

KASEA Conference Program

Day 1: Welcome, Keynote speech, Council meeting and Student Workshop (26 November)

Day 1 YouTube link:

<https://www.youtube.com/watch?v=4ow3yeytXeo>

Day 1		Perth	Seoul	Brisbane	Sydney/Canberra	NZ
Opening & Welcome	MK Lee, Ambassador Kang	08:00	09:00	10:00	11:00	13:00
Keynote 1	Prof Colin Binns	8:15-9:00	9:15-10:00	10:15-11:00	11:15-12:00	13:15-14:00
Keynote 2	Dr Jiney Jose	9:00-9:45	10:00-10:45	11:00-11:45	12:00-12:45	14:00-14:45
				Lunch break	Lunch break	
KASEA 이사회	Chair: MKLee	11:00-12:30		13:00-14:30	14:00-15:30	16:00-17:30
		Lunch break				
Student Pitching Competition (1.5 hours)	Intro: KC Park 11 students (5 min each)	13:00-14:30		15:00-16:30	16:00-17:30	18:00-19:30

Keynote Speech 1: : 'COVID-19 Research and Implications for Public Health'

Prof Colin Binns, MBBS MPH PhD FRACGP FAFOEM FAFPHM
John Curtin Distinguished Emeritus Professor, Curtin University

Biography



Prof Colin Binns is John Curtin Distinguished Emeritus Professor of Public Health at Curtin University. He graduated in medicine from the University of Western Australia and has current specialist qualifications and registration in public health medicine, occupational medicine and general practice. He has over 600 peer review publications with H-index 60. He is the editor of the Asia-Pacific Journal of Public Health.

Prof Binns has held numerous visiting professorial appointments in many universities around the world. Awards received include Senior Australian of the Year, WA (2004); Research Australia Lifetime Achievement Award (2010) and Honorary PhD from Inje University, Republic of Korea.

His community involvement include working as a doctor in remote Papua New Guinea (8 years), a WHO fellow, an examiner of Fellows for the Australian College of General Practitioners. He has developed university teaching programs, health worker training in health and nutrition for many countries and has delivered numerous invited lectures and seminar series internationally. He has successfully supervised over 60 PhD students from Australia and other countries and many of whom have gone on to make significant contributions to public health worldwide.

Abstract:

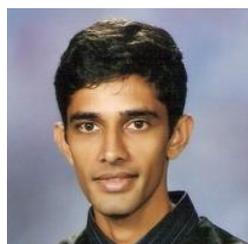
COVID19 is the most severe epidemic for the past 100 years, since the great influenza pandemic at the end of WWI, which killed 40-80 million people from every corner of the earth. Worldwide there have been 55million cases and 1.4million deaths recorded from the COVID19 epidemic, although the actual number of cases is estimated to be at least 300 million. In our region the death rate ranges from 0.29 deaths/million population in Taiwan to 747.1 in the USA (Korea is 8.62, Japan15). These are all mask-wearing cultures and masks have been shown to reduce the risk of COVID illness by at least 50%. Several vaccines, using 4 different methodologies, are undergoing successful trials and may be approved for use in the near future. Early results have shown the mRNA vaccines to be 95% effective in preventing disease, but not in stopping viral transmission. This makes the prospect of herd immunity unlikely. The pandemic has caused widespread disruption to critical health services. Vaccination rates have plummeted due to shutdowns and economic disruption. Up to 800 million people are at risk of starvation due to the economic decline with about 150000 more children dying this year from illness and malnutrition. While the increased mortality and morbidity will continue in the short term, in the longer term the distribution of vaccines and the implementation of public health measures will stop the epidemic.

Keynote Speech 2: 'Drug repurposing for treatment of SARS-COV2'

Dr Jiney Jose, MS, PhD

Research Fellow, Auckland Cancer Society Research Centre, Auckland University

Biography



Dr Jiney Jose obtained his MS (2006) and Ph.D. degree (2009) in organic chemistry from Texas A&M University, Texas. He was awarded a Cancer Prevention Research Institute of Texas fellowship to pursue postdoctoral research at the University of Texas at Austin for developing a new breast cancer therapy.

