

Research Theme: Interdisciplinary Biology (Cell Biology, Biochemistry, Synthetic Biology, Biophysics)
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 PhD 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 Ph.D. 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:

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>