic Affairs	20 Nov 2020	Virtual webinar
21st National Eye Care Day	28 Nov 2020	Virtual webinar
Artificial Intelligence and Digital Innovation Journal Club	6 Mar 2021	Virtual conference

SNEC / SERI Research Day 2021

SERI has organized an inaugural virtual SNEC/SERI Research Day on 19th March 2021. It was a first-of-its-kind hybrid event with audience joining live at the SERI auditorium and online via Zoom. This was a unique way of connecting with all the staff, while still adhering to the social distance norms and safety precautions.

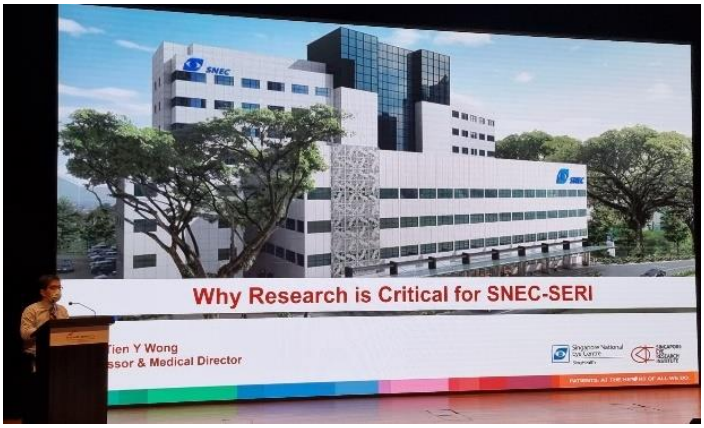
The Research Day serves as an institutional platform for clinician scientists and researchers to showcase their work, as well as their presentation skills, and further functions as an interactive conduit for the exchange of research ideas.

The program was immensely engaging and enjoyable with an opening address by Prof Wong Tien Yin, Professor & Medical Director of SNEC / SERI on "Why Research is Critical for SNEC-SERI" was very insightful and provided an overview of where SERI is today, how to remain relevant and to maintain its international standards moving forward. It was followed by an International Keynote Address by the Deputy Director of Centre for Eye Research Australia (CERA) and Professor of Ophthalmology, Prof Robyn Guymer, who joined us via Zoom from Melbourne.

SERI's latest research and highlights were discussed, where different research groups showcased their research work, to keep staff abreast of their latest research. A very engaging and informal sharing session by Prof Dan Milea on his personal experiences on his research career served as a guide for the younger clinicians and scientists on how to navigate their career in research.

A very unique segment on SNEC / SERI Women in Science session consisting of women panelists - Dr Vidhya Lakshmi Venkatramani, Dr Carla Lanca, Prof Saw Seang Mei, Dr Rachel Chong and Dr Shweta Singhal paved the way for several interesting discussions about imposter syndrome, the challenges and struggles women face in the field of science and how to change the status-quo.

The Research Day program concluded with the most awaited Research Day awards for the Top 5 Scientific Research Publications Awards and the Richard Fan Gold Medal for the outstanding senior resident of 2021.

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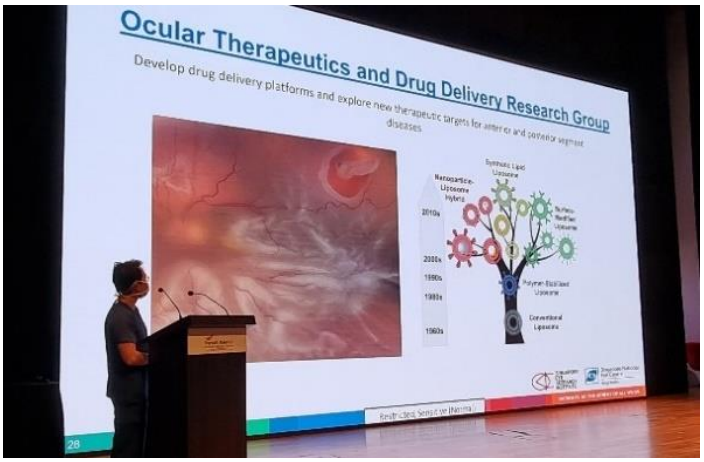
Ocular Therapeutics and Drug Delivery Research Group
Develop drug delivery platforms and explore new therapeutic targets for anterior and posterior segment diseases


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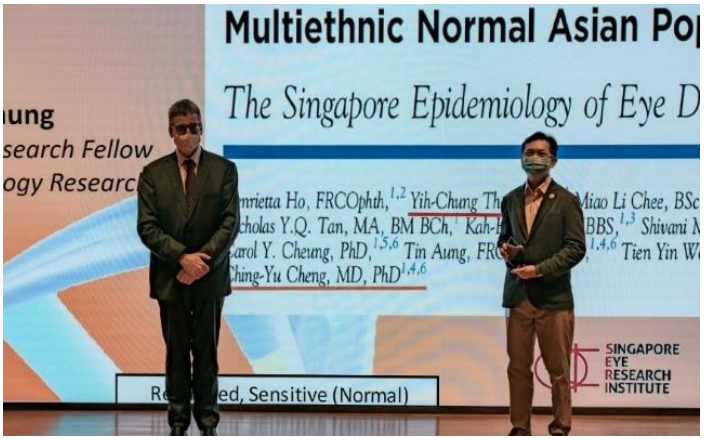
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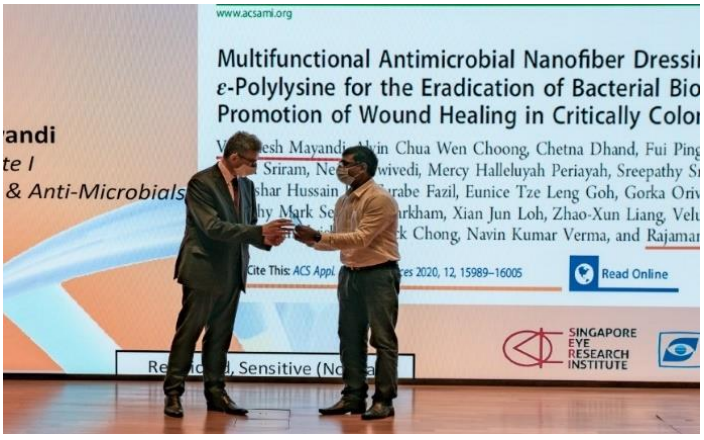
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ACHIEVEMENTS

OUR AWARDS

Local Awards

- **SingHealth Doctors and Dentists Long Service Award 2021: 40 Years of Service** [Mar 2021]
  Dr Yvonne Ling
- **SingHealth Doctors and Dentists Long Service Award 2021: 20 Years of Service** [Mar 2021]
  A/Prof Audrey Chia
- **SingHealth Doctors and Dentists Long Service Award 2021: 20 Years of Service** [Mar 2021]
  Dr Allan Fong
- **SingHealth Doctors and Dentists Long Service Award 2021: 20 Years of Service** [Mar 2021]
  Dr Loo Jing Liang
- **SingHealth Doctors and Dentists Long Service Award 2021: 10 Years of Service** [Mar 2021]
  Dr Wang Jenn Chyuan
- **SingHealth Doctors and Dentists Long Service Award 2021: 10 Years of Service** [Mar 2021]
  Dr Loh Kai-Lyn
- **SingHealth Doctors and Dentists Long Service Award 2021: 10 Years of Service** [Mar 2021]
  Dr Ng Si Rui
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Allan Fong
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Lim Hou Boon
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Jean Chai
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  A/Prof Lim Li
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Ti Seng Ei
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Prof Louis Tong
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Wong Chee Wai
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Terence Chiew
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Charles Ong
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Stanley Poh
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Ralene Sim
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Mr Jim Gu
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Ms Low Siew Ngim

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Ms Loh Huey Peng
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Arun Narayanaswamy
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Loo Cheng Yi
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Ms Chua Li Hong Rachel
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Prajod Padmalayam
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Nathan Siaw
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Mr Victor Yong
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Mr Justin Ng
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Ms Sim Peiying Anna
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Mr Su Junwei
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Mr Teng Wei Hong
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Ms Chua Xin Yi
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Mr Ngiam Sin Kai Sam
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Ms Srivani Sistla
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Ms Myoe Naing Lynn
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Anita Chan
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Prof Ian Yeo
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Prof Gemmy Cheung
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  A/Prof Quah Boon Long
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  A/Prof Mohamad Rosman
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Daniel Chua
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Ong Hon Shing
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Jayant Venkatramani Iyer
- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Loo Jing Liang

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Clin A/Prof Lee Shu Yen

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  A/Prof Gavin Tan

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  A/Prof Daniel Ting

- **SingHealth Digital Bounty Hunter Programme** [Feb 2021]
  Ms Lui Su Foong (Sharon)

- **SingHealth Duke-NUS Research Team Award 2020: 2nd Prize** [Dec 2020]
  Prof Ecosse Lamoureux

- **SingHealth Publish! Award** [Dec 2020]
  A/Prof Charumathi Sabanayagam

- **SingHealth Family Target Zero Harm Award 2020: Individual Award** [Oct 2020]
  Ms Wu See Fong

- **SNEC Professorship in Clinical Innovation in Ophthalmology** [Sep 2020]
  "Age of Onset of Myopia Predicts Risk of High Myopia in Later Childhood in Myopic Singapore Children"
  Prof Jodhbir Mehta

- **Robert Loh Associate Professorship in Ophthalmology** [Sep 2020]
  A/Prof Audrey Chia