He joined the Auckland Cancer Society Research Centre (ACSRC) in 2012. His research interest involves immunotherapy, targeted therapy for the treatment of brain cancers and the development of short-acting anaesthetics. His research has resulted in his team receiving > NZ\$ 13 million in research funding.

More recently, he is also involved in a project looking into repurposing of approved drugs for the treatment of SARS-COV2 in New Zealand. He has contributed to 27 peer-reviewed scientific publications and one patent. For his contribution to cancer research, he was awarded the “Keith and Meida Hepburn Young Scientist Award” from the Cancer Society Auckland-Northland in 2018. He serves as a reviewer for several scientific journals and contributes to lecturing and mentoring of postgraduate students at the University of Auckland. In his spare time, he educates school children and the broader community about cancer research, and the impact it has on health and wellbeing.

Abstract:

SARS-COV2 has had a devastating impact worldwide, with almost 46 million infections and over 1.2 million death. New Zealand has so far managed to contain the virus's spread with a relatively low number of disease and fatality rate. Even so, developing a meaningful therapeutic intervention for our population is an urgent unmet need. While the research community worldwide is developing a

safe and effective vaccine, we have focussed on repurposing FDA approved drugs for other indications to tackle SARS-COV2. This talk will cover drug repurposing of various classes of drugs and the current status of such medications for the treatment of SARS-COV2.

Student Pitching Competiton

- Moderator: Dr Kye Chung Park
- Selection Committee: A/Prof Samsung Lim, Dr Mira Park and Dr Jae In (Peter) Choi

Date	Time (SYD)	Schedule	Name (Institute, Branch)
11/26 (목)	16:00-16:05	Introduction to student Competition	Moderator
	16:06-16:08	ACT 지부 소개	신동기 (ANU, ACT)
	16:08-16:13	To make and keep quantum promise	신동기 (ANU, ACT)
	16:15-16:20	Order, disorder and in between	홍성연 (ANU, ACT)
	16:22-16:24	NSW 지부 소개	이호준 (UNSW, NSW)
	16:24-16:29	Automated valuation model for residential properties using machine learning approaches: a case study of Sydney, Australia	이호준 (UNSW, NSW)
	16:31-16:36	FedNLP: An interpretable NLP system to decode federal reserve communications	이진 (USYD, NSW)
	16:38-16:40	NZ 지부 소개	이예진 (UC, NZ)
	16:40-16:45	Quantitative analysis on benchtop NMR spectrometer	이예진 (UC, NZ)
	16:47-16:52	A population genomic and taxonomic study of naturally durable Eucalyptus	김설중 (UC, NZ)
	16:54-16:56	QLD 지부 소개	추연일 (UQ, QLD)
	16:56-17:01	Development of offshore fish cage design	추연일 (UQ, QLD)
	17:03-17:08	Novel synthesis of porous carbon materials for prospective energy storage and conversion applications	김민준 (UQ, QLD)
	17:10-17:12	Tasmania 소개	윤희문 (UTAS, Tasmania)
	17:12-17:17	Developing mouse brain atlas using deep learning	윤희문 (UTAS, Tasmania)
	17:19-17:21	WA 지부 소개	오재필 (UWA, WA)
	17:21-17:26	Wave energy dissipation in marine ecosystems	오재필 (UWA, WA)
	17:28-17:33	Creatine to protect the lungs of preterm babies	최영현 (UWA, WA)
	17:35-17:40	Closing remarks on Student Session	Moderator

Day 2: Special Sessions (27 November 2020)

Day 2 YouTube link:

