

7th Advances in Stem Cell Biology

WEEK 1-JULY 01 TO JULY 06 2019

Monday July 01 2019		
09:00 - 09:30	Welcome - Administrative instructions	Education Centre- Virginie Ponticelli (Institut Pasteur – Paris - France)
09:30 - 11:00	General course introduction	Shahragim Tajbakhsh (Institut Pasteur – Paris - France) François Schweisguth (Institut Pasteur – Paris - France)
11:00 - 11:30	Participants presentation (5-7 min/participant)	Participants 1-7
COURSE 1- REPROGRAMMING SOMATIC STEM CELLS		
11:30 - 12:30	Lecture	Laurence Daheron (Harvard Stem Cell Institute, Boston, USA)
12:30 - 13:30	<i>Lunch Break</i>	
13:30 - 13:45	Safety instructions	Murielle Almoussa (Institut Pasteur – Paris - France)
13:45 - 18:00	<u>Course 1</u> Pluripotent stem cell culture and presentation of different reprogramming technologies	Laurence Daheron (Harvard Stem Cell Institute, Boston, USA) Frank Yates (Sup'Biotech, Villejuif, France) Michel Cohen-Tannoudji (Institut Pasteur, Paris, France)
18:00 - 18:30	Induced Pluripotent Stem Cells Applications: from bench to organoids	Frank Yates (Sup'Biotech, Villejuif, France)
18:30 - 19:30	Participants presentation (5-7 min/participant)	Participants 8-14
20:00	<i>Dinner with experts</i>	

Tuesday July 02 2019		
COURSE 1- REPROGRAMMING SOMATIC STEM CELLS		
09:00 - 11:00	<u>Course 1</u> Pluripotent stem cell culture (feeder-free system): splitting, freezing	Laurence Daheron (Harvard Stem Cell Institute, Boston, USA) Frank Yates (Sup'Biotech – Villejuif - France) Michel Cohen-Tannoudji (Institut Pasteur – Paris - France)
11:00 - 12:30	Use of iPS cells to model development of the human paraxial mesoderm (joint with the Developmental and Stem Cell Biology Department)	Olivier Pourquié (Harvard Stem Cell Institute, USA)
12:30 - 13:00	<i>Lunch Break</i>	
13:00 - 14:30	Epithelial stem cells in cell and gene therapy	Michele de Luca (University of Modena and Reggio Emilia, Italy)
14:30 - 19:00	<u>Course 1</u> Gene editing in pluripotent stem cells (CRISPR-Cas9 system)	Laurence Daheron (Harvard Stem Cell Institute, Boston, USA) Frank Yates (Sup'Biotech – Villejuif - France) Michel Cohen-Tannoudji (Institut Pasteur – Paris - France)
19:00 - 19:30	Lecture	Laurence Daheron (Harvard University)

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Wednesday July 03 2019		
09:00 - 10:30	Stem and niche cells in development and regeneration	Shahragim Tajbakhsh (Institut Pasteur – Paris - France)
COURSE 2 - MOUSE SKELETAL MUSCLE STEM CELLS		
10:30 - 12:30	<u>Course 2</u> Isolating of skeletal muscle stem cells on single myofibres	Shahragim Tajbakhsh (Institut Pasteur – Paris - France) Barbara Gayraud-Morel (Institut Pasteur – Paris - France)
12:30 - 13:00	<i>Lunch Break</i>	
13:00 - 14:30	<u>Course 2</u> Isolating of skeletal muscle stem cells on single myofibres	Shahragim Tajbakhsh (Institut Pasteur – Paris - France) Barbara Gayraud-Morel (Institut Pasteur – Paris - France)
COURSE 3 - REVEALING PATTERNING AND CELL MOVEMENTS BY LIVE IMAGING IN CHICK EMBRYO		
14:30 - 18:30	<u>Course 3</u> Embryo collection, electroporation and ex vivo culture	Bertrand Benazeraf (Université Paul Sabatier -Toulouse - France)

Thursday July 04 2019		
COURSE 3 - REVEALING PATTERNING AND CELL MOVEMENTS BY LIVE IMAGING IN CHICK EMBRYO		
09:00 - 11:00	<u>Course 3</u> Live Imaging of GFP electroporated chick embryos	Bertrand Benazeraf (Université Paul Sabatier -Toulouse- France)
COURSE 4 - CRE-LOX TRACKING OF ADULT NEURAL STEM CELLS IN THE ZEBRAFISH BRAIN		
11:00 - 13:00	<u>Course 4</u> Dissection and fixation of zebrafish brain. Observation of radial glia.	Laure Bally-Cuif (Institut Pasteur – Paris - France) Isabelle Foucher (Institut Pasteur – Paris - France) Sara Ortica (Institut Pasteur – Paris - France) Miriam Labusch (Institut Pasteur – Paris - France)
13:00 - 14:00	<i>Lunch Break</i>	
14:00 - 18:30	<u>Course 4</u> Agarose embedding, vibratome sectioning and mounting, observation and interpretation.	Laure Bally-Cuif (Institut Pasteur – Paris - France) Isabelle Foucher (Institut Pasteur – Paris - France) Sara Ortica (Institut Pasteur – Paris - France) Miriam Labusch (Institut Pasteur – Paris - France)

