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

MSc Research Project Title: **Phase Separation-mediated filamentous fungal growth and host invasion**

Principal Investigator/Supervisor: Associate Professor Yansong MIAO

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

Project Description

a) Background:

This interdisciplinary project focuses on studying filamentous fungal growth and fungal invasion. Filamentous fungal growth and hyphae growth-caused host invasion are emerging topics in biology because of the increasing antifungal resistance and life-threatening fungal attack on immune-compromised patients during the COVID-19 global pandemic.

We recently discovered an essential protein complex that drives filamentous fungal growth, which induces filamentous hyphae by undergoing macromolecular assembly, namely Liquid-liquid Phase Separation (LLPS). We are looking for a highly motivated master student to work on this novel and well-designed project, ensuring high-quality training, high-impact outcomes, and scientific publications.

We provide solid scientific training for your future career and aim to nurture the next generation of scientists. The master candidate will use advanced super-resolution living cell imaging, cutting-edge in vitro reconstitution, which integrates biochemistry, bioengineering, biophysics, and synthetic biology systems, to study cell polarity and fungal biology.

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, chemistry, structural biology, and modeling groups will ensure a comprehensive understanding of LLPS-mediated fungal growth and fungal infection.

c) Preferred skills:
Enthusiasm for science; Excellent oral and written communication skills; Good collaboration skills.

Supervisor contact:

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE
School of Biological Sciences
College of Science

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

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