- **National Medical Research Council (NMRC): Singapore Translational Research (STaR) Investigator Award** [Sep 2020]
  "Singapore Angle Closure Glaucoma Program: From Genetics to Precision Medicine and Therapy"
  Dr Kelvin Teo

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Clin A/Prof Edmund Wong

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Donny Hoang

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Clin A/Prof Doric Wong

- **Singapore Health Quality Service Awards 2021: Hero Award** [Mar 2021]
  Dr Andrew Tsai

- **SingHealth Duke-NUS Research Team Award 2020: 2nd Prize** [Dec 2020]
  Prof Gemmy Cheung

- **SingHealth Duke-NUS Research Team Award 2020: 2nd Prize** [Dec 2020]
  A/Prof Gavin Tan

- **Healthcare Humanity Awards 2020: Open Category** [Dec 2020]
  Dr Jayant V Iyer

- **SERI Professorship in Ophthalmology Research** [Sep 2020]
  Prof Saw Seang Mei

- **SNEC Professorship in Clinical Education in Ophthalmology** [Sep 2020]
  Prof Chee Soon Phaik

- **National Medical Research Council (NMRC): Transition Award** [Sep 2020]
  "Using Novel Imaging Biomarkers to Predict Vascular Endothelial Growth Factor Inhibitor Retreatment Load for Neovascular Age-related Macular Degeneration"
  Dr Kelvin Teo

Prof Aung Tin

- **National Medical Research Council (NMRC): Clinician Scientist Award - Investigator** [Sep 2020]
  "Optimising Surgical Management and Patient-related Outcomes of Epiretinal Membrane: Predictive Analytics and Randomised Trial"
  Dr Danny Cheung Ning

- **Residency in SingHealth Excels (RiSE) Awards 2020: Inspiring Resident Educator Award** [Aug 2020]
  Dr Tan Tien En

- **Residency in SingHealth Excels (RiSE) Awards 2020: Partners-in-Education Award (Non-Physician Faculty)** [Aug 2020]
  Dr Daniel Su Hsien Wen

- **Residency in SingHealth Excels (RiSE) Awards 2020: Outstanding Faculty Award** [Aug 2020]
  Clin A/Prof Lim Li

- **Residency in SingHealth Excels (RiSE) Awards 2020: Outstanding Faculty Award** [Aug 2020]
  Clin A/Prof Doric Wong

- **SingHealth Nursing Award 2020** [Jul 2020]
  "Singapore Angle Closure Glaucoma Program: From Genetics to Precision Medicine and Therapy"
  Ms Goh Hui Jin

- **SingHealth Nurses' Merit Award 2020** [Jul 2020]
  Ms Teong Soh Keng

- **National Medical Research Council (NMRC): NMRC Research Training Fellowship** [Aug 2020]
  "Digital Technology Solutions to Improve the Vision-Specific Quality of Life and Social Engagement in the Visual Impaired Older Population- A Pilot Study"
  Clin A/Prof Anna Tan

- **Residency in SingHealth Excels (RiSE) Awards 2020: Residents' Committee (RC) Appreciation Award** [Aug 2020]
  Dr Valencia Foo

- **Residency in SingHealth Excels (RiSE) Awards 2020: Partners-in-Education Award (Non-Physician Faculty)** [Aug 2020]
  Clin Adj A/Prof Yeoh Lam Soon Ronald

- **Residency in SingHealth Excels (RiSE) Awards 2020: Outstanding Faculty Award** [Aug 2020]
  Clin A/Prof Sharon Tow

- **Residency in SingHealth Excels (RiSE) Awards 2020: Faculty Appreciation Award** [Aug 2020]
  Dr Sunny Shen Yu

- **National Day Awards 2020: Efficiency Medal** [Aug 2020]
  Ms Lui Su Foong

- **SingHealth Director of Nursing Award 2020** [Jul 2020]
  Ms Lim Sock Huang

- **Exxonmobil-NUS Research Fellowship for Clinicians** [Apr 2020]
  Dr Rachel Chong

International Awards

- **The Ophthalmologist Power List 2021: Top 100 Women** [Mar 2021]
  Prof Saw Seang Mei

- **The Ophthalmologist Power List 2021: Top 100 Women** [Mar 2021]
  Assoc Prof Chelvin Sng

- **Japan Agency for Medical Research and Development (AMED) Interstellar Initiative: Healthy Longevity Award** [Mar 2021]
  Clin A/Prof Anna Tan

- **International Agency for the Prevention of Blindness (IAPB) Vision 2020: Vision Excellence Award** [Dec 2020]
  A/Prof Marcus Ang

- **12th Duke-NUS Early Career Scientists (DUNES) Annual Symposium: Best Oral Presentation Award 2020** [Dec 2020]
  Dr Vidhya Venkatraman Anandalakshmi

- **College of Optometrists' Research Excellence Awards: Bernard Gilmartin OPO Award** [Oct 2020]
  "Age of Onset of Myopia Predicts Risk of High Myopia in Later Childhood in Myopic Singapore Children"
  Prof Wong Tien Yin

- **College of Optometrists' Research Excellence Awards: Bernard Gilmartin OPO Award** [Oct 2020]
  "Age of Onset of Myopia Predicts Risk of High Myopia in Later Childhood in Myopic Singapore Children"
  Prof Audrey Chia

- **College of Optometrists' Research Excellence Awards: Bernard Gilmartin OPO Award** [Oct 2020]
  "Age of Onset of Myopia Predicts Risk of High Myopia in Later Childhood in Myopic Singapore Children"
  A/Prof Charumathi Sabanayagam

- **International Pediatric Ophthalmology & Strabismus Council (IPOSC): Outstanding Achievement Award** [Jul 2020]

- **The Ophthalmologist Power List 2021: Top 100 Women** [Mar 2021]
  Prof Gemmy Cheung

- **11th American Glaucoma Society: AGS International Scholar Award** [Mar 2021]
  Prof Aung Tin

- **Macula Society's Virtual 44th Annual Macula Society Meeting: 2021 International Travel Grant Award** [Mar 2021]
  "Novel Outcome Objectively Measured Activities of Daily Living Tasks Correlate with Visual Function in Age-related Macular Degeneration"
  Clin A/Prof Anna Tan

- **International Agency for the Prevention of Blindness (IAPB) Vision 2020: Vision Excellence Award** [Dec 2020]
  Prof Wong Tien Yin

- **International Society of Refractive Surgery (ISRS) at AAO 2020: Casebeer Award** [Nov 2020]
  Prof Jodhbir Mehta

- **College of Optometrists' Research Excellence Awards: Bernard Gilmartin OPO Award** [Oct 2020]
  "Age of Onset of Myopia Predicts Risk of High Myopia in Later Childhood in Myopic Singapore Children"
  Prof Cheng Ching-Yu

- **College of Optometrists' Research Excellence Awards: Bernard Gilmartin OPO Award** [Oct 2020]
  "Age of Onset of Myopia Predicts Risk of High Myopia in Later Childhood in Myopic Singapore Children"
  Clin Prof Donald Tan

- **College of Optometrists' Research Excellence Awards: Bernard Gilmartin OPO Award** [Oct 2020]
  "Age of Onset of Myopia Predicts Risk of High Myopia in Later Childhood in Myopic Singapore Children"
  Prof Saw Seang Mei

"Optimising Surgical Management and Patient-related Outcomes of Epiretinal Membrane: Predictive Analytics and Randomised Trial"
Dr Sonal Farzavandi

- **2020 Bert M. Glaser, MD Award for Innovative Research in Retina** [May 2020]
  Dr Daniel Ting

- **38th American Society of Cataract and Refractive Surgery (ASCRS) Film Festival: Quality Teaching** [Apr 2020]
  "A Whiter Shade is Pale"
  Prof Chee Soon Phaik

- **The Association for Research in Vision and Ophthalmology 2020: Board of Trustee (Physiology/Pharmacology Section)** [May 2020]
  Prof Leopold Schmetterer

- **38th American Society of Cataract and Refractive Surgery (ASCRS) Film Festival: Quality Teaching** [Apr 2020]
  "A Whiter Shade is Pale"
  Adj A/Prof Ronald Yeoh

OUR GRANTS

NMRC

- **"The Role of Caveolin-1 in Ocular Neurovascular Coupling"**
  Dr Rachel Chong; S$20,000.00

- **"Evaluation of Safety and Efficacy of Subconjunctival Injection of Liposomal Tacrolimus for Allergic Conjunctivitis"**
  Prof Jodhbir Mehta; S$208,333.33

- **"Wireless Miniaturised GonioPEN for Irido-corneal Imaging"**
  A/Prof Shamira Perera; S$208,333.33

- **"Digital Technology Solutions to Improve the Vision-specific Quality of Life and Social Engagement in the Visual Impaired Older Population - A Pilot Study"**
  Dr Anna Tan; S$498,000.00

- **"Optimising Surgical Management and Patient-related Outcomes of Epiretinal Membrane: Predictive Analytics and Randomised Trial"**
  Dr Cheung Ning; S$674,938.50

- **"Using Novel Imaging Biomarkers to Predict Vascular Endothelial Growth Factor Inhibitor Retreatment Load for Neovascular Age Related Macular Degeneration"**
  Dr Kelvin Teo; S$375,000.00

- **"Singapore Angle Closure Glaucoma Program: From Genetics to Precision Medicine and Therapy"**
  Prof Aung Tin; S$4,160,478.00

- **"Development of a SPARC Silencing Delivery System: A Targeted Approach for Treating Fibrosis Following Glaucoma Filtration Surgery"**
  Prof Tina Wong; S$238,095.00