Friday July 05 2019		
09:00 - 10:30	Intestinal stem cells	Marc van de Wetering (Hubrecht Institute - Utrecht- NL)
10:30 - 12:00	<i>Pasteur Museum</i>	
12:00 - 13:00	<i>Lunch Break</i>	
COURSE 5 - MOUSE INTESTINAL ORGANOIDS: HOW TO MAKE MINIGUT		

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13:00 - 18:00	<u>Course 5</u> In vitro culture of intestinal crypts	Giulia Nigro (Institut Pasteur – Paris - France) Laetitia Aymeric (INSERM/CHU – Angers - France) Aline Stedman (IBPS – Paris – France)
19:30	<i>Dinner with experts</i>	

Saturday July 06 2019		
COURSE 6- STUDYING CELL FATE DECISIONS IN ESCs		
09:00 - 10:30	What do we learn by trying (and failing) to reproduce a mammalian embryo in a dish?	Alfonso Martinez Arias (University of Cambridge - Cambridge - UK)
10:30 - 12:30	<u>Course 6</u> Cell fate and signalling in three -dimensional aggregates of ESCs (Gastruloids)	Alfonso Martinez Arias (University of Cambridge - UK) David Turner (University of Liverpool - UK) Tina Balayo (Universidad de Las Palmas de Gran Canaria – Spain)
COURSE 5 - MOUSE INTESTINAL ORGANOIDS: HOW TO MAKE MINIGUT		
12:30-13:30	<u>Course 5 – 2 groups in parallel</u> - Maintenance of organoid cultures	Marc van de Wetering (Hubrecht Institute - Utrecht- NL) Giulia Nigro (Institut Pasteur – Paris - France)

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WEEK 2 – JULY 08 TO JULY 13 2019

Monday July 08 2019		
COURSE 7 - RECAPITULATING HUMAN PARAXIAL MESODERM DIFFERENTIATION IN VITRO		
09:00 - 10:30	Course 7 Recapitulating human paraxial mesoderm differentiation <i>in vitro</i>	Margarete Diaz Cuadros (Harvard University, USA)
10:30 - 12:00	Engineering stem cell self-organisation to build better organoids	Matthias Lutolf (École Polytechnique Fédérale de Lausanne, CH)
12:00 - 13:00	Lunch Break	
13:00 - 14:00	Hematopoiesis: from fetal liver to bone marrow.	Ana Cumano (Institut Pasteur – Paris - France)
COURSE 8 - HEMATOPOIETIC STEM CELLS IN MOUSE AND MAN		
14:00 - 18:00	Course 8 Major sites for hematopoiesis in the mouse (embryo and adult)	Ana Cumano (Institut Pasteur – Paris - France)
COURSE 1- REPROGRAMMING HUMAN SOMATIC STEM CELLS		
18:00 - 18:30	Course 1 Observation	Laurence Daheron (Harvard Stem Cell Institute, Boston, USA) Frank Yates (Sup'Biotech – Villejuif - France) Michel Cohen-Tannoudji (Institut Pasteur – Paris – France)
Tuesday July 09 2019		
09:00 - 10:30	Early mammalian development and stem cell lines	Jennifer Nichols (University of Cambridge, UK)
COURSE 9 - EMBRYONIC STEM (ES) CELL DERIVATION		
10:30 - 13:00	Course 9 Isolation and plating of blastocysts	Jennifer Nichols (University of Cambridge- UK) Francina Langa Vives and team (Institut Pasteur – Paris - France)
13:00 - 13:30	Lunch Break	
COURSE 8 - VISUALIZING AND MANIPULATE FATE DETERMINATION		
13:30 - 16:30	Course 8 Major sites for hematopoiesis in the mouse (embryo and adult)	Ana Cumano (Institut Pasteur – Paris - France)
COURSE 5 - MOUSE INTESTINAL ORGANIDS: HOW TO MAKE MINIGUT		
16:30 – 17:30	Course 5 Maintenance of organoid cultures Part 2	Giulia Nigro (Institut Pasteur – Paris - France) Laetitia Aymeric (INSERM/CHU – Angers - France) Aline Stedman (IBPS – Paris - France)

