หลักสูตรปรัชญาดุษฎีบัณฑิต
สาขาวิชาเวชศาสตร์ปริวรรต
(หลักสูตรนานาชาติ)

DOCTOR OF PHILOSOPHY PROGRAM
IN
TRANSLATIONAL MEDICINE
(INTERNATIONAL PROGRAM)

คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี
และ
บัณฑิตวิทยาลัย
มหาวิทยาลัยมหิดล

หลักสูตรปรับปรุง ปีการศึกษา ๒๕๖๓

CONTENT

Appendix

Doctor of Philosophy Program in Translational Medicine
(International Program)
Revised Program Academic Year 2020

Name of Institution Mahidol University

Campus/Faculty/Department Faculty of Medicine Ramathibodi Hospital

Section 1 General Information

1. Curriculum Name

Thai หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาเวชศาสตร์ปริวรรต (หลักสูตรนานาชาติ)

English Doctoral of Philosophy Program in Translational Medicine (International Program)

2. Name of Degree and Major

Full Title Thai: ปรัชญาดุษฎีบัณฑิต (เวชศาสตร์ปริวรรต)

Abbreviation Thai: ปร.ด. (เวชศาสตร์ปริวรรต)

Full Title English: Doctor of Philosophy (Translational Medicine)

Abbreviation English: Ph.D. (Translational Medicine)

3. Major Subjects None

4. Required Credits:

4.1 Plan 1

Plan 1.1 Graduates with a master's degree or equivalent enroll to doctoral degree not less than 48 total credits are required

Plan 1.2 Graduates with a bachelor degree enroll to doctoral degree require at least 72 credits

4.2 Plan 2

Plan 2.1 Graduates with a master's degree in Translational Medicine or equivalent enroll to doctoral degree not less than 48 total credits are required

Plan 2.1 Graduates with a master's degree or equivalent enroll to doctoral degree not less than 48 total credits are required

Plan 2.2 Graduates with a bachelor degree enroll to doctoral degree require at least 72 credits

5. Curriculum Characteristics

5.1 Curriculum type/model: curriculum level Doctor of Philosophy

5.2 Language: English

5.3 Recruitment: Both Thai and international student

5.4 Collaboration with Other Universities: This program is Mahidol University's program.

5.5 Graduate Degrees Offered to the Graduates: One degree with one major

6. Curriculum Status and Curriculum Approval

6.1 Revised program in 2020

6.2 Starting in semester 1, academic year 2020 onwards

6.3 Curriculum committee approved the program in its meeting 13/2562 on November 25, 2019.

6.4 The Mahidol University Council approved the program in its meeting 555 on April 15, 2020.

7. Readiness to Implement/Promote the Curriculum

The curriculum from the program is readily implemented or promoted its quality and standard according to criteria set by Thai Qualification Framework for Higher Education in academic year 2022 (3 years after implementation).

8. Opportunities of the Graduates

8.1 Scientists, researchers in biomedical sciences

8.2 Consultants in government or private educational institutions as experts or consultants in translational medicine

8.3 Owners or personnel of companies that need expertise in translational medicine

8.4 Managing directors for research projects conducted by Pharmaceutical and Biotechnological companies

9. Name, ID Number, Title and Degree of the Faculty in Charge of the Program

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
1.	x-xxxx-xxxxx-xx-x Professor Dr.Chatchai Muanprasat	Ph.D. (Physiology) Mahidol University : 2007 M.D., Mahidol University : 2009 M.S. (Medical Science) Mahidol University : 2003	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital
2.	x-xxxx-xxxxx-xx-x Assistant Professor Dr.Natini Jinawath	ABMGG (Clinical Cytogenetics) Johns Hopkins Medical Institution, USA : 2011 Ph.D. (Molecular Pathology) The University of Tokyo, Japan : 2006 M.D. Mahidol University : 1999	Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital
3.	x-xxxx-xxxxx-xx-x Lecturer Dr.Nuankanya Sathirapongsasuti	Ph.D. (Medical Genome Sciences) The University of Tokyo, Japan : 2010 M.D., Mahidol University : 2005	Section for Translational Medicine Faculty of Medicine Ramathibodi Hospital
4.	x-xxxx-xxxxx-xx-x Lecturer Dr.Rossukon Kaewkhaw	Postdoctoral fellow, National Eye Institute/National Institute of Health, USA : 2015 Ph.D. (Stem cells and Tissue Engineering) University of Sheffield, UK : 2011 M.Sc. (Molecular Genetics and Genetic Engineering) Mahidol University : 2007 B.Sc. (Biotechnology) Maejo University : 2005	Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital

10. Venue for Instruction

Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

11. External Factors to Be Considered in Curriculum Planning

11.1 Economic Situation/Development

The proportions of biomedical research investments and health care expenses tend to increase worldwide, which leads to a population having a longer life expectancy. Most of the knowledge and new laboratory discoveries to treat and prevent many diseases are not able to be applied in clinical settings. To utilize healthcare investments to fully benefit the patients and wider public, the gaps between biomedical scientists, biomedical engineers, physician-scientists, and clinicians need to be addressed in order to successfully convert the joint development of knowledge and methods of treatment to the real implementation in the hospital and in the community.

At present, investment in biomedical research continues to rise steadily, as well as the demand of society as a whole to narrow the gaps between basic research and clinical research leading to implementation in practice. Hence, these are the main reasons for the development of the translational medicine field to ensure the practical transition of basic science knowledge to real clinical usage.

11.2 Social and Cultural Situation/Development

In developed countries, such as the USA and UK, the degrees in Translational Medicine Research / Translational Medicine have been developed since 2004. There are a number of international medical journals supporting these research programs, for example, Journal of Translational Medicine, Science Translational Medicine, American Journal of Translational Research and Journal of Experimental Stroke & Translational Medicine. In addition, there are a number of high-impact clinical journals, such as Journal of Clinical Oncology, that also featured these research publications.

In line with the current international trends, research projects that can potentially be utilized in reality are of increasing importance. Thailand shows no difference from developed countries in this aspect as biomedical research in Thailand has always followed the same trend as in Western countries. Therefore, it is necessary that universities, funding sources, and biomedical researchers should focus on narrowing down the gaps between basic science and clinical research in order to improve the quality of life of Thai populations.

In highly competitive job market, university graduates with knowledge of sustainability and the ability to apply their expertise across diverse science fields will be especially sought after; their problem-solving ability using an interdisciplinary approach rather than a single or narrow perspective may give them a district advantage over other job applicants.

12. The Effects Mentioned in No.11.1 and 11.2 on Curriculum Development and Relevance to the Missions of the University/Institution

12.1 Curriculum Development

According to items 11.1 and 11.2, Faculty of Medicine Ramathibodi Hospital, Mahidol University developed the curriculum of Ph.D. in Translational Medicine by emphasizing basic biomedical knowledge and significant clinical questions so that students are able to apply the integrating knowledge to develop their translational research project effectively.

12.2 Relevance to the Missions of the University/Institution

Mahidol University is one of the leading Universities in Thailand, of which biomedical science is one of its strengths. The mission of Mahidol University is to be at the forefront of Asia's academic excellence. Therefore, it is necessary to be a leader in the development of translational biomedical research and transfer the knowledge from bench to bedside usage and eventually to the general Thai community. The curriculum supports the mission of the university on the part of academic competency and technological innovation and aims to enhance students to apply their integrated knowledge of basic biomedical science and clinical sciences to effectively conduct their translational research projects.

13. Collaboration with Other Curricula of the University (if any)

13.1 Course(s) offered by other faculties/departments/ programs: 7 courses as follows:

Code	Course Name	Credit
SCID 500	Cell and Molecular Biology	3(3-0-6)
SCID 503	System Bioscience	3(3-0-6)
SCID 506	Concepts of Molecular Bioscience	2(2-0-4)
SCID 511	Gene Technology	1(0-2-1)
SCID 513	Animal Cell Culture Techniques	3(3-0-6)
SCPM 508	Special Topics in Pharmacology	2(2-0-4)
SCPS 612	Current Topics in Physiology	3(3-0-6)

13.2Course(s) offered to other programs: None

13.3 Coordination:

1) Appointing major advisors who are responsible for inviting professors for each course, scheduling classes, and evaluation.

2) Evaluating teaching and grading.

Section 2 Information of the Curriculum

1. Philosophy, Justification, and Objectives of the Curriculum

1.1 Philosophy and Justification of the Curriculum

Doctor of Philosophy in Translational Medicine is a multi-disciplinary program, which integrates the knowledge of basic science, clinical science, and biomedical engineering in order to produce physician-scientists, clinical scientists, medical scientists and/or biomedical engineers who have strong multidisciplinary academic knowledge and have capability to develop research applicable to medicine using approaches involving bench to bedside to community.

1.2 Objectives of the Program

At the completion of the program, the graduates will have the following knowledge, skills and attitudes according to Thai Qualifications Framework for Higher Education:

1.2.1 Prossess moral standards and professional ethics

1.2.2 Plan the project to develop medical innovations by using appropriate research methodologies

1.2.3 Lead research projects using translational research approaches with the realization of the importance of clinical applications

1.2.4 Show leadership and work collaboratively with colleagues

1.2.5 Use information technology in self- study study, presentation and dissemination of knowledge of medical science effectively and communicate research findings in an effective manner

1.3 Program Learning Outcomes (PLOs)

The PLOs have been clearly formulated and aligned according to the visions and missions of the Faculty of Medicine and Mahidol University.

As for the University's and Faculty's visions and missions of being the world-class university, excellence in health sciences, and a leader in national health advocacy, the graduates should possess the following characteristics:

1.3.1 Integrate and apply knowledge from basic research, patient-oriented research, population-based research, and industry to bridge the gap between basic research findings and clinical applications

1.3.2 Conduct research projects using translational research approaches with the realization of the importance of research ethics and clinical applications

1.3.3 Evaluate academic literature and transfer knowledge and research findings to both public and scientific community

2. Plan for Development and Improvement

Plan for Development/Revision	Strategies	Indexes
The curriculum is to be revised every five years based on the policy of Thai Commission of Higher Education	Based on the policy of Mahidol University, Faculty of Medicine Ramathibodi Hospital, and Ministry of Higher Education, Science, Research and Innovation, and feedback from employers, alumni, current students, prospective students and faculty and supporting staffs. Follow and evaluation the proceeding of the program every 5 years on a part of	1.Satisfactory report from employers 2. Satisfactory report from alumni and current students 3. Duration of study in the program until graduation 4. Publications/patents/ research outputs produced by students

Plan for Development/Revision	Strategies	Indexes
	1. The satisfaction of employers and entrepreneurs who hire graduates from the program. 2. Feedback from employers, alumni, current students, prospective students and faculty staffs. 3. Numbers of students	

Section 3 Educational Management System, Curriculum Implementation, and Structure

1. Educational Management System

1.1 System: Two semesters with credit system. 1 Academic Year consists of 2 Regular Semesters, each with not less than 15 weeks of study.

1.2 Summer Session: None

1.3 Credit Equivalence to Semester System: None

2. Curriculum Implementation

2.1 Teaching Schedule Weekdays from Monday to Friday (08:30 A.M. – 4:30 P.M.)

- Semester 1 August - December
- Semester 2 January – May

2.2 Qualifications of Prospective Students

2.2.1 Plan 1

Plan 1.1 Graduates with a master's degree

1. Graduated with a Master's degree in Biology or Health Science or with other majors from the institutes acknowledged by the Office of Higher Education Commission (OHEC).

2. Grade point average at least 3.50.

3. English test score according to the requirement for English proficiency established by the Faculty of Graduate Studies Mahidol University.

4. Have work experience as a university lecturer, medical doctor, dentist, veterinarian, pharmacist, researcher or who have experience in research area at least 2 years.

5. Have at least 3 research publications as a first author or corresponding author in internal peer reviewed journal or journals in ISI or Scopus or Medline database.

6. If an applicant does not meet the above criteria, but has other suitable qualifications and experience, may be considered to apply for admission by the Program Director and the Dean of the Faculty of Graduate Studies.

Plan 1.2 Graduates with a bachelor degree

1. Graduated Doctor of Medicine, Doctor of Dental Surgery, Doctor of Veterinary Medicine and Bachelor of Pharmacy from the institutes acknowledged by the Office of Higher Education Commission (OHEC) with certificate of medical specialty specialization (Certificate of sub-specialty in the medical profession) from educational institutions either in Thailand or abroad, which are certified by the Thai Medical Council or Dental Council or Veterinary Medicine or Pharmacy Council.

2. Grade point average at least 3.50.

3. English test score according to the requirement for English proficiency established by the Faculty of Graduate Studies Mahidol University.

4. Have work experience as a university lecturer, medical doctor, dentist, veterinarian, pharmacist, researcher or who have experience in research area at least 2 years.

5. Have at least 3 research publications as a first author or corresponding author in internal peer reviewed journal or journals in ISI or Scopus or Medline database.

6. If an applicant does not meet the above criteria, but has other suitable qualifications and experience, may be considered to apply for admission by the Program Director and the Dean of the Faculty of Graduate Studies.

2.2.2 Plan 2

Plan 2.1 Graduates with a master's degree in Translational Medicine

1. Graduated with a Master's degree in Translational Medicine by the Office of Higher Education Commission (OHEC).

2. Grade point average at least 3.50.

3. English test score according to the requirement for English proficiency established by the Faculty of Graduate Studies Mahidol University.

4. If an applicant does not meet the above criteria, but has other suitable qualifications and experience, may be considered to apply for admission by the Program Director and the Dean of the Faculty of Graduate Studies.

Plan 2.1 Graduates with a master's degree

1. Graduated with a Master's degree in Biology or Health Science or with other majors from the institutes acknowledged by the Office of Higher Education Commission (OHEC).

2. Grade point average at leas 3.50.

3. English test score according to the requirement for English proficiency established by the Faculty of Graduate Studies Mahidol University.

4. If an applicant does not meet the above criteria, but has other suitable qualifications and experience, may be considered to apply for admission by the Program Director and the Dean of the Faculty of Graduate Studies.

Plan 2.2 Graduates with a bachelor degree

1. Graduated a Bachelor degree or enrolling in the last semester of Bachelor degree in Biology or Health Sciences, Pharmacy, Doctor of Veterinary Medicine, or other related fields acknowledged by the Office of Higher Education Commission (OHEC). Grade point average at least 3.25.

2. Graduated Doctor of Medicine and Doctor of Dental Surgery from the Higher Education Commission-certified educational institutions, or study in the Mahidol

University's Ph.D. - M.D. medical scholar program (MSP) with a grade point average of at least 3.50.

3. English test score according to the requirement for English proficiency established by the Faculty of Graduate Studies Mahidol University.

4. If an applicant does not meet the above criteria, but has other suitable qualifications and experience, may be considered to apply for admission by the Program Director and the Dean of the Faculty of Graduate Studies.

2.3 Problems of New Students Encounter

Since Doctor of Philosophy Program in Translational Medicine is a multi-disciplinary program with diverse student background, new students may encounter with an unequal basic knowledge as well as English communication ability.

2.4 Strategies for Problem Solving/Limited Requirement in No. 2.3

Problems of New Students	Strategies for Problem Solving
1. Unequal basic knowledge of students. 2. English communication ability is highly required.	1. Students are required to take the prerequisite courses for Translational Medicine, which cover basic knowledge of molecular biology, human physiology, human diseases, clinical epidemiology and biostatistics. 2. Student who has problem with English communication may register for additional English course conducted by the Faculty of Graduate Studies.

2.5 Five-Year-Plan for Recruitment and Graduation of Students

Plan 1 1.1 Graduates with a master's degree a bachelor degree

Academic Year	2020	2021	2022	2023	2024
1st	1	1	1	1	1
2nd	-	1	1	1	1
3rd	-	-	1	1	1
Cumulative numbers	1	2	3	3	3
Expected number of students graduated	-	-	1	1	1

1.2 Graduates with a bachelor degree

Academic Year	2020	2021	2022	2023	2024
1st	1	1	1	1	1
2nd	-	1	1	1	1
3rd	-	-	1	1	1
Cumulative numbers	1	2	3	3	3
Expected number of students graduated	-	-	1	1	1

Plan 2 2.1 Graduates with a master's degree in Translational Medicine

Academic Year	2020	2021	2022	2023	2024
1st	1	1	1	1	1
2nd	-	1	1	1	1
3rd	-	-	1	1	1
Cumulative numbers	1	2	3	3	3
Expected number of students graduated	-	-	1	1	1

2.1 Graduates with a master's degree

Academic Year	2020	2021	2022	2023	2024
1st	1	1	1	1	1
2nd	-	1	1	1	1
3rd	-	-	1	1	1
Cumulative numbers	1	2	3	3	3
Expected number of students graduated	-	-	1	1	1

2.2 Graduates with a bachelor degree

Academic Year	2020	2021	2022	2023	2024
1st	1	1	1	1	1
2nd	-	1	1	1	1
3rd	-	-	1	1	1
4th	-	-	-	1	1
Cumulative numbers	1	2	3	4	4
Expected number of students graduated	-	-	-	1	1

2.6 Budget based on the plan

Budget: The budget is from Doctor of Philosophy Program in Translational Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University.

Plan 1

1.1 Graduates with a master's degree

Estimated income per student

Registration fee			
Dissertation	xx	x,xxx	xx,xxx
Qualifying Examination			x,xxx
Dissertation Research fee			xxx,xxx
Total income per student			**xxx,xxx**

Estimated expenses			
Variable expenses per student			
College/university allocation			-
Position allowance of thesis advisor and committee			xx,xxx
Total variable expenses per student			**xx,xxx**
Fixed expenses			
Program director payment			xxx,xxx
Program secretary payment			xx,xxx
Staff salary			xx,xxx
Utility fee			xx,xxx
Material fee			xx,xxx
Equipment fee			xxx,xxx
Total Fixed expenses			**xxx,xxx**
Number of students at break-even point		2 person	
Cost of students at break-even point		972,000 Baht	
Expenses per student per academic year		324,000 Baht	

1.2 Graduates with a bachelor degree

Estimated income per student			
Registration fee			
Dissertation	xx	x,xxx	xxx,xxx
Qualifying Examination			x,xxx
Dissertation Research fee			xxx,xxx
Total income per student			**xxx,xxx**
Estimated expenses			
Variable expenses per student			
College/university allocation			-
Position allowance of thesis advisor and committee			xxx,xxx
Total variable expenses per student			**xxx,xxx**
Fixed expenses			
Program director payment			xxx,xxx
Program secretary payment			xx,xxx
Staff salary			xx,xxx
Utility fee			xx,xxx
Material fee			xx,xxx

Equipment fee			xxx,xxx
Total Fixed expenses			**xxx,xxx**
Number of students at break-even point	2 person		
Cost of students at break-even point	1,080,000 Baht		
Expenses per student per academic year	360,000 Baht		

Plan 2

2.1 Graduates with a master's degree in Translational Medicine

Estimated income per student			
Registration fee			
Tuition	xx	x,xxx	108,000
Dissertation	xx	x,xxx	xx,xxx
Qualifying Examination			x,xxx
Dissertation Research fee			xxx,xxx
Total income per student			**xxx,xxx**
Estimated expenses			
Variable expenses per student			
College/university allocation			xx,xxx
Position allowance of thesis advisor and committee			xx,xxx
Total variable expenses per student			**xx,xxx**
Fixed expenses			
Program director payment			xxx,xxx
Program secretary payment			xx,xxx
Staff salary			xx,xxx
Teaching payment			xxx,xxx
Utility fee			xx,xxx
Material fee			xx,xxx
Equipment fee			xxx,xxx
Total Fixed expenses			**xxx,xxx**
Number of students at break-even point	2 person		
Cost of students at break-even point	1,162,800 Baht		
Expenses per student per academic year	387,600 Baht		

2.1 Graduates with a master's degree

Estimated income per student			
Registration fee			
Tuition	xx	x,xxx	xxx,xxx
Dissertation	xx	x,xxx	xx,xxx
Qualifying Examination			x,xxx
Dissertation Research fee			xxx,xxx
Total income per student			**xxx,xxx**
Estimated expenses			
Variable expenses per student			
College/university allocation			xx,xxx
Position allowance of Dissertation advisor and committee			xx,xxx
Total variable expenses per student			**xx,xxx**
Fixed expenses			
Program director payment			xxx,xxx
Program secretary payment			xx,xxx
Staff salary			xx,xxx
Teaching payment			xxx,xxx
Utility fee			xx,xxx
Material fee			xx,xxx
Equipment fee			xxx,xxx
Total Fixed expenses			**xxx,xxx**
Number of students at break-even point		2 person	
Cost of students at break-even point		1,162,800 Baht	
Expenses per student per academic year		387,600 Baht	

2.2 Graduates with a bachelor degree

Estimated income per student			
Registration fee			
Tuition		x,xxx	xxx,xxx
Dissertation		x,xxx	xx,xxx
Qualifying Examination			x,xxx
Dissertation Research fee			xxx,xxx
Total income per student			**xxx,xxx**

Estimated expenses	
Variable expenses per student	
College/university allocation	xx,xxx
Position allowance of Dissertation advisor and committee	xx,xxx
Total variable expenses per student	**xxx,xxx**
Fixed expenses	
Program director payment	xxx,xxx
Program secretary payment	xx,xxx
Staff salary	xx,xxx
Teaching payment	xxx,xxx
Utility fee	xx,xxx
Material fee	xx,xxx
Equipment fee	xxx,xxx
Total Fixed expenses	**x,xxx,xxx**
Number of students at break-even point	2 person
Cost of students at break-even point	1,401,600 Baht
Expenses per student per academic year	467,200 Baht

2.7 Educational System: classroom mode

2.8 Transfer of Credits, Courses and Cross University Registration

Credits transferring must be in compliance with Mahidol University's regulations on Graduate Studies. For more information, please visit website: www.grad.mahidol.ac.th.

3. Curriculum and Instructors

3.1 Curriculum

3.1.1 Number of credits (not less than)

Plan 1

1.1 Graduates with a master's degree or equivalent enroll to doctoral degree not less than 48 total credits are required

1.2 Graduates with a bachelor degree enroll to doctoral degree require at least 72 credits

Plan 2

2.1 Graduates with a master's degree in Translational Medicine Program enroll to doctoral degree not less than 48 total credits are required

2.1 Graduates with a master's degree or equivalent enroll to doctoral degree not less than 48 total credits are required

2.2 Graduates with a bachelor degree enroll to doctoral degree require at least 72 credits

3.1.2 Curriculum Structure

The curriculum structure is set in compliance with Announcement of Ministry of Education on the subject of Criteria and Standards of Graduate Studies 2015, Doctor of Philosophy Program, Plan 1 and Plan 2 as below:

Plan 1	**1.1 For graduates with a master's degree**	**1.2 For graduates with a bachelor degree**
Dissertation	48 credits	72 credits
Total not less than	**48 credits**	**72 credits**

Plan 2	**2.1 For graduates with a master's degree in Translational Medicine**	**2.1 For graduates with a master's degree**	**2.2 For graduates with a bachelor degree**
Pre-requisite Courses	-	audit	-
Required course	8 credits	8 credits	20 credits
Elective course not less than	4 credits	4 credits	4 credits
Dissertation	36 credits	36 credits	48 credits
Total not less than	**48 credits**	**48 credits**	**72 credits**

3.1.3 Courses in the curriculum

Plan 1

1.1 For graduates with a master's degree 48 credits

Credits (lecture – practice – self-study)

RATM 898 Dissertation 48(0-192-0)

รมวป ๘๙๘ วิทยานิพนธ์

1.2 For graduates with a bachelor degree 72 credits

RATM 899 Dissertation 72(0-288-0)

รมวป ๘๙๙ วิทยานิพนธ์

Note: Students are required to take the prerequisite courses for Translational Medicine, which cover basic knowledge of molecular biology, human physiology, human diseases, clinical epidemiology and biostatistics.

Plan 2

2.1 Graduates with a master's degree in Translational Medicine

1) Required course 8 credits

RATM 604 Analysis of Clinical Problems 2(2-0-4)

รมวป ๖๐๔ การวิเคราะห์ปัญหาทางคลินิก

RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3)

รมวป ๖๐๕ ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง

RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2)

รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางชีวการแพทย์และเวชศาสตร์ปริวรรต

RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2)

รมวป ๖๐๗ สัมมนาทางชีวการแพทย์และเวชศาสตร์ปริวรรต

RATM 610 Communication in Translational Medicine Research 1(1-0-2)

รมวป ๖๑๐ การสื่อสารทางการวิจัยเวชศาสตร์ปริวรรต

RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2)

รมวป ๖๑๑ การฝึกสอนและการให้คำแนะนำทางการวิจัยเวชศาสตร์ปริวรรต

2) Elective course not less than 4 credits

Credits (lecture – practice – self-study)

* RATM 621 Principle of Clinical Pharmacology	2(2-0-4)
รมวป ๖๒๑ หลักการทางเภสัชวิทยาคลินิก	
* RATM 622 Applied Pharmacology	2(2-0-4)
รมวป ๖๒๒ เภสัชวิทยาประยุกต์	
* RATM 623 Drug Discovery and Development	2(2-0-4)
รมวป ๖๒๓ การคิดค้นและพัฒนายา	
* RATM 624 Translational Physiology	2(2-0-4)
รมวป ๖๒๔ สรีรวิทยาเชิงปริวรรต	
SCID 503 Systemic Bioscience	3(3-0-6)
วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ	
SCID 506 Concepts of Molecular Bioscience	2(2-0-4)
วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล	
SCID 511 Gene Technology	1(0-2-1)
วทคร ๕๑๑ เทคโนโลยีด้านยีน	
SCID 513 Animal Cell Culture Techniques	1(0-2-1)
วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์	
SCPM 508 Special Topics in Pharmacology	2(2-0-4)
วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา	
SCPS 612 Current Topics in Cell Physiology	3(3-0-6)
วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา	

* new subject

Students can enroll for other elective courses conducted by Mahidol University or other universities, however with the approval of program committee or advisors.