- **"DR COVID – A Multi-lingual Artificial Intelligence Virtual System with Audio-visual Technology for COVID-19"**
  Dr Daniel Ting; S$982,000.00

- **"Precision Medicine using Single Cell Genomics, Transcriptomics, Proteomics and Lipidomics in Fluid Biopsies to Diagnose and Manage Primary Vitreoretinal Lymphoma"**
  Dr Anita Chan; S$1,405,637.51

- **"Digital Technology Solutions to Improve the Vision-specific Quality of Life"**
  Dr Anna Tan; S$57,995.00

- **"A Biomechanical Sensing Model of Scleral Remodeling in High Myopia"**
  Dr Donny Hoang; S$1,407,429.65

- **"The Role of Caveolin-1 in Inner Retina Neurovascular Coupling in Experimental Glaucoma"**
  Dr Rachel Chong; S$199,999.00

A*Star/ Duke-NUS/ MOH/ Others

- **"Transforming Vision Evaluation and Dilation in the Care of Ophthalmic Patients"**
  Dr Gavin Tan; S$41,666.00

- **"Translating MSC Exosomes into Pharmaceuticals"**
  Prof Jodhbir Mehta and Dr Ong Hon Shing; S$1,032,585.00

- **"Digital Technology Solutions to Improve the Vision-specific Quality of Life and Social Engagement in the Visual Impaired Older Population - A Pilot Study"**
  Dr Anna Tan; S$28,012.00

- **"Retinal Analytics via Machine Learning Aiding Physics"**
  Prof Aung Tin; S$1,200,000.00

- **"Future Health Technologies ("FTH") Module 1 "Fractures and Falls" - Early Detection of Health Risks and Prevention"**
  Prof Ecosse Lamoureux; S$1,136,676.00

- **"Digital Technology in Ophthalmology"**
  Prof Wong Tien Yin; S$150,000.00

SingHealth

- **From Machine to Machine - Developing a Deep Learning Algorithm for Quantification of Ocular Traits based on Retinal Photographs"**
  Dr Tyler Rim Hyungtaek; S$100,000.00

- **"COVID-19 Pandemic: Triaging of 'Only Urgent Eye Referrals' from Polyclinics (TOP) using Retinal Photograph-based Deep Learning"**
  Dr Tham Yih Chung; S$28,500.00

- **"Choroidal All-trans Retinoic Acid Involvement in the Local Control of Eye Growth in Myopia Development"**
  Dr Jiang Liqin; S$49,500.00

- **"The Role of the Aging Visual Function System on Functional Health in Elderly Singaporeans"**
  Dr Preeti Gupta; S$149,889.00

- **"Task Shifting Intravitreal Injection from Ophthalmologists to Nurses: A Prospective Randomized Non-inferiority Trial"**
  A/Prof Ian Yeo; S$65,000.00

Commercial

- **"An Extension Trial to Evaluate the Long-term Safety and Efficacy of Bimatoprost Sustained Release (SR) in Patients with Open Angle Glaucoma (OAG) or Ocular Hypertension (OHT)"**
  A/Prof Shamira Perera; S$46,995.33

- **"Safety and Efficacy of the Laser Scleral Microporation Procedure to Restore Effective Range of Focus in Macaque Non-human Primates"**
  Dr Liu Yu Chi; S$155,134.06

- **"A Phase III, Multicenter, Randomized, Double-masked, Active Comparator-controlled Study to Evaluate the Efficacy and Safety of Faricimab in Patients with Macular Edema Secondary to Branch Retinal Vein Occlusion (BALATON)"**
  Dr Anna Tan; S$36,239.13

- **"Evaluating a Soft Contact Lens for Myopia Control"**
  A/Prof Audrey Chia; S$595,794.01

- **"Convenient and Standardized Forced Visual Acuity Testing in Dry Eye Patients"**
  Prof Louis Tong; S$9,757.50

- **"A Phase III, Multicenter, Randomized, Double-masked, Active Comparator-controlled Study to Evaluate the Efficacy and Safety of Faricimab in Patients with Macular Edema Secondary to Central Retinal or Hemiretinal Vein Occlusion (COMINO)"**
  Dr Anna Tan; S$36,239.13

- **"The Evaluation of Nano-neural Growth Factor on Corneal Nerve Regeneration – In Vivo Study of NGF Release Profiles (Phase 2)"**
  Dr Liu Yu Chi; S$243,870.33

- **"Endotoxin-Induced Uveitis Model (EIU) as the Animal Model to Test Efficacy of IC-265"**
  Dr Amutha Barathi; S$65,265.72

- **"Randomized, Double-masked, Active-controlled, Phase 3 Study of the Efficacy and Safety of High Dose Aflibercept in Patients with Neovascular Age-related Macular Degeneration (PULSAR)"**
  Prof Gemmy Cheung; S$150,931.05

- **"POC of Reopia Optics Lenses on Chick Model"**
  Dr Amutha Barathi; S$10,037.46

OUR PUBLICATIONS

- Seen S, Young S, Lang SS, Lim TC, Amrith S, Sundar G. **Orbital Implants in Orbital Fracture Reconstruction: A Ten-year Series.** *Craniomaxillofac Trauma Reconstr*. 2021 Mar;14(1):56-63. doi: 10.1177/1943387520939032.

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FINANCIAL REPORT

Directors' statement

The directors are pleased to present their statement to the member together with the audited financial statements of Singapore Eye Research Institute (the "Company") for the financial year ended 31 March 2021.

Opinion of the directors

In the opinion of the directors,

(i) the financial statements of the Company are drawn up so as to give a true and fair view of the financial position of the Company as at 31 March 2021 and the financial performance, changes in funds and cash flows of the Company for the year ended on that date in accordance with the provisions of the Companies Act, Chapter 50, the Charities Act, Chapter 37 and other relevant regulations and Financial Reporting Standards in Singapore; and

(ii) at the date of this statement, having regards to the financial support from the immediate holding company, there are reasonable grounds to believe that the Company will be able to pay its debts as and when they fall due.

Directors

The directors of the Company in office at the date of this statement are:

Prof. Wong Tien Yin
Ms. Ooi Chee Kar
Prof. Ang Chong Lye
Prof. Wang Linfa
Dr. Geh Min
Prof. Seet Hun Yew Benjamin
Prof. Thomas M Coffman
Prof. Vernon Lee Jian Ming
Prof. Chong Yap Seng
Prof. Tan Sze Wee
Mr. Tan Shong Ye (Appointed on 1 September 2021)

Directors' Interests

The Company has no share capital and debentures and its members' liability is limited by guarantee.

Neither at the end of, nor at any time during the financial year, was the Company a party to any arrangement whose objects are, or one of whose objects is, to enable the directors of the Company to acquire benefits by means of the acquisition of shares in or debentures of the Company or any other body corporate.

Options

The Company does not have any share capital and accordingly has not issued any share options.

Auditor

Ernst & Young LLP have expressed their willingness to accept re-appointment as auditor.

On behalf of the board of directors,

Prof. Wong Tien Yin
Director

Ms Ooi Chee Kar
Director

Singapore

14 September 2021

INDEPENDENT AUDITORS' REPORT
For the financial year ended 31 March 2021

Independent auditor's report to the member of Singapore Eye Research Institute

Report on the audit of the financial statements

Opinion

We have audited the financial statements of Singapore Eye Research Institute (the "Company"), which comprise the balance sheet as at 31 March 2021, statement of comprehensive income and statement of cash flows of the Company for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements are properly drawn up in accordance with the provisions of the Companies Act, Chapter 50 (the "Act"), the Charities Act, Chapter 37 and other relevant regulations (the "Charities Act and "Regulations") and Financial Reporting Standards in Singapore (FRS) so as to give a true and fair view of the financial position of the Company as at 31 March 2021 and of the financial performance and cash flows of the Company for the year ended on that date.

Basis for opinion

We conducted our audit in accordance with Singapore Standards on Auditing (SSAs). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Company in accordance with the Accounting and Corporate Regulatory Authority (ACRA) Code of Professional Conduct and Ethics for Public Accountants and Accounting Entities (ACRA Code) together with the ethical requirements that are relevant to our audit of the financial statements in Singapore, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the ACRA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other information

Management is responsible for the other information. Other information comprises directors' statement set out on pages 1 and 2, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Independent auditor's report to the member of Singapore Eye Research Institute

Responsibilities of management and directors for the financial statements

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with the provisions of the Act, the Charities Act and Regulations and FRSs, and for devising and maintaining a system of internal accounting controls sufficient to provide a reasonable assurance that assets are safeguarded against loss from unauthorised use or disposition; and transactions are properly authorised and that they are recorded as necessary to permit the preparation of true and fair financial statements and to maintain accountability of assets.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

The directors' responsibilities include overseeing the Company's financial reporting process.

Auditors' responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with SSAs, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

Independent auditor's report to the member of Singapore Eye Research Institute

Auditors' responsibilities for the audit of the financial statements (cont'd)

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

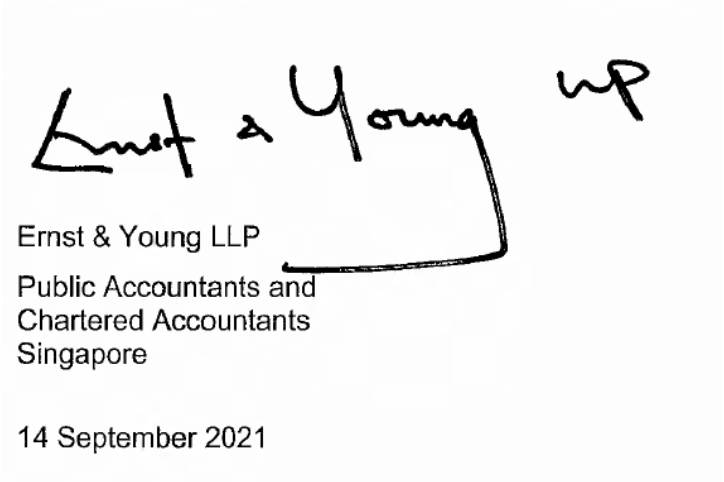
Report on other legal and regulatory requirements

In our opinion, the accounting and other records required to be kept by the Company have been properly kept in accordance with the provisions of the Act, and the Charities Act and Regulations.

