

iMeC  
WISE

Innovative Medicine CHIBA Doctoral  
WISE Program

(MEXT Doctoral Program for World-leading Innovative & Smart Education)

# NEWS LETTER



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# Program introduction

## Innovative Medicine CHIBA Doctoral WISE Program

Nurture of World-leading Medical Innovators for

New Medical Discovery

New Drug Innovation

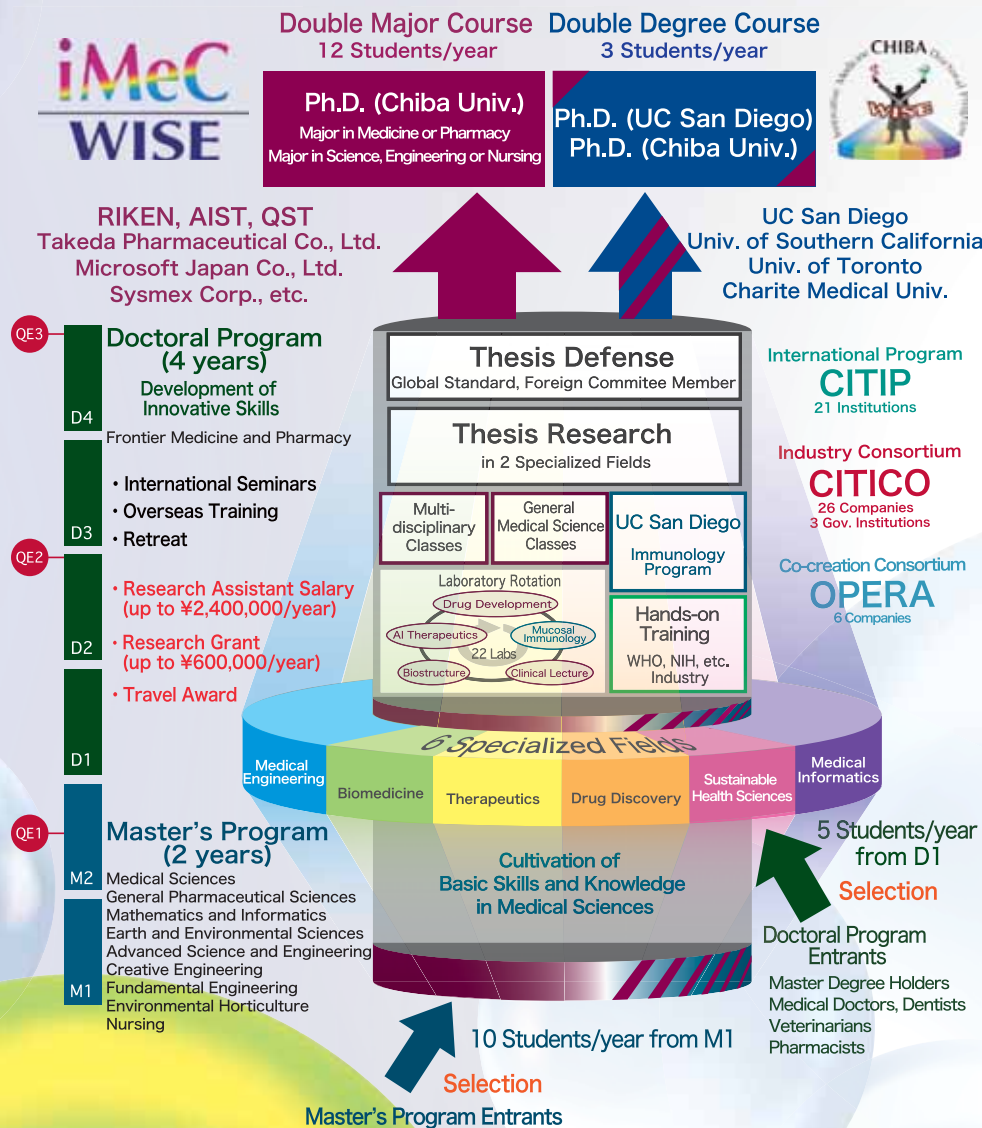
Sustainable Healthcare

Based on the Chiba University's more than 100-year history in the fields of medicine and pharmaceutical sciences, iMeC-WISE aims to foster the next generation of world-class researchers and innovators, who will contribute to the development of medical sciences, pave the way to novel therapies and drugs, and develop sustainable healthcare systems.