3) Dissertation 36 credits

RATM 699 Dissertation	36(0-144-0)
รมวป ๖๙๙ วิทยานิพนธ์	

2.1 Graduates with a master's degree

1) Pre-required course audit

Credits (lecture – practice – self-study)

SCID 500 Cell and Molecular Biology 3(3-0-6)
วทคร ๕๐๐ ชีววิทยาระดับเซลล์และโมเลกุล
RATM 511 Molecular Basis of Human Diseases 3(3-0-6)
รมวป ๕๑๑ พื้นฐานระดับโมเลกุลของโรคที่เกิดกับมนุษย์
RATM 512 Technology in Translational Medicine 3(3-0-6)
รมวป ๕๑๒ เทคโนโลยีทางเวชศาสตร์ปริวรรต
RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6)
รมวป ๕๑๓ ระบาดวิทยาคลินิกและชีวสถิติทางเวชศาสตร์ปริวรรต

2) Required course 8 credits

RATM 604 Analysis of Clinical Problems 2(2-0-4)
รมวป ๖๐๔ การวิเคราะห์ปัญหาทางคลินิก
RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3)
รมวป ๖๐๕ ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง
RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2)
รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางชีวการแพทย์และเวชศาสตร์ปริวรรต
RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2)
รมวป ๖๐๗ สัมมนาทางชีวการแพทย์และเวชศาสตร์ปริวรรต
RATM 610 Communication in Translational Medicine Research 1(1-0-2)
รมวป ๖๑๐ การสื่อสารทางการวิจัยเวชศาสตร์ปริวรรต
RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2)
รมวป ๖๑๑ การฝึกสอนและการให้คำแนะนำทางการวิจัยเวชศาสตร์ปริวรรต

3) Elective course not less than 4 credits

* RATM 621 Principle of Clinical Pharmacology 2(2-0-4)
รมวป ๖๒๑ หลักการทางเภสัชวิทยาคลินิก
* RATM 622 Applied Pharmacology 2(2-0-4)
รมวป ๖๒๒ เภสัชวิทยาประยุกต์
* RATM 623 Drug Discovery and Development 2(2-0-4)
รมวป ๖๒๓ การคิดค้นและพัฒนายา

* new subject

Credits (lecture – practice – self-study)

* RATM 624 Translational Physiology 2(2-0-4)
รมวป ๖๒๔ สรีรวิทยาเชิงปริวรรต
SCID 503 Systemic Bioscience 3(3-0-6)
วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ
SCID 506 Concepts of Molecular Bioscience 2(2-0-4)
วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล
SCID 511 Gene Technology 1(0-2-1)
วทคร ๕๑๑ เทคโนโลยีด้านยีน
SCID 513 Animal Cell Culture Techniques 1(0-2-1)
วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์
SCPM 508 Special Topics in Pharmacology 2(2-0-4)
วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา
SCPS 612 Current Topics in Cell Physiology 3(3-0-6)
วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา

Students can enroll for other elective courses conducted by Mahidol University or other universities, however with the approval of program committee or advisors.

4) Dissertation 36 credits

RATM 699 Dissertation 36(0-144-0)
รมวป ๖๙๙ วิทยานิพนธ์

2.2 Graduates with a bachelor degree

1) Required course 20 credits

SCID 500 Cell and Molecular Biology 3(3-0-6)
วทคร ๕๐๐ ชีววิทยาระดับเซลล์และโมเลกุล
RATM 511 Molecular Basis of Human Diseases 3(3-0-6)
รมวป ๕๑๑ พื้นฐานระดับโมเลกุลของโรคที่เกิดกับมนุษย์
RATM 512 Technology in Translational Medicine 3(3-0-6)
รมวป ๕๑๒ เทคโนโลยีทางเวชศาสตร์ปริวรรต
RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6)
รมวป ๕๑๓ ระบาดวิทยาคลินิกและชีวสถิติทางเวชศาสตร์ปริวรรต
* new subject

Credits (lecture – practice – self-study)

RATM 604 Analysis of Clinical Problems 2(2-0-4)
รมวป ๖๐๔ การวิเคราะห์ปัญหาทางคลินิก
RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3)
รมวป ๖๐๕ ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง
RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2)
รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางชีวการแพทย์และเวชศาสตร์ปริวรรต
RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2)
รมวป ๖๐๗ สัมมนาทางชีวการแพทย์และเวชศาสตร์ปริวรรต
RATM 610 Communication in Translational Medicine Research 1(1-0-2)
รมวป ๖๑๐ การสื่อสารทางการวิจัยเวชศาสตร์ปริวรรต
RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2)
รมวป ๖๑๑ การฝึกสอนและการให้คำแนะนำทางการวิจัยเวชศาสตร์ปริวรรต

2) Elective course not less than 4 credits

* RATM 621 Principle of Clinical Pharmacology 2(2-0-4)
รมวป ๖๒๑ หลักการทางเภสัชวิทยาคลินิก
* RATM 622 Applied Pharmacology 2(2-0-4)
รมวป ๖๒๒ เภสัชวิทยาประยุกต์
* RATM 623 Drug Discovery and Development 2(2-0-4)
รมวป ๖๒๓ การคิดค้นและพัฒนายา
* RATM 624 Translational Physiology 2(2-0-4)
รมวป ๖๒๔ สรีรวิทยาเชิงปริวรรต
SCID 503 Systemic Bioscience 3(3-0-6)
วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ
SCID 506 Concepts of Molecular Bioscience 2(2-0-4)
วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล
SCID 511 Gene Technology 1(0-2-1)
วทคร ๕๑๑ เทคโนโลยีด้านยีน
SCID 513 Animal Cell Culture Techniques 1(0-2-1)
วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์
* new subject

Credits (lecture – practice – self-study)

SCPM 508 Special Topics in Pharmacology 2(2-0-4)
วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา
SCPS 612 Current Topics in Cell Physiology 3(3-0-6)
วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา

Students can enroll for other elective courses conducted by Mahidol University or other universities, however with the approval of program committee or advisors.

3) Dissertation 48 credits

RATM 799 Dissertation 48(0-192-0)
รมวป ๗๙๙ วิทยานิพนธ์

3.1.4 Research Project of the Program

Guidelines for conducting a research project are as follows:

The research that connects basic science knowledge to clinical practice or clinical knowledge (Clinical Medicine), both directions: from basic science to clinical setting (from bench to bedside) and from clinical problems back to basic science inorder to provide a better understanding and better treatment of the diseases (from bedside to bench). The research focuses on cardiovascular diseases, oncology, immunology, gene therapy, neurological diseases, metabolic diseases, drug development, vaccine development, medical supplies and biomedical engineering.

The research can be divided into different areas as follows;

(1) Molecular mechanisms of human diseases.

(2) Biomarkers and imaging for clinical diagnosis, prognosis and outcome prediction.

(3) Drug, vaccine and medical devices development.

(4) Gene and cell therapy

(5) Biomedical engineering

Students are free to select their interested topic and generate research questions for the dissertation. Dissertation advisors will guide students in order to develop a dissertation proposal that will lead to new knowledge and to publish in international peer-reviewed journals.

3.1.5 Definition of Course Codes

Four main alphabets are defined as follows:

The first two alphabets are abbreviation of the faculty offering the course.

RA (รม)	means	Faculty of Medicine Ramathibodi Hospital
SC (วท)	means	The Faculty of Science

The latter two alphabets are abbreviation of the department or the major offering the course.

TM (วป)	means	Section for Translational Medicine
ID (คร)	means	Interdisciplinary course
PM (ภส)	means	Department of Pharmacology
PS (สร)	means	Department of Physiology

3 digits of number are 5XX and 6XX indicate that the courses are in the graduate study level.

3.1.6 Study Plan

Plan 1

1.1 Graduates with a master's degree

Year	Semester 1		Semester 2	
1	Qualifying Examination		RATM 898 Dissertation	8(0-32-0)
	RATM 898 Dissertation	8(0-32-0)	Dissertation Proposal	
	Total 8 credits		**Total 8 credits**	
2	RATM 898 Dissertation	8(0-32-0)	RATM 898 Dissertation	8(0-32-0)
	Total 8 credits		**Total 8 credits**	
3	RATM 898 Dissertation	8(0-32-0)	RATM 898 Dissertation	8(0-32-0)
	Total 8 credits		**Total 8 credits**	

Note: Students are required to take the prerequisite courses for Translational Medicine, which cover basic knowledge of molecular biology, human physiology, human diseases, clinical epidemiology and biostatistics.

1.2 Graduates with a bachelor degree

Year	Semester 1	Semester 2
1	Qualifying Examination RATM 899 Dissertation 12(0-48-0) **Total 12 credits**	RATM 899 Dissertation 12(0-48-0) Dissertation Proposal **Total 12 credits**
2	RATM 899 Dissertation 12(0-48-0) **Total 12 credits**	RATM 899 Dissertation 12(0-48-0) **Total 12 credits**
3	RATM 899 Dissertation 12(0-48-0) **Total 12 credits**	RATM 899 Dissertation 12(0-48-0) **Total 12 credits**

Note: Students are required to take the prerequisite courses for Translational Medicine, which cover basic knowledge of molecular biology, human physiology, human diseases, clinical epidemiology and biostatistics.

Plan 2

2.1 Graduates with a master's degree in Translational Medicine

Year	Semester 1	Semester 2
1	Elective 4 credits **Total 4 credits**	RATM 604 Analysis of Clinical Problems 2(2-0-4) RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) **Total 4 credits**
	Qualifying Examination	
2	RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) RATM 699 Dissertation 9(0-36-0) **Total 10 credits**	RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) RATM 699 Dissertation 9(0-36-0) Dissertation Proposal **Total 10 credits**
3	RATM 610 Communication in Translational Medicine Research 1(1-0-2) RATM 699 Dissertation 9(0-36-0) **Total 10 credits**	RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2) RATM 699 Dissertation 9(0-36-0) **Total 10 credits**

2.1 Graduates with a master's degree

Year	Semester 1	Semester 2
1	SCID 500# Cell and Molecular Biology 3(3-0-6) RATM 511# Molecular Basis of Human Diseases 3(3-0-6) RATM 512# Technology in Translational Medicine 3(3-0-6) RATM 513# Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6) **Total 12 credits**	RATM 604 Analysis of Clinical Problems 2(2-0-4) RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) Elective 4 credits **Total 8 credits**
	Qualifying Examination	
2	RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) RATM 699 Dissertation 9(0-36-0) **Total 10 credits**	RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) RATM 699 Dissertation 9(0-36-0) Dissertation Proposal **Total 10 credits**
3	RATM610 Communication in Translational Medicine Research 1(1-0-2) RATM 699 Dissertation 9(0-36-0) **Total 10 credits**	RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2) RATM 699 Dissertation 9(0-36-0) **Total 10 credits**

audit

2.2 Graduates with a bachelor degree

Year	Semester 1	Semester 2
1	SCID 500 Cell and Molecular Biology 3(3-0-6) RATM 511 Molecular Basis of Human Diseases 3(3-0-6) RATM 512 Technology in Translational Medicine 3(3-0-6) RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6) **Total 12 credits**	RATM 604 Analysis of Clinical Problems 2(2-0-4) RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) Elective 4 credits **Total 8 credits**
	Qualifying Examination	
2	RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) RATM 799 Dissertation 8(0-32-0) **Total 9 credits**	RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) RATM 799 Dissertation 8(0-32-0) Dissertation Proposal **Total 9 credits**
3	RATM610 Communication in Translational Medicine Research 1(1-0-2) RATM 799 Dissertation 8(0-32-0) **Total 9 credits**	RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2) RATM 799 Dissertation 8(0-32-0) **Total 9 credits**
4	RATM 799 Dissertation 8(0-32-0) **Total 8 credits**	RATM 799 Dissertation 8(0-32-0) **Total 8 credits**

3.1.7 Course Description

Please see Appendix A.

3.2 Name, I.D. Number, Title and Degree of Instructors

3.2.1 Full time instructors of the curriculum (Please see Appendix B)

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
1.	x-xxxx-xxxxx-xx-x Professor Dr. Chatchai Muanprasat	Ph.D. (Physiology) Mahidol University : 2007 M.D., Mahidol University : 2009 M.S. (Medical Science) Mahidol University : 2003	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital
2.	x-xxxx-xxxxx-xx-x Professor Theerapong Krajaejun	Dip. (Clinical Pathology) Mahidol University : 2002 M.D. Mahidol University : 1999	Department of Pathology, Faculty of Medicine Ramathiobdi Hospital
3.	x-xxxx-xxxxx-xx-x Associate Professor Chagriya Kitiyakara	Dip. Member of Royal Collage of Physician, UK : 1993 M.B., B.S. (Medicine and Surgery) University of London, UK : 1990	Department of Medicine, Faculty of Medicine, Ramathibodi Hospital
4.	x-xxxx-xxxxx-xx-x Associate Professor Dr. Chonlaphat Sukasem	Ph.D. (Pathology) Mahidol University : 2007 B. Pharm Rangsit University : 2001	Department of Pathology, Faculty of Medicine Ramathibodi Hospital
5.	x-xxxx-xxxxx-xx-x Associate Professor Dr. Nathawut Sibmooh	Ph.D. (Pharmocology) Mahidol University : 1999 M.D. Mahidol Universty : 2000 B.Sc. (Medical Science) Mahidol Universty : 1993	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
6.	x-xxxx-xxxxx-xx-x Associate Professor Prapaporn Pisithkul	Dip. (Internal Medicine) The Medical Council of Thailand : 2002 Dip. (General Medicine) The Medical Council of Thailand : 2000 M.D. Mahidol University : 1995	Department of Medicine, Faculty of Medicine Ramathibodi Hospital
7.	x-xxxx-xxxxx-xx-x Associate Professor Usanarat Anurathapan	M.D. Mahidol University : 2000	Department of Pediatric, Faculty of Medicine, Ramathibodi Hospital
8.	x-xxxx-xxxxx-xx-x Associate Professor Dr. Wiparat Manuyakorn	Ph.D. (Infection Inflammation and Immunity) University of Southampton UK : 2012 Dip. (Allergy and Immunology) The Medical Council of Thailand : 2007 Dip. (Pediatrics) The Medical Council of Thailand : 2004 M.Sc. (Pediatrics) Chulalongkorn University : 2003 M.D. Chulalongkorn University : 1998	Department of Pediatric, Faculty of Medicine, Ramathibodi Hospital

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
9.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Bhoom Suktitiphat	Ph.D. (Epidemiology focused on Genetic Epidemiology) Johns Hopkins University USA : 2010 M.D. Mahidol University : 2003	Department of Biochemistry, Faculty of Meidicine Siriraj Hospital
10.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Natini Jinawath	ABMGG (Clinical Cytogenetics) Johns Hopkins Medical Institution, USA : 2011 Ph.D. (Molecular Pathology) The University of Tokyo, Japan : 2006 M.D. Mahidol University : 1999	Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital
11.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Pimtip Sanvarinda	Dip. (Medical Oncology) The Medical Council of Thailand : 2017 Ph.D. (Pharmacology and Toxicology), University of California at Davis, USA : 2011 M.D. Mahidol University : 2003	Department of Pharmacology, Faculty of Science

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
12.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Tulyapruek Tawonsawatrak	Ph.D. (Tissue Engineering in Orthopaedic) The University of Edinburgh, UK : 2014 PGDip (Clinical Education) The Royal College of Physicians and Surgeons of Glasgow, UK : 2013 Dip. (Orthopedic Surgery) The Medical Council of Thailand : 2009 M.D. Mahidol University : 2004	Department of Orthopedics, Faculty of Medicine Ramathibodi Hospital
13.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Varodom Charoensawan	Ph.D. (Theoretical and Computational Biology) University of Cambridge, UK : 2011 MPhil (Computational Biology) University of Cambridge, UK : 2007 B.Eng. (Biochemical Engineering) University College London UK : 2006	Department of Biochemistry, Faculty of Science

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
14.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Objoon Trachoo	Ph.D. (Biomedical Science) University of Sheffield, UK: 2010 Dip. (Medicine) The Medical Council of Thailand : 2006 Grad. Dip. (Medicine) Mahidol University : 2004 M.D. Mahidol University : 2000	Department of Medicine, Faculty of Medicine Ramathibodi Hospital
15.	x-xxxx-xxxxx-xx-x Lecturer Dr. Jakrise Eu-ahsunthornwattana	Ph.D. (Statistical Genetics), Institute of Genetic Medicine, Newcastle University, UK: 2015 M.Sc. (Epidemiology: Principles and Practice), London School of Hygiene and Tropical Medicine, University of London External Programme, UK : 2005 M.D. Mahidol University : 1998	Department of Community Medicine, Faculty of Medicine Ramathibodi Hospital
16.	x-xxxx-xxxxx-xx-x Lecturer Dr. Kenjiro Muta	Ph.D. (Molecular and Cellular Biology), University of Iowa,USA: 2014 B.S. (Applied Biochemistry), Saga University, Japan : 1999	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
17.	x-xxxx-xxxxx-xx-x Lecturer Dr. Nithi Asavapanumas	Ph.D. (Neuroscience) Graduate Training centre of Neuroscience, International Max Planck Research School Unversity of Tübingen, Germany : 2019 M.D. Mahidol University : 2009	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital
18.	x-xxxx-xxxxx-xx-x Lecturer Dr. Nuankanya Sathirapongsasuthi	Ph.D. (Medical Genome Sciences) The University of Tokyo, Japan : 2010 M.D. Mahidol University : 2005	Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital
19.	x-xxxx-xxxxx-xx-x Lecturer Dr. Pimonrat Ketsawatsomkron	Ph.D. (Biomedical Science), Medical College of Georgia, USA : 2008 B. Pharm Mahidol University : 2002	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital
20.	x-xxxx-xxxxx-xx-x Lecturer Dr. Promsuk Jutabha	Ph.D. (Physiology) Mahidol University : 2000 M.Sc. (Physiology) Chulalongkorn University : 1994 B.Sc. (Nursing and Midwifery) Mahidol University : 1990	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
21.	x-xxxx-xxxxx-xx-x Lecturer Dr. Rossukon Kaewkhaw	Post-doctoral fellow, National Eye Institute/National Institute of Health, USA : 2015 Ph.D. (Stem cells and Tissue Engineering) University of Sheffield, UK: 2011 M.Sc. (Molecular Genetics and Genetic Engineering) Mahidol University: 2007 B.S. (Biotechnology) Maejoe University: 2005	Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital
22.	x-xxxx-xxxxx-xx-x Lecturer Dr. Sirawat Srichatrapimuk	Dip. (Infectious Diseases), Mahidol University: 2016 Dip. (Internal Medicine), Mahidol University : 2014 M.D. Mahidol University : 2010 Ph.D. (Medical Microbiology), Mahidol University : 2008 B.Sc. (Medical Science) Mahidol University : 2003	Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University
23.	x-xxxx-xxxxx-xx-x Lecturer Dr. Somchai Chutipongtanate	Board Certificate (Pediatrics), Mahidol University : 2016 M.D. Mahidol University : 2009 Ph.D. (Immunology), Mahidol University : 2005	Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
24.	x-xxxx-xxxxx-xx-x Lecturer Dr. Titiwat Sungkaworn	Ph.D. (Physiology) Mahidol University : 2011 B.Sc. (Biology) Mahidol University : 2007	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital
25.	x-xxxx-xxxxx-xx-x Lecturer Dr. Wittaya Sungkarat	Ph.D. (Biomedical Engineering) University of Southern California, USA: 2007 M.Sc. (Electric Engineering) University of Southern California, USA: 1999 M.Sc. (Biomedical Engineering) University of Southern California, USA : 1996 M.D. Mahidol University : 1985	Department of Diagnostic and Therapeutic Radiology, Faculty of Medicine Ramathibodi Hospital

3.3.2 Full time instructors

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
1.	x-xxxx-xxxxx-xx-x Professor Boonsong Ongpipathdhanakul	M.B.A. (Business Administration) Chulalongkorn University : 1999 M.D. Mahidol University : 1993	Department of Medicine, Faculty of Medicine Ramathibodi Hospital

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
2.	x-xxxx-xxxxx-xx-x Professor Samart Pakakasama	Dip. (Pediatrics Hematology Oncology) University of Texas Southwestern Medical Center, USA : 2001 Dip. (Hematology) Mahidol University : 1998 Grad. Dip. (Pediatics) Mahidol University: 1997 M.D. Mahidol University : 1992	Department of Pediatrics, Faculty of Medicine Ramathiobdi Hospital
3.	x-xxxx-xxxxx-xx-x Professor Suradej Hongeng	ABP (Hematology Oncology) St. Jude Children's Research Hospital, USA : 1996 ABP (Pediatrics) University of Illinois, USA: 1993 Dip. (Pediatrics) Mahidol University : 1990 M.D. Mahidol University : 1987	Department of Pediatrics, Faculty of Medicine Ramathiobdi Hospital
4.	x-xxxx-xxxxx-xx-x Professor Dr. Teeratorn Pulkate	Ph.D. (Neurology) University of London, UK : 2004 Dip. (Neurology) Mahidol University : 1995 M.D. Mahidol University : 1991	Department of Medicine, Faculty of Medicine Ramathibodi Hospital

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
5.	x-xxxx-xxxxx-xx-x Associate Professor Dr. Areepan Sophonsritsuk	Ph.D. (Molecular Genetics and Genomics) Wake Forest University, USA : 2010 Dip. (Reproductive Medicine) Mahidol University : 2002 Dip. (Obstetrics and Gynecology) Mahidol University : 2000 M.D. Chulalongkorn University : 1994	Department of Obstetrics and Gynecology, Faculty of Medicine Ramathibodi Hospital
6.	x-xxxx-xxxxx-xx-x Associate Professor Dr. Duangtawan Thammanichanond	Ph.D. (Immunology) University of Melbourne, Australia : 2007 Dip. (Clinical Pathology) Mahidol University : 2002 M.D. Mahidol University : 1999	Department of Pathology, Faculty of Medicine Ramathiobdi Hospital
7.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Parawee Chevaisakul	Ph.D. (Rheumatology) Leiden University Medical Center, The Netherlands : 2012 Dip. (Internal Medicine) The Medical Council of Thailand : 2006 Dip. (Medicine) The Medical Council of Thailand : 2004 M.D. Mahidol University : 1998	Department of Medicine, Faculty of Medicine Ramathibodi Hospital

No.	Identification Card Number Academic position - Name – Surname	Degree (Field of Study) University: Year of graduate	Department
8.	x-xxxx-xxxxx-xx-x Assistant Professor Dr. Ponpan Matangkasombut Choopong	Ph.D. (Immunology) Harvard University, USA : 2009 ABIM (Internal Medicine) Harvard University, USA : 2004 M.D. Chulalongkorn University : 1998	Department of Microbiology, Faculty of Science
9.	x-xxxx-xxxxx-xx-x Lecturer Dr. Donniphat Dejsuphong	Ph.D. (Molecular Medicine) Kyoto University, Japan : 2009 M.D. Mahidol University : 2001	Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital
10.	x-xxxx-xxxxx-xx-x Lecturer Dr. Nutthapoom Pathomthongtaweechai	M.D. (Biology) Mahidol University : 2017 Ph.D. (Physiology) Mahidol University : 2014	Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital

3.3.3 Part time instructors

The course considers invitations as appropriate.

4. Details of Practicum: None

5. Dissertation requirement

5.1 Short Description

The Dissertation must be relevant to the knowledge of Translational Medicine and shown the expertise in the subject. The student is required to conduct the research including research ethics, data collection, synthesis, analysis, interpretation of the results and dissertation report, presenting and publishing research in academic journals. The process of student's Dissertation must be under the supervision of the Dissertation

committee appointed by the Graduate Studies, Mahidol University. The Dissertation defense must consist of at least 1 expert from outside of the university.

5.2 Standard Learning Outcomes

Students gain knowledge and experience in the field of Translational Medicine and be able to develop and conduct research proposal to be presented, published in the academic journals and translated to clinical applications.

5.3 Time Frame

Dissertation proposal starts after the pass of Qualifying Examination. The time frame of the Dissertation depends on the study plan, as follows:

Plan 1

1.1 For graduate with a master's degree: Semester 1 Year 1

1.2 For graduate with a bachelor degree: Semester 1 Year 1

Plan 2

2.1 For graduate with a master's degree in Translational Medicine: Semester 1 Year 2

2.1 For graduate with a master's degree: Semester 1 Year 2

2.2 For graduate with a bachelor degree: Semester 1 Year 2

5.4 Number of credits

Plan 1

1.1 For graduate with a master's degree 48 credits

1.2 For graduate with a bachelor degree 72 credits

Plan 2

2.1 For graduate with a master's degree in Translational Medicine 36 credits

2.1 For graduate with a master's degree 36 credits

2.2 For graduate with a bachelor degree 48 credits

5.5 Preparation

Students will receive orientation on qualifying examination, Dissertation proposal and Dissertation defense. Documents are provided on the program website. In the first year, students will be able to discuss research topic of interest with potential advisors during classes and experience laboratory work in the second semester. After Dissertation proposal, students and advisors are regularly meet, discuss and present the progress of the Dissertation.

5.6 Evaluation Process

The Dissertation process shall be evaluated by the advisor and thesis committee during conducting the research project. The Dissertation defense is systematically evaluated by the graduate committee following the standards of the Faculty of Graduate Studies, Mahidol University. In addition, the research work or part(s) of the student's Dissertation must be published in an international peer-reviewed journal.

Section 4 Learning Outcome, Teaching Strategies and Evaluation

1. Development of Students' Specific Qualifications

Special Characteristics	Teaching Strategies or Student Activities
1. English communication and presentation skills	Students can improve their English communication and communicaation skills by attending soft skill workshops hosted by Postgraduate division, Faculty of Medicine Ramathibodi Hospital and Faculty of Graduate Studies, Mahidol University.
2. Creative and innovation skills	Students can improve their creative and innovation skills by attending soft skill workshops hosted by the Faculty of Graduate Studies, Mahidol University.