During the course of our audit, nothing has come to our attention that causes us to believe that during the year:

(a) the Company has not used the donation moneys in accordance with its objectives as required under Regulation 11 of the Charities (Institutions of a Public Character) Regulations; and

(b) the Company has not complied with the requirements of Regulation 15 of the Charities (Institutions of a Public Character) Regulations.



Ernst & Young LLP
Public Accountants and
Chartered Accountants
Singapore

14 September 2021

FINANCIAL STATEMENTS

Balance sheet
As at 31 March 2021

	Note	2021 $	2020 $
Assets			
Property, plant and equipment	4	9,872,368	9,529,016
Intangible assets	5	92,867	121,534
Trade and other receivables	6	33,581	–
Non-current assets		9,998,816	9,650,550
Trade and other receivables	6	21,250,459	25,569,722
Prepayments		161,744	218,218
Cash and cash equivalents	8	11,647,664	11,210,093
Current assets		33,059,867	36,998,033
Total assets		43,058,683	46,648,583
Accumulated fund	9	(1,894,012)	(946,278)
Liabilities			
Deferred income	10	4,394,925	3,790,986
Other payables	12	–	788,193
Non-current liabilities		4,394,925	4,579,179
Trade payables	11	6,494,106	9,606,766
Other payables	12	28,184,157	30,051,329
Deferred income	10	4,800,843	2,406,430
Employee benefits	13	1,078,664	951,157
Current liabilities		40,557,770	43,015,682
Total liabilities		44,952,695	47,594,861
Total accumulated fund and liabilities		43,058,683	46,648,583

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

Statement of comprehensive income

For the financial year ended 31 March 2021

	Note	2021 $	2020 $
Operating expenditure grants	15	36,320,646	31,943,448
Amortisation of deferred income	10	1,868,226	1,588,528
Government subvention	18	216,618	543,456
Other income	16	4,816,126	4,864,386
		43,221,616	38,939,818
Staff costs		(19,009,474)	(18,099,506)
Supplies and consumables		(3,751,037)	(3,420,682)
Depreciation of property, plant and equipment	4	(2,791,866)	(2,469,974)
Amortisation of intangible assets	5	(38,878)	(63,118)
Rental and utilities		(732,738)	(1,013,792)
Purchased and contracted services		(12,590,865)	(9,656,140)
Repairs and maintenance		(2,127,000)	(1,784,937)
Reversal of impairment loss on trade and other receivables		43,185	25,036
Other operating expenses		(3,107,376)	(2,642,878)
Results from operating activities		(884,433)	(186,173)
Net finance costs	17	(63,301)	(109,746)
Deficit before tax		(947,734)	(295,919)
Tax expense	19	–	–
Deficit for the year, representing total comprehensive income for the year	20	(947,734)	(295,919)

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

Statement of changes in funds
For the financial year ended 31 March 2021

	Accumulated funds $
Balance at 1 April 2019	(650,359)
Net deficit, representing total comprehensive income for the year	(295,919)
Balance at 31 March 2020	(946,278)
Balance at 1 April 2020	(946,278)
Net deficit, representing total comprehensive income for the year	(947,734)
Balance at 31 March 2021	(1,894,012)

Statement of cash flows
For the financial year ended 31 March 2021

	Note	2021	2020
		$	$
Cash flows from operating activities			
Deficit before tax		(947,734)	(295,919)
Adjustments for:			
Depreciation of property, plant and equipment	4	2,791,866	2,469,974
Loss on disposal of property, plant and equipment	20	–	78,237
Interest expense		65,681	110,709
Amortisation of intangible assets	5	38,878	63,118
Reversal of impairment loss on trade and other receivables		(43,185)	(25,036)
Amortisation of deferred income	10	(1,868,226)	(1,588,528)
Property, plant and equipment written off	20	153,989	–
Intangible assets written off	20	4,916	–
Operating cash flows before changes in working capital		196,185	812,555
Changes in working capital:			
Decrease/(increase) in trade and other receivables		4,542,965	(4,628,192)
Decrease in prepayments		56,474	83,469
(Increase)/decrease in trade and other payables		(4,865,503)	8,239,462
Decrease in employee benefits		127,507	229,103
Net cash generated from operating activities		57,628	4,736,397
Cash flows from investing activities			
Purchase of property, plant and equipment		(3,289,207)	(3,723,940)
Purchase of intangible assets		(15,127)	(117,379)
Grants for capital expenditure		2,554,225	1,639,141
Other grants		2,098,255	–
Net cash generated from/(used in) investing activities		1,348,146	(2,202,178)
Cash flows from financing activities			
Interest paid		(65,681)	(110,709)
Payment of principal portion of lease liabilities		(902,522)	(857,505)
Net cash used in financing activities		(968,203)	(968,214)
Net increase in cash and cash equivalents		437,571	1,566,005
Cash and cash equivalents at beginning of the year		11,210,093	9,644,088
Cash and cash equivalents at end of the year	8	11,647,664	11,210,093

During the year, the Company acquired property, plant and equipment and intangible assets with an aggregate cost of $3,304,334 (2020: $3,841,319), of which $2,713,130 (2020: $1,639,141) was acquired using grants received.

The accompanying accounting policies and explanatory notes form an integral part of the financial statements.

NOTES TO THE FINANCIAL STATEMENTS

For the financial year ended 31 March 2021

1. Corporate information

Singapore Eye Research Institute ('the Company') is incorporated in the Republic of Singapore. The address of the Company's registered office is at 10 Hospital Boulevard #19-01, Singapore 168582.

The principal activities of the Company are to carry out eye-related medical research projects.

The immediate, intermediate holding companies and ultimate controlling party during the financial year are Singapore National Eye Centre Pte Ltd, Singapore Health Services Pte Ltd and MOH Holdings Pte Ltd, and Minister for Finance respectively. These companies were incorporated in the Republic of Singapore.

The Company, limited by guarantee, has been registered as a Charity, under the Charities Act, Cap. 37 with effect from 27 November 2002.

2. Basis of preparation

2.1 Going Concern

As at 31 March 2021, the Company had deficiencies in accumulated fund and net working capital of $1,894,012 (2020: $946,278) and $7,497,903 (2020: $6,017,649) respectively. Notwithstanding this, the directors of the Company consider that it is appropriate for the Company to prepare its financial statements on a going concern basis as the immediate holding company has agreed to provide financial support as is necessary for the next twelve months to enable the Company to continue its operations and to meet its liabilities as and when they fall due.

2.2 Statement of compliance

The financial statements have been prepared in accordance with the Singapore Financial Reporting Standards ("FRS").

2.3 Basis of measurement

The financial statements have been prepared on the historical cost basis except as otherwise described in the notes below.

2.4 Functional and presentation currency

These financial statements are presented in Singapore dollars ($), which is the Company's functional currency.

2. Basis of preparation (cont'd)

2.5 Use of estimates and judgements

The preparation of the financial statements in conformity with FRSs requires management to make judgements, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised in the period in which the estimates are revised and in any future periods affected.

Information about critical judgements in applying accounting policies that have the most significant effect on the amount recognised in the financial statements and assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year are included below:

Useful lives of property, plant and equipment and intangible assets

Property, plant and equipment and intangible assets, are stated at cost and depreciated/amortised on a straight-line basis over their estimated useful lives. The estimated useful lives represent the estimate of the periods that management expects to derive economic benefits from these assets. In estimating these useful lives and in determining whether subsequent revisions to useful lives are necessary, management considers the likelihood of technical obsolescence arising from changes in technology and intended use.

Valuation of trade receivables – measurement of expected credit losses ("ECL") allowance

The Company applies the simplified approach to provide for ECLs for all trade receivables. Loss rates are based on actual credit loss experience over the past one to five years. These rates are adjusted by scalar factors to reflect differences between economic conditions during the period over which the historic data has been collected, current conditions and the Company's view of economic conditions over the expected lives of the receivables. These scalar factors are calculated using statistical models that determine numeric co-relation of loss rates with relevant economic variables.

Measurement of fair values

Information about the measurement of fair values and the assumptions made in measuring fair values is described in Note 21.

3. Significant accounting policies

3.1 Foreign currency

Foreign currency transactions

Transactions in foreign currencies are measured in the functional currency of the Company and recorded on initial recognition in the functional currency at exchange rates approximating those ruling at the transaction dates. Monetary assets and liabilities denominated in foreign currencies are translated at the rate of exchange ruling at the end of the reporting period. Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates as at the dates of the initial transactions. Non-monetary items measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was measured.

Exchange differences arising on the settlement of monetary items or on translating monetary items at the end of the reporting period are recognised in surplus or deficit.

3.2 Financial instruments

(i) Recognition and initial measurement

Non-derivative financial assets and financial liabilities

Trade receivables are initially recognised when they are originated. All other financial assets and financial liabilities are initially recognised when the Company becomes a party to the contractual provisions of the instrument.

