

科目ナンバリング		U-LAS70 10002 SE50					
授業科目名 <英訳>	ILAS Seminar-E2 :Introduction to Stem and iPS Cells (幹細胞とiPS細胞入門) ILAS Seminar-E2 :Introduction to Stem and iPS Cells			担当者所属 職名・氏名	医学研究科 講師 Marco,Marques Candeias		
群	少人数群	単位数	2単位	週コマ数	1コマ	授業形態	ゼミナール (対面授業科目)
開講年度・ 開講期	2025・前期	受講定員 (1回生定員)	15 (15) 人	配当学年	主として1回生	対象学生	全学向
曜時限	水4	教室	1共04			使用言語	英語
キーワード	Stem Cell / iPS Cell / Cancer Stem Cell / Cell Therapy / Disease Modelling						
[授業の概要・目的]							
How a single egg-cell can give rise to a tridimensional complex system of tissues and organs in the organism. Fundamentals of Embryology (from the oocyte until gastrulation/neurulation) and Stem Cell Biology (ES, iPS, CSC) will be introduced. Students will learn from recent research articles (including the original Takahashi & Yamanaka paper) as well as from recent textbooks on Developmental Biology and Stem Cell Research. After learning about the several subjects, the students will present recent research in class and active discussion will be encouraged.							
[到達目標]							
The classes will be interactive. Recent exciting research discoveries about iPS cells and cell replacement therapy will be introduced and discussed. The students will learn about stem cells, cell commitment and differentiation, iPS cells, cancer stem cells, disease modeling and personalized cellular therapy.							
[授業計画と内容]							
<p>The following topics will be viewed during a total of 13 classes in the classroom:</p> <ul style="list-style-type: none"> . Differential Gene Expression . Fertilization: Beginning a New Organism . Early Development in Mammals . Embryonic Stem Cells . Differentiation in Early Development . Generation of Induced Pluripotent Stem (iPS) Cells . Characteristics and Characterization of Pluripotent Stem Cells . Cancer Stem Cells . Neural Stem Cells: Therapeutic Applications in Neurodegenerative Diseases . Use of Embryonic Stem Cells to Treat Heart Disease . Insulin-Producing Cells Derived from Stem Cells: A Potential Treatment for Diabetes . Stem Cells for the Treatment of Muscular Dystrophy . Cell Therapy for Liver Disease . Skin Regeneration . Embryonic Stem Cells in Tissue Engineering . Adult Stem Cells in Tissue Engineering . Stem Cell Gene Therapy . iPS Cells in Disease Modelling and Drug Screening <p>One class will be in the laboratory to observe first-hand the power of genes on cell identity, e.g. stemness or differentiation.</p>							
<div style="text-align: right;">ILAS Seminar-E2 :Introduction to Stem and iPS Cells (幹細胞とiPS細胞入門) (2)へ続く</div>							

(Total:14 classes and 1 feedback)

【履修要件】

特になし

【成績評価の方法・観点】

Evaluation will be based on active participation and small assignments (~20 %), group presentations (~30%) and quizzes/tests (~50 %). Those who are absent more than four times will not be credited.

【教科書】

Edited by:Robert Lanza and Anthony Atala 『Essentials of Stem Cell Biology (Third Edition)』 (Academic Press) ISBN:9780124095038, 9780124104273 (2013)

Scott F. Gilbert 『Developmental Biology 10th』 (Sinauer Associates) ISBN:9780878939787 (2013)

【授業外学修（予習・復習）等】

Some time will be necessary weekly to prepare for the class. Handouts will be available in advance to help with the preparation. During the assignment week extra time will be necessary in order to prepare for the presentation in class.

【その他（オフィスアワー等）】

Questions and discussions during class are highly encouraged.

Questions and discussions will also be addressed, happily, any other time, even outside the official office hours.

【主要授業科目（学部・学科名）】