Webinar Program

EXOSOMES AND REGENERATIVE MEDICINE

Thursday, 10 June 12:00 PM AEST

Hosted by the NSW Stem Cell Network

NSW StemCell NETWORK

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The NSW Stem Cell Network is a professional community with an interest in the potential of stem cells to improve the human condition. Stem cell therapies underpin regenerative medicine-based technologies.

The Network brings together the scientific, health and medical research communities, the higher education sector and business with the goal of promoting growth and innovation to achieve positive health outcomes for the people of NSW and globally. Our work encompasses science, medicine, ethics, law, business and public awareness of stem cells and regenerative medicine.

Since its establishment in 2002, the Network has pursued its goals, successfully conducting regular workshops, seminars, conferences and courses that allow the knowledge sharing and professional skills development as well as embarking on collaborative research and commercial initiatives.

The NSW Stem Cell Network has received infrastructure support from Diabetes NSW.

For more info, www.stemcellnetwork.org.au

WEBINAR PROGRAM

12:00 PM - 12:20 PM, A/Prof Rebecca Lim:
"Cell-Free Regenerative Medicine for Perinatal Applications"

12:20 PM - 12:40 PM, Dr Sai-Kiang Lim:
"Exosomes in the Treatment of Psoriasis"

12:40 PM - 1:00 PM, Prof Andy Hill:
"Standardisation Efforts for EV Research and Applications in Neurodegenerative Diseases"

1:00 PM - 1:20 PM, Q&A

Chair: Dr Janet Macpherson

SPEAKERS

SPEAKER BIO: A/PROF REBECCA LIM

Adjunct Associate Professor in Obstetrics and Gynecology, Monash University and Group Leader at The Ritchie Centre, Hudson Institute of Medical Research

CELL-FREE REGENERATIVE MEDICINE FOR PERINATAL APPLICATIONS

Associate Professor Rebecca Lim has been researching the potential and limitations of amniotic epithelial cells in regenerative medicine since 2008. Her research team has uncovered mechanisms through which the hAECs modulate inflammatory events and bolster endogenous repair processes. They have demonstrated that hAECs are able to directly influence the stem cell niche in order to bring about tissue regeneration. This work has now progressed to clinical trials across multiple clinical indications including premature babies with bronchopulmonary dysplasia and cerebral palsy, and adults with liver cirrhosis, Crohn's related perianal fistulas and acute ischaemic stroke. Most recently her team has begun to develop an extracellular vesicle biology arm to their research, in an effort to develop a cost-effective approach to regenerative medicine for urgent unmet medical needs.

A/Prof Lim holds joint appointments with the Department of Obstetrics and Gynaecology, Monash University and The Ritchie Centre, Hudson Institute of Medical Research. A/Prof Lim is an NHMRC Career Development Fellow (Industry) where her work aims to bring novel automated solutions to cell manufacturing for the regenerative medicine sector. She was awarded an NHMRC Research Excellence Award in 2019. She is the Scientific Director of the Cell Therapy and Regenerative Medicine Platform at the Monash Health and Translation Precinct, which manufactures cell-based products for early phase clinical trials. She is passionate about clinical translation, patient advocacy and discovery research.

SPEAKER BIO: DR SAI KIANG LIM

Research Director, Institute for Molecular and Cell Biology, A*STAR, Singapore

EXOSOMES IN THE TREATMENT OF PSORIASIS

Dr Lim’s research focuses on extracellular vesicles (EVs) from stem cells and synthetic EVs for the development of diagnostics and therapeutics. Her current focus is on characterizing exosomes and other classes of EVs that are secreted by MSCs, to better understand the molecular processes for their biogenesis and uptake.

This includes also investigating several disease indications for MSC exosomes such as acute and chronic myocardial infarction, severe genetic skin diseases e.g. recessive dystrophic epidermolysis bullosa, severe immune diseases e.g. steroid-refractory graft versus host disease, drug induced liver toxicity. This research has led to the development of several proprietary technological platforms for stem cell or synthetic EV-based therapeutics and diagnostics.

Since its inception at the Institute for Molecular and Cell Biology in 2007, Dr Lim's lab has generated >80 publications, and >70 granted and >30 pending patents. To capitalise on these promising results, they have set up extensive partnerships with industry entities and are in the process of bringing to market EV-based biologics.

The group research program is a highly collaborative, multi-disciplinary endeavour that comprises local and international basic, clinical and industrial research groups. The group is highly involved in the activities of Society for Clinical Research and Translation of Extracellular Vesicles Singapore (SOCRATES) and International Society of Extracellular Vesicles (ISEV) to facilitate research communication and collaboration to develop the therapeutic potential of EVs.

SPEAKER BIO: PROFESSOR ANDY HILL

Professor and Laboratory Head, La Trobe Institute for Molecular Science, La Trobe University

STANDARDISATION EFFORTS FOR EV RESEARCH AND APPLICATIONS IN NEURODEGENERATIVE DISEASES

Professor Andy Hill has been researching extracellular vesicles (EVs) for over 15 years. With an interest in how EVs play a role in neurogenerative disorders such as prion disease, Alzheimer's, and Parkinson's disease, his laboratory has extensive experience with isolating, characterising, and profiling EVs from biofluids and cell cultures. His was one of the first laboratories to profile the RNA content of EVs using next generation sequencing which has led to several published studies on the use of EV miRNAs as biomarkers for neurological and other conditions. The EV analytical expertise of his laboratory is also being used with industry funded studies on therapeutic applications.

Professor Hill is currently the Associate Provost of Research and Industry Engagement in the College of Science, Health, and Engineering at La Trobe University. He established the La Trobe University Research Centre for Extracellular Vesicles in 2017, bringing together eight laboratories working in this field within the university. This is the first such centre in Australia. He has played an active role in the International Society for Extracellular Vesicles (ISEV) since its inception in 2012 and was elected President for two terms from 2016-2020. He has also founded the Australasian EV Meeting, held five times since 2014 and which has recently formed the Australia and New Zealand Society for Extracellular Vesicles (ANZSEV) for which he serves as a board member.

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For more information on BARD1 and EXO-NET, visit www.bard1.com and www.exo-net.com.

A video explaining the EXO-NET technology can be found here:

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Compiled: Friday, 28th May 2021