2. Development of Learning Outcome in Each Objective

Expected outcome	Teaching strategies	Evaluation Strategies
1. Morality and ethics 1.1 Work with morality, ethics, integrity, discipline, punctuality and following the rules and regulations of the faculty. 1.2 Creating the work by using their own idea. 1.3 Sharing valuable knowledge and devote their work to the public.	1. Case study 2. Group activities 3. Small group discussion 4. Interactive lecture 5. Laboratory operation 6. Integrating ethical issues in the class	1. Direct observation 2. Class participation and responsibility 3. Written examination 4. Self-evaluation 5. Ethics evaluation
2. Knowledge 2.1 Containing a deep understanding about the details of each subject and following up the new knowledge. 2.2 Containing a deep knowledge in their sub-specialty and also know to link their knowledge to other fields. 2.3 Containing the knowledge about how to search, compile and present with appropriate procedures.	1. Case study 2. Group activities 3. Small group discussion 4. Interactive lecture 5. Assignment 6. Oral presentation	1. Direct observation 2. Class participation and responsibility 3. Case study analysis 4. Written examination 5. Individual assignment evaluation 6. Presentation evaluation

Expected outcome	Teaching strategies	Evaluation Strategies
3. Intelligence Development 3.1 The ability to apply the knowledge properly, analyze, link and solve the problem as a whole. 3.2 The ability to link the knowledge with other related fields, especially the knowledge about science and medical clinics as well as the ability to analyze and solve the problems or to create the benefits of the Transformational Medicine. 3.3 The ability to analyze, develop the new knowledge and the International innovation.	1. Case study 2. Pair or group activities 3. Small group discussion 4. Interactive lecture 5. Comparative review 6. Assignment 7. Oral presentation 8. Laboratory operation	1. Direct observation 2. Class participation and responsibility 3. Written examination 4. Individual assignment evaluation 5. Laboratory report evaluation
4. Interpersonal Relationship and Responsibility 4.1 Responsible for the assignment of both personal and collective, maintain public possession and be a good model for others. 4.2 The ability to get along well with others, have leadership skills and compromise the arguments.	1. Meeting and Seminar 2. Case study 3. Pair or group activities 4. Small group discussion 5. Interactive lecture 6. Assignment 7. Oral presentation 8. Laboratory operation	1. Direct observation 2. Class participation and responsibility 3. Teamwork evaluation 4. Group assignment evaluation

Expected outcome	Teaching strategies	Evaluation Strategies
5. Mathematical Analytical Thinking, Communication Skills and Information Technology Skills 5.1 Using the Information technology in order to search, analyze the data and communicate appropriately. 5.2 The ability to use the mathematical and statistical techniques to analyze, interpret both quality and quantity. 5.3 The ability to communicate effectively in listening, speaking and writing as well as the ability to use information technology to communicate worldwide. 5.4 The ability to use the technology to prepare, present the academic data and communicate for teaching or publishing more effectively.	1. Meeting and Seminar 2. Pair or group activities 3. Small group discussion 4. Interactive lecture 5. Assignment/Reports 6. Oral presentation 7. Laboratory operation	1. Direct observation 2. Class participation and responsibility 3. Written examination 4. Assignment evaluation 5. Presentation evaluation and audiences' satisfaction 6. Publication (First author)

3. Curriculum Mapping

Please see Appendix C**.**

Section 5 Criteria for Student Evaluation

1. Grading System

Grading system and graduation shall be complied with the criteria stated in Regulations of Mahidol University on Graduate studies.

2. Evaluation Process for the Learning Outcome of Students

2.1 Analyze students' learning from examination scores, presentations and assignments.

2.2 Consider student evaluation and feedback of teaching with instructors and curriculum committee.

3. Graduation Requirement

Plan 1

1.1 For graduate with a master's degree

1. Total time of study should not exceed the study plan.

2. For students graduated with Master degree, total minimum requirement for graduation is 48 credits including dissertation credits and courses 48 credits in total with a minimum 3.00 CUM-GPA.

3. Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.

4. Students must pass the Qualifying Examination following Regulations of Mahidol University on Graduate Studies.

5. Student must attend and pass training courses for professional and personal skill development according to the Faculty of Graduate Studies, Mahidol University's requirements.

6. Students must present their dissertation and pass the defense examination by followinxg Regulations of Mahidol University on Graduate Studies. The oral examinations shall be public for attending.

7. Whole or part of research must be published in international academic journal recognized by the Office of the Higher Education Commission and the Faculty of Graduate Studies, Mahidol University with at least 2 first authorship papers.

1.2 For graduate with a bachelor degree

1. Total time of study should not exceed the study plan.

2. For students graduated with Master degree, total minimum requirement for graduation is 72 credits. Student must take 72 credits for dissertation with optional non-credit coursework up to advisor suggestion. Students must have a minimum 3.00 CUM-GPA.

3. Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.

4. Students must pass the Qualifying Examination following Regulations of Mahidol University on Graduate Studies.

5. Student must attend and pass training courses for professional and personal skill development according to the Faculty of Graduate Studies, Mahidol University's requirements.

6. Students must present their dissertation and pass the defense examination by following Regulations of Mahidol University on Graduate Studies. The oral examinations shall be public for attending.

7. Whole or part of research must be published in international academic journal recognized by the Office of the Higher Education Commission and the Faculty of Graduate Studies, Mahidol University with at least 2 first authorship papers.

Plan 2

2.1 For graduate with a master's degree in Translational Medicine

1. Total time of study should not exceed the study plan.

2. For students graduated with Master degree, total minimum requirement for graduation is 12 credits. Student must take 36 credits for dissertation. Students must have a minimum 3.00 CUM-GPA.

3. Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.

4. Students must pass the Qualifying Examination following Regulations of Mahidol University on Graduate Studies.

5. Student must attend and pass training courses for professional and personal skill development according to the Faculty of Graduate Studies, Mahidol University's requirements.

6. Students must present their dissertation and pass the defense examination by following Regulations of Mahidol University on Graduate Studies. The oral examinations shall be public for attending.

7. Whole or part of research must be published in international academic journal recognized by Graduate Studies, Mahidol University with at least 2 papers (1 paper must be first authorship).

2.1 For graduate with a master's degree

1. Total time of study should not exceed the study plan.

2. For students graduated with Master degree, total minimum requirement for graduation is 12 credits. Student must take 36 credits for Dissertation with optional non-credit coursework up to advisor suggestion. Students must have a minimum 3.00 CUM-GPA.

3. Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.

4. Students must pass the Qualifying Examination following Regulations of Mahidol University on Graduate Studies.

5. Student must attend and pass training courses for professional and personal skill development according to the Faculty of Graduate Studies, Mahidol University's requirements.

6. Students must present their dissertation and pass the defense examination by following Regulations of Mahidol University on Graduate Studies. The oral examinations shall be public for attending.

7. Whole or part of research dissertation must be published in international academic journal recognized by Graduate Studies, Mahidol University with at least 2 papers (1 paper must be first authorship).

2.2 For graduate with a bachelor degree

1. Total time of study should not exceed the study plan.

2. For students graduated with Master degree, total minimum requirement for graduation is 24 credits. Student must take 48 credits for Dissertation. Students must have a minimum 3.00 CUM-GPA.

3. Students must meet the English Competence Standard of Graduate Students, Mahidol University defined by the Faculty of Graduate Studies, Mahidol University.

4. Students must pass the Qualifying Examination following Regulations of Mahidol University on Graduate Studies.

5. Student must attend and pass training courses for professional and personal skill development according to the Faculty of Graduate Studies, Mahidol University's requirements.

6. Students must present their dissertation and pass the defense examination by following Regulations of Mahidol University on Graduate Studies. The oral examinations shall be public for attending.

7. Whole or part of research dissertation must be published in international academic journal recognized by Graduate Studies, Mahidol University with at least 2 papers (1 paper must be first authorship).

Section 6 Faculty Development

1. The Orientation for New Faculty Members

1.1 New faculty members have to attend an orientation that aims to provide knowledge and understanding about the policies and philosophy of the Mahidol University and faculty of Medicine Ramathibodi Hospital at the first year of their recruitment. In addition, university and faculty provide workshops to train and educate academic staff in rules and regulations, responsibilities and promotion track. Academic staff are provided with basic training including teaching methods, mentoring system, student assessment, and grading system.

1.2 The heads of programs are required to explain concerned disciplines, curriculum, process of teaching, and assignments to the new faculty members.

1.3 New full-time and part-time faculty members are trained to acknowledge and understand the philosophy of the curriculum and course description.

1.4 To understand the process of teaching and research including research grant writing, the new faculty members participate in mentoring system, where experienced faculty members give advice to new faculty members.

2. Skill and Knowledge Development for New Faculty Members

2.1 Skills Development in Teaching and Evaluation

2.1.1 New faculty members are provided with workshops or conduct research to develop skills in teaching and learning methods through the support of the university and faculty for both national and international levels.

2.1.2 New faculty members participate together with experienced faculty members in meeting to exchange opinions and discuss feedback from stakeholders. Useful comments from the meeting are used to improve curriculum and courses.

2.1.3 All faculty members include the new one participate in the evaluation and revision of the curriculum, courses, and research implemented by the university of other organizations through participating in the international conferences or peer review processes.

2.2 Other Academic and Professional Skill Development for Faculty members

2.2.1 University and faculty provide financial support and facilitate (in terms of equipment) instructors to conduct, produce and present their research projects.

2.2.2 University and faculty support instructors for pursuing studies at other institutes and organizations, attending proceedings, seminars and conferences, and training sessions at national and international levels.

2.2.3 University and faculty encourage faculty members participating in peer review processes to develop skills and professionalism of their fields.

Section 7 Quality Assurance

1. Regulatory Standard

There is a system at the level of Faculty of Medicine, Ramathibodi Hospital to effectively manage and operate Translational Medicine Ph.D. program. These include work planning, budget allocation and the provision of educational support resources.

There is an education quality assurance system within the faculty and at the university with the assessment criteria that measure the quality of each course and the

whole curriculum level in accordance with the policy and quality standards of Faculty of Graduate Studies.

The curriculum committee is appointed to assure the quality of teaching and learning in every course and to conduct teaching evaluation of each instructor.

2. Graduates

The Doctor of Philosophy program in Translational Medicine recruits national and international students from various backgrounds: Medicine, Pharmacy, Biotechnology, Veterinary, Dentistry and etcetera. Students should have obtained the course or had at least 2 years research experience in health-related setting to apply for this program in addition to having suitable qualifications.

All graduate students will be required to obtain an acceptable score in an approved English language test. Acceptable tests and scores are as follows:

Test	Score
TOEFL (paper-based)	500
TOEFL (iBT)	61
IELTS	5

Other English Language Proficiency Assessments, i.e. Mahidol English Proficiency Examination or TOEFL IPT, may be considered by Program Committee.

New students will be oriented about the academic plans, teaching methods and the available time for each major advisor. Students who encounter teaching problems or need some more advice will be assisted by major advisors and mentors.

Students must attend the bio-safety and biomedical ethics training. Also students must apply for ethics approval and grant for conducting their research after their proposal is accepted. These processes act as external quality audit for a student's research and reassure that their research meets international standard.

Students have an opportunity to go for both domestic and International field trips which students can develop their portfolio to present to the public. In addition to this, the students will be encouraged to gain more knowledge.

3. Students

3.1 Counseling in academic and general aspects for students.

- Orientation will be held for guiding new students about the academic plans, teaching methods and the available time for each major advisors.

- Students who encounter teaching problems or need some more advice will be assisted by major advisors and mentors.

- Providing students an opportunity to go for both domestic and International field trips which students can develop their portfolio to present to the public. In addition to this, the students will be encouraged to gain more knowledge.

3.2 The appeal of student

- Students can appeal with regard to the academic matters to the dean of the graduate college directly in either the form of a contact person or filing documents. Then the dean will consider the implementation of such appeals.

4. Instructors

The faculty possesses international standard qualifications. There are active researchers in their specific area of expertise with application of their knowledge in Translational Medicine. The instructors are from various specialties, both clinicians and basic scientists. Many translational medicine staff members obtain both M.D. and Ph.D. degrees. All instructors are well recognized nationally in their fields and they constantly publish their research in high quality international peer-reviewed articles. Their direct research exposure and expertise are critical in teaching graduate students with the use of actual research examples.

The faculty regularly participates in planning, monitoring and reviewing the curriculum. These activities include monthly meeting to plan and to discuss about classes that each faculty member is responsible. The feedback and suggestion from all faculty members have been utilized subsequently to improve the future course and this process has helped ensure the high quality of the course.

New faculty members are recruited according to the regulations and guidelines of Faculty of Medicine Ramathibodi Hospital and Mahidol University.The selection processes include application screening and the evaluation from the search committee. The candidates are selected based upon their scientific knowledge, competency and skill from the academic presentation, all of which must comply with standards of graduate programs of the Ministry of Education. Additionally, the candidates must demonstrate good English communication skills by obtaining appropriate score from a standardized English test, according to the Higher Education Commission.

There is a process set in place to appoint an expert in a specific field, if needed to come and to teach the graduate students. This special lecturer will be selected based

upon his/her experience and skill that are related to that specific subject. This person must demonstrate a good track record in that area of expertise; thereby the students will maximally learn both theoretical and practical aspects from this person. The qualified individual will be nominated by the program director before the actual scheduling of the course.

5. Program, Study and Student Assessment

During the study course, student assessment is constructively aligned to the achievement of the expected learning outcomes (ELOs).Students are evaluated by assignments, presentations, or examinations. The assessment is designed to match the ELOs. Students must pass the qualifying examination in order to be eligible to begin their dissertation. During their enrolled Dissertation, multiple presentations with Dissertation proposals and research progression are required.

The student assessments including timelines, methods, regulations, weight distribution, rubrics and grading are explicit and communicated to students. The coursework, subject documentations are provided through the program's website. The methods of evaluations for each subject are clearly described how they will be marked with the proportional weighting for each step. Students are eligible to know their mark and feedback upon request. To obtain their degree, students must conduct a Dissertation defence and publish manuscript(s) in international peer-reviewed journal. After coursework completion, students need to commit to their TOR and timeline, which are jointly developed by students and advisor teams. These contain targeted achievement and the assessment criteria. Feedbacks from research progress are discussed with students and results are provided individually/confidentially upon request.

The subject coordinator and instructor team clearly provide rubric of assessments including rubrics of assignments, student participations, student presentations, examinations, qualifying examination, terms of reference research progression, defending proposal and Dissertation. In addition, comments from their presentation are given back to let student learn and improve their performance in their next presentation. For writing examination, students with low score will be called for a meeting with a course coordinator and instructor to get an assignment. As a result, marking methods are clear, transparent, and also standardized for those subjects/classes that required a team evaluator. Marks with feedback are given individually/confidentially to students upon request.

Each class is evaluated by student presentation or writing examination. The feedback is given by staff and other students. If the presentation is not satisfied, the presenters will

be asked to prepare and present again.In addition, comments from staff are given back immediately or later in written form before the next presentation to let students learn and improve their future performance.

After the coursework and qualifying examination, a student discusses with advisor team for Dissertation development and subsequently presents her/his Dissertation proposal to Dissertation committee. All feedback by committee is given back to the student on the same day. Research progress is evaluated every 6 months and comments are provided within 1 – 2 weeks. During the research progress meeting, students receive suggestions and comments. At research proposal/Dissertation defence, feedback is provided individually to each student the same day by the examining team.

Students can request or appeal for a meeting with a course coordinator to explain a grade if they do not satisfy with grade results. In cases that students are dissatisfied with the meeting result, they can appeal to the program director. The program director will set a meeting panel, which includes at least 3 independent faculties to evaluate the appeal within 1 month. During research study, students can discuss their Research Progress grading with their advisor team. Students who cannot resolve their appeal through these means may use the Faculty of Graduate Studies appeal procedure available at http://www.grad.mahidol.ac.th/grad/complain/HelpLogin.php?lang=en.

The final examination is Dissertation defense. Students need to submit written Dissertation draft to all examiners and attend oral examination. Once the examiners have reported that the candidate has satisfied them in the examination for the Ph.D. degree students will be officially informed of the result by the Faculty of Graduate Studies. Final Ph.D. results are not given until a hard copy of the final Dissertation (including any revisions) has been received by Registry of the Faculty of Graduate Studies. Degree award will be officially issued only if students submit evidences of publication acceptance either letter of acceptance or copy of published articles with reference number which is required by the program.

The quality and the success of the course can be seen by the number of the graduated students are qualified by the objectives of the course and they are in the market demand. There is a system to monitor the quality of graduated students and the satisfaction of employers. The course specifications are scheduled for revision every five years as mandated by the TQF. However, the Program Administrative Committee regularly takes students' comments, stakeholder comments, and other changes from new knowledge into account. Thus, minor adaptations are allowed and added to course specifications each year, and implemented in the next academic year.

6. Learning Support

Graduate school and Faculty of Medicine Ramathibodi Hospital are responsible for arranging the annual budget in order to purchase the study materials such as textbooks, audiovisual aid, equipment which can be used for teaching more effectively.

A smart library and electronic databases are provided for searching the information which relates to the subjects. In addition, the Internet network is allowed to access to search for useful information from various institutes worldwide. Students have access to the Internet throughout the campus. Common computers and printers also provided in the student office. Students are provided legal software and IT support from the faculty and university.

For the appropriate teaching materials for each course such as textbooks, reference books and other teaching materials, both course instructors and students have a chance to choose the materials which they think they are necessary for the course. The sufficiency of textbooks, journals and teaching materials will be surveyed base on the results of the satisfaction of teaching resources which are appraised by the instructors and students. The assessment results will be used to improve the allocation of teaching resources to meet the needs of the users.

In addition, enough classrooms, educational equipment for teaching, enough laboratories and science equipments for teaching and researching are provided.

7. Key Performance Indicators

The Doctor of Philosophy Program in Translational Medicine (International), Faculty of Medicine, Ramathibodi Hospital divides key performance based on the curriculum that meets the standards of Thai Qualifications Framework following conditions: (1) the compulsory performance indicators (number 1 - 5) must pass beyond expectations at least two consecutive years (2) the total number of performance indicators must reach their goal by no less than 80 percent each year. The Key Performance Indicators are as follows:

Key Performance Indicators	Academic Year				
	2020	2021	2022	2023	2024
1. At least 80% of all full-time instructors in each program have to participate in meetings that set up plans to evaluate and revise the curriculum	/	/	/	/	/
2. The program must have the details of the curriculum according to TQF2 which is associated with the Thai Qualifications Framework or the standards of the program	/	/	/	/	/
3. The program must have course specifications and field experience specifications according to TQF3 before the beginning of each trimester	/	/	/	/	/
4. Instructors must produce course reports and file experience reports according to TQF5 within 30 days after the end of the trimester.	/	/	/	/	/
5. Instructors must produce program reports according to TQF7 within 60 days after the end of the academic year	/	/	/	/	/
6. Instructors must revise the grading of students according to learning standards indicated in TQF3 for at least 25 percent of courses that are offered each academic year.	/	/	/	/	/
7. Instructors must assess the development and/or improvement of teaching methods, teaching techniques or the grading system from the evaluation results in TQF 7 of the previous year.		/	/	/	/

Key Performance Indicators	Academic Year				
	2020	2021	2022	2023	2024
8. Every new instructor has to participate in the orientation and receive adequate information on the college's teaching requirements.	/	/	/	/	/
9. Full-time instructors must demonstrate academic and/or profession improvement at least once a year.	/	/	/	/	/
10. The number of supporting staff who demonstrate academic and/or professional improvement by at least 50 percent each year.	/	/	/	/	/
11. The level of satisfaction from the previous year's students and new graduates toward curriculum quality, with an average score of at least 3.5 out of 5			/	/	/
12. The level of satisfaction from employers of new graduates with an average score of at least 3.5 out of 5				/	/

Section 8 Evaluation and Improvement of the Curriculum Implementation

1. Evaluation on the Teaching Efficiency

1.1 Evaluation of Teaching Strategies

Aim of the evaluation and improvement is to access student that can achieve the expected learning outcome by

1.1.1 Analysis by direct asking, observation and discussion with students towards courses and instructors

1.1.2 Use various suitable tools for each subject to have an authentic assessment

1.1.3 If students couldn't achieve expected learning outcomes, alternative teaching strategies and lesson plans have to be discussed in the meeting among instructors.

1.2 Evaluation of Instructors' Skills in Using Teaching Strategies

1.2.1 Analysis from students' evaluation in all aspects including teaching strategies, punctual, lesson objective, criteria for evaluation and assessment and teaching materials.

1.2.2 Analysis from instructors themselves and other instructors in the program.

2. Overall Evaluation of the Curriculum

2.1 Overall curriculum evaluation from opinions of current students and alumni.

2.2 Curriculum evaluation from external expertise.

2.3 Curriculum evaluation from other stakeholders, e.g. employer, alumni's colleagues.

3. Evaluation of Curriculum Implementation in Accordance with the Curriculum

Evaluation is made annually by the chairman and instructors according to the key performance indicators of section 7, item 7. The curriculum committee must comprise at least 3 persons. One of them must be a specialist in a field of Translational Medicine or an instructor of the program. The criteria of curriculum revision are

"Fair" means the program does not cover the first 10 Key Performance Indicators,

"Good" means the program covers all first 10 Key Performance Indicators,

"Excellent" means the program covers at least 80% of all Key Performance Indicators.

In addition, Mahidol university determines that every 5 years, all courses have to revise their curriculum and receive the curriculum assessment.

4. Review of the Evaluation and Plans for Improvement

4.1 Organize an annual meeting for all the instructors in the program to review the outcome of the program as well as to develop the strategic plans for improving the program by using data from the students' evaluation. In the case that problems are identified, the program committee and instructors can immediately implement the minor revision of the curriculum.

4.2 For the revision of entire curriculum, all information needs to be collected from the relevant sectors of the program management including

- results of the satisfaction evaluation from graduate's user, graduate and instructors,
- the evaluation of instructors, teaching strategies and course management,
- information from TQF5 and TQF7.

The above information will be used as review materials for major revision of the curriculum in order to improve the quality of the program, graduates and the satisfaction of the graduate's users.

APPENDIX A

COURSE DESCRIPTION

Appendix A

Course Description

1) Pre-required courses

Credits (Lecture-Practice-Self-study)

RATM 511 Molecular Basis of Human Diseases 3(3-0-6)

รมวป ๕๑๑ พื้นฐานระดับโมเลกุลของโรคที่เกิดกับมนุษย์

Develop connections between basic science and medical science in aspect of the patient care; and analysis of clinical problems at the gene levels, chromosome and molecules; cell structures and functions; principles and techniques of molecular biology, genomic, proteomic and bioinformatics

เชื่อมโยงความรู้ทางวิทยาศาสตร์พื้นฐาน สู่ความรู้ทางการแพทย์ ในมุมมองของการดูแลรักษาผู้ป่วย การวิเคราะห์ปัญหาทางคลินิกในระดับยีน โครโมโซมและโมเลกุล โครงสร้างและหน้าที่ของเซลล์ หลักการและเทคนิคทางชีวโมเลกุล จีโนมิก โปรตีโอมิก และชีวสารสนเทศ

RATM 512 Technology in Translational Medicine 3(3-0-6)

รมวป ๕๑๒ เทคโนโลยีทางเวชศาสตร์ปริวรรต

Technology in translational medicine; understanding the limitations of the current clinical investigation; the translation of molecular discovery to patients, populations, and health services, translation challenges and opportunities in medicine

เทคโนโลยีทางเวชศาสตร์ปริวรรต ความเข้าใจในข้อจำกัดของการสืบค้นทางคลินิกปัจจุบัน การปริวรรตการค้นพบระดับโมเลกุลไปสู่ผู้ป่วย ประชากร และการบริการสุขภาพ ความท้าทาย และโอกาสในการนำเวชศาสตร์ปริวรรตไปใช้ทางการแพทย์

RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6)

รมวป ๕๑๓ ระบาดวิทยาคลินิกและชีวสถิติทางเวชศาสตร์ปริวรรต

Basic biostatistics and clinical epidemiology; study design; epidemiologic measurement, sample size estimation; descriptive statistic, statistical inference; searching evidence-based medicine, research ethics

พื้นฐานชีวสถิติและระบาดวิทยาคลินิก รูปแบบการวิจัย เครื่องมือวัดทางระบาดวิทยาการคำนวนขนาดตัวอย่าง สถิติเชิงพรรณา สถิติเชิงอนุมาน การค้นหาหลักฐานพื้นฐานทางการแพทย์ จริยธรรมการวิจัย

2) Required courses

Credits (Lecture-Practice-Self-study)

RATM 604 Analysis of Clinical Problems 2(2-0-4)

รมวป ๖๐๔ การวิเคราะห์ปัญหาทางคลินิก

An identification and analysis of clinical problems; comparison and selection of diseases as a model for conducting research; recommendations of research methodology; application of basic sciences for solving clinical problems; virtue and ethics in human experiments

การระบุและวิเคราะห์ปัญหาทางคลินิก การเปรียบเทียบและเลือกโรคที่เหมาะสมแก่การนำมาวิจัย การแนะนำวิธีวิจัยที่เหมาะสม การประยุกต์เชื่อมโยงความรู้เชิงวิทยาศาสตร์พื้นฐานเพื่อแก้ปัญหาทางคลินิก คุณธรรมและจริยธรรมการทดลองในมนุษย์

RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3)

รมวป ๖๐๕ ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง

Advanced research skills; advanced genomic and high throughput research; Protein and metabolomic research; cell and stem cell research; mini-project rotations; safety in the laboratory

ทักษะการวิจัยขั้นสูง การวิจัยทางจีโนมขั้นสูง การวิจัยทางโปรตีนและเมตาโบโลมิก การวิจัยเซลล์และเซลล์ต้นกำเนิด การทำโครงงานย่อย ความปลอดภัยในห้องปฏิบัติการ

RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2)

รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางชีวการแพทย์และเวชศาสตร์ปริวรรต

Discussions of publications in biomedical and translational medicine; critical reviews of papers on related science knowledge; research ethics, rationale, experimental design, data interpretation; clinical correlation, impact of the studies on the progress of biomedical and translational medicine

อภิปรายบทความวิจัยในสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต วิจารณ์บทความที่ได้รับการตีพิมพ์ในแง่ความรู้วิทยาศาสตร์ที่เกี่ยวข้อง จริยธรรมการวิจัย หลักการและเหตุผล การออกแบบการทดลอง การแปลผลข้อมูล การเชื่อมโยงในทางคลินิก ผลกระทบของการศึกษาความก้าวหน้าในสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต

Credits (Lecture-Practice-Self-study)

RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2)

รมวป ๖๐๗ สัมมนาทางชีวการแพทย์และเวชศาสตร์ปริวรรต

Seminar in current and emerging concepts in biomedical and translational medicine and updates on research progress; discussions of current concepts, supporting research findings, and related technologies; presentations of research progress, discussions and interpretations of experimental data; research ethics, troubleshooting of research difficulties; predicting potential problems and solutions; planning research for answering questions and concluding the body of knowledge

สัมมนาแนวคิดปัจจุบันและเกิดขึ้นใหม่ในสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต และปรับปรุงความคืบหน้าผลงานวิจัย อภิปรายแนวคิดปัจจุบัน สนับสนุนผลงานวิจัย และเทคโนโลยีที่เกี่ยวข้อง นำเสนอความก้าวหน้าในงานวิจัย อภิปรายและแปลผลการทดลอง จริยธรรมการวิจัย การแก้ปัญหางานวิจัยที่ยากคาดเดาปัญหาที่อาจเกิดขึ้นพร้อมแนวทางแก้ไข วางแผนงานวิจัยเพื่อตอบคำถามและสรุปองค์ความรู้ในสาขา

RATM 610 Communication in Translational Medicine Research 1(1-0-2)

รมวป ๖๑๐ การสื่อสารทางการวิจัยเวชศาสตร์ปริวรรต

Literature search in translational medicine topic related student's dissertation or interest; analysis and indentification of research questions; experimental design to prove research questions; seminar presentations, discussions, questions and answers