<https://www.youtube.com/watch?v=leNQOtOvfQMM>

Science session 1: Bio-Sciences

Session I: Bio-Sciences Chair: KC Park	<u>Sydney</u> 11:00-11:20 <u>Seoul</u> 9:00-9:20 NZ 13:00-13:20	박희언 Heon E. Park, 캔터베리대학교, University of Canterbury, NZ	Artificial organ engineering: Bird lung to human lung
	<u>Sydney</u> 11:20-11:40 <u>Seoul</u> 9:20-9:40 NZ 13:20-13:40	최상호 Sangho Choi, 한국생명공학연구원 Korea Research Institute of Bioscience and Biotechnology	Establishment and management of foreign biological materials collection and utilization support system (해외생물소재 확보 및 활용 사업)
	<u>Sydney</u> 11:40-12:00 <u>Seoul</u> 9:40-10:00 NZ 13:40-14:00	이재승 Jae Seung Lee, 농림축산식품부 Ministry for Agriculture, Food and Rural Affairs	Agriculture after COVID-19 (코로나 19 이후의 농업)
	<u>Sydney</u> 12:00-12:20 <u>Seoul</u> 10:00-10:20 NZ 14:00-14:20	허선진 Sun Jin Hur, 중앙대학교 Chung-Ang University	Overview of the status of the development of antiviral 1 drug for COVID-19 (COVID-19 항바이러스제 개발 현황)

Speaker 1	박희언 Heon E. Park (heon.park@canterbury.ac.nz)
Affiliation	캔터베리대학교 (Lecturer) Department of Chemical and Process Engineering, College of Engineering, University of Canterbury, New Zealand
Biography	1. ACADEMIC EXPERIENCE <ul style="list-style-type: none"> · Ph.D.: Chemical Engineering, McGill University, Canada (Thesis: Effects of supercritical fluids and pressure on polymer physics) · M.Eng.: Chemical Engineering, McGill University, Canada (Thesis: Effect of pressure on polymer physics) · B.Sc.: Chemical Engineering and Life Science, POSTECH, Korea (Thesis: Dioxin removal process) 2. PROFESSIONAL EXPERIENCE <ul style="list-style-type: none"> · Research Associate in Chemical Engineering, McGill University (Synthesis of tailored polymers; Foaming plastics) · Chief Scientist and Manager at Samsung-BP Chemicals, Korea (Converting wastes to chemicals; Optical films for electronic display) · Postdoctoral Fellow in Medicine and in Mechanical Engineering at University of Vermont, USA (Medical sealants; Artificial organs)
Title	Artificial organ engineering: bird lung to human lung (인공장기 공학: 조류의 폐를 인간의 폐로 전환)

Abstract	Allogeneic (from the same species) organ transplant is limited both by the shortage of available donor organs and/or by the lack of suitable long-term organ assist devices to bridge patients to the transplant. Artificial organs can serve as an alternative. One of the approaches can be utilizing a xenogeneic (from different species) organ. The original cells should be removed (i.e. decellularized) from the tissues to avoid allergic responses after a transplant while utilizing its scaffold (extracellular matrix). Then, patient's organ cells can be inoculated (recellularized) to reconstruct the whole organ. In this project, two types of avian lungs have been studied since birds have a very efficient respiratory system compared to those of mammals: chicken (<i>Gallus gallus domesticus</i>) and emu (<i>Dromaius novaehollandiae</i>). It was envisioned that such an efficiency can compensate some losses in the function resulted from decellularization and recellularization. After decellularized those lungs, those were recellularized with human lung cells. The ultimate aim is to convert avian lungs to human lungs for transplant or for build a portable lung assisting device, and the current position of this type of research will be shown in the presentation.
Speaker 2	최상호 Sangho Choi (decoy0@kribb.re.kr , decoychoi@gmail.com)
Affiliation	한국생명공학연구원 (Director) International Biological Material Research Center, Korea Research Institute of Bioscience and Biotechnology, Korea
Biography	<p>1. ACADEMIC EXPERIENCE</p> <ul style="list-style-type: none"> · Ph.D.: Department of Soil Water and Environmental Science, University of Arizona, Tucson, AZ, USA. Dec. 2006 (Dissertation: "The efficacy of the weevil <i>Cyrtobagous salviniae</i> (Coleoptera: Curculionidae) as a biological control on giant salvinia (<i>Salvinia molesta</i>) in the Lower Colorado River") · MS.: Department of Biological Science (Limnology). Busan National University, Busan, Korea, 2000 (Thesis: Limnological characteristics and impacts of floating aquatic plants on the Woopo Wetland) · BS: Department of Biological Science. Busan National University, Busan, Korea <p>2. PROFESSIONAL EXPERIENCE:</p> <ul style="list-style-type: none"> · Director of International Biological Material Research Center, KRIBB (Korea Research Institute of Bioscience and Biotechnology (2016 ~ present) · Project Coordinator, "Procurement and development of foreign biological resources" (2008 – 2015) · Research Assistant, University of Arizona, USA (2004 ~ 2006) · Steering Committee, Lower Colorado River Salvinia Task Force, USDA, USA (2004 ~ 2006)
Title	Establishment and management of foreign biological materials collection and utilization support system (해외생물소재 확보 및 활용 사업)
Abstract	<p>We are aiming at procuring biological materials from four overseas regional centers and their neighboring countries through legal routes within the scope of international collaborative research projects. Our mission is to provide researchers with a variety of materials, including indigenous medicinal knowledge and also to establish the nation's core infrastructure for developing new natural drugs and nutraceuticals, along with other commercially important natural products.</p> <ul style="list-style-type: none"> - Operation and management of four collaborative biological material research centers for the collection and preparation of biological materials worldwide - Establishment and operation of a comprehensive system and database to manage biological materials and related traditional medicinal knowledge procured from four regional centers and their neighboring countries - A study on the standardization of highly active biological materials (massive cultivation and quality control) for the establishment and operation of a supply system for leading research groups within the scope of the assigned project - Phylogenetic Analysis and Development of DNA barcode for the identification of Medicinal plants