The iMeC-WISE program is characterized by innovative comprehensive training with a focus on multidisciplinary close mentoring by internationally renowned faculty from academia and industry. The program's six specialized fields provide excellent platforms for research and training using a wide range of state-of-the-art technologies in Biomedicine, Medical Engineering, Therapeutics, Drug Discovery, Sustainable Health Sciences, and Medical Informatics. Students are required to study in two out of the six specialized fields so that they can acquire highly advanced research abilities as well as a broader perspective in an international environment.

The program has two courses:  
 1. iMeC-WISE Double Major Course in Chiba University  
 2. iMeC-WISE International Double Degree Course, in which students earn PhD degrees from Chiba University and University of California San Diego.

Students are required to cultivate basic skills and knowledge on medical sciences in the Master's Program and then to accomplish at least two projects, equivalent to double majors, in different specialized fields in the Doctoral Program.



## Students-faculty meeting



iMeC-WISE 1st year students and faculty members shared the program's mission, goals and objectives at the main hall of the School of Medicine on September 23, 2020, taking proper measures against COVID-19. The International Double Degree Course and hands-on training in foreign institutions in the pandemic, and students' future career paths were further discussed.

## Advanced General Education

(Doctoral Program Masaki Gomi)



To enrich students' knowledge and skills required to be a top researcher, leading experts in various fields were invited to talk about their research and experiences. We learned essential attitudes to be leaders who can contribute to developing novel techniques and products, and the society.

## Rotation training of iMeC-WISE



The students in the Doctoral Program learned the research and specialized techniques directly from the faculty in affiliated laboratories and external research institutions. The training was such a precious opportunity for us to perform the initial stages of research in many laboratories and various fields. Next year, we will start another research project at one of the laboratories to fulfill the second major requirement.

## Practical English



This class offered by a native English speaker helped students make compelling and memorable presentations in English. As the sentence compositions, accents, and gestures used in English presentations are different from those in Japanese, we could learn many essential skills and tips from this class. In the final session, all the participants gave their presentations and then evaluated each other with many questions and comments. We had such an intense but fruitful experience as if we presented at an international conference.

## MEMBER'S PROFILES

A total of 15 students, eight from Doctoral Program and seven from Master's Program, are participating in the program

### Doctoral Program



**Takamasa Ishino, M.D.**

Gastroenterology (Medicine)

I'm engaged in research to detect a new biomarker for predicting the effectiveness of cancer immunotherapy. I want to obtain both clinical and research minds through the iMeC-WISE program.



**Keishi Etori, M.D.**

Allergy and Clinical Immunology (Medicine)

I am engaged in research to elucidate unexplained parts of the differentiation and induction mechanism of various immune cells in collagen disease patients' tissues by single-cell RNA-sequence. Eventually, I would like to discover a molecular mechanism that resets selectively abnormal immune responses or acquired immunity.



**Masaki Gomi**

DDS Design and Drug Disposition (Pharmaceutical Sciences)

My aim is, using an original lipid-like material, to introduce nucleic acids into the lymph node-resident cells and to create the immuno-suppressive microenvironment in the lymph nodes.



**Moeno Imai**

Biochemistry (Pharmaceutical Sciences)

I'm researching the onset mechanism and treatment for an age-related cognitive impairment using behavior and genetic analysis.

Through this program, I would like to acquire the ability to apply knowledge in various fields to the development of innovative new drugs.



