

The Ph.D. Program in Human Biology is a 5-year transdisciplinary degree program established in 2011 as one of the Leading Graduate School Doctoral Programs funded by MEXT, Japan. For nurturing the future global leaders, who will be able to create a rich and sustainable human society, this program takes unique and innovative educational and research approaches.

## Research Lab Rotation

June - July 2012 for students enrolled in April 2012

October - November 2012 for students enrolled in September 2012

HBP students engaged in a research lab rotation as part of "Basic Experiments in Human Biology" for a month and a half from 1 October 2012.

### HBP Required Course :

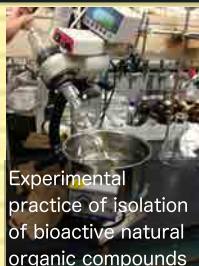
Basic Experiments in Human Biology

Course Outline: The students learn the outline of each research and basic experimental methods/research concepts and perform elementary experiments/simulation at research laboratories headed by program professors.

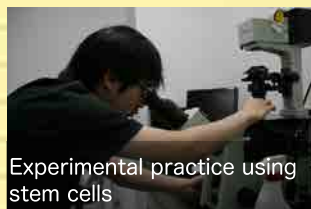
Faculty member in charge: Kyosuke Nagata (Professor, HBP)



Experimental practice using cultured cells



Experimental practice of isolation of bioactive natural organic compounds



Experimental practice using stem cells

### WHY IS WORKING OUTSIDE YOUR OWN LABORATORY SO IMPORTANT?

#### - UNIVERSITY IS A TREASURE CHEST-

You can often find a fascinating research world even in the laboratories you work every day. We know that moving forward as soon as possible is a habit of us, all human beings. However, in our program, we encourage our students to make a side trip and get exposed to the world they never knew by offering the course, 'Basic Experiments in Human Biology'. In this course, the first-year students work in the four different laboratories for one week each.



Professor Mitsuyasu Kato  
Chief of HBP Academic Affairs

While someone who is fully occupied by bacteriology may find a new aspect of biology from mathematical approach, another one living in the computer-oriented world might be dissecting mice at laboratory. Such startling experiences can open a door to the new world. Knowing something different can be an incentive to establish individual. The university is a treasure chest. You may find a key to self-actualization in the world you have never been interested in.

## Students' Comment on Lab Rotation

I observed cellular responses to growth factor stimuli through a fluorescence microscope and entire biological responses of genetically modified nematodes to temperature stress. From this experience, I became more interested in the issues concerning the relations between life and environment. I believe that I can apply the new aspects and approaches I learnt to my own research. (L. Sha)

I was able to spend a valuable time while engaging in the laboratories of a variety of fields. I was able to gain knowledge and techniques outside of my field and get to know faculty members who worked together in the laboratories. (Y. Miura)

I was able to deepen my interest and insight through the experimental studies in which I engaged using other model organism than mice that I normally use in my laboratory, such as yeast and nematodes. Those experiments in different fields enabled me to penetrate insight to my research from different angles. (T. Kikuchi)



Dividing spores of yeast under a microscope using a micromanipulator (tetrad analysis)

I have expanded my academic perspective through learning immunology, yeast research, bioinformatics, and embryology from the basic to the experimental level from the faculty members in a short period of time. I found it exciting that all the techniques being used conventionally in other research fields can be applied to my research. (M. Hashimoto)

Laboratories used for Lab Rotation :

Name	Research/Major
Kyosuke NAGATA	Doctor of Pharmacology: Virology, Molecular Biology
Yasunori KANAHO	Doctor of Pharmacology: Physiological Chemistry, Cell Biology
Mitsuyasu KATO	Doctor of Medicine: Pathology
Satoru TAKAHASHI	Doctor of Medicine: Developmental Engineering/Molecular Biology
Kenji IRIE	Doctor of Science: Molecular Cell Biology
Osamu OHNEDA	Doctor of Medicine: Regenerative Medicine/Stem Cell Biology
Akira SHIBUYA	Doctor of Medicine: Immunology
Tadashi BABA	Doctor of Agriculture: Molecular and Cellular Biology
Akiyoshi FUKAMIZU	Doctor of Agriculture: Biochemistry/Molecular Biology
Jun YANAGISAWA	Doctor of Pharmacy: Molecular Biology
Tomoki CHIBA	Doctor of Medicine: Molecular Cell Biology
Tetsuya SAKURAI	Doctor of Engineering: Numerical Analysis
Shoji MAKINO	Doctor of Engineering: Media & Information Science
Kazuhiro KAWAMURA	Doctor of Science: Topology/Combinatorics
Masaki KITA	Doctor of Science: Bioorganic Chemistry/Natural Products Chemistry



Experimental practice of yeast genetics

During my lab rotation, I extracted proteins from cancer cells, took the skin off laboratory mice, and solved eigenvalue problems. Those experiments were quite shocking to me who merely handle bacteria. This invaluable experience broadened my perspectives of my research. (A. Takemura)

<http://hbp.tsukuba.ac.jp/#/research/en/>