การสืบค้นข้อมูลทางเวชศาสตร์ปริวรรตในหัวข้อที่เป็นวิทยานิพนธ์หรือหัวข้อที่สนใจของนักศึกษา การวิเคราะห์ปัญหาและตั้งโจทย์วิจัย การออกแบบการทดลองเพื่อพิสูจน์ปัญหาและโจทย์วิจัยที่ตั้งไว้ การนำเสนอในรูปแบบสัมมนา การเปิดอภิปรายและตอบข้อซักถาม

RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2)

รมวป ๖๑๑ การฝึกสอนและการให้คำแนะนำทางการวิจัยเวชศาสตร์ปริวรรต

Scientific knowledge transfer; small group presentations; mentoring and answering scientific questions; organizing the knowledge transfer and mentoring system in translation medicine

การส่งต่อความรู้ทางวิทยาศาสตร์ การนำเสนอในกลุ่มย่อย การให้คำแนะนำและการตอบข้อซักถามปัญหาทางวิทยาศาสตร์ การจัดการกระบวนการให้ความรู้และคำแนะนำทางทางเวชศาสตร์ปริวรรต

Credits (Lecture-Practice-Self-study)

SCID 500 Cell and Molecular Biology 3(3-0-6)

วทคร ๕๐๐ ชีววิทยาระดับเซลล์และโมเลกุล

Cell structure and function, life and information flow in cell, energy flow in biosystem, cell signaling, cell division cellular differentiation, cell death and development

โครงสร้างและหน้าที่ของเซลล์ ชีวิตและการส่งผ่านข้อมูลภายในเซลล์ การส่งผ่านพลังงานในระบบชีวภาพ การส่งสัญญาณของเซลล์ การแบ่งตัวของเซลล์ การพัฒนาเป็นเซลล์ชนิดจำเพาะ การตายและการพัฒนาของเซลล์

3) Elective courses

RATM 621 Principle of Clinical Pharmacology 2(2-0-4)

รมวป ๖๒๑ หลักการทางเภสัชวิทยาคลินิก

Pharmacokinetics, pharmacodynamics, pharmacogenomics; preclinical and clinical drug development, drug adverse effect, variation in drug response

เภสัชจลนศาสตร์ เภสัชพลศาสตร์ เภสัชพันธุศาสตร์ การพัฒนายาในปรีคลินิกและคลินิก ผลร้ายของยา ความแตกต่างในการตอบสนองต่อยา

RATM 622 Applied Pharmacology 2(2-0-4)

รมวป ๖๒๒ เภสัชวิทยาประยุกต์

Two topics of interest in pharmacology of the cardiovascular-renal system, the neurological system, the endocrine system, and antimicrobial-chemotherapeutics

หัวข้อที่สนใจ 2 หัวข้อในเภสัชวิทยาของระบบหัวใจและไต ระบบประสาท ระบบต่อมไร้ท่อ และยาต้านจุลชีพและเคมีบำบัด

RATM 623 Drug Discovery and Development 2(2-0-4)

รมวป ๖๒๓ การคิดค้นและพัฒนายา

An introduction to the drug discovery and development; target identification and validation, drug screening, lead optimization, pre-clinical and clinical testing; regulatory and manufacturing considerations, business and the commercialization of biomedical research; intellectual property, biotech and startup, workshops at industry sites

บทนำการคิดค้นและพัฒนายา การระบุและการตรวจสอบเป้าหมายของยา การคัดกรองสารต้นแบบ การปรับคุณสมบัติของสารต้นแบบ การทดสอบทางพรีคลินิกและทางคลินิก การพิจารณาด้านกฎระเบียบและการผลิต ธุรกิจและการค้าเชิงพาณิชย์ ทรัพย์สินทางปัญญา อุตสาหกรรมทางเทคโนโลยีชีวภาพและสตาร์ตอัพ กิจกรรมเชิญปฏิบัติการ ณ ภาคอุตสหกรรม

Credits (Lecture-Practice-Self-study)

RATM 624 Translational Physiology 2(2-0-4)

รมวป ๖๒๔ สรีรวิทยาเชิงปริวรรต

Basic Knowledge in physiology, physiology of organ systems, an integration of different body systems, technologies in physiological research, an application of knowledge in physiology for clinical benefits

ความรู้พื้นฐานทางสรีรวิทยา สรีรวิทยาของแต่ละระบบ การบูรณาการระบบต่างๆ ของร่างกาย เทคโนโลยีในการวิจัยทางสรีรวิทยา การประยุกต์ใช้ความรู้ทางสรีรวิทยาเพื่อประโยชน์ทางคลินิก

SCID 503 Systemic Bioscience 3(3-0-6)

วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ

Homeostasis, integumentary and immune systems, nervous system, musculoskeletal system, cardiovascular system, respiratory system, urinary system, the digestive system, endocrine system, reproductive system, integration of systemic bioscience

สภาวะสมดุลของร่างกาย ระบบผิวหนังและภูมิคุ้มกัน ระบบประสาท ระบบโครงร่างกล้ามเนื้อ ระบบหัวใจและหลอดเลือด ระบบทางเดินหายใจ ระบบทางเดินปัสสาวะ ระบบย่อยอาหาร ระบบต่อมไร้ท่อ ระบบสืบพันธุ์ บูรณาการของวิทยาศาสตร์ชีวภาพเชิงระบบ

SCID 506 Concepts of Molecular Bioscience 2(2-0-4)

วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล

Biochemical and biophysical knowledge underlying various processes of living systems, structures and functions of biological molecules, manipulation of energy and metabolites are in biological systems, regulation and expression process of genetic materials

ความรู้ทางชีวเคมีและชีวฟิสิกส์ของกระบวนการต่างๆ ในสิ่งมีชีวิต โครงสร้างและหน้าที่ของชีวโมเลกุล การสร้างและการใช้พลังงานในกระบวนการต่างๆ ของสิ่งมีชีวิต กระบวนการควบคุมและการแสดงออกของสารพันธุกรรม

Credits (Lecture-Practice-Self-study)

SCID 511 Gene Technology 1(0-2-1)

วทคร ๕๑๑ เทคโนโลยีด้านยีน

Gene manipulation and recombinant DNA techniques, principles of gene Technology; mini-projects involving handling of nucleic acid and proteins; evaluation of the quality of data generated, laboratory rules and regulations

เทคนิคการจัดการยีนและการตัดต่อยีน หลักการเทคโนโลยีด้านยีน โครงการทดลองย่อยที่เกี่ยวข้องกับกรดนิวคลิอิกและโปรตีน การประเมินคุณภาพของข้อมูลจากผลการทดลอง กฎ และระเบียบการใช้ห้องปฏิบัติการ

SCID 513 Animal Cell Culture Techniques 1(0-2-1)

วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์

Basic techniques for cultivation of anchorage-dependent and anchorage – independent cells, mass production of animal cells, propagation, determination of cell growth and maintenance of cell lines, cryo-preservation of cells and determination of cell survival after cold storage, effect of certain parameters on the growth of anchorage - independent cell line, laboratory rules and regulations

เทคนิคขั้นพื้นฐานในการเพาะเลี้ยงเซลล์ชนิดที่เจริญแบบเกาะติดและที่เจริญแบบไม่เกาะติด การเพาะเลี้ยงเซลล์สัตว์ในปริมาณสูง การขยายพันธุ์เซลล์ การเจริญของเซลล์และการคงสภาพสายพันธุ์เซลล์ การถนอมเซลล์โดยใช้ความเย็น และการตรวจเซลล์ที่รอดชีวิตหลังแช่แข็ง ผลของตัวแปรบางอย่างต่อการเจริญของสายพันธุ์เซลล์แบบไม่เกาะติด กฎ และระเบียบการใช้ห้องปฏิบัติการ

SCPM 508 Special Topics in Pharmacology 2(2-0-4)

วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา

Principles and concepts in pharmacology, drugs acting on specific organ systems: the nervous, respiratory, gastrointestinal, kidney, endocrine, immunologic, free radicals and antioxidants, herbal mediation, human toxicology and poison management

หลักการและแนวคิดทางเภสัชวิทยา การออกฤทธิ์ของยาในระบบที่เฉพาะเจาะจงต่างๆ ระบบประสาท ระบบทางเดินหายใจ ระบบทางเดินอาหาร ไต ระบบต่อมไร้ท่อ ระบบภูมิคุ้มกัน อนุมูลอิสระและยาต้านอนุมูลอิสระ ยาสมุนไพร พิษวิทยาในมนุษย์และการจัดการสารพิษ

Credits (Lecture-Practice-Self-study)

SCPS 612 Current Topics in Physiology 3(3-0-6)

วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา

Current Topics in neurophysiology, musculo-skeletal system, cardiovascular system, respiratory system, urinary system, gastrointestinal system, endocrine system, reproductive system, integrative physiology. This course aims to provide students with current information on the concept and experimental approach in various fields of physiology

หัวข้อความรู้ปัจจุบันเกี่ยวกับสรีรวิทยาระบบต่างๆ ประกอบด้วย ระบบประสาท สรีรวิทยาของ กล้ามเนื้อ ระบบไหลเวียนโลหิต ระบบหายใจ ระบบขับถ่าย ระบบทางเดินอาหาร ระบบต่อมไร้ท่อ ระบบสืบพันธุ์ และการทำงานที่สอดประสานกันของระบบต่างๆ โดยมุ่งหวังให้นักศึกษาได้รับทราบข้อมูลปัจจุบันที่ทันสมัยเกี่ยวกับหลักการทางสรีรวิทยา วิธีการศึกษาวิจัยทางสรีรวิทยาในด้านต่างๆ

4) Dissertation

RATM 699 Dissertation 36(0-144-0)

รมวป ๖๙๙ วิทยานิพนธ์

Identifying translational medicine research proposals; conducting research with research ethics; data collection, analyzing research results until completion; reporting research results into dissertations; presenting and publishing research reports in the international peer-reviewed journals

การกำหนดโครงการวิจัยทางด้านเวชศาสตร์ปริวรรต การดำเนินการการวิจัยอย่างมีจริยธรรม การเก็บข้อมูล การวิเคราะห์ผลงานวิจัยจนเสร็จสมบูรณ์ การนำผลงานวิจัยมาเรียบเรียงเป็นวิทยานิพนธ์ การนำเสนอรายงานวิจัย การเผยแพร่ผลงานวิจัยในวารสารวิชาการระดับนานาชาติ

RATM 799 Dissertation 48(0-192-0)

รมวป ๗๙๙ วิทยานิพนธ์

Identifying translational medicine research proposals; conducting research with research ethics; data collection, analyzing research results until completion; reporting research results into dissertations; presenting and publishing research reports in the international peer-reviewed journals

การกำหนดโครงการวิจัยทางด้านเวชศาสตร์ปริวรรต การดำเนินการการวิจัยอย่างมีจริยธรรม การเก็บข้อมูล การวิเคราะห์ผลงานวิจัยจนเสร็จสมบูรณ์ การนำผลงานวิจัยมาเรียบเรียงเป็นวิทยานิพนธ์ การนำเสนอรายงานวิจัย การเผยแพร่ผลงานวิจัยในวารสารวิชาการระดับนานาชาติ

Credits (Lecture-Practice-Self-study)

RATM 898 Dissertation **48(0-192-0)**

รมวป ๘๙๘ วิทยานิพนธ์

Identifying translational medicine research proposals; conducting research with research ethics; data collection, analyzing research results until completion; reporting research results into dissertations; presenting and publishing research reports in the international peer-reviewed journals

การกำหนดโครงการวิจัยทางด้านเวชศาสตร์ปริวรรต การดำเนินการการวิจัยอย่างมีจริยธรรม การเก็บข้อมูล การวิเคราะห์ผลงานวิจัยจนเสร็จสมบูรณ์ การนำผลงานวิจัยมาเรียบเรียงเป็นวิทยานิพนธ์ การนำเสนอรายงานวิจัย การเผยแพร่ผลงานวิจัยในวารสารวิชาการระดับนานาชาติ

RATM 899 Dissertation **72(0-288-0)**

รมวป ๘๙๙ วิทยานิพนธ์

Identifying translational medicine research proposals; conducting research with research ethics; data collection, analyzing research results until completion; reporting research results into dissertations; presenting and publishing research reports in the international peer-reviewed journals

การกำหนดโครงการวิจัยทางด้านเวชศาสตร์ปริวรรต การดำเนินการการวิจัยอย่างมีจริยธรรม การเก็บข้อมูล การวิเคราะห์ผลงานวิจัยจนเสร็จสมบูรณ์ การนำผลงานวิจัยมาเรียบเรียงเป็นวิทยานิพนธ์ การนำเสนอรายงานวิจัย การเผยแพร่ผลงานวิจัยในวารสารวิชาการระดับนานาชาติ

APPENDIX B

CURRICULA VITAE

Appendix B

Curriculum Vitae of the Faculty in Charge of the Program

1. Name **Professor Dr. Chatchai Muanprasat**

ศาสตราจารย์ ดร. นายแพทย์ฉัตรชัย เหมือนประสาท

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Physiology	Mahidol University	2007
M.D.		Mahidol University	2009
M.Sc.	Medical Science	Mahidol University	2003

Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Ion transport
2. Drug discovery and development

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Vijitphan P, Rukachaisirikul V, **Muanprasat C**, Iawsipo P, Panprasert J, Tadpetch K. Unified synthesis and cytotoxic activity of 8-O-methylfusarubin and its analogues. Org Biomol Chem. 2019;17(29):7078-87.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Ontawong A, Duangjai A, **Muanprasat C**, Pasachan T, Pongchaidecha A, Amornlerdpison D, et al. Lipid-lowering effects of Coffea arabica pulp aqueous extract in Caco-2 cells and hypercholesterolemic rats. Phytomedicine. 2019;52:187-97.	12/1	2019
	Sriyatep T, Tantapakul C, Andersen RJ, Patrick BO, Pyne SG, **Muanprasat C**, et al. Resolution and identification of scalemic caged xanthones from the leaf extract of Garcinia propinqua having potent cytotoxicities against colon cancer cells. Fitoterapia. 2018;124:34-41.	12/1	2018
	Saetang P, Rukachaisirikul V, Phongpaichit S, Preedanon S, Sakayaroj J, Borwornpinyo S, et al. Corrigendum to "Depsidones and an alpha-pyrone derivative from Simplicillium sp. PSU-H41, an endophytic fungus from Hevea brasiliensis leaf" [Phytochemistry 143 (2017) 115-123]. Phytochemistry. 2018;145:215.	12/1	2018
	Moonwiriyakit A, Wattanaphichet P, Chatsudthipong V, **Muanprasat C**. GPR40 receptor activation promotes tight junction assembly in airway epithelial cells via AMPK-dependent mechanisms. Tissue Barriers. 2018;6(2):1-12.	12/1	2018
	Yuajit C, **Muanprasat C**, Homvisasevongsa S, Chatsudthipong V. Steviol stabilizes polycystin 1 expression and promotes lysosomal degradation of CFTR and beta-catenin proteins in renal epithelial cells. Biomed Pharmacother. 2017;94:820-6.	12/1	2017

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	**Muanprasat C**, Chatsudthipong V. Chitosan oligosaccharide: Biological activities and potential therapeutic applications. Pharmacol Ther. 2017;170:80-97.	12/1	2017

Current Teaching Load

SCID 630	Scientific Paper Analysis	1(0-3-1)
SCID 631	Systems Physiology	4(3-2-7)
SCID 612	Current topics in Physiology	3(3-0-6)
RATM 511	Molecular Basis of Human diseases	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 610	Communication in Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

2. Name **Professor Theerapong Krajaejun**

ศาสตราจารย์ นายแพทย์ธีรพงษ์ กระแจะจันทร์

Education

Degree	Degree Name	Institute	Year of Graduation
Dip.	Clinical Pathology	Mahidol University	2002
M.D.		Mahidol University	1999

Faculty/Institute/College

Department of Pathology, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Medical microbiology and immunology
2. Molecular mycology, Fungal pathogenesis
3. Pythiosis, Pythium insidiosum

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	**Krajaejun T**, Lohnoo T, Yingyong W, Rujirawat T, Kumsang Y, Jongkhajornpong P, Theerawatanasirikul S, Kittichotirat W, Reamtong O, Yolanda H. The Repurposed Drug Disulfiram Inhibits Urease and Aldehyde Dehydrogenase and Prevents In Vitro Growth of the Oomycete Pythium insidiosum. Antimicrob Agents Chemother. 2019 Jul 25;63(8). pii: e00609-19.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Lohnoo T, Yingyong W, Kumsang Y, Payattikul P, Jaturapaktrarak C, Chailurkit LO, Aekplakorn W, **Krajaejun T**. Seroprevalence of anti--Pythium insidiosum antibodies in the Thai population. Med Mycol. 2019 Apr 1;57(3):284-290.	12/1	2019
	Krajaejun T, Kittichotirat W, Patumcharoenpol P, Rujirawat T, Lohnoo T, Yingyong W. Data on whole genome sequencing of the oomycete Pythium insidiosum strain CBS 101555 from a horse with pythiosis in Brazil. BMC Res Notes. 2018 Dec 11;11(1):880.	12/1	2018
	Krajaejun T, Lohnoo T, Jittorntam P, Srimongkol A, Kumsang Y, Yingyong W, Rujirawat T, Reamtong O, Mangmee S. Assessment of matrix-assisted laser desorption ionization-time of flight mass spectrometry for identification and biotyping of the pathogenic oomycete Pythium insidiosum. Int J Infect Dis. 2018 Dec;77:61-67.	12/1	2018
	Krajaejun T, Rujirawat T, Kanpanleuk T, Santanirand P, Lohnoo T, Yingyong W, Kumsang Y, Sae-Chew P, Kittichotirat W, Patumcharoenpol P. Biochemical and genetic analyses of the oomycete Pythium insidiosum provide new insights into clinical identification and urease-based evolution of metabolism-related traits. PeerJ. 2018 Jun 5;6:e4821.	12/1	2018

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

3. Name **Associate Professor Chagriya Kitiyakara**

รองศาสตราจารย์ นายแพทย์ หม่อมหลวงชาครีย์ กิติยากร

Education

Degree	Degree Name	Institute	Year of Graduation
Dip		Member of Royal Collage of Physician, UK	1993
M.B., B.S.	Medicine and Surgery	University of London, UK	1990

Faculty/Institute/College

Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

The study of kidney disease mechanisms at the molecular level.

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Lertpimonchai A, Rattanasiri S, Tamsailom S, Champaiboon C, Ingsathit A, **Kitiyakara C**, et al. Periodontitis as the risk factor of chronic kidney disease: Mediation analysis. J Clin Periodontol. 2019;46(6):631-9.	12/1	2019
	Satirapoj B, Dispan R, Radinahamed P, **Kitiyakara C**. Urinary epidermal growth factor, monocyte chemoattractant protein-1 or their ratio as predictors for rapid loss of renal function in type 2 diabetic patients with diabetic kidney disease. BMC Nephrol. 2018;19(1):246.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Disthabanchong S, Vipattawat K, Phakdeekitcharoen B, **Kitiyakara C**, Sumethkul V. Abdominal aorta and pelvic artery calcifications on plain radiographs may predict mortality in chronic kidney disease, hemodialysis and renal transplantation. Int Urol Nephrol. 2018;50(2):355-64.	12/1	2018
	Satirapoj B, **Kitiyakara C**, Leelahavanichkul A, Avihingsanon Y, Supasyndh O. Urine neutrophil gelatinase-associated lipocalin to predict renal response after induction therapy in active lupus nephritis. BMC Nephrol. 2017;18(1):263.	12/1	2017
	Chaloemsuwiwattanakan T, Sangcakul A, **Kitiyakara C**, Nacapricha D, Wilairat P, Chaisuwan P. Simple and fast analysis of iohexol in human serums using micro-hydrophilic interaction liquid chromatography with monolithic column. J Sep Sci. 2016;39(18):3521-7.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine	1(1-0-2)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

4. Name **Associate Professor Chonlaphat Sukasem**

รองศาสตราจารย์ ดร. เภสัชกรชลภัทร สุขเกษม

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Pathobiology	Mahidol University	2007
B. Pharm		Rangsit University	2001

Faculty/Institute/College

Department of Pathology, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

Pharmacy genetics

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Klaewsongkram J, **Sukasem C**, Thantiworasit P, Suthumchai N, Rerknimitr P, Tuchinda P, et al. Analysis of HLA-B Allelic Variation and IFN-gamma ELISpot Responses in Patients with Severe Cutaneous Adverse Reactions Associated with Drugs. J Allergy Clin Immunol Pract. 2019;7(1):219-27	12/1	2019
	Desta Z, Gammal RS, Gong L, Whirl-Carrillo M, Gaur AH, **Sukasem C**, et al. Clinical Pharmacogenetics Implementation Consortium (CPIC) Guideline for CYP2B6 and Efavirenz-Containing Antiretroviral Therapy. Clin Pharmacol Ther. 2019. Oct;106(4):726-733.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Wiriyakosol N, Puangpetch A, Manosuthi W, Tomongkon S, **Sukasem C**, Pinthong D. A LC/MS/MS method for determination of tenofovir in human plasma and its application to toxicity monitoring. J Chromatogr B Analyt Technol Biomed Life Sci. 2018;1085:89-95.	12/1	2018
	Yampayon K, **Sukasem C**, Limwongse C, Chinvarun Y, Tempark T, Rerkpattanapipat T, et al. Influence of genetic and non-genetic factors on phenytoin-induced severe cutaneous adverse drug reactions. Eur J Clin Pharmacol. 2017;73(7):855-65.	12/1	2017
	Jaruthamsophon K, Tipmanee V, Sangiemchoey A, **Sukasem C**, Limprasert P. HLA-B*15:21 and carbamazepine-induced Stevens-Johnson syndrome: pooled-data and in silico analysis. Sci Rep. 2017;7:45553.	12/1	2017
	Wongprikorn A, **Sukasem C**, Puangpetch A, Numthavej P, Thakkinstian A, Kiertiburanakul S. Effects of Pitavastatin on Lipid Profiles in HIV-Infected Patients with Dyslipidemia and Receiving Atazanavir/Ritonavir: A Randomized, Double-Blind, Crossover Study. PLoS One. 2016;11(6):e0157531.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 610	Communication in Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

5. Name **Associate Professor Dr. Nathawut Sibmooh**

รองศาสตราจารย์ ดร. นายแพทย์ณัฐวุธ สิบหมู่

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Pharmacology	Mahidol University	1999
M.D.		Mahidol University	2000
B.Sc.	Medical Science	Mahidol University	1993

Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Nitric oxide and nitrite in cardiovascular system
2. Thalassemia
3. Asthma

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Chamchoi A, Srihirun S, Paiboonsukwong K, Sriwantana T, Sathavorasmith P, Pattanapanyasat K, Hirsch RE, Schechter AN, **Sibmooh N**. Decreased nitrite reductase activity of deoxyhemoglobin correlates with platelet activation in hemoglobin E/β-thalassemia subjects. PLoS One. 2018;13:e0203955.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Sriwantana T, Vivithanaporn P, Paiboonsukwong K, Rattanawonsakul K, Srihirun S, **Sibmooh N**. Deferiprone increases endothelial nitric oxide synthase phosphorylation and nitric oxide production. Can J Physiol Pharmacol. 2018;96:879-85.	12/1	2018
	Srihirun S, Piknova B, **Sibmooh N**, Schechter AN. Phosphorylated vasodilator-stimulated phosphoprotein (P-VASP^{Ser239}) in platelets is increased by nitrite and partially deoxygenated erythrocytes. PLoS One 2018;13:e0193747	12/1	2018
	Yingchoncharoen T, Rakyhao T, Chuncharunee S, Sritara P, Pienvichit P, Paiboonsukwong K, Sathavorasmith P, Sirirat K, Sriwantana T, Srihirun S, **Sibmooh N**. Inhaled nebulized sodium nitrite decreases pulmonary artery pressure in β-thalassemia patients with pulmonary hypertension. Nitric Oxide. 2018;76:174-8.	12/1	2018
	Parakaw T, Suknuntha K, Vivithanaporn P, Schlagenhauf A, Topanurak S, Fucharoen S, Pattanapanyasat K, Schehcter A, **Sibmooh N**, Srihirun S**.** Platelet inhibition and increased phosphorylated vasodilator**-**stimulated phosphoprotein following sodium nitrite inhalation**.** Nitric Oxide**.** 2017;66**:**10**-**6**.**	12/1	2017
	Nontarach A, Srihirun S, Chaturapanich G, Unchern S, Swaddiwudhipong W, Pattanapanyasat K, Chamchoi A, Vivithanaporn P, Visoottiviseth P, **Sibmooh N**. Increased platelet activation in subjects chronically exposed to cadmium: a pilot study. Platelets. 2016;27:136-42.	12/1	2016

Current Teaching Load

SCID 503	Systemic Bioscience	3(3-0-6)
SCID 519	Special Content and Innovation in Molecular Medicine	3(3-0-6)
SCPM 501	Experimental Methods in Pharmacology	1(0-2-1)
SCPM 502	Principles of Drug Action	2(2-0-4)
SCPM 521	Systemic Pharmacology I	3(3-0-6)
SCPM 611	Advanced Pharmacology	3(3-0-6)
SCPM 615	Reading and Writing of Pharmacological Research Literature	1(0-2-1)
SCPM 681	Seminar in Pharmacology	2(2-0-4)

Assigned Teaching Load for the Proposed Program

RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

6. Name **Associate Professor Prapaporn Pisitkun**

รองศาสตราจารย์ แพทย์หญิงประภาพร พิสิษฐ์กุล

Education

Degree	Degree Name	Institute	Year of Graduation
Dip.	Internal Medicine	The Medical Council of Thailand	2002
Dip.	General Medicine	The Medical Council of Thailand	2000
M.D.		Mahidol University	1995

Faculty/Institute/College

Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Autoimmune Diseases, SLE
2. Study on Immune system and study on patterns of disease occurrence using lab animal testing