	A study on the information resources (biological resource access and benefit-sharing, related laws, and system, local information) for the promotion of cooperation and utilization.
Speaker 3	이재승 Jae Seung Lee (yjaes3@korea.kr , yjaeseung@hanmail.net)
Affiliation	농림축산식품부 Deputy Director, Livestock Policy Division, Ministry of Agriculture, Food and Rural Affairs, Korea
Biography	Jae Seung Lee is a visiting researcher in Plant & Food Research and studying about the future of the biosecurity, agricultural industry, and new agricultural technologies aligning with the Fourth Industrial Revolution. With over 15 years in Korean governmental agencies, Jae Seung has experience in plant quarantine, international cooperation, and livestock policy. Jae Seung worked at Animal and Plant Quarantine Agency from 2003 to 2013, and has worked for Ministry of Agriculture, Food and Rural Affairs since 2014. Jae Seung involved in projects between Korea and Mongolia to reduce yellow sandstorms as a Korean Oversea Volunteer from 2004 to 2006.
Title	코로나 19 이후의 농업 (Agriculture after COVID-19)
Abstract	Agriculture could be significantly impacted by the economic and socioeconomic dynamics of COVID-19. Food security has come to a critical reality and labour-intensive agricultural production is facing risks. Online transactions have become the “New Normal”. In relation to COVID-19 pandemic, many governments are enacting temporary trade measures to restrict exports of vital medical supplies, foods and other essential products. A total of 22 countries including the world's largest wheat and rice exporters have implemented export restrictions on agricultural products. With the restrictions on the movement of foreign workers, there is also a danger to agricultural production of developed countries, which relied on cheap overseas labour. The E-commerce has grown significantly due to COVID-19. In the agricultural distribution sector, rapid changes to online distribution are also expected as a non-contact distribution channel. Retail as well as wholesale will be converted into online transactions and the fresh agri-food market will shift from wholesale market-focused to online transactions that directly connect farms and consumers. Many countries will make effort to maintain their agricultural production base at a proper level and expand public stockpiles of major grains for food security. In addition, it is expected to accelerate digital transformation of agricultural production and distribution.
Speaker 4	허선진 Sun Jin Hur (hursj@cau.ac.kr)
Affiliation	중앙대학교 동물생명공학과 (Associate Professor) Department of Animal Science and Technology, Chung-Ang University, Korea
Biography	Sun-Jin Hur is professor of Animal Science and Technology at Chung-Ang University. His research interests include utilization of bioactive materials, value-added animal products, health science, and development of <i>in vitro</i> human digestion models. His research is mainly focused on health-related matters, with specific interests in bioactive materials, food, and <i>in vitro</i> human digestion methodologies. He has published more than 200 peer-reviewed papers and 11 books since 1998, and currently serves as an editor in chief for Food and Life, associate editor for Food Science of Animal Resources, Journal of Animal Science and Technology, and Asian-Australasian Journal of Animal Science. He is also editorial board member of Current Topics in Nutraceutical Research and BioMed Research International.
Title	“Overview of the status of the development of antiviral 1 drugs for COVID-19 (COVID-19 항바이러스제 개발 현황)” by Seung Yun Lee, Ji Hyup Kang, Hae Jin Kang, Sun Jin Hur (이승연, 강지협, 강혜진, 허선진)
Abstract	In this study, we surveyed worldwide media reports and research papers on the development of vaccines and antiviral drugs for COVID-19 treatment published over the past few months. We found that more studies were being conducted on the use of already approved drugs (remdesivir, lopinavir/ritonavir, chloroquine, niclosamide, and ivermectin) as new COVID-19 treatments, than on the development of new antiviral drugs. This could be due to the urgent need for drug development. We found that till date, there seem to be no results on current or future COVID-19 vaccine development. However, media reports showed that numerous

