

Research Theme: Interdisciplinary Biology (Cell Biology, Biochemistry, Synthetic Biology, Biophysics)

MSc Research Project Title: Liquid-liquid Phase Separation (LLPS)-regulated plant immunity

Principal Investigator/Supervisor: Associate Professor Yansong MIAO

Co-supervisor/ Collaborator(s) (if any):

Project Description

a) Background:

This interdisciplinary project focus on studying the function of protein and lipid condensation in plant immunity in the emerging fundamental principle of Liquid-liquid Phase Separation (LLPS). The liquid-liquid, liquid-to-gel, and liquid-to-solid phase transition of proteins has been recently found as an emerging principle underlying the biomolecular interaction and macromolecular complex formation during the immune-signaling and aging process. Several exciting discoveries made in the lab recently are to be further explored.

We provide solid scientific training for your future career and aim to nurture the next generation of scientists. We are looking for a highly motivated PhD student to work on this novel and well-designed project, ensuring high-quality training, high-impact outcomes, and scientific publications.

The maste candidate will use advanced super-resolution living cell imaging, cutting-edge in vitro reconstitution, which integrates biochemistry, biophysics, and synthetic biology systems, to study important pathogen-host interaction and host immunity.

As European Molecular Biology Organization (EMBO)-affiliated lab, Miao lab students have different high-quality scientific training opportunities, such as international conferences, workshops, exchanges.

For our recent work and publications, please see <https://personal.ntu.edu.sg/yansongm>
For more details of ongoing and new projects, feel free to contact Dr. Miao at yansongm@ntu.edu.sg.

b) Proposed work:

Our top-notch biotechnologies in the lab and long-term collaborations with material science, structural biology, and modeling groups will ensure a comprehensive understanding of LLPS-mediated pathogenic infection and host immunity.

c) Preferred skills:

Enthusiasm for science; Excellent oral and written communication skills; Good collaboration skills.

Supervisor contact:

If you have questions regarding this project, please email the Principal Investigator:
yansongm@ntu.edu.sg



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SBS contact and how to apply:

Associate Chair-Biological Sciences (Graduate Studies) : AC-SBS-GS@ntu.edu.sg

Please apply at the following:

Application portal:

<https://venus.wis.ntu.edu.sg/GOAL/OnlineApplicationModule/frmOnlineApplication.ASPX>