A financial asset (unless it is a trade receivable without a significant financing component) or financial liability is initially measured at fair value plus, for an item not at fair value through profit or loss ("FVTPL"), transaction costs that are directly attributable to its acquisition or issue. A trade receivable without a significant financing component is initially measured at the transaction price.

Financial liabilities are initially recognised when the Company becomes a party to the contractual provisions of the instrument. The Company determines the classification of its financial liabilities at initial recognition. All financial liabilities are recognised initially at fair value plus in the case of financial liabilities not at fair value through profit or loss, directly attributable transaction costs.

(ii) Classification and subsequent measurement

Non-derivative financial assets

On initial recognition, a financial asset is classified as measured at amortised cost.

Financial assets are not reclassified subsequent to their initial recognition unless the Company changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

3. Significant accounting policies (cont'd)

3.2 Financial instruments (cont'd)

(ii) Classification and subsequent measurement (cont'd)

Subsequent measurement and gains and losses

A financial asset is measured at amortised cost if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is to hold assets to collect contractual cash flows; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

These assets are subsequently measured at amortised cost using the effective interest method. The amortised cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognised in surplus or deficit. Any gain or loss on derecognition is recognised in surplus or deficit.

Non-derivative financial liabilities

Such financial liabilities are subsequently measured at amortised cost using the effective interest method.

(iii) Derecognition

Financial assets

The Company derecognises a financial asset when the contractual rights to the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Company neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

Financial liabilities

The Company derecognises a financial liability when its contractual obligations are discharged or cancelled, or expire. The Company also derecognises a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognised at fair value.

On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognised in surplus or deficit.

3. Significant accounting policies (cont'd)

3.2 Financial instruments (cont'd)

(iv) Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the balance sheet when, and only when, the Company currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realise the asset and settle the liability simultaneously.

The Company do not have any financial assets and financial liabilities that:

- are offset in the balance sheet; or
- are subject to an enforceable master netting arrangement, irrespective of whether they are offset in the balance sheet.

(v) Cash and cash equivalents

Cash and cash equivalents comprise cash and bank balances and deposits with financial institutions that are subject to an insignificant risk of changes in their fair value, and are used by the Company in the management of its short-term commitments.

3.3 Property, plant and equipment

Recognition and measurement

Items of property, plant and equipment are stated at cost less accumulated depreciation and accumulated impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes:

- the cost of materials and direct labour;
- any other costs directly attributable to bringing the assets to a working condition for their intended uses;
- when the Company has an obligation to remove the asset or restore the site, an estimate of the costs of dismantling and removing the items and restoring the site on which they are located; and
- capitalised borrowing costs, if any.

Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

Construction-in-progress comprises the capitalised costs of on-going capital projects.

Low value assets costing less than $1,000 individually are written off in the period of outlay.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

The gain or loss on disposal of an item of property, plant and equipment is recognised in surplus or deficit.

3. Significant accounting policies (cont'd)

3.3 Property, plant and equipment (cont'd)

Subsequent costs

The cost of replacing a component of an item of property, plant and equipment is recognised in the carrying amount of the item if it is probable that the future economic benefits embodied within the component will flow to the Company, and its cost can be measured reliably. The carrying amount of the replaced component is derecognised. The costs of the day-to-day servicing of property, plant and equipment are recognised in surplus or deficit as incurred.

Depreciation

Depreciation is calculated based on the cost of an asset, less its residual value. Significant components of individual assets are assessed and if a component has a useful life that is different from the remainder of that asset, that component is depreciated separately.

Depreciation is recognised as an expense in surplus or deficit on a straight-line basis over the estimated useful lives of each component of an item of property, plant and equipment, unless it is included in the carrying amount of another asset.

Construction-in-progress is not depreciated.

Depreciation is recognised from the date that the property, plant and equipment are installed and are ready for use, or in respect of internally constructed assets, from the date that the asset is completed and ready for use.

The estimated useful lives for the current and comparative years are as follows:

Building improvements	10 years
Medical and laboratory equipment	8 years
Computers	3 years
Office equipment	5 years
Furniture and fittings	8 years
Motor vehicles	5 years

Depreciation methods, useful lives and residual values are reviewed at the end of each reporting period and adjusted if appropriate.

3.4 Leases

The Company assesses at contract inception whether a contract is, or contains, a lease. That is, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

Company as a lessee

The Company applies a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The Company recognises lease liabilities to make lease payments and right-of-use assets representing the right to use the underlying assets.

3. Significant accounting policies (cont'd)

3.4 Leases (cont'd)

Company as a lessee (cont'd)

a. Right-of-use assets

The Company recognises right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognised, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received. Right-of-use assets are depreciated on a straight-line basis over the shorter of the lease term and the estimated useful lives of the assets, as follows:

Building and office space	3 years

If ownership of the leased asset transfers to the Company at the end of the lease term or the cost reflects the exercise of a purchase option, depreciation is calculated using the estimated useful life of the asset.

The right-of-use assets are also subject to impairment. Refer to accounting policies in Note 3.6 (ii). The Company's right-of-use assets are included in property, plant and equipment (Note 4).

b. Lease liabilities

At the commencement date of the lease, the Company recognises lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Company and payments of penalties for terminating the lease, if the lease term reflects the Company exercising the option to terminate. Variable lease payments that do not depend on an index or a rate are recognised as expenses (unless they are incurred to produce inventories) in the period in which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Company uses its incremental borrowing rate at the lease commencement date because the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the lease payments (e.g., changes to future payments resulting from a change in an index or rate used to determine such lease payments) or a change in the assessment of an option to purchase the underlying asset.

The Company's lease liabilities are included in other payables (Note 12).

3. Significant accounting policies (cont'd)

3.4 Leases (cont'd)

Company as a lessee (cont'd)

c. Short-term leases and leases of low-value assets

The Company applies the short-term lease recognition exemption to its short-term leases of machinery and equipment (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered to be low value. Lease payments on short-term leases and leases of low-value assets are recognised as expense on a straight-line basis over the lease term.

Leases in which the Company does not transfer substantially all the risks and rewards incidental to ownership of an asset are classified as operating leases. Rental income arising is accounted for on a straight-line basis over the lease terms and is included in income in surplus or deficit due to its operating nature. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognised over the lease term on the same basis as rental income. Contingent rents are recognised as income in the period in which they are earned.

3.5 Intangible assets

Computer software, which is not an integral part of the related hardware, is accounted for as an intangible asset and is stated at cost less accumulated amortisation and accumulated impairment losses.

No amortisation is provided on software development-in-progress.

Research

Expenditure on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, is recognised in surplus or deficit as incurred.

Subsequent expenditure

Subsequent expenditure is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditure, including expenditure on internally generated goodwill and brands, is recognised in surplus or deficit as incurred.

Amortisation

Amortisation is calculated based on the cost of asset, less its residual value.

Amortisation of computer software is recognised in surplus or deficit on a straight-line basis over its estimated useful life of 3-5 years, from the date that they are available for use.

Amortisation methods, useful lives and residual values are reviewed at the end of each reporting period and adjusted if appropriate.

3. Significant accounting policies (cont'd)

3.6 Impairment

(i) Non-derivative financial assets

The Company recognises loss allowances for ECLs on financial assets measured at amortised cost.

Loss allowances of the Company are measured on either of the following bases:

- 12-month ECLs: these are ECLs that result from default events that are possible within the 12 months after the reporting date (or for a shorter period if the expected life of the instrument is less than 12 months); or
- Lifetime ECLs: these are ECLs that result from all possible default events over the expected life of a financial instrument.

Measurement of ECLs

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the Group in accordance with the contract and the cash flows that the Group expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

Credit-impaired financial assets

At each reporting date, the Company assesses whether financial assets carried at amortised cost are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Evidence that a financial asset is credit-impaired includes the following observable data:

- significant financial difficulty of the borrower or issuer;
- a breach of contract such as a default or being more than 1 to 3 years, taking into consideration historical payment track records, current macroeconomics situation as well as the general industry trend;
- the restructuring of a loan or advance by the Company on terms that the Company would not consider otherwise;
- it is probable that the borrower will enter bankruptcy or other financial reorganisation; or
- the disappearance of an active market for a security because of financial difficulties.

However, financial assets that are considered as 'credit-impaired' would still be subject to enforcement activities in order to comply with the Group's procedures for recovery of amounts due.

Presentation of allowance for ECLs in the balance sheet

Loss allowances for financial assets measured at amortised cost are deducted from the gross carrying amount of these assets.

3. Significant accounting policies (cont'd)

3.6 Impairment (cont'd)

(i) Non-derivative financial assets (cont'd)

Write-off

The gross carrying amount of a financial asset is written off (either partially or in full) to the extent that there is no realistic prospect of recovery. This is generally the case when the Company determines that the debtor does not have assets or sources of income that could generate sufficient cash flows to repay the amounts subject to the write-off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Company's procedures for recovery of amounts due.

Simplified approach

The Company applies the simplified approach to provide for ECLs for all trade receivables. The simplified approach requires the loss allowance to be measured at an amount equal to lifetime ECLs.

General approach

The Company applies the general approach to provide for ECLs on all other financial instruments. Under the general approach, the loss allowance is measured at an amount equal to 12-month ECLs at initial recognition.

At each reporting date, the Company assesses whether the credit risk of a financial instrument has increased significantly since initial recognition. When credit risk has increased significantly since initial recognition, loss allowance is measured at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Company considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Company's historical experience and informed credit assessment and including forward-looking information.