companies have invested in vaccine development and some clinical trials are already underway (mostly in phase I–II). According to the results of our survey, the drugs that have been previously approved to treat other diseases have not yet been found to be very effective in treating COVID-19 patients; however, remdesivir is the most promising drug. Due to the pandemic situation, the number of patients participating in these clinical trials, compared to that in other previous clinical studies, is small. Therefore, due to the low reliability of the findings, additional experiments must be continued.

Keywords: SARS-CoV-2; COVID-19; Vaccine development; Antiviral drug

	<u>Sydney</u> 12:30-13:30	Lunch break
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Science session 2: Energy

Session II: Energy	Subject: Hydrogen Technology – opportunities and challenges Chair: Duk-Yong Choi		
<u>Brisbane</u> 12:30-12:50 <u>Seoul</u> 11:30-11:50	<u>Canberra</u> 13:30-13:50	Dr. Andrew Feitz Director, Low Carbon Geoscience and Advice, Geoscience Australia	Advancing implementation of the National Hydrogen Strategy through geoscience
<u>Canberra</u> 13:50-14:10 <u>Brisbane</u> 12:50-13:10	<u>Seoul</u> 11:50-12:10	Dr. Chang Won Yoon Head, Centre of Hydrogen and Fuel Cell Research, Korea Institute of Science and Technology (KIST)	National R&D Status for CO ₂ -free Hydrogen Production and Storage
<u>Canberra</u> 14:10-14:30 <u>Seoul</u> 12:10-12:30	<u>Brisbane</u> 13:10-13:30	Dr. Daniel Roberts Leader, Hydrogen Energy Systems Future Science Platform, CSIRO Energy	R&D supporting hydrogen's role in the energy transition
<u>Canberra</u> 14:30-14:50 <u>Brisbane</u> 13:30-13:50 <u>Seoul</u> 12:30-12:50		All	Panel discussion

Speaker 1	Dr. Andrew Feitz
Affiliation	Director, Low Carbon Geoscience and Advice, Geoscience Australia
Biography	Dr Andrew Feitz is an environmental engineer and director of Low Carbon Geoscience and Advice at Geoscience Australia. He worked as a senior researcher in air and water treatment technologies at the University of New South Wales and Karlsruhe Institute of Technology (Germany). He moved to Canberra in 2008 and joined Geoscience Australia where he developed and led a research program to evaluate monitoring techniques for geological storage of carbon dioxide. Andrew leads Geoscience Australia's efforts supporting implementation of the National Hydrogen Strategy.
Title	Advancing implementation of the National Hydrogen Strategy through geoscience