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Surawut S, Makjaroen J, Thim-Uam A, Wongphoom J, Palaga T, **Pisitkun P**, et al. Increased susceptibility against Cryptococcus neoformans of lupus mouse models (pristane-induction and FcGRIIb deficiency) is associated with activated macrophage, regardless of genetic background. J Microbiol. 2019;57(1):45-53.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Saiworn W, Thim-Uam A, Visitchanakun P, Atjanasuppat K, Chantaraaumporn J, Mokdara J, et al. Cortical Bone Loss in a Spontaneous Murine Model of Systemic Lupus Erythematosus. Calcif Tissue Int. 2018;103(6):686-97.	12/1	2018
	Thanadetsuntorn C, Ngamjanyaporn P, Setthaudom C, Hodge K, Saengpiya N, **Pisitkun P**. The model of circulating immune complexes and interleukin-6 improves the prediction of disease activity in systemic lupus erythematosus. Sci Rep. 2018;8(1):2620.	12/1	2018
	Surawut S, Ondee T, Taratummarat S, Palaga T, **Pisitkun P**, Chindamporn A, et al. The role of macrophages in the susceptibility of Fc gamma receptor IIb deficient mice to Cryptococcus neoformans. Sci Rep. 2017;7:40006.	12/1	2017
	Ondee T, Surawut S, Taratummarat S, Hirankarn N, Palaga T, **Pisitkun P**, et al. Fc Gamma Receptor IIB Deficient Mice: A Lupus Model with Increased Endotoxin Tolerance-Related Sepsis Susceptibility. Shock. 2017;47(6):743-52.	12/1	2017

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 604	Analysis of Cinical Problems	2(2-0-4)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 610	Communication in Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

7. Name **Associate Professor Usanarat Anurathapan**
รองศาสตราจารย์ นายแพทย์อุษณรัสมิ์ อนุรัฐพันธ์

Education

Degree	Degree Name	Institute	Year of Graduation
M.D.		Mahidol University	2000

Faculty/Institute/College

Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Cellular immunotherapy, chimeric antigen receptor-modified T cells, viral specific T cells
2. Gene therapy in thalassemia and Gaucher disease
3. Stem cell biology
4. Pediatric hematopoietic stem cell transplantation and Pediatric Hematology/ Oncology

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Surapolchai P, **Anurathapan U**, Sermcheep A, Pakakasama S, Sirachainan N, Songdej D, Pongpitcha P, Hongeng S. Long-Term Outcomes of Modified St Jude Children's Research Hospital Total Therapy XIIIB and XV Protocols for Thai Children With Acute Lymphoblastic Leukemia. Clin Lymphoma Myeloma Leuk. 2019 Aug;19(8):497-505.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Choeyprasert W, **Anurathapan U**, Pakakasama S, Sirachainan N, Songdej D, Lertthammakiat S, Hongeng S. Pediatric non-Hodgkin lymphoma: Characteristics, stratification, and treatment at a single institute in Thailand. Pediatr Int. 2019 Jan;61(1):49-57.	12/1	2019
	Vanichapol T, Chiangjong W, Panachan J, **Anurathapan U**, Chutipongtanate S, Hongeng S. Secretory High-Mobility Group Box 1 Protein Affects Regulatory T Cell Differentiation in Neuroblastoma Microenvironment *In Vitro*. J Oncol. 2018 Dec 16;2018:7946021.	12/1	2018
	Rojanaporn D, Boontawon T, Chareonsirisuthigul T, Thanapanpanich O, Attaseth T, Saengwimol D, **Anurathapan U**, Sujirakul T, Kaewkhaw R, Hongeng S. Spectrum of germline *RB1* mutations and clinical manifestations in retinoblastoma patients from Thailand. Mol Vis. 2018 Dec 9;24:778-788.	12/1	2018
	Thanuthanakhun N, Nuntakarn L, Sampattavanich S, **Anurathapan U**, Phuphanitcharoenkun S, Pornpaiboonstid S, Borwornpinyo S, Hongeng S. Investigation of FoxO3 dynamics during erythroblast development in β-thalassemia major. PLoS One. 2017 Nov 3;12(11):e0187610.	12/1	2017

Current Teaching Load

RAPD 403	General Pediatrics	5 (2-6-7)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

8. Name **Associate Professor Dr. Wiparat Manuyakorn**
รองศาสตราจารย์ ดร. แพทย์หญิงวิภารัตน์ มนุญากร

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Infection Inflammation and Immunity	University of Southampton, UK	2012
Dip.	Allergy and Immunology	The Medical Council of Thailand	2007
Dip.	Pediatrics	The Medical Council of Thailand	2004
M.Sc.	Pediatrics	Chulalongkorn University	2003
M.D.		Chulalongkorn University	1998

Faculty/Institute/College

Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Molecular Mechanisms of Allergic diseases, such as food allergies, respiratory allergies, Asthma
2. Congenital immunodeficiency

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Singvijarn P, **Manuyakorn W**, Mahasirimongkol S, Wattanapokayakit S, Inunchot W, Wichukchinda N, et al. Association of HLA genotypes with Beta-lactam antibiotic hypersensitivity in children. Asian Pac J Allergy Immunol. 2019. Apr 23.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	**Manuyakorn W**, Tanpowpong P. Cow milk protein allergy and other common food allergies and intolerances. Paediatr Int Child Health. 2019;39(1):32-40.	12/1	2019
	Sinitkul R, **Manuyakorn W**, Kamchaisatian W, Vilaiyuk S, Benjaponpitak S, Lertudompholwanit C, et al. De novo food allergy in pediatric liver transplantation recipients. Asian Pac J Allergy Immunol. 2018;36(3):166-74.	12/1	2018
	Siwarom S, Puranitee P, Plitponkarnpim A, **Manuyakorn W**, Sinitkul R, Arj-Ong Vallipakorn S. Association of indoor air quality and preschool children's respiratory symptoms. Asian Pac J Allergy Immunol. 2017;35(3):119-26.	12/1	2017
	Manuyakorn W, Smart DE, Noto A, Bucchieri F, Haitchi HM, Holgate ST, et al. Mechanical Strain Causes Adaptive Change in Bronchial Fibroblasts Enhancing Profibrotic and Inflammatory Responses. PLoS One. 2016;11(4):e0153926.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

9. Name **Assistant Professor Dr. Bhoom Suktitipat**
ผู้ช่วยศาสตราจารย์ ดร. นายแพทย์ภูมิ สุขธิติพัฒน์

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Epidemiology focused on Genetic Epidemiology	Johns Hopkins University, USA	2010
M.D.		Mahidol University	2003

Faculty/Institute/College

Department of Biochemistry, Faculty of Medicine Siriraj Hospital, Mahidol University

Interesting Research Topics or Specialties

1. The common epidemiological genetic diseases.
2. The development of statistical genetics.

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Bunbanjerdsuk S, Vorasan N, Saethang T, Pongrujikorn T, Pangpunyakulchai D, Mongkonsiri N, et al. Oncoproteomic and gene expression analyses identify prognostic biomarkers for second primary malignancy in patients with head and neck squamous cell carcinoma. Mod Pathol. 2019;32(7):943-56.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Niyomnaitham S, Parinyanitikul N, Roothumnong E, Jinda W, Samarnthai N, Atikankul T, et al. Tumor mutational profile of triple negative breast cancer patients in Thailand revealed distinctive genetic alteration in chromatin remodeling gene. PeerJ. 2019;7:e6501	12/1	2019
	Tirawanchai N, Supapornhemin S, Somkasetrin A, **Suktitipat B**, Ampawong S. Regulatory effect of Phikud Navakot extract on HMG-CoA reductase and LDL-R: potential and alternate agents for lowering blood cholesterol. BMC Complement Altern Med. 2018;18(1):258.	12/1	2018
	Suktitipat B, Sathirareuangchai S, Roothumnong E, Thongnoppakhun W, Wangkiratikant P, Vorasan N, et al. Molecular investigation by whole exome sequencing revealed a high proportion of pathogenic variants among Thai victims of sudden unexpected death syndrome. PLoS One. 2017;12(7):e0180056.	12/1	2017
	Phoompoung P, Ankasekwinai N, Pithukpakorn M, Foongladda S, Umrod P, **Suktitipat B**, et al. Factors associated with acquired Anti IFN- gamma autoantibody in patients with nontuberculous mycobacterial infection. PLoS One. 2017;12(4): e0176342.	12/1	2017

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 513	Clinical Epidermiology and Biostatistics in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

10. Name **Assistant Professor Dr. Natini Jinawath**
ผู้ช่วยศาสตราจารย์ ดร. แพทย์หญิงณฐินี จินาวัฒน์

Education

Degree	Degree Name	Institute	Year of Graduation
ABMGG	Clinical Cytogenetics	Johns Hopkins Medical Institution, USA	2011
Ph.D.	Molecular Pathology	The University of Tokyo, Japan	2006
M.D.		Mahidol University	1999

Faculty/Institute/College

Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Genomic study and biomarker discovery for diagnostic and therapeutic purpose in oncology
2. The study of copy number in genetic diseases and cancer for diagnosis
3. Translational study in genetic diseases and cancer using cutting-edge technology for diagnosis and planning for personalised treatment

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Tsai FJ, Lai MT, Cheng J, Chao SC, Korla PK, Chen HJ, et al. Novel K6-K14 keratin fusion enhances cancer stemness and aggressiveness in oral squamous cell carcinoma. Oncogene. 2019;38(26):5113-26.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Bunbanjerdsuk S, Vorasan N, Saethang T, Pongrujikorn T, Pangpunyakulchai D, Mongkonsiri N, et al. Oncoproteomic and gene expression analyses identify prognostic biomarkers for second primary malignancy in patients with head and neck squamous cell carcinoma. Mod Pathol. 2019;32(7): 943-56.	12/1	2019
	Saengwimol D, Rojanaporn D, Chaitankar V, Chittavanich P, Aroonroch R, Boontawon T, et al. A three-dimensional organoid model recapitulates tumorigenic aspects and drug responses of advanced human retinoblastoma. Sci Rep. 2018;8(1):15664.	12/1	2018
	Preedagasamzin S, Nualkaew T, Pongrujikorn T, **Jinawath N**, Kole R, Fucharoen S, et al. Engineered U7 snRNA mediates sustained splicing correction in erythroid cells from beta-thalassemia/HbE patients. Biochem Biophys Res Commun. 2018;499(1):86-92.	12/1	2018
	Hnoonual A, Thammachote W, Tim-Aroon T, Rojnueangnit K, Hansakunachai T, Sombuntham T, et al. Chromosomal microarray analysis in a cohort of underrepresented population identifies SERINC2 as a novel candidate gene for autism spectrum disorder. Sci Rep. 2017;7(1):12096.	12/1	2017
	Tim-Aroon T, **Jinawath N**, Thammachote W, Sinpitak P, Limrungsikul A, Khongkhatithum C, et al. 1q21.3 deletion involving GATAD2B: An emerging recurrent microdeletion syndrome. Am J Med Genet A. 2017;173(3):766-70.	12/1	2017

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	**Jinawath N**, Bunbanjerdsuk S, Chayanupatkul M, Ngamphaiboon N, Asavapanumas N, Svasti J, et al. Bridging the gap between clinicians and systems biologists: from network biology to translational biomedical research. J Transl Med. 2016;14(1):324.	12/1	2016

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)
RATM 610	Communication in Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

11. Name **Assistant Professor Dr. Pimtip Sanvarinda**
ผู้ช่วยศาสตราจารย์ ดร. แพทย์หญิงพิมทิพย์ สังวรินทะ

Education

Degree	Degree Name	Institute	Year of Graduation
Dip.	Medical Oncology	The Medical Council of Thailand	2017
Ph.D.	Pharmacology and Toxicology	University of California at Davis, USA	2011
M.D.		Mahidol University	2003

Faculty/Institute/College

Department of Pharmacology, Faculty of Science, Mahidol University.

Interesting Research Topics or Specialties

1. Cancer Biomarkers
3. Cancer Stem Cell
3. Molecular Pharmacology and Toxicology

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Pacharoen T., Chumnanvej S., Singhsnaeh A., **Sanvarinda P.,** Chongthammakun S., Jantaratnotai N. Characterization of NFAT expression in human glioma and its correlation with tumor grade. Songklanakarin J. Sci. Technol. 41 (3), 679-685, May - Jun. 2019.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Jiamvoraphong N., Jantaratnotai N., Sanvarinda P., Tuchinda P., Piyachaturawat P., hampithak A., **Sanvarinda P.** Concurrent suppression of NF-ΚB, p38 MAPK and reactive oxygen species formation underlies the effect of a novel compound isolated from Curcuma comosa Roxb. in LPS-activated microglia. J Pharm Pharmacol. 2017;69(7):917-24.	12/1	2017
	Suwanprinya L., Morales NP., **Sanvarinda P.**, Dieng H., Okabayashi T., Morales Vargas RE. Dengue Virus-Induced Reactive Oxygen Species Production in Rat Microglia Cells. Japanese Journal of Infectious Diseases. 2016 Dec 22.	12/1	2016
	Vattanarongkup J., Piyachaturawat P., Tuchinda P., **Sanvarinda P.**, Sanvarinda Y., Jantaratnotai N. Protective Effects of a Diarylheptanoid from Curcuma comosa Against Hydrogen Peroxide-Induced Astroglial Cell Death. Planta medica. 2016 Jun 24.	12/1	2016

Current Teaching Load

RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

12. Name **Assistant Professor Dr. Tulyapruek Tawonsawatruk**
ผู้ช่วยศาสตราจารย์ ดร. นายแพทย์ตุลยพฤกษ์ ถาวรสวัสดิ์รักษ์

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Tissue Engineering in Orthopeadic	The University of Edinburgh, UK	2014
PGDip	Clinical Education	The Royal College of Physicians and Surgeons of Glasgow, UK	2013
Dip.	Orthopedic Surgery	The Medical Council of Thailand	2009
M.D.		Mahidol University	2004

Faculty/Institute/College

Department of Orthopedic, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Tissue Engineering
2. Orthopedic Sciences
3. Stem cell and cellular therapy in Musculoskeletal disease

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Kim YC, Yang JH, Kim HJ, **Tawonsawatruk T**, Chang YS, Lee JS, et al. Distal Femoral Varus Osteotomy for Valgus Arthritis of the Knees: Systematic Review of Open versus Closed Wedge Osteotomy. Knee Surg Relat Res. 2018;30(1):3-16.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Kanchanathepsak T, Wairojanakul W, Phakdepiboon T, Suppaphol S, Watcharananan I, **Tawonsawatruk T.** Hypothenar fat pad flap vs conventional open release in primary carpal tunnel syndrome: A randomized controlled trial. World J Orthop. 2017;8(11):846-52.	12/1	2017
	Kim YC, **Tawonsawatruk T**, Woon HH, Yum JW, Shin MJ, Bravo RS, et al. The Effect of Different Sagittal Angles of the Tibial Guide on Aperture Widening of the Tibial Tunnel during Modified Transtibial Anterior Cruciate Ligament Reconstruction: A Randomized In Vivo Study. Knee Surg Relat Res. 2017;29(1):26-32.	12/1	2017
	James AW, Hindle P, Murray IR, West CC, **Tawonsawatruk T**, Shen J, et al. Pericytes for the treatment of orthopedic conditions. Pharmacol Ther. 2017;171:93-103.	12/1	2017
	Kunanusornchai W, Witoonpanich B, **Tawonsawatruk T**, Pichyangkura R, Chatsudthipong V, Muanprasat C. Chitosan oligosaccharide suppresses synovial inflammation via AMPK activation: An in vitro and in vivo study. Pharmacol Res. 2016;113(Pt A):458-67.	12/1	2016

Current Teaching Load

RATM 604	Analysis of Clinical Problem	2(2-0-4)
RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 604	Analysis of Clinical Problems	2(2-0-4)
RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

13. Name **Assistant Professor Dr. Varodom Charoensawan**
ผู้ช่วยศาสตราจารย์ ดร.วโรดม เจริญสวรรค์

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Theoretical and Computational Biology	University of Cambridge, UK	2011
M. Phil	Computational Biology	University of Cambridge, UK	2007
B. Eng.	Biochemical Engineering	University College London, UK	2006

Faculty/Institute/College

Department of Biochemistry, Faculty of Science, Mahidol University

Interesting Research Topics or Specialties

Biology system, Bioinformatics, Molecular Biology of Plants, The function of genes control,

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Sonthiphand P, Ruangroengkulrith S, Mhuantong W, **Charoensawan V**, Chotpantarat S, Boonkaewwan S. Metagenomic insights into microbial diversity in a groundwater basin impacted by a variety of anthropogenic activities. Environ Sci Pollut Res Int. 2019.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Udom N, Chansongkrow P, **Charoensawan V**, Auesukaree C. Coordination of the Cell Wall Integrity and High-Osmolarity Glycerol Pathways in Response to Ethanol Stress in Saccharomyces cerevisiae. Appl Environ Microbiol. 2019;85(15).	12/1	2019
	Shiao MS, Chiablaem K, **Charoensawan V**, Ngamphaiboon N, Jinawath N. Emergence of Intrahepatic Cholangiocarcinoma: How High-Throughput Technologies Expedite the Solutions for a Rare Cancer Type. Front Genet. 2018;9:309.	12/1	2018
	Cortijo S, **Charoensawan V**, Brestovitsky A, Buning R, Ravarani C, Rhodes D, et al. Transcriptional Regulation of the Ambient Temperature Response by H2A.Z Nucleosomes and HSF1 Transcription Factors in Arabidopsis. Mol Plant. 2017;10(10):1258-73.	12/1	2017
	Ezer D, Shepherd SJK, Brestovitsky A, Dickinson P, Cortijo S, **Charoensawan V**, et al. The G-Box Transcriptional Regulatory Code in Arabidopsis. Plant Physiol. 2017;175(2):628-40.	12/1	2017
	Pinweha P, Rattanapornsompong K, **Charoensawan V**, Jitrapakdee S. MicroRNAs and oncogenic transcriptional regulatory networks controlling metabolic reprogramming in cancers. Comput Struct Biotechnol J. 2016;14:223-33.	12/1	2016
	Yang W, Schuster C, Beahan CT, **Charoensawan V**, Peaucelle A, Bacic A, et al. Regulation of Meristem Morphogenesis by Cell Wall Synthases in Arabidopsis. Curr Biol. 2016;26(11):1404-15.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 611	Coaching and Mentoring in Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

14. Name **Assistant Professor Dr. Objoon Trachoo**
ผู้ช่วยศาสตราจารย์ ดร. นายแพทย์โอบจุฬ ตราชู

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Biomedical Science	University of Sheffield, UK	2010
Dip.	Medicine	The Medical Council of Thailand	2006
Grad. Dip.	Medicine	Mahidol University	2004
M.D.		Mahidol University	2000

Faculty/Institute/College

Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Searching for Genes and Genetic Mechanisms that cause the following diseases, Persenile heart diseases, kidney diseases, and brain diseases, Lysosomal inherited metabolic disorders, Chromosome abnormalities, Defects in sensory organs, and other Genetic rare diseases

2. Stem Cell Biotechnology development for Monogenic Disease study model

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Sakpichaisakul K, Saengow VE, Suwanpratheep P, Rongnoparat K, Panthan B, **Trachoo O**. Novel PANK2 mutation discovered among South East Asian children living in Thailand affected with pantothenate kinase associated neurodegeneration. J Clin Neurosci. 2019;66:187-90.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Kantaputra PN, Smith LJ, Casal ML, Kuptanon C, Chang YC, Nampoothiri S, et al. Oral manifestations in patients and dogs with mucopolysaccharidosis Type VII. Am J Med Genet A. 2019;179(3):486-93.	12/1	2019
	Trachoo O, Satirapod C, Panthan B, Sukprasert M, Charoenyingwattana A, Chantratita W, et al. First successful trial of preimplantation genetic diagnosis for pantothenate kinase-associated neurodegeneration. J Assist Reprod Genet. 2017;34(1):109-16.	12/1	2017
	Kamseng P, Trakulsrichai S, **Trachoo O**, Yimniam W, Panthan B, Jittorntam P, et al. Low oxygen saturation and severe anemia in compound heterozygous Hb Louisville [beta42(CD1)Phe-->Leu] and Hb La Desirade [beta129(H7)Ala-->Val]. Hematology. 2017;22(2):114-8.	12/1	2017
	Sriphrapradang C, Thewjitcharoen Y, Chanprasertyothin S, Nakasatien S, Himathongkam T, **Trachoo O**. A Novel Mutation in Thyroid Peroxidase Gene Causing Congenital Goitrous Hypothyroidism in a German-Thai Patient. J Clin Res Pediatr Endocrinol. 2016;8(2):241-5.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 604	Analysis of Clinical Problems	2(2-0-4)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

15. Name **Lecturer Dr. Jakrise Eu-ahsunthornwattana**
อาจารย์ ดร. นายแพทย์จักรกฤษณ์ เอื้อสุนทรวัฒนา

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Statistical Genetics	Institute of Genetic Medicine, Newcastle University, UK	2015
M.Sc.	Epidemiology: Principles and Practice	London School of Hygiene and Tropical Medicine, University of London External Programme, UK	2005
M.D.		Mahidol University	1998

Faculty/Institute/College

Department of Community Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Statistical genetics
2. Genetic epidemiology
3. Complex diseases genetics
4. Methodology in epidemiology and biostatistics
5. Medical genetics

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Charoen P, **Eu-ahsunthornwattana J**, Thongmung N, Jose PA, Sritara P, Vathisatogkit P, Kitiyakara C. The contribution of four polymorphisms in renin-angiotensin-aldosterone-related genes in hypertension in a Thai population. *Int J Hypertension* 2019 Aug 14;2019:4861081.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
	Shotelersuk V, Tongsima S, Pithukpakorn M, **Eu-ahsunthornwattana J**, Mahasirimongkol S. Precision medicine in Thailand. *Am J Med Genet C Semin Med Genet* 2019Jun;181(2):245-253	12/1	2016
	Howey RAJ, **Eu-Ahsunthornwattana J**, Darlay R, Cordell HJ. Examination of previously identified associations within the Genetic Analysis Workshop 19 data. *BMC Proc* 2016 Oct 18;10(Suppl 7):97-101.	12/1	2016

Current Teaching Load

SCID 324	Medical Genetics	2 (2-0-4)
RACM 302	Community Medicine	5 (3-4-8)
RACM 404	Community Medicine I	5 (2-6-7)
RAID 515	Primary Care Medicine II	5 (2-6-7)
RAOT 604	Principle of Occupational Health Epidemiology	3 (3-0-6)
RAOT 608	Human Genetic and Biomonitoring in Occupational Health	1 (1-0-2)
SCID 311	Behavioral science and epidemiology	2 (2-0-4)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 513	Clinical Epidemiology and Biostatistics in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

16. Name **Lecturer Dr. Kenjiro Muta**

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Molecular and Cellular Biology	University of Iowa, USA	2014
B.S.	Applied Biochemistry	Saga University, Japan	1999

Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

Study the underlying mechanisms responsible for obesity, diabetes and cardiovascular diseases

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	**Muta K**, Matsen ME, Acharya NK, Stefanovski D, Bergman RN, Schwartz MW, Morton GJ. Glucoregulatory responses to hypothalamic preoptic area cooling. Brain Res. 2019 Jan 2. pii: S0006-8993(19)30003-4.	12/1	2019
	Scarlett JM, **Muta K**, Brown JM, Rojas JM, Matsen ME, Acharya NK, Secher A, Ingvorsen C, Jorgensen R, Høeg-Jensen T, Stefanovski D, Bergman RN, Piccinini F, Kaiyala KJ, Shiota M, Morton GJ, Schwartz MW. Peripheral mechanisms mediating the sustained anti-diabetic action of FGF1 in the brain. Diabetes. 2018 Dec 6. pii: db180498.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Deem, J.D., **Muta, K.**, Scarlett, J.M., Morton, G.J. and Schwartz, M.W.: How Should We Think About the Role of the Brain in Glucose Homeostasis and Diabetes? Diabetes. 2017 Jul;66(7):1758-1765. PMID: 28603139	12/1	2017
	Kaiyala, K.J., Ogimoto, K., Nelson J.T., **Muta, K.** and Morton, G.J.: Response to *Leptin-deficient mice are not hypothermic, they are anapyrexic.* Molecular Metabolism. 2017 Jan 26;6(4):313-314. PMID: 28377869	12/1	2017

Current Teaching Load

RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 611	Coaching and Mentoring in Translational Medicine Research	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)

17. Name **Lecturer Dr. Nithi Asavapanumas**

อาจารย์ ดร. นายแพทย์นิธิ อัศวภาณุมาศ

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Neuroscience	Graduate Training centre of Neuroscience, International Max Planck Research School Unversity of Tübingen, Germany	2019
M.D.		Mahidol University	2009

Faculty/Institute/College

Department of Physiology, Faculty of Science, Mahidol University

Interesting Research Topics or Specialties

1. Aging and aging-related neurodegenerative disorder
2. Autoimmune neurodegenerative disorder

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Olmedillas Del Moral M, **Asavapanumas N**, Uzcategui NL, Garaschuk O. Int J Mol Sci. 2019 Jan 30;20(3). Pii: E589.	12/1	2019
	Wongwan T, Kittayaruksakul S, **Asavapanumas N**, Chatsudthipong V, Soodvilai S. Pflugers Arch. 2017 Nov;469(11):1471-1481.	12/1	2017

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Jinawath N, Bunbanjerdsuk S, Chayanupatkul M, Ngamphaiboon N, **Asavapanumas N**, Svasti J, Charoensawan V. J Transl Med. 2016 Nov 22;14(1):324 Review.	12/1	2016

Current Teaching Load

RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

18. Name **Lecturer Dr. Nuankanya Sathirapongsasuti**

อาจารย์ ดร. แพทย์หญิงนวลกันยา สถิรพงษะสุทธิ

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Medical Genome Sciences	University of Tokyo, Japan	2010
M.D.		Mahidol University	2005

Faculty/Institute/College

Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Identify and study how microRNAs alter the expression of key genes involved in developmental and pathophysiology of human diseases
2. Multi-omics data integration to identify novel pathways in kidney diseases
3. Genomic evolution of Thai box jellyfish.
4. Nanotechnology-based development for clinical diagnostic kits

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Srinoun K, **Sathirapongsasuti N**, Paiboonsukwong K, Sretrirutchai S, Wongchanchailert M, Fucharoen S. miR-144 regulates oxidative stress tolerance of thalassemic erythroid cell via targeting NRF2. Ann Hematol. 2019.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Tangprasittipap A, Kaewprommal P, Sripichai O, **Sathirapongsasuti N**, Satirapod C, Shaw PJ, et al. Comparison of gene expression profiles between human erythroid cells derived from fetal liver and adult peripheral blood. PeerJ. 2018;6:e5527.	12/1	2018
	Chanrat E, Worawichawong S, Radinahamed P, **Sathirapongsasuti N**, Nongnuch A, Assanatham M, et al. Urine epidermal growth factor, monocyte chemoattractant protein-1 or their ratio as predictors of complete remission in primary glomerulonephritis. Cytokine. 2018;104:1-7.	12/1	2018
	Yamagishi J, Runtuwene LR, Hayashida K, Mongan AE, Thi LAN, Thuy LN, et al. Serotyping dengue virus with isothermal amplification and a portable sequencer. Sci Rep. 2017;7(1):3510.	12/1	2017
	Worawichawong S, Worawichawong S, Radinahamed P, Muntham D, **Sathirapongsasuti N**, Nongnuch A, et al. Urine Epidermal Growth Factor, Monocyte Chemoattractant Protein-1 or Their Ratio as Biomarkers for Interstitial Fibrosis and Tubular Atrophy in Primary Glomerulonephritis. Kidney Blood Press Res. 2016;41(6):997-1007.	12/1	2016
	Sirisopha A, Vanavanan S, Chittamma A, Phakdeekitcharoen B, Thakkinstian A, Lertrit A, et al. Effects of Therapy on Urine Neutrophil Gelatinase-Associated Lipocalin in Nondiabetic Glomerular Diseases with Proteinuria. Int J Nephrol. 2016;2016:4904502.	12/1	2016