If credit risk has not increased significantly since initial recognition or if the credit quality of the financial instruments improve such that there is no longer a significant increase in credit risk since initial recognition, loss allowance is measured at an amount equal to 12-month ECLs.

The Company considers a financial asset to be in default when:

- the borrower is unlikely to pay its credit obligations to the Company in full, without recourse by the Group to actions such as realising security (if any is held); or
- the financial asset is more than 1 to 3 years past due, taking into consideration historical payment track records, current macroeconomics situation as well as the general industry trend.

The maximum period considered when estimating ECLs is the maximum contractual period over which the Company is exposed to credit risk.

3. Significant accounting policies (cont'd)

3.6 Impairment (cont'd)

(i) Non-financial assets

The carrying amounts of the Company's non-financial assets, other than inventories, are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. An impairment loss is recognised if the carrying amount of an asset or its related cash-generating unit ("CGU") exceeds its estimated recoverable amount.

The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset or CGU. For the purpose of impairment testing, assets that cannot be tested individually are grouped together into the smallest group of assets that generates cash inflows from continuing use that are largely independent of the cash inflows of other assets or CGU.

The Company's corporate assets do not generate separate cash inflows and are utilised by more than one CGU. Corporate assets are allocated to CGUs on a reasonable and consistent basis and tested for impairment as part of the testing of the CGU to which the corporate asset is allocated.

Impairment losses are recognised in surplus or deficit. Impairment losses recognised in respect of CGUs are allocated first to reduce the carrying amount of any goodwill allocated to the CGU (group of CGUs), and then to reduce the carrying amounts of the other assets in the CGU (group of CGUs) on a pro rata basis.

Impairment loss recognised in prior periods are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

3.7 Employee benefits

Defined contribution plans

A defined contribution plan is a benefit plan under which an entity pays fixed contributions into a separate entity and will have no legal or constructive obligation to pay further amounts. Obligations for contributions to defined contribution plans are recognised as an expense in surplus or deficit during which services are rendered by employees.

Short-term employee benefits

Short-term employee benefit obligations are measured on an undiscounted basis and are expensed as the related service is provided. A liability is recognised for the amount expected to be paid under short-term cash bonus or profit-sharing plans if the Company has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee, and the obligation can be estimated reliably.

3. Significant accounting policies (cont'd)

3.8 Provisions

A provision is recognised if, as a result of a past event, the Company has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognised as finance cost.

3.9 Income recognition

Grant income

Grant income designated for research purposes is recognised in surplus or deficit when the relevant qualifying costs are incurred. The deferral of certain grant income is described in note 3.10.

Grants which are designated for property, plant and equipment, and intangible assets purchases whose individual value of more than $1,000 and $10,000 respectively are taken to deferred income in the period of receipt. The deferred income is amortised over the useful life of the property, plant and equipment and intangible assets by crediting to the surplus or deficit an amount so as to match the related depreciation and amortisation expense.

Programme fees

Programme fees relate to fees or income which the Company receives when it carries out activities through direct service provision to undertake the work that contributes to its objectives. Programme fees are recognised in surplus or deficit when the relevant milestone is achieved.

3.10 Government grants

Government grants related to property, plant and equipment and intangible assets are taken to deferred income or to the surplus or deficit for assets which are written off in the year of purchase. Such government grant recognised in deferred income is recognised in the surplus or deficit over the periods necessary to match the depreciation/amortisation and write off of the property, plant and equipment and intangible assets purchased with the related grants. Upon the disposal of the property, plant and equipment and intangible assets, the balance of the related deferred income is recognised in the surplus or deficit to reflect the net book value of the assets disposed.

Government subvention

Government subvention is accounted for on an accrual basis in the surplus or deficit when there is reasonable assurance that the Company has complied with all the terms and conditions attached to the subvention and that there is reasonable certainty that the subvention will be received. Government subvention is a subsidy from the Ministry of Health for expenses incurred in relation to the Temporary occupation licence.

3. Significant accounting policies (cont'd)

3.11 Finance income and finance costs

The Company's finance income and finance costs include foreign currency gain or loss on financial assets and financial liabilities.

Foreign currency gains and losses on financial assets and financial liabilities are reported on a net basis as either finance income or finance cost depending on whether foreign currency movements are in a net gain or net loss position.

3.12 Tax

The Company has been registered as a Charity, under Charities Act, Cap. 37 with effect from 27 November 2002. No provision for taxation has been made in the financial statements as the Company is a registered charity with income tax exemption.

3.13 New standards and interpretations issued but not yet effective

The Company has not adopted the following standards that have been issued but not yet effective:

Description	*Effective for annual periods beginning on or after*
Amendment to FRS 116: *Covid-19 Related Rent Concessions beyond 30 June 2021*	1 April 2021
Amendments to FRS 1: *Classification of Liabilities as Current or Non-current*	1 January 2023
Amendments to FRS 103: *Reference to the Conceptual Framework*	1 January 2022
Amendments to FRS 16: *Property, Plant and Equipment – Proceeds before intended use*	1 January 2022
Amendments to FRS 37: *Onerous Contracts – Cost of Fulfilling a Contract*	1 January 2022

The directors expect that the adoption of the standards above will have no material impact on the financial statements in the year of initial application.

4. Property, plant and equipment

	Building improvements $	Medical and laboratory equipment $	Computers $	Office equipment $	Furniture and fittings $	Motor vehicle $	Right-of-use assets (Note 14) $	Construction-in-progress $	Total $
Cost									
At 1 April 2019	1,047,102	16,922,129	1,651,435	122,232	413,040	204,781	–	438,501	20,799,220
Additions	–	1,226,419	652,547	33,667	–	–	2,548,221	1,811,307	6,272,161
Disposals	(1,047,102)	(2,318,375)	(346,004)	–	–	–	–	–	(3,711,481)
At 31 March 2020	–	15,830,173	1,957,978	155,899	413,040	204,781	2,548,221	2,249,808	23,359,900
Additions	–	2,211,043	285,627	7,353	–	–	–	785,184	3,289,207
Disposals	–	(1,269,484)	(534,583)	(110,378)	(232,410)	–	–	–	(2,146,855)
Reclassifications	–	274,085	–	–	–	–	–	(274,085)	–
At 31 March 2021	–	17,045,817	1,709,022	52,874	180,630	204,781	2,548,221	2,760,907	24,502,252
Accumulated depreciation									
At 1 April 2019	1,044,045	12,062,895	1,429,065	119,358	277,357	61,434	–	–	14,994,154
Depreciation charge for the year	2,223	1,298,223	192,723	7,351	29,126	40,956	899,372	–	2,469,974
Disposals	(1,046,268)	(2,240,972)	(346,004)	–	–	–	–	–	(3,633,244)
At 31 March 2020	–	11,120,146	1,275,784	126,709	306,483	102,390	899,372	–	13,830,884
Depreciation charge for the year	–	1,455,451	361,061	11,162	23,863	40,957	899,372	–	2,791,866
Disposals	–	(1,119,983)	(533,588)	(110,378)	(228,917)	–	–	–	(1,992,866)
At 31 March 2021	–	11,455,614	1,103,257	27,493	101,429	143,347	1,798,744	–	14,629,884
Carrying amounts									
At 31 March 2020	–	4,710,027	682,194	29,190	106,557	102,391	1,648,849	2,249,808	9,529,016
At 31 March 2021	–	5,590,203	605,765	25,381	79,201	61,345	749,477	2,760,907	9,872,368

5. Intangible assets

	Computer software $
Cost	
At 1 April 2019	1,763,424
Additions	117,379
At 31 March 2020	1,880,803
Additions	15,127
Write-off	(779,923)
At 31 March 2021	1,116,007
Accumulated amortisation	
At 1 April 2019	1,696,151
Amortisation charge for the year	63,118
At 31 March 2020	1,759,269
Amortisation charge for the year	38,878
Write-off	(775,007)
At 31 March 2021	1,023,140
Carrying amounts	
At 31 March 2020	121,534
At 31 March 2021	92,867

6. Trade and other receivables

	Note	2021 $	2020 $
Deposits and other receivables	7	17,073,699	21,289,478
Trade amounts due from:			
- Immediate holding company		3,570,333	3,445,417
- Intermediate holding company		541,694	730,249
- Related corporations		64,733	104,578
Deferred expenses		33,581	–
		21,284,040	25,569,722
Non-current		33,581	–
Current		21,250,459	25,569,722
		21,284,040	25,569,722

Outstanding balances with related parties are unsecured. There is no allowance for doubtful debts arising from these outstanding balances.

Information about the Company's exposures to credit risks and impairment losses for trade and other receivables are included in note 21.

7. Deposits and other receivables

	Note	2021	2020
		$	$
Deposits		53,505	74,904
Receivables from funding bodies		16,145,065	20,001,002
Grant receivables from third parties		845,708	846,614
Sundry receivables		40,968	421,690
		17,085,246	21,344,210
Less: Impairment loss		(11,547)	(54,732)
	6	17,073,699	21,289,478

Receivables from funding bodies are non-interest bearing and have no credit terms.

8. Cash and cash equivalents

	2021	2020
	$	$
Cash at bank and in hand	11,647,664	11,210,093

9. Accumulated fund

The Company is limited by guarantee and has no share capital. In the event of a winding up of the Company, the liability of each member of the Company is limited to such amount as may be required, but not exceeding the sum of one hundred dollars ($100). The accumulated fund represents the cumulative surplus or deficit of the Company.

