MEDIA RELEASE

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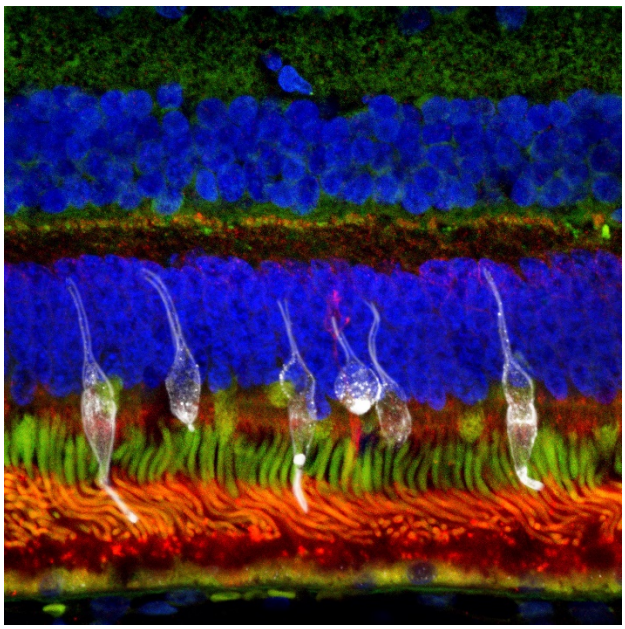
A*STAR'S IMCB, RXCELL, NUS, AND SERI COLLABORATE TO DEVELOP CELLULAR THERAPEUTICS FOR AGE-RELATED DISEASES

The next generation cell therapies will provide new ways of treating age-related retinal and musculoskeletal diseases and overcome challenges of existing treatment methods.



Retinal progenitor cells derived from RxCell induced pluripotent stem cells (iPSCs) can mature into retina photoreceptors after transplantation into the preclinical models, enabling restored vision.

SINGAPORE – The Agency for Science, Technology and Research (A*STAR)'s Institute of Molecular and Cell Biology (IMCB), together with RxCell, a Bay Area-based biotechnology company focused on therapeutic applications of induced pluripotent stem cells (iPSCs), Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine) and the Singapore Eye Research Institute (SERI) announced a collaboration to develop cellular therapeutics for age-related diseases.

As life expectancy increases, the prevalence of disability and morbidity associated with age-related diseases is burgeoning. This includes age-related retinal degeneration and musculoskeletal degeneration – for which there is a lack of effective

curative treatment. This collaboration will develop next generation cell therapies to overcome these challenges.

“Loss of adult stem cell function is a contributor to ageing and many associated diseases. Using stem cells to mitigate this decline in endogenous stem cell function is a novel approach that may have broad-sweeping benefits,” said Professor Brian Kennedy, Director of the Healthy Longevity Translational Research Programme at NUS Medicine.

“Currently available therapies cannot fully restore vision if large number of cells in the retina are already damaged or lost. Cellular therapy offers the prospect to regenerate lost or damaged tissue and therefore improved outlook for patients,” said Professor Gemmy Cheung, Head, Retina Research Group, Singapore Eye Research Institute (SERI) and Senior Consultant and Head of Medical Retina Department, Singapore National Eye Centre (SNEC).

To address these unmet clinical needs, this collaboration focuses on generating cell therapy for age-related retinal degeneration and musculoskeletal degeneration. RxCell will contribute their clinical grade iPSC as well as hypoimmunogenic iPSC (universal donor cells for allogenic therapy) generated by their proprietary technologies – which confer the advantage of being able to evade the host’s immune system and avoid an unwanted immune response. This will complement IMCB’s expertise in retinal diseases and preclinical modelling, NUS’s expertise in age-related cell therapy strategies and SERI’s expertise in preclinical ocular disease models.

“Our partnership with RxCell signals Singapore's move towards harnessing stem cell regenerative technologies to improve health outcomes. The potential to restore vision in patients with end-stage retinal disease through stem cell therapy is extremely exciting! Using technologies arising from our collaboration, we plan to conduct a first-in-man clinical trial in Singapore in the near future,” said Dr Su Xinyi, Division Director, Senior Principal Investigator (IMCB, A*STAR) and Research Director and Consultant, Department of Ophthalmology, National University Hospital (NUH).

“This research collaboration underscores the value of academia and industry partnerships that play an essential role in translating novel scientific discoveries into important new therapeutics for improved health outcomes. We are excited that this collaboration will add to the vibrancy of the local biotech ecosystem,” said Professor Hong Wanjin, Executive Director of IMCB.

“We at RxCell are excited to establish a Joint Lab to work with IMCB, A*STAR, NUS and SERI to advance our efforts to bring much needed novel therapies to address age-related health problems,” said Professor Xianmin Zeng, CEO of RxCell**.**

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For media queries and clarifications, please contact:

Yip Min ting
Corporate Communications
Agency for Science, Technology and Research
Tel: +65 65171977
Email: yip_min_ting@hq.a-star.edu.sg

Xianmin Zeng
Founder & CEO
RxCell Inc.
Tel: +1 4158274897
Email: xzeng@xcellscience.com

Ravi Chandran
Corporate Communications
Singapore National Eye Centre
Tel: 8121 8569
Email: ravi.chandran@snec.com.sg

Sally Toh
Communications
Yong Loo Lin School of Medicine, National University of Singapore
Tel: 81004781
Email: sally_toh@nus.edu.sg

About the Institute of Molecular and Cell Biology (IMCB)

The vision of Institute of Molecular and Cell Biology (IMCB) is to be a premier cell and molecular biology institute which addresses the mechanistic basis of human diseases and its mission is to conduct cutting-edge discovery research in disease pathways; to groom early career researchers to be future leaders in research; and to collaborate with the public sector, medical and industry communities for research impact. IMCB plays an important role training and recruiting scientific talents, and has contributed to the development of other research entities in Singapore. Its success in fostering a biomedical research culture in Singapore has catalysed Singapore's transformation into an international hub for biomedical research, development and innovation.

