

Category (科目区分)	Cluster of Pathology and Pathology System		
Course Title (授業科目名)	Hepatobiliary pathology and its practice		
Instructors (担当者名)	Yasufumi Omori	Academic Year (配当年次)	1,2
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)			
<p>Aims: To learn and practice the methods for isolation and cell culture of different liver cells including hepatocytes, cholangiocytes, sinusoidal endothelial cells, and stellate cells, all of which are the materials indispensable for hepatobiliary research.</p> <p>Objectives: Isolation of hepatocytes, cholangiocytes, sinusoidal endothelial cells, and stellate cells from the rat or mouse liver, isolation of exosomes from these cells, and coculture of liver cells with adipocytes.</p> <p>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.</p> <ol style="list-style-type: none"> 1. Manipulation of rats and mice 2. Portal vein perfusion of the rat or mouse liver 3. Separation of different liver cells by the Percoll density gradient method 4. Culture of different liver cells 5. Isolation of exosomes from cholangiocarcinoma cell lines 6. Assessment of lipotoxicity by coculture of adipocytes and hepatocytes 7. Induction of differentiation from hepatocytes to cholangiocytes 			
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	Manipulation of rats and mice	Professor Yasufumi Omori Assistant Professor Yuko Hiroshima Assistant Professor Maya Suzuki	Department of Molecular Pathology and Tumor Pathology [Reserch Building for Basic Medicine]
2	Portal vein perfusion of the rat or mouse liver		
3	Separation of different liver cells by the Percoll density gradient method		
4	Culture of different liver cells		
5	Isolation of exosomes from cholangiocarcinoma cell lines		
6	Assessment of lipotoxicity by coculture of adipocytes and hepatocytes		
7	Induction of differentiation from hepatocytes to cholangiocytes		
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)			
<p>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.</p> <p>Textbooks and reference literatures: When necessary, our handouts will be provided. Helpful reference literatures will be suggested.</p> <p>Subjects for self-learning: Students are expected to prepare for each session according to the course outline and objectives.</p>			