The Company's reserve policy is to maintain funds at a minimum sufficient to cover budgeted operating and capital cost for the current fiscal year. In the event of an operating deficit or a shortfall of current assets over current liabilities, the Company will obtain appropriate financial support from its immediate holding company to pay liabilities, as and when they fall due.

Capital management

Capital comprises the accumulated fund of the Company. The Company's operation is funded primarily from grants from various funding bodies and loans from immediate holding company. There was no change in the Company's approach to capital management during the year. The Company is not subject to externally imposed capital requirements.

10. Deferred income

	2021 $	2020 $
Capital expenditure grants	6,047,047	5,361,048
Other grants	3,148,721	836,368
	9,195,768	6,197,416
Non-current	4,394,925	3,790,986
Current	4,800,843	2,406,430
	9,195,768	6,197,416

Capital expenditure grants

Capital expenditure grants comprised grants received for the purchase of property, plant and equipment ("PPE") and intangible assets ("IA"). Income received is deferred and amortised over the periods necessary to match the depreciation of the PPE and amortisation of the IA purchased with the related grants.

Included in other grants are grants provided by the government to support the salary costs incurred for the period of economic uncertainty due to the global pandemic outbreak.

Movement in deferred income relating to capital expenditure grants is as follows:

	2021 $	2020 $
At cost	18,970,673	19,046,536
Less: Accumulated amortisation:		
At 1 April	13,685,488	15,775,004
Amortisation charge for the year	1,868,226	1,588,528
Disposal of assets funded by grants	(2,630,088)	(3,678,044)
At 31 March	12,923,626	13,685,488
	6,047,047	5,361,048
Non-current	4,394,925	3,790,986
Current	1,652,122	1,570,062
	6,047,047	5,361,048

11. Trade payables

	2021 $	2020 $
Trade payables	821,155	508,336
Trade amounts due to:		
- Immediate holding company	1,962,800	3,176,094
- Intermediate holding company	3,534,386	5,702,667
- Related corporations	175,765	219,669
	6,494,106	9,606,766

The Company's exposure to liquidity risks related to trade payables is disclosed in Note 21.

12. Other payables

		2021 $	2020 $
Accrued operating expenses		3,840,243	4,162,209
Loans from immediate holding company		6,000,000	6,000,000
Research grants received in advance from government		4,000,302	7,119,227
Research grants received in advance from third parties		9,545,762	7,052,261
Research grants received in advance from related corporation		3,994,466	4,814,169
Lease liabilities	14	788,194	1,690,716
Refundable deposits		15,190	940
		28,184,157	30,839,522
Non-current		–	788,193
Current		28,184,157	30,051,329
		28,184,157	30,839,522

Loans from immediate holding company are unsecured, interest-free and repayable on demand.

The Company's exposure to liquidity risks related to other payables is disclosed in Note 21.

13. Employee benefits

	2021 $	2020 $
Liability for short-term accumulated compensated absences	1,078,664	951,157

14. Leases

Company as a lessee

The Company's obligations under its leases are secured by the lessor's title to the leased assets.

Set out below are the carrying amounts of right-of-use assets (included under property, plant and equipment) recognised and the movements during the period:

	Building and office space $
At 1 April 2019	–
Additions	2,548,221
Depreciation expense	(899,372)
At 31 March 2020	1,648,849
Additions	–
Depreciation expense	(899,372)
At 31 March 2021	749,477

Set out below are the carrying amounts of lease liabilities (included under trade and other payables) and the movements during the period:

	2021 $	**2020** $
At 1 April	1,690,716	–
Additions	–	2,548,221
Accretion of interest	65,681	110,709
Payments	(968,203)	(968,214)
At 31 March	788,194	1,690,716
Current	788,194	788,193
Non-current	–	902,523
	788,194	1,690,716

The maturity analysis of lease liabilities are disclosed in Note 21.

14. Leases (cont'd)

Company as a lessee (cont'd)

The following are the amounts recognised in surplus or deficit:

	2021 $	2020 $
Depreciation expense of right-of-use assets	899,372	899,372
Interest expenses on lease liabilities	65,681	110,709
Expenses relating to short-term leases (included in Rental & utilities)	210,433	1,523,582
Expenses relating to leases of low-value assets (included in Rental & utilities)	12,544	14,624
Total amount recognised in surplus or deficit	1,188,030	2,548,287

The Company had total cash outflows for leases of $968,203 (2020: $968,214) in 2021. The Company also had non-cash additions to right-of-use assets and lease liabilities of $Nil in 2021 (2020: $2,548,221). There are no lease contracts committed but not yet commenced as at 31 March 2021.

15. Operating expenditure grants

These grants are received mainly from National Medical Research Council, Biomedical Research Council, SingHealth Foundation, Singapore Health Services Pte Ltd, Singapore National Eye Centre Pte Ltd and SNEC Health Research Endowment Fund for research projects.

16. Other income

	2021 $	2020 $
Clinical trial and research income	4,488,427	4,226,717
Other miscellaneous income	327,699	637,669
	4,816,126	4,864,386

17. Net finance costs

	2021 $	2020 $
Interest expense on lease liabilities (Note 14)	(65,681)	(110,709)
Net foreign exchange gain	2,380	963
Net finance costs	(63,301)	(109,746)

18. Government Subvention

Government subvention is recognised in the surplus or deficit when conditions attached to its recognition are met by the Company. The Government is currently reviewing and finalising the subvention paid and payable to the Company in respect of the current year, no adjustment has been made in the financial statements for this component in the current financial year.

19. Tax expense

The Company is a non-profit organisation registered with the Commissioner of Charities under the Singapore Charities Act. With effect from Year of Assessment 2008, all registered and exempt charities will enjoy automatic income tax exemption. Thus, no provision for taxation was made in the financial statements.

20. Deficit for the year

The following items have been included in arriving at deficit for the year:

	2021 $	2020 $
Short-term and low-value/operating lease expense	222,977	1,538,206
Contributions to defined contribution plan included in staff costs	1,910,142	1,672,002
Loss on disposal of property, plant and equipment	–	78,237
Property, plant and equipment written off	153,989	–
Intangible assets written off	4,916	–

21. Financial Instruments

Overview

The Company has exposure to the following risks from its use of financial instruments:

- credit risk
- liquidity risk

This note presents information about the Company's exposure to each of the above risks, the Company's objectives, policies and processes for measuring and managing risk.

Risk management framework

Risk management is integral to the whole business of the Company. The Company has a system of controls in place to create an acceptable balance between cost of risks occurring and the cost of managing the risks. The management continually monitors the Company's risk management process to ensure that an appropriate balance between risk and control is achieved. Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Company's activities.

21. Financial Instruments (cont'd)

Credit risk

Credit risk is the risk of financial loss to the Company if a customer or counterparty to a financial instrument fails to meet its contractual obligations as and when they fall due.

The carrying amount of financial assets in the balance sheet represents the Company's maximum exposure to credit risk, before taking into account any collateral held. The Company does not hold any collateral in respect of its financial assets.

Financial assets measured at amortised cost

The Company has a credit policy in place and the exposure to credit risk is monitored on an ongoing basis.

The allowance account in respect of trade and other receivables is used to record impairment losses unless the Company is satisfied that no recovery of the amount owing is possible. At that point, the financial asset is considered irrecoverable and the amount charged to the allowance account is written off against the carrying amount of the impaired financial asset.

Cash is placed with financial institutions which are regulated.

The Company's primary exposure to credit risk arises through its receivables from funding bodies and corporations. These parties are established and reputable institutions which management regarded the associated credit risk to be minimum. The Company's historical experience in the collection of accounts receivable falls within the recorded allowances for impairment losses. Due to these factors, management believes that no additional credit risk beyond the amounts provided for collection losses is inherent in the Company's trade and other receivables.

The maximum exposure to credit risk for trade and other receivables of the Company at the reporting date (by type of debtor) is:

	2021 $	2020 $
Funding bodies	16,145,065	20,001,002
Corporations	5,105,394	5,568,720
	21,250,459	25,569,722

21. Financial Instruments (cont'd)

Credit risk (cont'd)

Impairment losses

The ageing of trade and other receivables at the reporting date was:

	2021 Not credit-impaired $	2021 Credit-impaired $
Not past due	17,920,038	–
Past due 1 – 30 days	3,033,291	–
Past due 31 – 150 days	54,811	–
Past due over 150 days	227,959	25,907
Total gross carrying amount	21,236,099	25,907
Impairment loss allowance	–	(11,547)
	21,236,099	14,360

	2020 Not credit-impaired $	2020 Credit-impaired $
Not past due	22,992,028	–
Past due 1 – 30 days	278,441	–
Past due 31 – 150 days	905,577	–
Past due over 150 days	1,418,720	29,688
Total gross carrying amount	25,594,766	29,688
Impairment loss allowance	(25,044)	(29,688)
	25,569,722	–

21. Financial Instruments (cont'd)

Credit risk (cont'd)

Impairment losses (cont'd)

The Company uses an allowance matrix to measure the ECLs of trade and other receivables from funding bodies and corporations (excluding related parties).

Other receivables from funding bodies of $11,651,678 and $20,001,002 as at 31 March 2021 and 31 March 2020 respectively are neither past due nor impaired.