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine	1(1-0-2)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

19. Name **Lecturer Dr. Pimonrat Ketsawatsomkron**
อาจารย์ ดร. เภสัชกรหญิงพิมลรัตน์ เกตุสวัสดิ์สมคร

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Biomedical Science	Medical College of Georgia, USA	2008
B. Pharm		Mahidol University	2002

Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Mechanisms of cardiovascular diseases from cellular level to whole animal physiology
2. An organ on a chip model

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Mukohda M, Lu KT, Guo DF, Wu J, Keen HL, Liu X, **Ketsawatsomkron P**, Stump M, Rahmouni K, Quelle FW, Sigmund CD.Hypertension-Causing Mutation in Peroxisome Proliferator-Activated Receptor γ Impairs Nuclear Export of Nuclear Factor-κB p65 in Vascular Smooth Muscle. Hypertension. 70(1):174-182, 2017	12/1	2017

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Prasad AM, **Ketsawatsomkron P,** Nuno DW, Koval OM, Dibbern ME, Venema AN, Sigmund CD, Lamping KG, Grumbach IM. Role of CaMKII in Ang-II-dependent small artery remodeling. Vascul Pharmacol. 87:172-179, 2016	12/1	2016
	Ketsawatsomkron P, Keen HL, Davis DR, Lu KT, Stump M, De Silva TM, Hilzendeger AM, Grobe JL, Faraci FM, Sigmund CD. Protective Role for Tissue Inhibitor of Metalloproteinase-4, a Novel Peroxisome Proliferator-Activated Receptor- γ Target Gene, in Smooth Muscle in Deoxycorticosterone. Acetate-Salt Hypertension. Hypertension 67(1):214-22, 2016.	12/1	2016
	Mukohda M, Stump M, **Ketsawatsomkron P**, Hu C, Quelle FW, Sigmund CD. Endothelial PPAR- γ provides vascular protection from IL-1β-induced oxidative stress. Am J Physiol Heart Circ Physiol 1;310(1):H39-48, 2016	12/1	2016

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 610	Communication in Translational Medicine Research	1(1-0-2)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

20. Name **Lecturer Dr. Promsuk Jutabha**

อาจารย์ ดร.พร้อมสุข ชุตาภา

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Physiology	Mahidol University	2000
M.Sc.	Physiology	Chulalongkorn University	1994
B.Sc.	Nursing and Midwifery	Mahidol University	1990

Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Drug-Drug interaction
2. Screening of new potential compounds for nutraceuticals
3. Membrane transporters

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Harada S, Kajihara R, Muramoto R, **Jutabha P**, Anzai N, Nemoto T. Catalytic asymmetric synthesis of α-methyl-*p*-boronophenylalanine. Bioorg Med Chem Lett. 28(10): 1915-1918, 2018.	12/1	2018
	Hori T, Ouchi M, Otani N, Nohara M, Morita A, Otsuka Y, **Jutabha P**, Shibasaki I, Matsushita Y, Fujita T, Fukuda H, Anzai N. The uricosuric effects of dihydropyridine calcium channel blockers in vivo using urate under-excretion animal models. J Pharmacol Sci. 136(4): 196-202, 2018.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Ouchi M, Oba K, Kaku K, Suganami H, Yoshida A, Fukunaka Y, **Jutabha P**, Morita A, Otani N, Hayashi K, Fujita T, Suzuki T, Yasutake M, Anzai N. Uric acid lowering in relation to HbA1c reductions with the SGLT2 inhibitor tofogliflozin. Diabetes Obes. Metab. 20(4): 1061-1065, 2018.	12/1	2018
	Yothaisong S, Namwat N, Yongvanit P, Khuntikeo N, Puapairoj A, **Jutabha P**, Anzai N, Tassaneeyakul W, Tangsucharit P, Loilome W. Increase in L-type amino acid transporter 1 expression during cholangiocarcinogenesis caused by liver fluke infection and its prognostic significance. Parasitol Int. 66(4): 471-478, 2017.	12/1	2017
	Otani N, Ouchi M, Hayashi K, Jutabha P, Anzai N. Roles of organic anion transporters (OATs) in renal proximal tubules and their localization. Anat Sci Int. 2017;92(2):200-6.	12/1	2017

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 610	Communication in Translational Medicine Research	1(1-0-2)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

21. Name **Lecturer Dr. Rossukon Kaewkhaw**

อาจารย์ ดร.รสสุคนธ์ แก้วขาว

Education

Degree	Degree Name	Institute	Year of Graduation
Post-doctoral fellow		National Eye Institute/National Institute of Health, USA	2015
Ph.D.	Stem cells and Tissue Engineering	University of Sheffield, UK	2011
M.Sc.	Molecular Genetics and Genetic Engineering	Mahidol University	2007
B.S.	Biotechnology	Maejo University	2005

Faculty/Institute/College

Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Childhood cancers (neuroblastoma and retinoblastoma)
2. Cancer modeling (tissue organoids and stem cell-derived organoids)
3. Drug reprofiling and discovery
4. Cancer genetics

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Saengwimol D, Rojanaporn D, Chaitankar V, Chittavanich P, Aroonroch R, Boontawon T, et al. A three-dimensional organoid model recapitulates tumorigenic aspects and drug responses of advanced human retinoblastoma. Sci Rep. 2018;8(1):15664.	12, 1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
	Rojanaporn D, Boontawon T, Chareonsirisuthigul T, Thanapanpanich O, Attaseth T, Saengwimol D, et al. Spectrum of germline RB1 mutations and clinical manifestations in retinoblastoma patients from Thailand. Mol Vis. 2018;24:778-88.	12/1	2018
	Kaewkhaw R, Swaroop M, Homma K, Nakamura J, Brooks M, Kaya KD, et al. Treatment Paradigms for Retinal and Macular Diseases Using 3-D Retina Cultures Derived From Human Reporter Pluripotent Stem Cell Lines. Invest Ophthalmol Vis Sci. 2016;57(5):ORSFl1-ORSFl11.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)
RATM 607	Seminars in Biomedical and Translational Medicine	1(1-0-2)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

22. Name **Lecturer Dr. Sirawat Srichatrapimuk**

อาจารย์ ดร. นายแพทย์สิรวัฒน์ ศรีฉัตราภิมุข

Education

Degree	Degree Name	Institute	Year of Graduation
Dip.	Infectious Diseases	Mahidol University	2016
Dip.	Internal Medicine	Mahidol University	2014
M.D.		Mahidol University	2010
Ph.D.	Medical Microbiology	Mahidol University	2008
B.Sc.	Medical Science	Mahidol University	2003

Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Infectious diseases
2. HIV
3. Tuberculosis

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Chotiprasitsakul D, **Srichatrapimuk S**, Kirdlarp S, Pyden AD, Santanirand P. Epidemiology of carbapenem-resistant Enterobacteriaceae: a 5-year experience at a tertiary care hospital. Infect Drug Resist. 2019;12:461-8.	12/1	2019
	Srichatrapimuk S, Sungkanuparph S. Integrated therapy for HIV and cryptococcosis. AIDS Res Ther. 2016;13(1):42	12/1	2016

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	**Srichatrapimuk S**, Wattanatranon D, Sungkanuparph S. Tuberculous Panophthalmitis with Lymphadenitis and Central Nervous System Tuberculoma. Case Rep Infect Dis. 2016;6785382	12/1	2016

Current Teaching Load

SCID 331	Human Immune Response	3 (2-2-5)
SCID 332	Human and Microbe Interaction I	4 (3-2-7)
SCID 333	Human and Microbe Interaction II	3 (2-2-5)
RATM 512	Technology in Translational Medicine	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

23. Name **Lecturer Dr. Somchai Chutipongtanate**

อาจารย์ ดร. นายแพทย์สมชาย ชุติพงษ์ธเนศ

Education

Degree	Degree Name	Institute	Year of Graduation
Board Certificate	Pediatrics	Mahidol University	2016
M.D.		Mahidol University	2009
Ph.D.	Immunology	Mahidol University	2005

Faculty/Institute/College

Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Pediatrics
2. Proteomics/SWATH-MS
3. Immunology/Regulartory T cells

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Vanichapol T, Pongsakul N, Srisala S, Apiwattanakul N, **Chutipongtanate S,** Hongeng S. Suppressive Characteristics of Umbilical Cord Blood-Derived Regulatory T Cells after *Ex Vivo* Expansion on Autologous and Allogeneic T Effectors and Various Lymphoblastic Cells**.** J Immunother 2019;42**(**4**):**110-118**.**	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Vanichapol T, Chiangjong W, Panachan J, Anurathapan U, **Chutipongtanate S**, Hongeng S. Secretory high-mobility group box 1 protein affects regulatory T cell differentiation in neuroblastoma microenvironment *in vitro*.J Oncol. 2018:7946021.	12/1	2018
	Chutipongtanate S, Greis KD Multiplex biomarker screening assay for urinary extracellular vesicles study: A targeted label-free proteomic approach. Sci Rep. 2018;8(1):15039.	12/1	2018
	Vanichapol T, **Chutipongtanate S**, Anurathapan U, Hongeng S Immune Escape Mechanisms and Future Prospects for Immunotherapy in Neuroblastoma. Biomed Res Int. 2018;2018:1812535.	12/1	2018
	Verathamjamras C, Weeraphan C, Chokchaichamnankit D, Watcharatanyatip K, Subhasitanont P, Diskul-Na-Ayudthaya P, Mingkwan K, Luevisadpaibul V, **Chutipongtanate S,** Champattanachai V, Svasti J, Srisomsap C Secretomic profiling of cells from hollow fiber bioreactor reveals PSMA3 as a potential cholangiocarcinoma biomarker. Int J Oncol. 2017;51(1):269-280.	12/1	2018

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

24. Name **Lecturer Dr. Titiwat Sungkaworn**

อาจารย์ ดร.ฐิติวัฒน์ สังขวร

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Physiology	Mahidol University	2011
B.Sc.	Biology	Mahidol University	2007

Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Molecular Pharmacology and Cellular Biology of G protein-coupled receptor signaling
2. Renal Pathophysiology by focusing on diabetic nephropathy
3. Advanced Fluorescence Microscopy and fluorescence-based biosensors for cellular signaling

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Weron A, Janczura J, Boryczka E, **Sungkaworn T**, Calebiro D. Statistical testing approach for anomalous diffusion classification. *Physical Review E*. 2019; 99:042149.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Treppiedi D, Jobin ML, Peverelli E, Giardino E, **Sungkaworn T**, Zabel U, Arosio M, Spada A, Mantovani G, Calebiro D. Single-Molecule Microscopy Reveals Dynamic FLNA Interactions Governing SSTR2 Clustering and Internalization. *Endocrinology*. 2018; 159(8):2953-2965.	12/1	2018
	Sungkaworn T, Jobin ML, Burnecki K, Weron A, Lohse MJ, Calebiro D. Single-molecule imaging reveals receptor-G protein interactions at cell surface hot spots. *Nature*. 2017; 550(7677): 543-547.	12/1	2017
	Lyga S, Volpe S, Werthmann RC, Götz K, **Sungkaworn T**, Lohse MJ, Calebiro D. Persistent cAMP signaling by internalized LH receptors in ovarian follicles. *Endocrinology*. 2016; 157(4): 1613-21.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)
RATM 611	Coaching and Mentoring in Translational Medicine Research	1(1-0-2)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

25. Name **Lecturer Dr. Wittaya Sungkarat**

อาจารย์ ดร. นายแพทย์วิทยา สังขรัตน์

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Biomedical Engineering	University of Southern California, USA	2007
M.Sc.	Electrical Engineering	University of Southern California, USA	1999
M.Sc.	Biomedical Engineering	University of Southern California, USA	1996
M.D.		Mahidol University	1985

Faculty/Institute/College

Department of Diagnostic and Therapeutic Radiology, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

Medical Imaging

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Thitichai N, Thanapongpibul C, Theerasilp M, **Sungkarat W**, Nasongkla N. Study of biodistribution and systemic toxicity of glucose functionalized SPIO/DOX micelles. Pharm Dev Technol. 2019;24(8):935-46.	12/ 1	2019
	Theerasilp M, Chalermpanapun P, Sunintaboon P, **Sungkarat W**, Nasongkla N. Glucose-installed biodegradable polymeric micelles for cancer-targeted drug delivery system: synthesis, characterization and in vitro evaluation. J Mater Sci Mater Med. 2018;29(12):177.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Lerkvaleekul B, Jaovisidha S, **Sungkarat W**, Chitrapazt N, Fuangfa P, Ruangchaijatuporn T, et al. The comparisons between thermography and ultrasonography with physical examination for wrist joint assessment in juvenile idiopathic arthritis. Physiol Meas. 2017;38(5):691-700.	12/1	2017
	Chuansumrit A, Pengpis P, Mahachoklertwattana P, Sirachainan N, Poomthavorn P, **Sungkarat W**, et al. Effect of Iron Chelation Therapy on Glucose Metabolism in Non-Transfusion-Dependent Thalassaemia. Acta Haematol. 2017;137(1):20-6.	12/1	2017
	Chuansumrit A, Laothamathat J, Sirachainan N, **Sungkarat W**, Wongwerawattanakoon P, Kumkrua P. Correlation between liver iron concentration determined by magnetic resonance imaging and serum ferritin in adolescents with thalassaemia disease. Paediatr Int Child Health. 2016;36(3):203-8.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Full time instructors

1. Name **Professor Boonsong Ongpipathdhanakul**
ศาสตราจารย์ นายแพทย์บุญส่ง องค์พิพัฒนกุล

Education

Degree	Degree Name	Institute	Year of Graduation
M.B.A.	Business Administration	Chulalongkorn University	1999
M.D.		Mahidol University	1993

Faculty/Institute/College

Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Calcium and bone metabolism
2. Diabetes

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Pinyopodjanard S, Suppakitjanusant P, Lomprew P, Kasemkosin N, Chailurkit L, **Ongphiphadhanakul B.** Instrumental Acoustic Voice Characteristics in Adults with Type 2 Diabetes. J Voice. 2019 Aug 17. pii: S0892-1997(19)30105-5.	12/1	2019
	Chailurkit L, Nimitphong H, Saetung S, **Ongphiphadhanakul B**. Urinary metabolic profiles after vitamin D2 versus vitamin D3 supplementation in prediabetes. J Clin Transl Endocrinol. 2019;16:100194.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Nimitphong H, Siwasaranond N, Sritara C, Saetung S, Chailurkit LO, Chirakalwasan N, et al. The differences in the relationship between obstructive sleep apnea severity and trabecular bone score in men and women with type 2 diabetes. J Clin Transl Endocrinol. 2019;16:100193.	12/1	2019
	Songpatanasilp T, Rojanasthien S, Sugkraroek P, **Ongphiphadhanakul B**, Robert L, Robert CS, et al. Open-label study of treatment with alendronate sodium plus vitamin D in men and women with osteoporosis in Thailand. BMC Musculoskelet Disord. 2018;19(1):392.	12/1	2018

Current Teaching Load

RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

2. Name **Professor Samart Pakakasama**

ศาสตราจารย์ นายแพทย์สามารถ ภคกษมา

Education

Degree	Degree Name	Institute	Year of Graduation
Dip.	Pediatics Hematology Oncology	University of Texas Southwestern Medical Center, USA	2001
Dip.	Hematology	Mahidol University	1998
Grad. Dip.	Pediatics	Mahidol University	1997
M.D.		Mahidol University	1992

Faculty/Institute/College

Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

Pediatics Hematology Oncology

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Puranitee P, Stevens F, **Pakakasama S**, Plitponkarnpim A, Vallibhakara SA, Busari JO, et al. Correction to: Exploring burnout and the association with the educational climate in pediatric residents in Thailand. BMC Med Educ. 2019;19(1):296.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Puranitee P, Stevens F, **Pakakasama S**, Plitponkarnpim A, Vallibhakara SA, Busari JO, et al. Exploring burnout and the association with the educational climate in pediatric residents in Thailand. BMC Med Educ. 2019;19(1):245.	12/1	2019
	Klaihmon P, Lertthammakiat S, Anurathapan U, **Pakakasama S**, Sirachainan N, Hongeng S, et al. Activated platelets and leukocyte activations in young patients with beta-thalassemia/HbE following bone marrow transplantation. Thromb Res. 2018;169:8-14.	12/1	2018
	Sirachainan N, **Pakakasama S**, Anurathapan U, Hansasuta A, Dhanachai M, Khongkhatithum C, et al. Outcome of newly diagnosed high risk medulloblastoma treated with carboplatin, vincristine, cyclophosphamide and etoposide. J Clin Neurosci. 2018;56:139-42.	12/1	2018

Current Teaching Load

RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

3. Name **Professor Suradej Hongeng**

ศาสตราจารย์ นายแพทย์สุรเดช หงส์อิง

Education

Degree	Degree Name	Institute	Year of Graduation
ABP	Hematology Oncology	St. Jude Children's Research Hospital, USA	1996
ABP	Pediatrics	University of Illinois, USA	1993
Dip.	Pediatrics	Mahidol University	1990
M.D.		Mahidol University	1987

Faculty/Institute/College

Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

Hematology-Oncology

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Srisala S, Pongsakul N, Sahakijpicharn T, **Hongeng S**, Chutipongtanate S, Apiwattanakul N. Capillary blood as an alternative specimen for enumeration of percentages of lymphocyte subsets. BMC Res Notes. 2019 Sep 26;12(1):633.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Pongjantarasatian S, Kadegasem P, Sasanakul W, Sa-Ngiamsuntorn K, Borwornpinyo S, Sirachainan N, Chuansumrit A, Tanratana P, **Hongeng S.** Coagulant activity of recombinant human factor VII produced by lentiviral human F7 gene transfer in immortalized hepatocyte-like cell line. PLoS One. 2019 Aug 5;14(8):e0220825.	12/1	2019
	Paha J, Kanjanasirirat P, Munyoo B, Tuchinda P, Suvannang N, Nantasenamat C, Boonyarattanakalin K, Kittakoop P, Srikor S, Kongklad G, Rangkasenee N, **Hongeng S**, Utaisincharoen P, Borwornpinyo S, Ponpuak M. A novel potent autophagy inhibitor ECDD-S27 targets vacuolar ATPase and inhibits cancer cell survival. Sci Rep. 2019 Jun 24;9(1):9177.	12/1	2019
	Surapolchai P, Anurathapan U, Sermcheep A, Pakakasama S, Sirachainan N, Songdej D, Pongpitcha P, **Hongeng S.** Long-Term Outcomes of Modified St Jude Children's Research Hospital Total Therapy XIIIB and XV Protocols for Thai Children With Acute Lymphoblastic Leukemia. Clin Lymphoma Myeloma Leuk. 2019 Aug;19(8):497-505.	12/1	2019

Current Teaching Load

RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

4. Name **Professor Dr. Teeratorn Pulkate**

ศาสตราจารย์ ดร. นายแพทย์ธีรธร พูลเกษ

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Neurogenetics	University of London, UK	2004
Dip.	Neurology	Mahidol University	1995
M.D.		Mahidol University	1991

Faculty/Institute/College

Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

Genetics of Neurological diseases

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Vorasoot N, Termsarasab P, Thadanipon K, **Pulkes T.** Effects of handwriting exercise on functional outcome in Parkinson disease: A randomized controlled trial. J Clin Neurosci. 2019 Sep 7. pii: S0967-5868(19)31433-X.	12/1	2019
	Sangwirotekun P, Tritanon O, Jindahra P, **Pulkes T**, Ratanakorn D, Boonkongchuen P, et al. Brain MRI study in thai patient with neuromyelitis optica. Journal of the Medical Association of Thailand. 2018;101:126-30.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Wetchaphanphesat S, Mungaomklang A, Papsing C, **Pulkes T**. Epidemiological, clinical, and genotype characterization of spinocerebellar ataxia type in families in Buriram province, northeast Thailand. Asian Biomed. 2017;11(6):469-74.	12/1	2017
	Jindahra P, Tritanon O, Savangned P, Chokthaweesak W, Vanikieti K, Preechawat P, et al. Restricted diffusion of the optic nerve in NMO optic neuritis. Journal of the Neurological Sciences. 2017;381:480-1.	12/1	2017
	Choubtum L, Witoonpanich P, Kulkantrakorn K, Hanchaiphiboolkul S, Pongpakdee S, Tiamkao S, et al. Trinucleotide repeat expansion of TATA-binding protein gene associated with Parkinson's disease: A Thai multicenter study. Parkinsonism Relat Disord. 2016;28:146-9.	12/1	2016

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

5. Name **Associate Professor Dr. Areepan Sophonsritsuk**
รองศาสตราจารย์ ดร. แพทย์หญิงอารีย์พรรณ โสภณสฤษฎ์สุข

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Molecular Genetics and Genomics	Wake Forest University, USA	2010
Dip.	Reproductive Medicine	Mahidol University	2002
Dip.	Obstetrics and Gynecology	Mahidol University	2000
M.D.		Chulalongkorn University	1994

Faculty/Institute/College

Department of Obstetrics and Gynecology, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Gynecologic endocrinology
2. Endometriosis
3. Infertility

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Academic articles	Tantanavipas S, Vallibhakara O, **Sobhonslidsuk A**, Phongkitkarun S, Vallibhakara SA, Promson K, Sophonsritsuk A. Abdominal Obesity as a Predictive Factor of Nonalcoholic Fatty Liver Disease Assessed by Ultrasonography and Transient Elastography in Polycystic Ovary Syndrome and Healthy Women. Biomed Res Int 2019 Aug 4; 2019	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Academic articles	Sanguandeekul N, Vallibhakara O, Arj-Ong Vallibhakara S, **Sophonsritsuk A**. Gastrointestinal injuries during gynaecologic operations at a university teaching hospital in Thailand: a 10-year review. J Obstet Gynaecol. 2019 Apr;39(3):384-388.	12/1	2019
	Michalson KT, Groban L, Howard TD, Shively CA, **Sophonsritsuk A**, Appt SE, Cline JM, Clarkson TB, Carr JJ, Kitzman DW, Register TC. Estradiol Treatment Initiated Early After Ovariectomy Regulates Myocardial Gene Expression and Inhibits Diastolic Dysfunction in Female Cynomolgus Monkeys: Potential Roles for Calcium Homeostasis and Extracellular Matrix Remodeling. J Am Heart Assoc. 2018 Nov 6;7(21):e009769.	12/1	2018
	Sroyraya M, Songkoomkrong S, Changklungmoa N, Poljaroen J, Weerakiet S, **Sophonsritsuk A**, Wongkularb A, Lertvikool S, Tingthanatikul Y, Sobhon P. Differential expressions of estrogen and progesterone receptors in endometria and cyst walls of ovarian endometrioma from women with endometriosis and their responses to depo-medroxyprogesterone acetate treatment. Mol Cell Probes. 2018 Aug;40:27-36.	12/1	2018
	Sobhonslidsuk A, Numthavaj P, Wanichanuwat J, **Sophonsritsuk A**, Petraksa S, Pugasub A, Jittorntam P, Kongsomgan A, Roytrakul S, Phakdeekitcharoen B Reversal of Proximal Renal Tubular Dysfunction after Nucleotide Analogue Withdrawal in Chronic Hepatitis B. Biomed Res Int. 2017;2017:4327385.	12/1	2017

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

6. Name **Associate Professor Dr. Duangtawan Thammanichanond**
รองศาสตราจารย์ ดร. แพทย์หญิงดวงตะวัน ธรรมานิชานนท์

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Immunology	University of Melbourne, Australia	2007
Dip.	Clinical Pathology	Mahidol University	2002
M.D.		Mahidol University	1999

Faculty/Institute/College

Department of Pathology, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

Tissue examination before organ transplantation and bone marrow

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Wiwattanathum P, Ingsathit A, **Thammanichanond D**, Worawichawong S. Successful Treatment of Anti-angiotensin II Type 1 Receptor Antibody-Associated Rejection in Kidney Transplantation: A Case Report. Transplant Proc. 2018;50(3):877-80.	12/1	2018
	Thammanichanond D, Parapiboon W, Mongkolsuk T, Worawichawong S, Tammakorn C, Kitpoka P. Acute Antibody-Mediated Rejection by De Novo Anti-HLA-DPbeta and -DPalpha Antibodies After Kidney Transplantation: A Case Report. Transplant Proc. 2018;50(8):2548-52.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Khongjaroensakun N, Kitpoka P, Wiwattanathum P, Sakulchairungrueng B, **Thammanichanond D**. Influence of HLA-DQ Matching on Allograft Outcomes in Deceased Donor Kidney Transplantation. Transplant Proc. 2018;50(8):2371-6.	12/1	2018
	Tipjaiaue P, Ingsathit A, Kantachuvesiri P, Rattanasiri S, **Thammanichanond D**, Mongkolsuk T, et al. Outcome of Pretransplantation Therapeutic Plasma Exchange in Highly Sensitized Deceased-donor Kidney Transplant Recipients. Transplant Proc. 2017;49(6):1249-55.	12/1	2017
	Wiwattanathum P, Ingsathit A, **Thammanichanond D**, Mongkolsuk T, Sumethkul V. Significance of HLA Antibody Detected by PRA-Bead Method in Kidney Transplant Outcomes. Transplant Proc. 2016;48(3):761-5.	12/1	2016

Current Teaching Load

RATM 512	Technology in Translational Medicine	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

7. Name **Assistant Professor Dr. Parawee Chevaisakul**

ผู้ช่วยศาสตราจารย์ ดร. แพทย์หญิงปารวี ชีวะอิสระกุล

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Rheumatology	Leiden University Medical Center, The Netherlands	2012
Dip.	Internal Medicine	The Medical Council of Thailand	2006
Dip.	Medicine	The Medical Council of Thailand	2004
M.D.		Mahidol University	1998

Faculty/Institute/College

Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

Gout & Rheumatoid Arthritis (RA)

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Yongchairat K, Tanboon J, Waisayarat J, Narongroeknawin P, **Chevaisrakul P**, Dejthevaporn C, et al. Clinical spectrums and outcomes of necrotizing autoimmune myopathy versus other idiopathic inflammatory myopathies: a multicenter case-control study. Clin Rheumatol. 2019. Aug 24.	12/1	2019