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COURSE 6- STUDYING CELL FATE DECISIONS IN ESCs		
17:30 - 18:30	<u>Course 6</u> Cell fate and signalling in three -dimensional aggregates of ESCs (Gastruloids)	Alfonso Martinez Arias (University of Cambridge - UK) David Turner (University of Liverpool - UK) Tina Balayo (Universidad de Las Palmas de Gran Canaria – Spain)
18:30 - 19:30	<u>Course 7</u> Recapitulating human paraxial mesoderm differentiation <i>in vitro</i>	Margarete Diaz Cuadros (Harvard University, USA)

Wednesday July 10 2019		
COURSE 9 - EMBRYONIC STEM (ES) CELL DERIVATION		
09:00 - 11:30	<u>Course 9</u> Disaggregation	Jennifer Nichols (University of Cambridge, UK) Francina Langa Vives and team (Institut Pasteur – Paris - France)
11:30 - 12:30	Lunch Break	
COURSE 10 - IN VIVO IMAGING OF ASYMMETRIC CELL DIVISIONS IN DROSOPHILA		
13:30 - 17:30	<u>Course 10</u> Sample preparation and imaging	François Schweisguth (Institut Pasteur – Paris - France) Lydie Couturier (Institut Pasteur – Paris - France)
COURSE 6- STUDYING CELL FATE DECISIONS IN ESCs		
17:30 - 18:30	<u>Course 6</u> Cell Fate and Signalling in Three Dimensional Aggregates of ESCs (Gastruloids).	Alfonso Martinez Arias (University of Cambridge - Cambridge - UK) David Turner (University of Liverpool - UK) Tina Balayo (Universidad de Las Palmas de Gran Canaria - Spain)
18:30 - 19:30	<u>Course 7</u> Recapitulating human paraxial mesoderm differentiation <i>in vitro</i>	Margarete Diaz Cuadros (Harvard University - USA)

Thursday July 11 2019		
09:00 - 10:30	Lecture	Alfonso Martinez Arias (University of Cambridge, UK)
11:00 - 11:30	Group picture	
11:30 - 12:30	Lunch Break	
12:30 - 14:00	Asymmetric division and dedifferentiation of germline stem cells in the <i>Drosophila</i> testis	Erika Bach (NYU School of Medicine, USA)
COURSE 11 - IN VIVO IMAGING OF STEM CELL ASYMMETRIC DIVISIONS AND DEDIFFERENTIATION IN DROSOPHILA		
14:00 - 18:30	<u>Course 11</u> <i>In vivo</i> imaging	Erika Bach (NYU School of Medicine - New York - USA)

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COURSE 6- STUDYING CELL FATE DECISIONS IN ESCs		
18:30 – 19:00	Course 6 Cell Fate and Signalling in Three Dimensional Aggregates of ESCs (Gastruloids)	Alfonso Martinez Arias (University of Cambridge - UK) David Turner (University of Liverpool - UK) Tina Balayo (Universidad de Las Palmas de Gran Canaria – Spain)

Friday July 12 2019		
COURSE 5 - MOUSE INTESTINAL ORGANIDS: HOW TO MAKE MINIGUT		
09:00 – 10:00	Course 5 Maintenance of organoid cultures Part 3	Giulia Nigro (Institut Pasteur – Paris - France) Laetitia Aymeric (INSERM/CHU – Angers - France) Aline Stedman (IBPS – Paris – France)
COURSE 6- STUDYING CELL FATE DECISIONS IN ESCs		
10:00 - 11:00	Course 6 Cell Fate and Signalling in Three Dimensional Aggregates of ESCs (Gastruloids).	Alfonso Martinez Arias (University of Cambridge - Cambridge - UK) David Turner (University of Liverpool - UK) Tina Balayo (Universidad de Las Palmas de Gran Canaria – Spain)
11:00 - 12:30	Gastruloids as a model system to study developmental gene regulation	Denis Duboule (Ecole Polytechnique Federal De Lausanne)
12:30 -13:30	Lunch Break	
COURSE 11 - IN VIVO IMAGING OF STEM CELL ASYMMETRIC DIVISIONS AND DEDIFFERENTIATION IN DROSOPHILA		
13:30 - 15:00	Course 11 Analysis group 1	Erika Bach (NYU School of Medicine - New York - USA)
13:30 - 15:00	Close up course 2, 7, 6	All
15:00 - 16:30	Course 11 Analysis group 2	Erika Bach (NYU School of Medicine - New York - USA)
15:00 - 16:30	Close up course 2, 7, 6	All
16:30 – 18:30	Course 10 Close up	Erika Bach (NYU School of Medicine - New York - USA)

Saturday July 13 2019		
09:00 – 12:30	Wrap up & course closing	Shahragim Tajbakhsh (Institut Pasteur – Paris - France) François Schweisguth (Institut Pasteur – Paris - France)