The following table provides information about the exposure to credit risk and ECLs for other receivables from corporations (excluding related parties) as at 31 March:

2021	Weighted average loss rate %	Gross $	Impairment losses $
Not past due	–	703,758	–
Past due 1 – 30 days	–	149,833	–
Past due 31 – 150 days	2.1	1,380	29
Past due over 150 days	13.5	85,210	11,518
		940,181	11,547

2020	Weighted average loss rate %	Gross $	Impairment losses $
Not past due	0.3	1,022,306	2,685
Past due 1 – 30 days	13.2	149,465	19,718
Past due 31 – 150 days	–	–	–
Past due over 150 days	16.5	195,988	32,329
		1,367,759	54,732

Loss rates are based on actual credit loss experience over the past three years. These rates are adjusted by scalar factors to reflect differences between economic conditions during the period over which the historic data has been collected, current conditions and the Company's view of economic conditions over the expected lives of the receivables. These scalar factors are calculated using statistical models that determine numeric co-relation of loss rates with relevant economic variables.

Amounts due from related parties

Impairment on these balances has been measured on the 12-month expected loss basis which reflects the low credit risk of the exposures. The amount of the allowance on these balances is insignificant.

21. Financial Instruments (cont'd)

Credit risk (cont'd)

Movements in allowance for impairment in respect of trade and other receivables

The movement in the allowance for impairment in respect of trade and other receivables during the year was as follows:

	2021 $	2020 $
At 1 April	54,732	79,768
Reversal of impairment loss	(43,185)	(25,036)
At 31 March	11,547	54,732

Cash and cash equivalents

The Company held cash and cash equivalents of $11,647,664 at 31 March 2021 (2020: $11,210,093). The cash and cash equivalents are held with regulated financial institutions.

Allowance for impairment losses on cash and cash equivalents has been measured on the 12-month expected loss basis and reflects the short maturities of the exposures. The Company considers that its cash and cash equivalents have low credit risk based on the external credit ratings of the counterparties. The amount of the allowance on cash and cash equivalents was negligible.

Liquidity risk

Liquidity risk is the risk that the Company will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The Company's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due under normal and stressed conditions without incurring unacceptable losses or risking damage to the Company's reputation.

The Company's operation is funded primarily from grants from National Medical Research Council and loans from immediate holding company. As such, the Company's exposure to liquidity risk is minimised.

The Company monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Company's operations and to mitigate the effects of fluctuations in cash flows.

The immediate holding company has agreed to provide financial support as is necessary for the next twelve months to enable the Company to meet its liabilities as and when they fall due (see Note 2.1).

21. Financial Instruments (cont'd)

Liquidity risk (cont'd)

The following are the contractual maturities of financial liabilities, including estimated interest payments and excluding the impact of netting agreements:

	Note	Carrying amount	Total contractual cash flows	Within 1 year	Within 5 years
		$	$	$	
2021					
Non-derivative financial liabilities					
Trade payables	11	6,494,106	(6,494,106)	(6,494,106)	–
Other payables*	12	9,855,433	(9,855,433)	(9,855,433)	–
Lease liabilities	14	788,194	(806,836)	(806,836)	–
		17,137,733	(17,156,375)	(17,156,375)	–
2020					
Non-derivative financial liabilities					
Trade payables	11	9,606,766	(9,606,766)	(9,606,766)	–
Other payables*	12	10,163,149	(10,163,149)	(10,163,149)	–
Lease liabilities		1,690,716	(1,775,039)	(968,203)	(806,836)
		21,460,631	(21,544,954)	(20,738,118)	(806,836)

*** Excludes research grants received in advance from government, third parties and related corporation and lease liabilities**

The maturity analysis shows the undiscounted cash flows of the Company's financial liabilities on the basis of their earliest possible contractual maturity.

21. Financial Instruments (cont'd)

Measurement of fair values

The Company has an established control framework with respect to the measurement of fair values.

If third party information, such as broker quotes, property valuations or pricing services, is used to measure fair values, then the Company assesses and documents the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of FRS, including the level in the fair value hierarchy in which such valuations should be classified.

When measuring the fair value of an asset or a liability, the Company uses market observable data as far as possible. Fair values are categorised into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices).
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair value hierarchy, then the fair value measurement is categorised in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement (with Level 3 being the lowest).

The Company recognises transfers between levels of the fair value hierarchy as of the end of the reporting period during which the change has occurred.

21. Financial Instruments (cont'd)

Accounting classifications and fair values

The carrying amounts of recognised financial assets and liabilities, as shown below, with a maturity of less than one year (including trade and other receivables, cash and cash equivalents, trade payables and other payables) approximate their fair values because of the short period to maturity. Accordingly, no fair value is separately presented.

	Note	Financial assets at amortised cost $	Financial liabilities at amortised cost $	Total carrying amount $
31 March 2021				
Financial assets not measured at fair value				
Cash and cash equivalents	8	11,647,664	–	11,647,664
Trade and other receivables^	6	18,488,101	–	18,488,101
		30,135,765	–	30,135,765
Financial liabilities not measured at fair value				
Trade payables	11	–	(6,494,106)	(6,494,106)
Other payables*	12	–	(9,855,433)	(9,855,433)
		–	(16,349,539)	(16,349,539)

	Note	Financial assets at amortised cost $	Financial liabilities at amortised cost $	Total carrying amount $
31 March 2020				
Financial assets not measured at fair value				
Cash and cash equivalents	8	11,210,093	–	11,210,093
Trade and other receivables	6	23,649,564	–	23,649,564
		34,859,657	–	34,859,657
Financial liabilities not measured at fair value				
Trade payables	11	–	(9,606,766)	(9,606,766)
Other payables*	12	–	(10,163,149)	(10,163,149)
		–	(19,769,915)	(19,769,915)

^ Excludes deferred expenses

*** Excludes research grants received in advance from government, third parties and related corporation and lease liabilities**

22. Commitments

	2021	2020
	$	$
Capital commitments:		
- contracted but not provided for	1,644,713	1,416,320

23. Related parties

Collectively, but not individually significant transactions

The Company charges its immediate holding company for manpower services provided and purchases services from its intermediate holding company, immediate holding company and related corporations.

Other related party transactions

Other than disclosed elsewhere in the financial statements, the transactions with related parties are as follows:

	2021	2020
	$	$
Other income received/receivable		
Intermediate holding company	(457,616)	(603,776)
Immediate holding company	(1,861,140)	(2,408,666)
Related corporation	(1,666,571)	(4,777)
Sale of other services		
Intermediate holding company	–	–
Immediate holding company	–	(2,500)
Related corporation	–	–
Purchase of manpower services		
Intermediate holding company	3,085,982	2,521,395
Immediate holding company	674,403	615,139
Related corporation	389,382	474,125
Purchase of other services		
Intermediate holding company	1,351,166	1,199,959
Immediate holding company	1,337,342	1,120,675
Related corporations	744,587	501,178
Purchase of supplies and consumables		
Intermediate holding company	303,222	486,120
Immediate holding company	44,779	19,066
Related corporations	498	–
Other expenses paid/payable		
Intermediate holding company	2,353,782	2,944,057
Immediate holding company	342,724	220,197
Related corporations	99,205	98,609

23. Related parties (cont'd)

The Company occupies space at the premises of its intermediate and immediate holding companies. The current year rental of $72,283 (2020: $72,366) is waived by the immediate holding company.

Key management personnel remuneration

Key management personnel of the Company are those persons having the authority and responsibility for planning, directing and controlling the activities of the Company. The senior management are considered as key management personnel of the Company.

Key management personnel remuneration recognised in the statement of comprehensive income is as follows:

	2021	2020
	$	$
Key management personnel		
- short-term employee benefits	737,815	1,233,174
- contribution to defined contribution plan	38,417	47,843
	776,232	1,281,017

In compliance with the Code of Corporate Governance for Charities and Institutions of a Public Character - Guideline 8.3, the annual remuneration of the Company's three highest paid staff who each received remuneration exceeding $100,000, in the following bands in the year are as follows:

	2021	2020
Number of personnel in bands:		
- $200,001 to $300,000	2	1
- $300,001 to $400,000	1	1
- $400,001 to $500,000	–	1

24. Authorisation of financial statements for issue

The financial statements for the financial year ended 31 March 2021 were authorised for issue in accordance with a resolution of the directors on 14 September 2021.

APPENDIX

In compliance with the Code of Corporate Governance for Charities and Institutions of a Public Character - Guideline 8.3, the annual remuneration of the Company's three highest paid staff who each received remuneration exceeding $100,000, in the following bands in the year are as follows:

None of these three highest paid staff serves as a governing board member of the charity.

There is no paid staff, being a close member of the family belonging to the Executive Head or a governing board member of the charity, who has received remuneration exceeding $50,000 during the financial year.

	2021	2020
Number of personnel in bands:		
- $200,001 to $300,000	2	1
- $300,001 to $400,000	1	1
- $400,001 to $500,000	–	1

SERI Board Meeting

The SERI Board Meeting were held twice every financial year.

Details of the meetings:

2nd SERI Board Meeting on 31 August 2020, 6pm via Zoom	
Present	**Absent with Apologies**
Prof Wong Tien Yin	Prof James Best
Prof Ang Chong Lye	
Prof Wang Linfa	
Dr Geh Min	
Prof Vernon Lee	
Ms Ooi Chee Kar	
Prof Lim Tock Han	
Prof Chong Yap Seng	
Prof Thomas Coffman	
Prof Benjamin Seet	

1st SERI Board Meeting on 30 March 2021, 6pm via Zoom	
Present	**Absent with Apologies**
Prof Wong Tien Yin	Prof Ang Chong Lye
Prof Chong Yap Seng	
Prof Wang Linfa	
Dr Geh Min	
Prof Vernon Lee	
Ms Ooi Chee Kar	
Prof Lim Tock Han	
Prof James Best	
Prof Thomas Coffman	
Prof Benjamin Seet	