

Category (科目区分)	Cluster Common Basic Subjects		
Course Title (授業科目名)	Technical practice of basic medicine "Principles and practice of cell culture and immunostaining"		
Instructors (担当者名)	Ysufumi Omori	Academic Year (配当年次)	Years 1 and 2
Required Course / Elective Course (必修/選択)	Elective Course	Credits (単位数)	1
Class Format (授業形態)	Experimental practice		
Schedule (開講期間)	Informed individually by E-mail after registration		
Class Date/Period (開講曜日・時間)	Informed individually by E-mail after registration		
Course Outline/ Course Objectives (授業の概要・到達目標)			
Aims: To learn the methods to establish and maintain immortalized cell lines derived from tumor and non-tumor tissues, to understand the principles of immunohistochemistry and immunofluorescence, and to practice these techniques.			
Objectives: To acquire exmerimental techniques including aseptic manipulation, choice of culture media, cell passaging, microscopic observation, and immunostaining.			
Outline: The practice consists of intermittent procedures which need a total of 45 hours within one month. Therefore, the program is arranged individually for each trainee.			
1. Choice of and preparation for culture media			
2. Training of aseptic manipulation			
3. Observation of cultured cells under an inverted microscpe and a phase contrast microscope			
4. Techniques for passaging, freezing, and thawing cells			
5. Cell cloning			
6. Quantification of cell proliferation and cell death			
7. Merit and demerit of immunohistochemistry and immunofluorescence			
8. Strategy to visualize proteins inside cells and at cell membrane			
Course Planning (授業計画)			
	Course Outline/ Course Objectives (授業の概要及び到達目標) (Contents of Class) ((授業内容))	Instructor (担当教員名)	Department (講座名) Class Room [実施場所]
1	Choice of and preparation for culture media	Professor Yasufumi Omori, Assistant Professor Yuko Hiroshima, Assistant Professor Maya Suzuki	Department of Molecular Pathology and Tumor Pathology [laboratory]
2	Training of aseptic manipulation		
3	Observation of cultured cells under an inverted microscpe and a phase contrast microscope		
4	Techniques for passaging, freezing, and thawing cells		
5	Cell cloning		
6	Quantification of cell proliferation and cell death		
7	Merit and demerit of immunohistochemistry and immunofluorescence		
8	Strategy to visualize proteins inside cells and at cell membrane		
Grading Criteria (成績評価の基準と方法)			
A credit is given for 30 hours of practice and 15 hours of self-learning. The grades are determined by the frequency of presence at sessions, oral examination, and the quality of reports.			
Contact Information (問い合わせ先(氏名, メールアドレス等))			
Name: Yasufumi Omori / E-mail: yasu@med.akita-u.ac.jp			
Coment (その他特記事項)			
Remarks: Working students, due to their duties, may not be allowed to be present at our scheduled session. We will thus be pleased to arrange a schedule flexibly in their favor.			
Textbooks and reference literatures: When necessary, our handouts will be provided. Helpful reference literatures will be suggested.			
Subjects for self-learning: Students are expected to prepare for each session according to the course outline and objectives.			