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Kanjana K, Paisooksantivatana K, Matangkasombut P, **Chevaisrakul P**, Lumjiaktase P. Efficient short-term expansion of human peripheral blood regulatory T cells for co-culture suppression assay. J Immunoassay Immunochem. 2019:1-17. Aug 28:1-17.	12/1	2019
	Chiowchanwisawakit P, Katchamart W, Osiri M, Narongroeknawin P, **Chevaisrakul P**, Kitumnuaypong T, et al. Effectiveness and Drug Survival of Anti-Tumor Necrosis Factor alpha Therapies in Patients With Spondyloarthritis: Analysis From the Thai Rheumatic Disease Prior Authorization Registry. J Clin Rheumatol. 2019;25(1):9-15.	12/1	2019
	Narongroeknawin P, **Chevaisrakul P**, Kasitanon N, Kitumnuaypong T, Mahakkanukrauh A, Siripaitoon B, et al. Drug survival and reasons for discontinuation of the first biological disease modifying antirheumatic drugs in Thai patients with rheumatoid arthritis: Analysis from the Thai Rheumatic Disease Prior Authorization registry. Int J Rheum Dis. 2018;21(1): 170-8.	12/1	2018

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

8. Name **Assistant Professor Dr. Ponpan Matangkasombut Choopong**
ผู้ช่วยศาสตราจารย์ ดร. แพทย์หญิงพรพรรณ มาตังคสมบัติ ชูพงศ์

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Immunology	Harvard University, USA	2009
ABIM	Internal Medicine	Harvard University, USA	2004
M.D.		Chulalongkorn University	1998

Faculty/Institute/College

Department of Microbiology, Faculty of Science, Mahidol University

Interesting Research Topics or Specialties

Immunology, Allergy, NKT cells

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Pinitpuwadol W, Sarunket S, Boonsopon S, Tesavibul N, **Choopong P**. Late-onset postoperative Mycobacterium haemophilum endophthalmitis masquerading as inflammatory uveitis: a case report. BMC Infect Dis. 2018 Feb 7;18(1):70.	12/1	2018
	Tesavibul N, Boonsopon S, **Choopong P**, Tanterdtham S. Uveitis in Siriraj Hospital: pattern differences between immune-related uveitis and infectious uveitis in a university-based tertiary care hospital. Int Ophthalmol. 2018 Apr;38(2):673-678.	12/1	2018

Type of Publication	Publication	Standard Criteria/weight	Year
Published research work	Sriboonnark T, Boonsopon S, Tesavibul N, Leeamornsiri S, **Choopong P**. Intravitreal bevacizumab in treatment of retinal neovascularization from tuberculous retinal vasculitis. Int J Ophthalmol. 2017 Oct 18;10(10):1627-1629.	12/1	2017
	Boonsopon S, Tesavibul N, Uiprasertkul M, Leeamornsiri S, **Choopong P.** Rare presentation of intractable tuberculous panophthalmitis with intraocular and intraorbital abscesses: a case report. J Med Case Rep. 2017 Jul 4;11(1):180.	12/1	2017
	Choopong P, Vivittaworn K, Konlakij D, Thoongsuwan S, Pituksung A, Tesavibul N. Treatment outcomes of reduced-dose intravitreal ganciclovir for cytomegalovirus retinitis. BMC Infect Dis. 2016 Apr 18;16:16	12/1	2016

Current Teaching Load

RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

Assigned Teaching Load for the Proposed Program

RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

9. Name **Lecturer Dr. Donniphat Dejsuphong**

อาจารย์ ดร. นายแพทย์ดลนิภัทร เดชสุพงศ์

Education

Degree	Degree Name	Institute	Year of Graduation
Ph.D.	Molecular Medicine	Kyoto University, Japan	2009
M.D.		Mahidol University	2001

Faculty/Institute/College

Section for Translational Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. DNA repair and diseases from Mutation
2. Hereditary Cancer Syndromes
3. Genetic testing and Biological indicators

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Research	**Dejsuphong D**, Taweewongsounton A, Khemthong P, Chitphuk S, Stitchantrakul W, Sritara P, et al. Carrier frequency of spinal muscular atrophy in Thailand. Neurol Sci. 2019;40(8):1729-32.	12/1	2019
Research	Jadsri S, Chareonsirisuthigul T, Rerkamnuaychoke B, **Dejsuphong D**, Tunteeratum A and Mahasirimongkol S. BRCA1 and BRCA2 Large Genomic Rearrangements Screening in Thai Familial Breast Cancer Patients by Multiplex Ligation-dependent Probe Amplification (MLPA). Naresuan University Journal: Science and Technology 2016; 24(2)	11/0.4	2016

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 512	Technology in Translational Medicine	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

10. Name **Lecturer Dr. Nutthapoom Pathomthongtaweechai**
อาจารย์ ดร. นายแพทย์ณัฐภูมิ ปฐมทองทวีชัย

Education

Degree	Degree Name	Institute	Year of Graduation
M.D.		Mahidol University	2017
Ph.D.	Physiology	Mahidol University	2014

Faculty/Institute/College

Chakri Naruebodindra Medical Institute, Faculty of Medicine Ramathibodi Hospital, Mahidol University

Interesting Research Topics or Specialties

1. Drug discovery and protein targets in renal diseases including polycystic kidney disease (PKD) and diabetic nephropathy (DN)
2. The development of models for kidney diseases – Kidney organoids and Kidney on-a-chip

Publication that are not parts of doctoral dissertation and are complied with the criteria for academic position appointment within 5 Years

Type of Publication	Publication	Standard Criteria/weight	Year
Research	Cheung PW, Nomura N, Nair AV, **Pathomthongtaweechai N**, Ueberdiek L, Jenny Lu HA, Brown D, Bouley R. EGF receptor inhibition by erlotinib increases aquaporin 2-mediated renal water reabsorption. J Am Soc Nephrol. 2016;27(10):3105-3116.	12/1	2016

Current Teaching Load

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)

Assigned Teaching Load for the Proposed Program

RATM 511	Molecular Basis of Human Diseases	3(3-0-6)
RATM 898	Dissertation	48(0-192-0)
RATM 899	Dissertation	72(0-288-0)
RATM 699	Dissertation	36(0-144-0)
RATM 799	Dissertation	48(0-192-0)

APPENDIX C

CURRICULUM MAPPING

Appendix C

Curriculum Mapping

● Major responsibility ❍ Minor responsibility

Plan 1:

1.1 Graduates with a master's degree

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
Dissertation															
RATM 898 Dissertation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

1.2 Graduates with a bachelor degree

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
Dissertation															
RATM 899 Dissertation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Plan 2:

2.1 Graduates with a master's degree in Translational Medicine

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
Required courses															
RATM 604 Analysis of Clinical Problem	●	●	●	●	❍	●	●	●	●	●	●	❍	❍	●	❍
RATM 605 Advanced Research Skills and Laboratory Safety	●	●	●	●	❍	●	●	●	❍	●	●	❍	❍	●	❍
RATM 606 Critical Analysis of Biomedical and Translational Medicine Research	●	❍	❍	●	●	●	●	●	❍	●	●	●	❍	●	●
RATM 607 Seminars in Biomedical and Translational Medicine	●	❍	❍	●	●	●	●	●	❍	●	❍	●	❍	●	●
RATM 610 Communication in Translational Medicine Research	●	❍	●	●	❍	●	●	❍	●	●	●	❍	●	●	❍
RATM 611 Coaching and Mentoring in Translational Medicine Research	●	❍	●	●	❍	●	●	❍	●	●	❍	❍	●	●	❍

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
Electives courses															
RATM 621 Principle of Clinical Pharmacology	●	❍	❍	●	❍	●	●		❍	●		❍	●	●	❍
RATM 622 Applied Pharmacology	●	●	❍	●	●	●		●		●		❍	●		●
RATM 623 Drug Discovery and Development	●	❍		●	❍	●			❍	●		❍		●	❍
RATM 624 Translational Physiology	●	❍	❍		❍		●		❍	●		❍			●
SCID 503 Systemic Bioscience	●	❍	●		❍	❍	●	❍	●	●	●	❍	❍	●	❍
SCID 506 Concept of Molecular Biosciences	●	❍	●		❍	❍	●	❍	●	●	●	❍	❍	●	❍
SCID 511 Gene Technology	●	❍	●		❍	❍	●	❍	●	●	●	●	❍	●	❍
SCID 513 Animal Cell Culture Techniques	●	❍	●		❍	❍	●	❍	●	●	●	●	❍	●	❍
SCPM 508 Special Topics in Pharmacology	●	●	●	●	●	●	●	●	●	●	●	❍	●	●	❍
SCPS 612 Current Topics in Physiology	●	❍		●	●	●	●	●		●	●	●	●	●	
Dissertation															
RATM 699 Dissertation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

2.1 Graduates with a master's degree

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
Pre-required courses															
SCID 500 Cell and Molecular Biology	●	❍	●		❍	❍	●	❍	●	●	●	❍	❍	●	❍
RATM 511 Molecular Basis of Human Diseases	●	●	❍	●	●	●	●	●	❍	●	●	●	❍	●	●
RATM 512 Technology in Translational Medicine	●	●	❍	●	❍	●	●	●	❍	●	●	●	❍	●	●
RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine	●	●	❍	●	❍	●	●	●	❍	●	●	●	●	●	●
Required courses															
RATM 604 Analysis of Clinical Problems	●	●	●	●	●	●	●	●	●	●	●	●	❍	●	●
RATM 605 Advanced Research Skills and Laboratory Safety	●	●	●	●	●	●	●	●	❍	●	●	●	●	●	●

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
RATM 606 Critical Analysis of Biomedical and Translational Medicine Research	●	●	❍	●	●	●	●	●	❍	●	●	●	❍	●	●
RATM 607 Seminars in Biomedical and Translational Medicine	●	●	❍	●	●	●	●	●	❍	●	❍	●	❍	●	●
RATM 610 Communication in Translational Medicine Research	●	●	●	●	❍	●	●	❍	●	●	●	●	●	●	●
RATM 611 Coaching and Mentoring in Translational Medicine Research	●	❍	●	●	❍	●	●	❍	●	●	●	●	●	●	●
Electives courses															
RATM 621 Principle of Clinical Pharmacology	●	❍	❍	●	❍	●	●		❍	●		❍	●	●	❍
RATM 622 Applied Pharmacology	●	●	❍	●	●	●		●		●		❍	●		●
RATM 623 Drug Discovery and Development	●	❍		●	❍	●			❍	●		❍		●	❍
RATM 624 Translational Physiology	●	❍	❍		❍		●		❍	●		❍			●
SCID 503 Systemic Bioscience	●	❍	●		❍	❍	●	❍	●	●	●	❍	❍	●	❍

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
SCID 506 Concepts of Molecular Bioscience	●	❍	●		❍	❍	●	❍	●	●	●	❍	❍	●	❍
SCID 511 Gene Technology	●	❍	●		❍	❍	●	❍	●	●	●	●	❍	●	❍
SCID 513 Animal Cell Culture Techniques	●	❍	●		❍	❍	●	❍	●	●	●	●	❍	●	❍
SCPM 508 Special Topics in Pharmacology	●	●	●	●	●	●	●	●	●	●	●	❍	●	●	❍
SCPS 612 Current Topics in Physiology	●	❍		●	●	●	●	●		●	●	●	●	●	
Dissertation															
RATM 699 Dissertation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

2.2 Graduates with a bachelor degree

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
Requires courses															
SCID 500 Cell and Molecular Biology	●	❍	●		❍	❍	●	❍	●	●	●	❍	❍	●	❍
RATM 511 Molecular Basis of Human Diseases	●	●	❍	●	●	●	●	●	❍	❍	●	●	●	●	●
RATM 512 Technology in Translational Medicine	●	●	❍	●	❍	●	●	●	❍	❍	●	●	●	●	●
RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine	●	●	❍	●	❍	●	●	●	❍	●	●	●	●	●	●
RATM 604 Analysis of Clinical Problems	●	●	●	●	●	●	●	●	●	●	●	●	❍	●	●
RATM 605 Advanced Research Skills and Laboratory Safety	●	●	●	●	●	●	●	●	❍	●	●	●	●	●	●
RATM 606 Critical Analysis of Biomedical and Translational Medicine Research	●	❍	❍	●	●	●	●	●	❍	●	●	●	❍	●	●
RATM 607 Seminars in Biomedical and Translational Medicine	●	●	❍	●	●	●	●	●	❍	●	❍	●	❍	●	●

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
RATM 610 Communication in Translational Medicine Research	●	❍	●	●	❍	●	●	❍	●	●	●	❍	●	●	❍
RATM 611 Coaching and Mentoring in Translational Medicine Research	●	❍	●	●	❍	●	●	❍	●	●	❍	❍	●	●	❍
Electives courses															
RATM 621 Principle of Clinical Pharmacology	●	❍	❍	●	❍	●	●		❍	●		❍	●	●	❍
RATM 622 Applied Pharmacology	●	●	❍	●	●	●		●		●		❍	●		●
RATM 623 Drug Discovery and Development	●	❍		●	❍	●			❍	●		❍		●	❍
RATM 624 Translational Physiology	●	❍	❍		❍		●		❍	●		❍			●
SCID 503 Systemic Bioscience	●	❍	●		❍	❍	●	❍	●	●	●	❍	❍	●	❍
SCID 506 Concepts of Molecular Bioscience	●	❍	●		❍	❍	●	❍	●	●	●	❍	❍	●	❍
SCID 511 Gene Technology	●	❍	●		❍	❍	●	❍	●	●	●	●	❍	●	❍
SCID 513 Animal Cell Culture Techniques	●	❍	●		❍	❍	●	❍	●	●	●	●	❍	●	❍

Subjects	Morality and Ethics			Knowledge			Intellectual skills			Interna-tional Relation-ship and Respon-sibility		Mathematical Analytical thinking			
	1	2	3	1	2	3	1	2	3	1	2	1	2	3	4
SCPM 508 Special Topics in Pharmacology	●	●	●	●	●	●	●	●	●	●	●	❍	●	●	❍
SCPS 612 Current Topics in Physiology	●	❍		●	●	●	●	●		●	●	●	●	●	
Dissertation															
RATM 799 Dissertation	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Table of Relationship between Learning Outcomes of the Program and Core Value of Mahidol University	
Learning Outcomes	**Core value of Mahidol University**
1. Morality and ethics	
1.1 Work with morality, ethics, integrity, discipline, punctuality and following the rules and regulations of the faculty.	Integrity
1.2 Creating the work by using their own idea.	Integrity
1.3 Sharing valuable knowledge and devote their work to the public.	Harmony, Altruism
2. Knowledge	
2.1 Containing a deep understanding about the details of each subject and following up the new knowledge.	Mastery, Originality, Determination
2.2 Containing a deep knowledge in their sub-specialty and also links their knowledge to other fields.	Mastery
2.3 Containing the knowledge about how to search, compile and present with appropriate procedures.	Mastery, Originally
3. Intellectual Skills	
3.1 The ability to apply the knowledge properly, analyze, link and solve the problem as a whole.	Mastery, Harmony
3.2 The ability to link the knowledge with other related fields, especially the knowledge about science and medical clinics as well as the ability to analyze and solve the problems or to create the benefits of the Transformational Medicine.	Master, Altruism
3.3 The ability to analyze, develop the new knowledge and the International innovation.	Master, Originality

Learning Outcomes	Core value of Mahidol University
4. International Relationship and responsibility	
4.1 Responsible for the assignment of both personal and collective, maintain public possession and be a good model for others.	Altruism
4.2 The ability to get along well with others, have leadership skills and compromise the arguments.	Harmony, Leadership
5. Mathematical Analytical Thinking, Communication Skills, and Information	
5.1 Using the Information technology in order to search, analyze the data and communicate appropriately.	Mastery
5.2 The ability to use the mathematical and statistical techniques to analyze, interpret both quantity and quantity.	Mastery
5.3 The ability to communicate effectively in listening, speaking and writing as well as the ability to use Information Technology to communicate worldwide.	Mastery, Determination
5.4 The ability to use the technology to prepare, present the academic data and communicate for teaching or publishing more effectively.	Mastery, Originality

APPENDIX D

Program learning outcomes

Appendix D

Program Learning Outcomes

Table 1: Comparison between before and after revised objective of the program

Objective of the Program in 2015	Revised Objective of the Program in 2020
เมื่อสิ้นสุดการเรียนการสอนตามหลักสูตรแล้ว ดุษฎีบัณฑิตจะมีความรู้ความสามารถดังนี้ 1. เชื่อมโยงความรู้วิทยาศาสตร์พื้นฐานที่เกี่ยวข้องกับเวชศาสตร์ปริวรรตกับการเกิดโรคในมนุษย์และการแพทย์ทางคลินิก รวมทั้งมีความรู้ด้านชีวการแพทย์ที่ทันสมัย 2. คิดค้นนวัตกรรมทางวิทยาศาสตร์ เลือกใช้วิธีการวิจัยเพื่อทดสอบสมมติฐานได้อย่างเหมาะสม 3. ใช้เทคโนโลยีสารสนเทศในการศึกษาค้นคว้าเพื่อการเรียนรู้ด้วยตนเอง นำเสนอผลงาน และถ่ายทอดองค์ความรู้วิทยาศาสตร์การแพทย์ได้อย่างมีประสิทธิภาพ สามารถเขียนรายงานผลการการวิจัยและสามารถสื่อสารเกี่ยวกับงานวิจัย ทั้งในด้านการฟัง พูด เขียนได้อย่างชัดเจน 4. มีคุณธรรม จริยธรรมตามมาตรฐานจรรยาบรรณทางวิชาการและวิชาชีพ 5. มีมนุษยสัมพันธ์ที่ดีกับผู้ร่วมงาน แสดงภาวะผู้นำและผู้ตามได้อย่างเหมาะสม ทำงานส่วนรวมได้สำเร็จตามที่ได้รับมอบหมาย	By the end of the study, graduate student are able to 1. Prossess moral standards and professional ethics 2. Plan the project to develop medical innovations by using appropriate research methodologies 3. Lead research projects using translational research approaches with the realization of the importance of clinical applications 4. Show leadership and work collaboratively with colleagues 5. Use information technology in self-study study, presentation and dissemination of knowledge of medical science effectively and communicate research findings in an effective manner

Table 2: Relationship between objective of the program and program learning outcome

Objective of the Program	Program Learning Outcome*		
	PLO1	PLO2	PLO3
1. Prossess moral standards and professional ethics	x		
2. Plan the project to develop medical innovations by using appropriate research methodologies		x	x
3. Lead research projects using translational research approaches with the realization of the importance of clinical applications		x	
4. Show leadership and work collaboratively with colleagues	x	x	x
5. Use information technology in self-study study, presentation and dissemination of knowledge of medical science effectively and communicate research findings in an effective manner		x	

Program Learning Outcome*

PLO1 Integrate and apply knowledge from basic research, patient- oriented research, population- based research and industry to bridge the gap between basic research findings and clinical applications

PLO2 Conduct research projects using translational research approaches with the realization of the importance of research ethics and clinical applications

PLO3 Evaluate academic literature and transfer knowledge and research findings to both public and scientific community

Table 3: Standard domains of learning outcome and Program Learning Outcomes

Domains	Standard Learning Outcomes (TQF)	Program Learning Outcomes		
		PLO1	PLO2	PLO3
Morality and Ethics	1.1 Work with morality, ethics, integrity, discipline, punctuality and following the rules and regulations of the faculty.		x	x
	1.2 Creating the work by using their own idea.	x	x	
	1.3 Sharing valuable knowledge and devote their work to the public.	x		x
Knowledge	2.1 Containing a deep understanding about the details of each subject and following up the new knowledge.	x		x
	2.2 Containing a deep knowledge in their sub-specialty and also know to links their knowledge to other fields.	x		x
	2.3 Containing the knowledge about how to search, compile and present with appropriate procedures.	x		x
Intellectual Development	3.1 The ability to apply the knowledge properly, analyze, link and solve the problem as a whole.	x		x
	3.2 The ability to link the knowledge with other related fields, especially the knowledge about science and medical clinics as well as the ability to analyze and solve the problems or to create the benefits of the Transformational Medicine.	x	x	x
	3.3 The ability to analyze, develop the new knowledge and the International innovation.	x	x	x

Domains	Standard Learning Outcomes (TQF)	Program Learning Outcomes		
		PLO1	PLO2	PLO3
Interpersonal Relationship and Responsibility	4.1 Responsible for the assignment of both personal and collective, maintain public possession and be a good model for others.		x	x
	4.2 The ability to get along well with others, have leadership skills and compromise the arguments.		x	x
Math, Communication, IT Skills	5.1 Using the Information technology in order to search, analyze the data and communicate appropriately.			x
	5.2 The ability to use the mathematical and statistical techniques to analyze, interpret both quality and quantity.		x	
	5.3 The ability to communicate effectively in listening, speaking and writing as well as the ability to use information technology to communicate worldwide.			x
	5.4 The ability to use the technology to prepare, present the academic data and communicate for teaching or publishing more effectively.			x

Table 4: Learning and Assessment Strategies for Program Learning Outcomes Evaluation

PLOs	Learning Method	Assessment
PLO1 Integrate and apply knowledge from basic research, patient-oriented research, population-based research and industry to bridge the gap between basic research findings and clinical applications	- Lecture - Group discussion - Clinical rotation and observation - Project-based learning	- Written examination - Direct observation - Report - Presentation - Qualifying examination
PLO2 Conduct research projects using translational research approaches with the realization of the importance of research ethics and clinical applications	- Lecture - Laboratory practice	- Written examination - Qualifying examination - Proposal examination - Thesis defense
PLO3 Evaluate academic literature and transfer knowledge and research findings to both public and scientific community	- Lecture - Group discussion - Practice	- Report - Direct observation - Peer evaluation

Table 5: Relationship between Courses of the Program and Program Learning Outcomes

Plan 1

1.1 For graduates with a master's degree					
Code	**Name**	**Credits**	**PLO1**	**PLO2**	**PLO 3**
Dissertation					
RATM 898	Dissertation	48(0-192-0)	M	M	M

1.2 For graduates with a bachelor degree					
Code	**Name**	**Credits**	**PLO1**	**PLO2**	**PLO 3**
Dissertation					
RATM 899	Dissertation	72(0-288-0)	M	M	M

Plan 2

2.1 Graduates with a master's degree in Translational Medicine					
Code	**Name**	**Credits**	**PLO1**	**PLO2**	**PLO 3**
1) Required course					
RATM 604	Analysis of Clinical Problems	2(2-0-4)	P	P	P
RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)	R	R	R
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)	R	P	R
RATM 607	Seminars in Biomedical and Translational Medicine	1(1-0-2)	R	P	R
RATM 610	Communication in Translational Medicine Research	1(1-0-2)	R	R	R
RATM 611	Coaching and Mentoring in Translational Medicine Research	1(1-0-2)	R	R	R
2) Elective course					
RATM 621	Principle of Clinical Pharmacology	2(2-0-4)	R	R	R
RATM 622	Applied Pharmacology	2(2-0-4)	R	R	R
RATM 623	Drug Discovery and Development	2(2-0-4)	R	R	R
RATM 624	Translational Physiology	2 (2-0-4)	I	I	I
SCID 503	Systemic Bioscience	3(3-0-6)	I	I	I
SCID 506	Concepts of Molecular Bioscience	2(2-0-4)	R	R	R
SCID 511	Gene Technology	1(0-2-1)	R	R	R
SCID 513	Animal Cell Culture Techniques	1(0-2-1)	R	R	R
SCPM 508	Special Topics in Pharmacology	2(2-0-4)	R	R	R
SCPS 612	Current Topics in Cell Physiology	3(3-0-6)	R	R	R
3) Dissertation					
RATM 699	Dissertation	36(0-144-0)	M	M	M

2.2 Graduates with a master's degree					
Code	**Name**	**Credits**	**PLO1**	**PLO2**	**PLO 3**
1) Pre-required Courses					
SCID 500	Cell and Molecular Biology	3(3-0-6)	R	I	R
RATM 511	Molecular Basis of Human Diseases	3(3-0-6)	R	P	R
RATM 512	Technology in Translational Medicine	3(3-0-6)	R	P	R
RATM 513	Clinical Epidemiology and Biostatistics in Translational Medicine	3(3-0-6)	R	R	R
2) Required course					
RATM 604	Analysis of Clinical Problems	2(2-0-4)	P	P	P
RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)	R	R	R
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)	R	P	R
RATM 607	Seminars in Biomedical and Translational Medicine	1(1-0-2)	R	P	R
RATM 610	Communication in Translational Medicine Research	1(1-0-2)	R	R	R
RATM 611	Coaching and Mentoring in Translational Medicine Research	1(1-0-2)	R	R	R
3) Elective course					
RATM 621	Principle of Clinical Pharmacology	2(2-0-4)	R	R	R
RATM 622	Applied Pharmacology	2(2-0-4)	R	R	R
RATM 623	Drug Discovery and Development	2(2-0-4)	R	R	R
RATM 624	Translational Physiology	2 (2-0-4)	I	I	I
SCID 503	Systemic Bioscience	3(3-0-6)	I	I	I
SCID 506	Concepts of Molecular Bioscience	2(2-0-4)	R	R	R
SCID 511	Gene Technology	1(0-2-1)	R	R	R
SCID 513	Animal Cell Culture Techniques	1(0-2-1)	R	R	R
SCPM 508	Special Topics in Pharmacology	2(2-0-4)	R	R	R
SCPS 612	Current Topics in Cell Physiology	3(3-0-6)	R	R	R
4) Dissertation					
RATM 699	Dissertation	36(0-144-0)	M	M	M

2.2 Graduates with a bachelor degree					
Code	Name	Credits	PLO1	PLO2	PLO 3
1) Required course					
SCID 500	Cell and Molecular Biology	3(3-0-6)	R	R	R
RATM 511	Molecular Basis of Human Diseases	3(3-0-6)	R	R	R
RATM 512	Technology in Translational Medicine	3(3-0-6)	R	R	R
RATM 513	Clinical Epidemiology and Biostatistics in Translational Medicine	3(3-0-6)	R	R	R
RATM 604	Analysis of Clinical Problems	2(2-0-4)	P	P	P
RATM 605	Advanced Research Skills and Laboratory Safety	2(1-2-3)	R	R	R
RATM 606	Critical Analysis of Biomedical and Translational Medicine Research	1(1-0-2)	I	I	I
RATM 607	Seminars in Biomedical and Translational Medicine	1(1-0-2)	P	P	P
RATM 610	Communication in Translational Medicine Research	1(1-0-2)	R	R	R
RATM 611	Coaching and Mentoring in Translational Medicine Research	1(1-0-2)	R	R	R
2) Elective course					
RATM 621	Principle of Clinical Pharmacology	2(2-0-4)	R	R	R
RATM 622	Applied Pharmacology	2(2-0-4)	R	R	R
RATM 623	Drug Discovery and Development	2(2-0-4)	R	R	R
RATM 624	Translational Physiology	2 (2-0-4)	I	I	I
SCID 503	Systemic Bioscience	3(3-0-6)	I	I	I
SCID 506	Concepts of Molecular Bioscience	2(2-0-4)	R	R	R
SCID 511	Gene Technology	1(0-2-1)	R	R	R
SCID 513	Animal Cell Culture Techniques	1(0-2-1)	R	R	R
SCPM 508	Special Topics in Pharmacology	2(2-0-4)	R	R	R
SCPS 612	Current Topics in Cell Physiology	3(3-0-6)	R	R	R
3) Dissertation					
RATM 799	Dissertation	48(0-192-0)	M	M	M

I = E LO is introduced & assessed P = ELO is practiced & assessed

R = ELO is reinforced & assessed M = Level of Mastery is assessed

Table 6: The expectation of learning outcome at the end of academic year

Year of study	Knowledge, skills, and any other expected learning outcomes
1st	- Students are expected to have an ability to link the basic science to human diseases and clinical medicine. - Students are expected to use information technology in self-study study and presentation effectively.
2nd	- Students are expected to have an ability to integrate and apply knowledge from basic research, patient-oriented research, population-based research and industry to bridge the gap between basic research findings and clinical applications. - Students are expected to evaluate academic literature. - Students are expected to transfer knowledge in an effective manner.
3rd	ents are expected to plan the project to develop medical innovations by using appropriate research methodologies.
4th	- Students are expected to conduct research projects using translational research approaches with the realization of the importance of research ethics and clinical applications - Students are expected to communicate research findings effectively.

