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NEWS

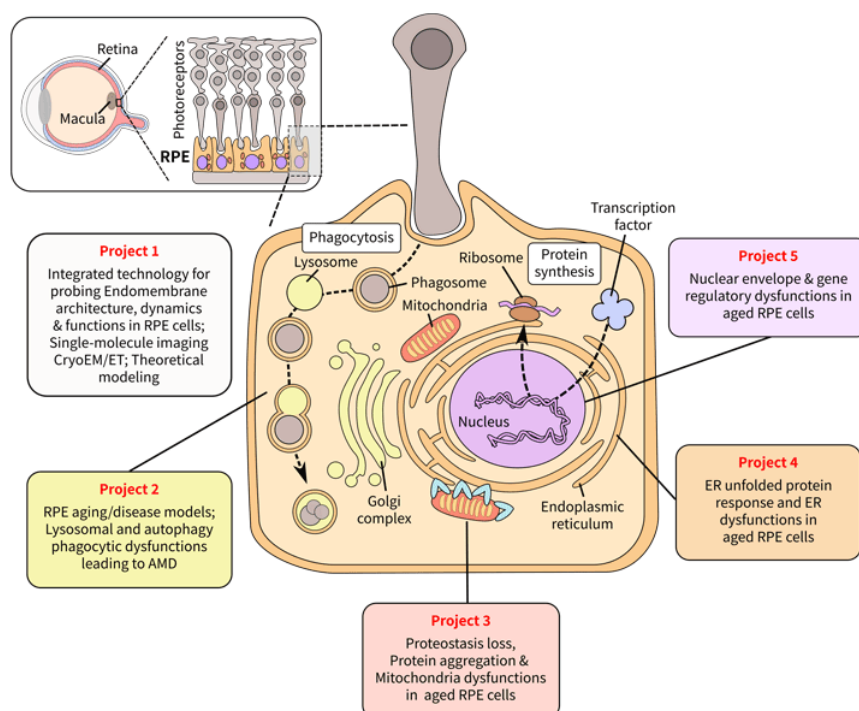
ABOUT THE LAB

# MBI PIs win MOE AcRF Tier 3 grant to study endomembrane aging

The 5-year project will use cutting-edge imaging to investigate cellular aging in unprecedented detail

A research team led by Mechanobiology Institute (MBI) Principal Investigators Assoc. Prof. Tony Kanchanawong and Prof. Rong Li was recently awarded a Ministry of Education Academic Research Fund (MOE AcRF) Tier 3 grant for their proposal entitled “Endomembrane System Architecture, Dynamics, and Functions in Aging Cells and Tissues”.

The MOE AcRF Tier 3 programme-level funding scheme enables high-impact, multi-disciplinary research that is carried out in a comprehensive and organized manner. Tier 3 level grants aim to facilitate the emergence of game-changing science by bringing together collaborative teams of experts to develop integrated solutions for scientific issues.



## The Rong Li Lab

The diverse projects in Professor Li's lab contribute to two main research tissue aging; cellular and organ dynamic changes of crucial cell during the aging process and how they alter the mechanical functions of cells. The insights gained will be applied to the development of new methods for healthy aging and the repair and maintenance of deteriorated functions. [Learn more about Li's research.](#)



Summary figure of the Project aims for the Endomembrane System Architecture, Dynamics, and Functions in Aging Cells and Tissues research proposal.

The MBI-led proposal seeks to understand how biophysical changes in endomembrane networks during aging lead to the biochemical changes that define age-related deterioration. Led by Lead PI Tony Kanchanawong and Co-Lead PI Rong Li, together with scientists from Singapore-wide universities and research institutes such as MBI (Yusuke Toyama, Tetsuya Hiraiwa, Jennifer Young), NUS (Winston Zhao, Biological Sciences; Markus Wenk, Biochemistry), National University Hospital (Xinyi Su, also A\*STAR IMCB), and Nanyang Technological University (Guillaume Thibault, Alexander Ludwig, and Wenting Zhao), as well as overseas collaborators (Akihiro Kusumi, Okinawa Institute of Science and Technology, Japan; Jacques Prost, Institut Curie, France; G.V. Shivashankar, ETH Zurich, Switzerland; Tim Blenkinsop, Icahn School of Medicine at Mt. Sinai, New York, USA), the multi-disciplinary research team successfully secured Type A funding over a period of 5 years from the recent competitive MOE AcRF Tier 3 Grant call.

The research team plans to develop an advanced integrated imaging platform for live, 3D, super-resolution imaging of endomembrane dynamics. This imaging platform will be applied to study retinal pigmented epithelial (RPE) cells, which is an ideal model system for investigating age-dependent changes and a therapeutic target for age-related macular degeneration (AMD) – the 3rd leading cause of blindness globally and a disease that increasingly affect aging populations. By focusing on major interconnected endomembrane networks – lysosomes, mitochondria, endoplasmic reticulum, and nuclear membranes – in young and healthy vs. old or AMD-affected RPE cells, the team expects to uncover a new paradigm for understanding aging at the cellular and sub-cellular level.

Recruitment for staff and students interested in working on this proposal will be starting soon. Please watch the [MBI Jobs](#) and [Education](#) webpages for more details.



Lead PIs for each Project from the Endomembrane System Architecture, Dynamics, and Functions in Aging Cells and Tissues research proposal. (L-R: Winston Zhao – Project 5, Xinyi Su – Project 2, Rong Li – Project 3, Tony Kanchanawong – Project 1, Guillaume Thibault – Project 4)

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## Decoding the living machine

At the Mechanobiology Institute, National University of Singapore, our goal is to develop the world's leading centre for mechanobiology research and education. Our research aims to interrogate

MBI GRATEFULLY ACKNOWLEDGES SUPPORT FROM:

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[Campus map](#)

## The Kanchanawong

The Kanchanawong Lab uses a r approach to study the nanoscal functions, and dynamics of cell drive processes such as migratio mechanotransduction in cells. [about Prof Kanchanawong's res](#)

biological systems from a physical and mechanical perspective at the molecular, cellular, and tissue level, with the eventual goal to leverage basic science discoveries in mechanobiology into biomedical innovations.

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