Abstract	Hydrogen has been identified as a future clean fuel source in Australia and potential new multi-billion dollar export industry. Australia released its National Hydrogen Strategy in 2019 and hydrogen was identified as one of five key stretch goals (H2 under \$2/kg) in the Australian Government's inaugural Low Emissions Technology Statement in 2020. Geoscience Australia (GA) is supporting implementation of the strategy through provision of publicly available data, providing updates on hydrogen projects, mapping potential hydrogen storage options, and developing free online tools to assist stakeholders explore the hydrogen production prospects for different regions across Australia.
Speaker 2	Dr. Chang Won Yoon
Affiliation	Head, Centre of Hydrogen and Fuel Cell Research, Korea Institute of Science and Technology (KIST)
Biography	Dr Andrew Feitz is an environmental engineer and director of Low Carbon Geoscience and Advice at Geoscience Australia. He worked as a senior researcher in air and water treatment technologies at the University of New South Wales and Karlsruhe Institute of Technology (Germany). He moved to Canberra in 2008 and joined Geoscience Australia where he developed and led a research program to evaluate monitoring techniques for geological storage of carbon dioxide. Andrew leads Geoscience Australia's efforts supporting implementation of the National Hydrogen Strategy.
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Speaker 3	Dr. Daniel Roberts
Affiliation	Leader, Hydrogen Energy Systems Future Science Platform, CSIRO Energy
Biography	Dr Daniel Roberts leads CSIRO's Hydrogen Energy Systems Future Science Platform. The Hydrogen FSP plays an important role in CSIRO's broad hydrogen RD&D program, by providing a strong scientific and technical foundation to CSIRO's work in enabling a renewable energy export industry based on hydrogen. Daniel has more than 20 years' experience in the study of the fundamentals of gasification and combustion and their application to industrial scale systems. Before taking on the FSP role, Daniel led the High Efficiency Thermal and Electrochemical Technologies research group within CSIRO Energy. He continues to play a senior role in CSIRO's research activities in the area of gasification for hydrogen production, as well as thermochemical pathways for bioenergy production from biomass and waste.
Title	R&D supporting hydrogen's role in the energy transition
Abstract	Hydrogen has emerged as an important part of global decarbonisation strategies. Australia is well-placed to play a leading role in this transition, given its abundant renewable energy resources and track record as an energy exporting nation. We are now seeing demonstration projects emerging in a range of sectors; however, more work is needed to continue to bring the cost of low-carbon hydrogen down and to de-risk diverse supply chains. This talk will give an overview of CSIRO's research supporting the emerging hydrogen industry, and summarise some of the current initiatives underway.

	<u>Sydney</u> 15:00-15:20	Tea break
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Science session 3: Property Technology

Session III: Proptech Joint session with Korea Housing Association (KHA) Chair: J H Han	<u>Sydney</u> 15:20-15:30 <u>Perth</u> 12:20-12:30 <u>Seoul</u> 13:20-13:30	이미경/지규현	KASEA/KHA 회장 인사말
	<u>Syd/Melbourne</u> 15:30-15:50 <u>Seoul</u> 13:30-13:50	김형민, University of Melbourne	멜버른 프롭테크의 동향 및 부동산 업계의 최근 변화
	<u>Sydney</u> 15:50-16:10 <u>Seoul</u> 13:50-14:10	조인혜, 한국프롭테크포럼	한국 프롭테크시장현황과 전망
	16:10-16:20	Session break	
	<u>Sydney</u> 16:20-16:40 <u>Adelaide</u> 15:50-16:10 <u>Seoul</u> 14:20-14:40	김수민, University of South Australia	호주의 지속가능한 상업용 부동산을 위한 프롭테크
	<u>Sydney</u> 16:40-17:00 <u>Seoul</u> 14:40-15:00	이상영, 명지대학교	프롭테크산업 발전전략

Presentation of Student Pitching Competition Awards and Conclusion

Awards and Conclusion	<u>Sydney</u> 17:10-17:30 NZ 19:10-19:30	Dr Kye Chung Park	Student pitching competition prizes
	<u>Sydney</u> 17:10-17:30	한정훈	KASEA 부회장 폐회사