Mahidol University
Faculty of Medicine
Siriraj Hospital
Postgraduate Education Division

Thursday, March 28, 2024

Application Form for Exchange Students
For Lee Kong Chain School of Medicine, Nanyang Technological University, Singapore (Inbound Students of Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand)

Part 1. Personal Information

Full Name	Na Minyoung
Title	Miss
Age	24
Nationality	South Korean
Passport Number	[redacted]
E-mail	minyoung002@e.ntu.edu.sg
Phone Number	[redacted]

Part 2. Academic Information

Level of Study	Doctoral Degree
Current Major/ Area of Study	Neuroscience
Research/ Dissertation Topic	Investigate the pathways involved in cholesterol trafficking via visualization of cellular cholesterol distribution

Part 3. Preference for Research Visit

Duration (working days)	5 days
The First Preference of Start Date	Monday, June 10, 2024
The First Preference of Department / Area of Interest	Cholesterol biosensor, Fluorophore based biosensor, lipid metabolism

Na Minyoung

[redacted] | Email: mnyn.9221@gmail.com | Korean

EDUCATION

Nanyang Technological University, Singapore **Aug 2023 - Ongoing**
Junior Ph.D. student under the Associate Prof. Yasunori Saheki
Research Topic: Investigate the pathways involved in cholesterol trafficking via visualization of cellular cholesterol distribution.

Nanyang Technological University, Singapore **Jul 2019 – Dec 2022**
CGPA: 4.43/5.00 (Honor with Distinction) - Bachelor of Science, Chemistry and Biological Chemistry
Accelerated Bachelor Program Student

RESEARCH INTEREST

Neuroscience; Neurodegenerative Disease; Cholesterol; Fluorescence based sensor

RESEARCH EXPERIENCE

Research Assistant **Jan 2023 – Jul 2023**
- Plasmid cloning for gene expression and lentiviral transduction
- Live cell imaging via Spinning Disc Confocal Microscopy

Final Year Project (FYP) **Jul 2022 – Dec 2022**
- Cell culturing and analysis of exosome vesicle with ultracentrifuge
- Conducted synthesis of near-infrared organic dye and analyzed the structure via NMR and MS spectra

Undergraduate Research Program (URECA) **Aug 2020 – Jun 2021**
- Studied the alternative splicing mechanism of pre mRNA strand containing G-quadruplex structure that can impact the cell-apoptosis
- Performed cytoplasm and nuclear extraction to perform in vivo pre-mRNA splicing and analyzed the reaction by gel electrophoresis, Western blot, and BCA assay

PUBLICATION

Koh, D.H.Z., Naito, T., **Na M**. et al. (2023) Visualization of accessible cholesterol using a GRAM domain-based biosensor. *Nat Commun* **14**, 6773. https://doi.org/10.1038/s41467-023-42498-7

WORK EXPERIENCE

Private Tutoring **Sep 2019 - Present**
- Design and conduct personal tuition program to secondary high school students with IB Diploma, IGCSE, 'O' Level, and 'A' Level in various subjects: Biology, Chemistry, Mathematics, and Language

Teaching Assistant in Laboratory **Aug 2021 – May 2022**
School of Physical and Mathematical Science, NTU, Singapore
- Assisted the core laboratory modules for Year 1 students in Chemistry and Biological Chemistry in both physical laboratory and organic laboratory
- Responsible for guiding students to operate Atomic Absorption Spectrometer

SKILLS

Written and Spoken Languages: Fluent in English and Korean
Equipment: SDC and NMR and MS
Certificate: Advanced Neurobiology I, II by Peking University in Coursera

Motivation Letter

Na Minyoung

My interest in neuroscience stems from one TED talk I saw in 2014. The talk delivered by Doctor Seung was titled "I am my connectome." The TED talk introduced me to the concept of "connectome," and the complexity of brain circuits has captivated me. My school back then provided an introductory course on the brain. The class introduced me to a whole new world of science. From the basic anatomy of the brain to cognitive psychology, the course allowed me to grow an interest in a relatively unrevealed field of science. Strong passion and curiosity have encouraged me to study harder. I performed outstandingly in secondary and high school, especially in chemistry and biology.

In my second year of undergraduate study at NTU, I took part in the URECA research program under Professor Phan Anh Tuan, where I investigated the alternative splicing of pre-mRNA containing possible G-quadruplex structures. The URECA experience introduced me to the wet lab and taught me the technical skills needed for cell-related biochemical experiments. From my laboratory experience, I found a strong interest in research, where I can investigate a specific field of science based on the knowledge I obtained from the literature. I developed an interest in pharmaceutical chemistry and bioimaging from my senior year courses. I entered Professor Xing Bengang's lab for my final year project to understand more about bioimaging and pharmaceutical chemistry. During my final year project, I acquired knowledge in cancer cell targeting via modified exosomes and the implications of near-infrared fluorescence in bioimaging. This experience taught me the importance of critical and analytical thinking in research. These two research projects strengthened my interest in scientific research and prepared me mentally for the next step: pursuing further studies.

From a single TED talk video, I was always passionate about acquiring more knowledge about the brain in general. From the research, I found different approaches to studying the brain due to its complexity. Combined with my passion for biochemistry, I was drawn toward the micro-dynamics of the brain. The idea of focusing on each type of neuronal cell to understand the cellular mechanisms in both standard and disease conditions was remarkable to me. However, my interest was limited to the synaptic function and how its plasticity affects brain function as people age. When I learned about Assistant Professor Yasunori Saheki's lab, I was fascinated by their approaches to studying how lipid metabolism affects neuronal function. Such studies could potentially provide fundamental knowledge in our understanding of neuronal functions. After reading literature in this field, I joined Prof. Saheki's lab as a PhD student and learned about biomolecular experiments and lipid biosensors. During my PhD training, I plan to research how cells maintain lipid homeostasis at the plasma membrane and the impact of dysregulation on cell inflammation. After the PhD training, I aim to participate in a team and contribute to understanding the link between cellular metabolism and neuronal function.

As a junior PhD student without a clinical background, I would like to utilize the Global Health Awareness Attachment program to better understand healthcare services and systems in different countries. I would like to gain more experience in the preclinical departments such as biochemistry or microbiology to learn more about the lab work closely related to the clinical setting.