



Infectious
Diseases Labs

A*STAR IDL

Prof Chen Jianzhu

Professor of Biology, MIT
Principal Investigator, Antimicrobial
Resistance Interdisciplinary Research Group
at the Singapore-MIT Alliance for Research
and Technology (SMART)



Wednesday 5th August 2026

11:00 AM to 12:00 PM (SGT)

Venue: Oasis, A*IDL

Macrophages, Chronic Diseases and Aging

Macrophages are a key class of phagocytic cells that readily engulf and degrade dying/dead cells and invading bacteria and viruses. As such, macrophages play an essential role in development, tissue homeostasis and repair, and immunity. A remarkable feature of macrophages is their heterogeneity and plasticity: the ability to respond to local stimuli to acquire different phenotypes and functions so as to respond to changing physiological needs. To elucidate the molecular mechanisms underlying macrophage diversity and plasticity, we have identified key transcription factors that confer macrophage identity in different tissues. We have also identified small molecule compounds that can reprogram macrophages to execute different functions. We aim to elucidate the mechanisms by which macrophages can be reprogrammed for disease intervention and healthy aging.

Jianzhu Chen is a member of the Koch Institute for Integrative Cancer Research, Professor of Biology at MIT, and an Associate Member of the Broad Institute. He is also a Principal Investigator at Antimicrobial Resistance Interdisciplinary Research Group at the Singapore-MIT Alliance for Research and Technology (SMART). He earned his bachelor's degree from Wuhan University in China and a PhD degree from Stanford University, where he started immunological research in the laboratory of Leonard and Leonore Herzenberg. He was a postdoctoral fellow with Frederick Alt, initially at Columbia University and then at Boston Children's Hospital, where he was supported by Cancer Research Institute Postdoctoral Fellowship and Arthritis Investigator Award. He was an Instructor at Harvard Medical School before joining the MIT faculty in the Department of Biology in 1994. Dr. Chen has made significant contributions to a broad area of research in immunology, cancer research, infectious diseases, and animal models of human diseases. Recently, Dr. Chen's research has focused on development of tumor-specific CAR-NK cells, re-programming macrophages for disease intervention, and vaccine development for viral infections. His research has been recognized by Cheryl Witlock Memorial Prize, Harcourt General Charitable Foundation New Investigator Award, Latham Family Career Development Award, and AAAS Fellow.

Hosted by: Prof Amit Singhal

Seminar is open to all. No registration required.

Questions? Contact us at seminars@a-star.edu.sg

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