**Ryohei Ono, M.D.**

Cardiovascular Medicine (Medicine)

The direct oral anticoagulants (DOACs) are selective factor Xa inhibitors. Anti-factor Xa activity is the most appropriate assay to measure the pharmacodynamics of DOACs. My ongoing project aims to investigate the effectiveness of DOACs and correlations of coagulation markers by measuring anti-factor Xa activity in patients using factor Xa inhibitors to achieve personalized medicine.

# MEMBER'S PROFILES



**Atsushi Sasaki, M.D.**

Respirology (Medicine)

Interstitial lung pneumonia is an incurable disease. The relation between the human immune systems remains unclear. Th2 cells may be a key factor to reveal the unknown function of the immune system towards interstitial lung pneumonia. My goal is to understand the pathophysiological roles of Th2 cells and find a treatment for this disease.



**Masahiro Nemoto, M.D.**

Immunology (Medicine)

I am engaged in research aimed at understanding the role of pulmonary neuroendocrine cells in allergic airway inflammation. I would like to contribute to the development of lung immunology.



**Takahisa Hishiya, M.D.**

Orthopedic Surgery (Medicine)

I research the involvement of inducible bronchus-associated lymphoid tissue (iBALT) in the pathogenesis of allergic airway inflammation, focusing on genetic analysis including scRNA-seq. I would like to be a researcher who is familiar not only with molecular biology but also with data.



## Master's Program



**Yuta Kaizuka**

Molecular Imaging and Radiotherapy (Pharmaceutical Sciences)

I am very honored to be a member of the iMeC-WISE program. In the first year, I discussed with the other members from various backgrounds, which has brought me new insights. Through these discussions, I wish I can find effective molecular targets and develop innovative agents for targeted a therapy of cancers.



**Haruka Kobayashi**

Biology (Science)

I'm interested in the epigenetic regulation of biological phenomena and diseases caused by those abnormalities. Now I'm specializing in life sciences as a member of the Faculty of Science, trying to reveal a possible role of histone H3K36 methyltransferase NSD2 in DNA double-strand break repair.



**Daichi Komiyama**

Microbiology and Immunology (Pharmaceutical Sciences)

I analyze gene expression of high endothelial venules (HEVs) to identify signature genes that define the phenotype of HEVs. I would like to give back the results of my research to medical treatment and society.



**Shodai Suzuki**

Biochemistry (Pharmaceutical sciences)

I struggle to clarify the mechanism in the accumulation of mutant NOTCH3 protein, which is believed to have a key role in CADASIL pathogenesis. Using cell culture, I've investigated how the glycosylation of NOTCH3 affected the accumulation of mutant NOTCH3. I will acquire a wide field of view in order to contribute to Japanese medicine in the future.



**Kaori Tsuji**

Immunology (Medicine)

It is reported that regulation of ROS production in CD4 T cells, which have central roles in adaptive immunity, is necessary for effector T cell differentiation. I previously found naïve CD4 T cell populations have heterogeneous ROS production. Thus, I investigate whether the ROS productivity is associated with the functions and differentiation of CD4 T cells.



**Kazuma Nakatani**

Molecular biology and Oncology (Medicine)

*MYCN* oncogene and its cis-antisense gene, *NCYM*, are co-amplified in *MYCN*-amplified neuroblastoma. These gene products promote the aggressiveness of neuroblastoma. I aim to develop a new therapeutic strategy that simultaneously suppresses transcription of *MYCN* and *NCYM* using the CRISPR/dCas9 system.



**Norie Hamaguchi**

Biostructural Chemistry (Science)

I am engaged in research to understand diseases and optimize ligands by elucidating the mechanisms of membrane proteins at the molecular scale through structural analysis using cryo-electron microscopy. By studying medical and pharmaceutical sciences, I would like to acquire the ability to develop basic research into applied research.