Funded by A*STAR, IMCB's use-inspired research comprises 4 major programmes: Neurometabolism in Health and Diseases; Cancer Signalling and Therapies; Cell Biology and Therapies; and Innovative Technologies. IMCB also has two semi-

autonomous programmes, the Disease Intervention Technology Laboratory (DITL), and the Molecular Engineering Laboratory (MEL). IMCB's technologies and platforms focus on Mouse Models of Diseases, Molecular Histopathology, Cellular Microscopy, and Proteomics & Metabolomics.

For more information about IMCB, please visit www.a-star.edu.sg/imcb

About the Agency for Science, Technology and Research (A*STAR)

A*STAR is Singapore's lead public sector R&D agency. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit the economy and society. As a Science and Technology Organisation, A*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by improving societal outcomes in healthcare, urban living, and sustainability. A*STAR plays a key role in nurturing scientific talent and leaders for the wider research community and industry. A*STAR's R&D activities span biomedical sciences to physical sciences and engineering, with research entities primarily located in Biopolis and Fusionopolis. For ongoing news, visit www.a-star.edu.sg.

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About RxCell, Inc.

RxCell Inc. is a cell therapy company with clear pipelines of products and next generation products. We have manufactured a Master Cell Bank of induced pluripotent stem cell (iPSC) for allogenic therapy including current IND activities for retinal degenerative disorders. More recently we have developed a novel hypoimmunogenic strategy and made universal iPSC lines that can be used to manufacture differentiated cells for therapy. These universal donor cells target both the innate and adaptive immune systems which confer the advantage of being able to evade the host's immune system and avoid unwanted immune responses. We also have a safe harbor patented technology that allows for expressing therapeutic products that can be delivered to target locations for prolonged and sustained delivery of biologics.

In addition to our efforts in the therapeutic domain, RxCell markets cells and media as well as other associated reagents for academic and drug discovery research though its XCell Science brand (http://www.xcellscience.com/).

About Singapore Eye Research Institute (SERI)

Established in 1997, SERI is Singapore's national research institute for ophthalmic and vision research. SERI's mission is to conduct high-impact eye research that

prevents blindness, low vision and major eye diseases common to Singaporeans and Asians. Over the last decade, SERI has conducted landmark research projects that have led to tangible outcomes, patient benefits, and success stories. It has paved the way for significant improvements in how eye diseases are treated and prevented, not just for Singaporeans or Asians, but on a global scale.

At its inception, SERI saw a national remit in ophthalmic and vision research, and till today, SERI ensures that its facilities and resources are open to researchers across Singapore so that the greatest benefit may be obtained from what is a relatively small clinical ophthalmology catchment area in Singapore.

SERI has grown from a founding team of five in 1997 to a faculty of more than 196 staff, encompassing clinician scientists, scientists, research fellows, PhD students and support staff. This makes SERI one of the largest research institutes in Singapore, as well as the largest eye research institute in the Asia Pacific region. SERI has also over 220 adjunct faculties from various eye departments, biomedical institutes and tertiary centres in Singapore.

SERI has published an impressive array of 3,405 scientific papers, and has secured external peer-reviewed competitive grants worth more than $309 million. As of 31 December 2018, SERI's faculty has been awarded with more than 506 national and international prizes and filed 123 patents.

As the research institute of the SNEC, and directly affiliated to the Yong Loo Lin School of Medicine, National University of Singapore, as well the Duke-NUS Medical School, SERI undertakes vision research in collaboration with local clinical ophthalmic centres and biomedical research institutions, as well as major eye centres and research institutes throughout the world.

SERI ranks first globally in terms of eye publications per capita, far ahead of the US, UK and Japan. With its impressive publication track record, SERI is comparable to renowned eye institutes, both regionally and internationally. Please see www.seri.com.sg

About the NUS Yong Loo Lin School of Medicine (NUS Medicine)

The NUS Yong Loo Lin School of Medicine is Singapore's first and largest medical school. Our enduring mission centres on nurturing highly competent, values-driven and inspired healthcare professionals to transform the practice of medicine and improve health around the world.

Through a dynamic and future-oriented five-year curriculum that is inter-disciplinary and inter-professional in nature, our students undergo a holistic learning experience that exposes them to multiple facets of healthcare and prepares them to become

visionary leaders and compassionate doctors and nurses of tomorrow. Since the School's founding in 1905, more than 12,000 graduates have passed through our doors.

In our pursuit of health for all, our strategic research programmes focus on innovative, cutting-edge biomedical research with collaborators around the world to deliver high impact solutions to benefit human lives.

The School is the oldest institution of higher learning in the National University of Singapore and a founding institutional member of the National University Health System. It is Asia's leading medical school and ranks among the best in the world (Times Higher Education World University Rankings 2021 by subject and the Quacquarelli Symonds (QS) World University Rankings by Subject 2021).

For more information about NUS Medicine, please visit https://medicine.nus.edu.sg/