APPENDIX E

Curriculum Revision

Appendix E

The Revision of Doctor Philosophy Program in Translational Medicine (International Program) Revised in 2016 Faculty of Medicine Ramathibodi Hospital and Faculty of Graduate Studies, Mahidol University

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1. The Curriculums approved by the Office of the Permanent Secretary, Ministry of Higher Education, Science, Research and Innovation on 1 May 2013

2. The Mahidol University Council approved the program adjustment on April 15, 2020

3.The revised curriculum will be effective with student class 1 from the 1 semester of the Academic Year 2020 onwards.

4. Rationale of revision

4.1The curriculum was adjusted in according to the standards of the National Qualifications Framework for Higher Education 2009

4.2 The course contents were updated to reflect the current national economic and social development plan, as well as the need for manpower of the labor market and society

4.3 The list of Faculty Member who are responsible for the course is adjusted in relation to the actual operation

5.The details of the revision

5.1 To update the course contents to reflect the current advancement in the field of translational medicine

5.2 To expand the scope of the course contents so that they cover as many aspects of translational medicine as possible

5.3 To in corporate important student's feedbacks into the course contents

Table 1: The Comparison Table of Faculty Member in Charge of the program

Faculty Member in Charge of the Program		
No.	**Current Program**	**Revising Program**
1.	Professor Dr.Chatchai Muanprasat	Professor Dr. Chatchai Muanprasat
2.	-	Professor Teerapong Krajaejan
3.	Associate Professor Dr.Chagriya Kitiyakara	Associate Professor Dr. Chagriya Kitiyakara
4.	Associate Professor Dr.Chonlaphat Sukasem	Associate Professor Dr. Chonlaphat Sukasem
5.	Associate Professor Dr.Nathawut Sibmooh	Associate Professor Dr. Nathawut Sibmooh
6.	Associate Professor Dr.Permphan Dharmasaroja	-
7.	Associate Professor Dr.Pornpun Vivithanaporn	-
8.	Associate Professor Prapaporn Pisithkul	Associate Professor Prapaporn Pisithkul
9.	-	Associate Professor Usanarat Anurathapan
10.	Associate Professor Dr.Wiparat Manuyakorn	Associate Professor Dr. Wiparat Manuyakorn
11.	Assistant Professor Dr.Bhoom Suktitiphat	Assistant Professor Dr. Bhoom Suktitiphat
12.	Assistant Professor Dr.Natini Jinawath	Assistant Professor Dr. Natini Jinawath
13.	Assistant Professor Dr.Pimtip Sanvarinda	Assistant Professor Dr. Pimtip Sanvarinda
14.	Assistant Professor Dr.Sinitdhorn Rujirabanjerd	-
15.	Assistant Professor Dr.Tulyapruek Tawonsawatrak	Assistant Professor Dr. Tulyapruek Tawonsawatrak
16.	Assistant Professor Dr.Varodom Charoensawan	Assistant Professor Dr. Varodom Charoensawan
17.	Assistant Professor Dr.Objoon Trachoo	Assistant Professor Dr. Objoon Trachoo
18.	Lecturer Dr.Donniphat Dejsuphong	-
19.	-	Lecturer Dr. Jakrise Eu-ahsunthornwattana
20.	-	Lecturer Dr. Kenjiro Muta
21.	-	Lecturer Dr. Nithi Asavapanumas
22.	Lecturer Dr.Kran Suknuntha	-
23.	Lecturer Dr.Nuankanya Sathirapongsasuthi	Lecturer Dr. Nuankanya Sathirapongsasuthi
24.	-	Lecturer Dr. Pimonrat Ketsawatsomkron

Faculty Member in Charge of the Program		
No.	**Current Program**	**Revising Program**
25.	-	Lecturer Dr. Promsuk Jutabha
26.	Lecturer Dr.Rossukon Kaewkhaw	Lecturer Dr. Rossukon Kaewkhaw
27.	Lecturer Dr.Sarawut Satitsri	-
28.	-	Lecturer Dr. Sirawat Srichatrapimuk
29.	-	Lecturer Dr. Somchai Chutipongtanate
30.	Lecturer Dr.Titiwat Sungkaworn	Lecturer Dr. Titiwat Sungkaworn
31.	Lecturer Dr.Wittaya Sungkarat	Lecturer Dr. Wittaya Sungkarat

Table 2: The Comparison Table of Full Time instructors in Charge of the program

Full Time instructors in Charge of the Program		
No.	**Current Program**	**Revising Program**
1.	Professor Boonsong Ongpipathdhanakul	Professor Boonsong Ongpipathdhanakul
2.	Professor Samart Pakakasama	Professor Samart Pakakasama
3.	Professor Suradej Hongeng	Professor Suradej Hongeng
4.	Professor Dr.Teeratorn Pulkate	Professor Dr. Teeratorn Pulkate
5.	Professor Teerapong Krajaejan	-
6.	Associate Professor Dr.Areepan Sophonsritsuk	Associate Professor Dr. Areepan Sophonsritsuk
7.	Associate Professor Chittiwat Suprasongsin	-
8.	Associate Professor Dr.Duangtawan Thammanichanond	Associate Professor Dr. Duangtawan Thammanichanond
9.	Assistant Professor Dr.Borwornsom Leerapan	-
10.	Assistant Professor Dr.Parawee Chevaisakul	Assistant Professor Dr. Parawee Chevaisakul
11.	Assistant Professor Dr.Ponpan Matangkasombut Choopong	Assistant Professor Dr. Ponpan Matangkasombut Choopong
12.	Lecturer Dr.Ekawat Pasomsab	-
13.	-	Lecturer Dr. Donniphat Dejsuphong
14.	Lecturer Dr. Nuankanya Sathirapongsasuthi	-
15.	-	Lecturer Dr. Nutthapoom Pathomthongtaweechai

Table 3: The Comparison Table of Part Time instructors in Charge of the program

Part Time instructors in Charge of the Program		
No.	**Current Program**	**Revising Program**
1.	Associate Professor Dr. Boonsri Chanrachakul	-
2.	Lecturer Dr. Jakrise Eu-ahsunthornwattana	-

The Comparison table of courses between the current program and revising program

Plan 1 **1.1 For graduates with a master's degree**		
Courses of the Current Program	**Courses of the Revising Program**	**Remark**
Required Courses 4 credits RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	- -	A course cancellation
RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) รมวป ๖๐๗ สัมมนาทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	-	A course cancellation
RATM 608 Communication in Translational Medicine Research I 1(1-0-2) รมวป ๖๐๘ การสื่อสารทางงานวิจัยปริวรรต1	-	A course cancellation
RATM 609 Communication in Translational Medicine Research II 1(1-0-2) รมวป ๖๐๙ การสื่อสารทางงานวิจัยปริวรรต 2	-	A course cancellation
Dissertation 48 credits RATM 898 Dissertation 48(0-192-0) รมวป ๘๙๘ วิทยานิพนธ์	**Dissertation** 48 credits RATM 898 Dissertation48(0-192-0) รมวป ๘๙๘ วิทยานิพนธ์	Unchanged

1.2 For graduates with a bachelor degree		
Courses of the Current Program	**Courses of the Revising Program**	**Remark**
Required Courses 4 credits RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	- -	A course cancellation
RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) รมวป ๖๐๗ สัมมนาทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	-	A course cancellation
RATM 608 Communication in Translational Medicine Research I 1(1-0-2) รมวป ๖๐๘ การสื่อสารทางงานวิจัยปริวรรต1	-	A course cancellation
RATM 609 Communication in Translational Medicine Research II 1(1-0-2) รมวป ๖๐๙ การสื่อสารทางงานวิจัยปริวรรต 2	-	A course cancellation
Dissertation 72 credits RATM 899 Dissertation 72(0-288-0) รมวป ๘๙๙ วิทยานิพนธ์	**Dissertation** 72 credits RATM 899 Dissertation 72(0-288-0) รมวป ๘๙๙ วิทยานิพนธ์	Unchanged

Plan 2 **2.1 For graduates with a master's degree in Translational Medicine**		
Courses of the Current Program	**Courses of the Revising Program**	**Remark**
Required Courses 8 credits RATM 604 Analysis of Clinical Problems 2(2-0-4) รมวป ๖๐๔ การวิเคราะห์ปัญหาทางคลินิก	**Required Courses** 8 credits RATM 604 Analysis of Clinical Problems 2(2-0-4) รมวป ๖๐๔ การวิเคราะห์ปัญหาทางคลินิก	Unchanged
RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) รมวป ๖๐๕ ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง	RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) รมวป ๖๐๕ ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง	Unchanged
RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางชีวการแพทย์และเวชศาสตร์ปริวรรต	Name changed
RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) รมวป ๖๐๗ สัมมนาทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) รมวป ๖๐๗ สัมมนาทางชีวการแพทย์และเวชศาสตร์ปริวรรต	Name changed
RATM 608 Communication in Translational Medicine Research I 1(1-0-2) รมวป ๖๐๘ การสื่อสารทางงานวิจัยปริวรรต 1	RATM 610 Communication in Translational Medicine Research 1(1-0-2) รมวป ๖๑๐ การสื่อสารทางการวิจัยเวชศาสตร์ปริวรรต	Name changed and new course code

Courses of the Current Program	Courses of the Revising Program	Remark
RATM 609 Communication in Translational Medicine Research II 1(1-0-2) รมวป ๖๐๙ การสื่อสารทางงานวิจัยปริวรรต 2	RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2) รมวป ๖๑๑ การฝึกสอนและการให้คำแนะนำทางการวิจัยเวชศาสตร์ปริวรรต	Name changed and new course code
Elective course not less than 4 credits -	**Elective course** not less than 4 credits RATM 621 Principle of Clinical Pharmacology 2(2-0-4) รมวป ๖๒๑ หลักการทางเภสัชวิทยาคลินิก	New Subject
-	RATM 622 Applied Pharmacology 2(2-0-4) รมวป ๖๒๒ เภสัชวิทยาประยุกต์	New Subject
-	RATM 623 Drug Discovery and Development 2(2-0-4) รมวป ๖๒๓ การคิดค้นและพัฒนายา	New Subject
-	RATM 624 Translational Physiology 2 (2-0-4) รมวป ๖๒๔ สรีรวิทยาเชิงปริวรรต	New Subject
SCID 503 Systemic Bioscience 3(3-0-6) วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ	SCID 503 Systemic Bioscience 3(3-0-6) วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ	Unchanged
SCID 506 Concepts of Molecular Bioscience 2(2-0-4) วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล	SCID 506 Concepts of Molecular Bioscience 2(2-0-4) วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล	Unchanged
SCID 511 Gene Technology 1(0-2-1) วทคร ๕๑๑ เทคโนโลยีด้านยีน	SCID 511 Gene Technology 1(0-2-1) วทคร ๕๑๑ เทคโนโลยีด้านยีน	Unchanged
SCID 513 Animal Cell Culture Techniques 1(0-2-1) วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์	SCID 513 Animal Cell Culture Techniques 1(0-2-1) วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์	Unchanged

Courses of the Current Program	Courses of the Revising Program	Remark
SCPM 508 Special Topics in Pharmacology 2(2-0-4) วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา	SCPM 508 Special Topics in Pharmacology 2(2-0-4) วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา	Unchanged
SCPS 612 Current Topics in Cell Physiology 3(3-0-6) วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา	SCPS 612 Current Topics in Cell Physiology 3(3-0-6) วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา	Unchanged
Dissertation 36 credits RATM 699 Dissertation 36(0-144-0) รมวป ๖๙๙ วิทยานิพนธ์	**Dissertation** 36 credits RATM 699 Dissertation 36(0-144-0) รมวป ๖๙๙ วิทยานิพนธ์	Unchanged

2.1 For graduates with a master's degree		
Courses of the Current Program	**Courses of the Revising Program**	**Remark**
Pre-requisite Courses audit SCID 500 Cell and Molecula Biology 3(3-0-6) วทคร ๕๐๐ ชีววิทยาระดับเซลล์และโมเลกุล	**Pre-requisite Courses** audit SCID 500 Cell and Molecular Biology 3(3-0-6) วทคร ๕๐๐ ชีววิทยาระดับเซลล์และโมเลกุล	Unchanged
RATM 511 Molecular Basis of Human Diseases 3(3-0-6) รมวป ๕๑๑ หลักการพื้นฐานระดับโมเลกุลของโรคที่เกิดในมนุษย์	RATM 511 Molecular Basis of Human Diseases 3(3-0-6) รมวป ๕๑๑ พื้นฐานระดับโมเลกุลของโรคที่เกิดกับมนุษย์	Name changed
RATM 512 Technology in Translational Medicine 3(3-0-6) รมวป ๕๑๒ เทคโนโลยีทางเวชศาสตร์ปริวรรต	RATM 512 Technology in Translational Medicine 3(3-0-6) รมวป ๕๑๒ เทคโนโลยีทางเวชศาสตร์ปริวรรต	Unchanged
RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6) รมวป ๕๑๓ ระบาดวิทยาคลินิกและชีวสถิติทางเวชศาสตร์ปริวรรต	RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6) รมวป ๕๑๓ ระบาดวิทยาคลินิกและชีวสถิติทางเวชศาสตร์ปริวรรต	Unchanged

Courses of the Current Program	Courses of the Revising Program	Remark
Required course 8 credits RATM 604 Analysis of Clinical Problems 2(2-0-4) รมวป ๖๐๔ การวิเคราะห์ปัญหาทางคลินิก	**Required course** 8 credits RATM 604 Analysis of Clinical Problems 2(2-0-4) รมวป 604 การวิเคราะห์ปัญหาทางคลินิก	Unchanged
RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) รมวป ๖๐๕ ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง	RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) รมวป 605 ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง	Unchanged
RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางชีวการแพทย์และเวชศาสตร์ปริวรรต	Name changed
RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) รมวป ๖๐๗ สัมมนาทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) รมวป ๖๐๗ สัมมนาทางชีวการแพทย์และเวชศาสตร์ปริวรรต	Name changed
RATM 608 Communication in Translational Medicine Research I 1(1-0-2) รมวป ๖๐๘ การสื่อสารทางงานวิจัยปริวรรต 1	RATM 610 Communication in Translational Medicine Research 1(1-0-2) รมวป ๖๑๐ การสื่อสารทางการวิจัยเวชศาสตร์ปริวรรต	Name changed and new course code
RATM 609 Communication in Translational Medicine Research II 1(1-0-2) รมวป ๖๐๙ การสื่อสารทางงานวิจัยปริวรรต 2	RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2) รมวป ๖๑๑ การฝึกสอนและการให้คำแนะนำทางการวิจัยเวชศาสตร์ปริวรรต	Name changed and new course code

Courses of the Current Program	Courses of the Revising Program	Remark
Elective course not less than 4 credits -	**Elective course** not less than 4 credits RATM 621 Principle of Clinical Pharmacology 2(2-0-4) รมวป ๖๒๑ หลักการทางเภสัชวิทยาคลินิก	New Subject
-	RATM 622 Applied Pharmacology 2(2-0-4) รมวป ๖๒๒ เภสัชวิทยาประยุกต์	New Subject
-	RATM 623 Drug Discovery and Development 2(2-0-4) รมวป ๖๒๓ การคิดค้นและพัฒนายา	New Subject
-	RATM 624 Translational Physiology 2 (2-0-4) รมวป ๖๒๔ สรีรวิทยาเชิงปริวรรต	New Subject
SCID 503 Systemic Bioscience3(3-0-6) วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ	SCID 503 Systemic Bioscience3(3-0-6) วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ	Unchanged
SCID 506 Concepts of Molecular Bioscience 2(2-0-4) วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล	SCID 506 Concepts of Molecular Bioscience 2(2-0-4) วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล	Unchanged
SCID 511 Gene Technology 1(0-2-1) วทคร ๕๑๑ เทคโนโลยีด้านยีน	SCID 511 Gene Technology 1(0-2-1) วทคร ๕๑๑ เทคโนโลยีด้านยีน	Unchanged
SCID 513 Animal Cell Culture Techniques 1(0-2-1) วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์	SCID 513 Animal Cell Culture Techniques 1(0-2-1) วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์	Unchanged
SCPM 508 Special Topics in Pharmacology 2(2-0-4) วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา	SCPM 508 Special Topics in Pharmacology 2(2-0-4) วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา	Unchanged
SCPS 612 Current Topics in Cell Physiology 3(3-0-6) วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา	SCPS 612 Current Topics in Cell Physiology 3(3-0-6) วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา	Unchanged

Courses of the Current Program	Courses of the Revising Program	Remark
Dissertation 36 credits RATM 699 Dissertation 36(0-144-0) รมวป ๖๙๙ วิทยานิพนธ์	**Dissertation** 36 credits RATM 699 Dissertation 36(0-144-0) รมวป ๖๙๙ วิทยานิพนธ์	Unchanged

2.2 For graduates with a bachelor degree		
Courses of the Current Program	**Courses of the Revising Program**	**Remark**
Requited Courses 20 credits SCID 500 Cell and Molecular Biology 3(3-0-6) วทคร ๕๐๐ ชีววิทยาระดับเซลล์และโมเลกุล	**Requited Courses** 20 credits SCID 500 Cell and Molecular Biology 3(3-0-6) วทคร ๕๐๐ ชีววิทยาระดับเซลล์และโมเลกุล	Unchanged
RATM 511 Molecular Basis of Human Diseases 3(3-0-6) รมวป ๕๑๑ หลักการพื้นฐานระดับโมเลกุลของโรคที่เกิดในมนุษย์	RATM 511 Molecular Basis of Human Diseases 3(3-0-6) รมวป ๕๑๑ พื้นฐานระดับโมเลกุลของโรคที่เกิดกับมนุษย์	Name changed
RATM 512 Technology in Translational Medicine 3(3-0-6) รมวป ๕๑๒ เทคโนโลยีทางเวชศาสตร์ปริวรรต	RATM 512 Technology in Translational Medicine 3(3-0-6) รมวป ๕๑๒ เทคโนโลยีทางเวชศาสตร์ปริวรรต	Unchanged
RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6) รมวป ๕๑๓ ระบาดวิทยาคลินิกและชีวสถิติทางเวชศาสตร์ปริวรรต	RATM 513 Clinical Epidemiology and Biostatistics in Translational Medicine 3(3-0-6) รมวป ๕๑๓ ระบาดวิทยาคลินิกและชีวสถิติทางเวชศาสตร์ปริวรรต	Unchanged
RATM 604 Analysis of Clinical Problems 2(2-0-4) รมวป ๖๐๔ การวิเคราะห์ปัญหาทางคลินิก	RATM 604 Analysis of Clinical Problems 2(2-0-4) รมวป 604 การวิเคราะห์ปัญหาทางคลินิก	Unchanged
RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) รมวป ๖๐๕ ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง	RATM 605 Advanced Research Skills and Laboratory Safety 2(1-2-3) รมวป 605 ทักษะการวิจัยและความปลอดภัยทางห้องปฏิบัติการขั้นสูง	Unchanged

Courses of the Current Program	Courses of the Revising Program	Remark
RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	RATM 606 Critical Analysis of Biomedical and Translational Medicine Research 1(1-0-2) รมวป ๖๐๖ การวิเคราะห์วิจารณ์ผลงานวิจัยทางชีวการแพทย์และเวชศาสตร์ปริวรรต	Name changed
RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) รมวป ๖๐๗ สัมมนาทางสาขาชีวการแพทย์และเวชศาสตร์ปริวรรต	RATM 607 Seminars in Biomedical and Translational Medicine 1(1-0-2) รมวป ๖๐๗ สัมมนาทางชีวการแพทย์และเวชศาสตร์ปริวรรต	Name changed
RATM 608 Communication in Translational Medicine Research I 1(1-0-2) รมวป ๖๐๘ การสื่อสารทางงานวิจัยปริวรรต 1	RATM 610 Communication in Translational Medicine Research 1(1-0-2) รมวป ๖๑๐ การสื่อสารทางการวิจัยเวชศาสตร์ปริวรรต	Name changed and new course code
RATM 609 Communication in Translational Medicine Research II 1(1-0-2) รมวป ๖๐๙ การสื่อสารทางงานวิจัยปริวรรต 2	RATM 611 Coaching and Mentoring in Translational Medicine Research 1(1-0-2) รมวป ๖๑๑ การฝึกสอนและการให้คำแนะนำทางการวิจัยเวชศาสตร์ปริวรรต	Name changed and new course code
Elective course not less than 4 credits -	**Elective course** not less than 4 credits RATM 621 Principle of Clinical Pharmacology 2(2-0-4) รมวป ๖๒๑ หลักการทางเภสัชวิทยาคลินิก	New Subject
-	RATM 622 Applied Pharmacology 2(2-0-4) รมวป ๖๒๒ เภสัชวิทยาประยุกต์	New Subject

Courses of the Current Program	Courses of the Revising Program	Remark
-	RATM 623 Drug Discovery and Development 2(2-0-4) รมวป ๖๒๓ การคิดค้นและพัฒนายา	New Subject
-	RATM 624 Translational Physiology 2(2-0-4) รมวป ๖๒๔ สรีรวิทยาเชิงปริวรรต	New Subject
SCID 503 Systemic Bioscience 3(3-0-6) วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ	SCID 503 Systemic Bioscience 3(3-0-6) วทคร ๕๐๓ วิทยาศาสตร์ชีวภาพเชิงระบบ	Unchanged
SCID 506 Concepts of Molecular Bioscience 2(2-0-4) วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล	SCID 506 Concepts of Molecular Bioscience 2(2-0-4) วทคร ๕๐๖ หลักการทางวิทยาศาสตร์ชีวภาพระดับโมเลกุล	Unchanged
SCID 511 Gene Technology 1(0-2-1) วทคร ๕๑๑ เทคโนโลยีด้านยีน	SCID 511 Gene Technology 1(0-2-1) วทคร ๕๑๑ เทคโนโลยีด้านยีน	Unchanged
SCID 513 Animal Cell Culture Techniques 1(0-2-1) วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์	SCID 513 Animal Cell Culture Techniques 1(0-2-1) วทคร ๕๑๓ เทคนิคการเพาะเลี้ยงเซลล์สัตว์	Unchanged
SCPM 508 Special Topics in Pharmacology 2(2-0-4) วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา	SCPM 508 Special Topics in Pharmacology 2(2-0-4) วทภส ๕๐๘ หัวข้อเรื่องพิเศษทางเภสัชวิทยา	Unchanged
SCPS 612 Current Topics in Cell Physiology 3(3-0-6) วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา	SCPS 612 Current Topics in Cell Physiology 3(3-0-6) วทสร ๖๑๒ หัวข้อปัจจุบันทางสรีรวิทยา	Unchanged
Dissertation 48 credits RATM 799 Dissertation 48(0-192-0) รมวป 799 วิทยานิพนธ์	**Dissertation** 48 credits RATM 799 Dissertation 48(0-192-0) รมวป 799 วิทยานิพนธ์	Unchanged

6. The Comparison Table of the Curriculum Structure between the Current Program and Revised Program Based on Criteria on Graduate Studies B.E. 2558 (set by Ministry of Education)

Plan 1

1.1 Graduates with a master's degree

Course Category	Credits		
	Criteria on Graduate Studies B.E. 2558	Curriculum Structure of the Current Program	Curriculum Structure of the Revised Program
1. Dissertation	48	48	48
Total credits (not less than)	**48**	**48**	**48**

1.2 Graduates with a bachelor degree

Course Category	Credits		
	Criteria on Graduate Studies B.E. 2558	Curriculum Structure of the Current Program	Curriculum Structure of the Revised Program
1. Dissertation	72	72	72
Total credits (not less than)	**72**	**72**	**72**

Plan 2

2.1 Graduates with a master's degree in Translational Medicine

Course Category	Credits		
	Criteria on Graduate Studies B.E. 2558	Curriculum Structure of the Current Program	Curriculum Structure of the Revised Program
1. Required courses	coursework at least 12 credits	8	8
2. Elective course		4	4
3. Dissertation	36	36	36
Total credits (not less than)	**48**	**48**	**48**

2.1 Graduates with a master's degree

Course Category	Credits		
	Criteria on Graduate Studies B.E. 2558	Curriculum Structure of the Current Program	Curriculum Structure of the Revised Program
1. Pre-required courses	coursework at least 12 credits	audit	audit
2. Required courses		8	8
3. Elective course		4	4
4. Dissertation	36	36	36
Total credits (not less than)	**48**	**48**	**48**

2.2 Graduates with a bachelor degree

Course Category	Credits		
	Criteria on Graduate Studies B.E. 2558	Curriculum Structure of the Current Program	Curriculum Structure of the Revised Program
1. Required courses	coursework at least 24 credits	20	20
2. Elective course		4	4
3. Dissertation	48	48	48
Total credits (not less than)	**72**	**72**	**72**