FIFTH ESCCA INTERNATIONAL SUMMER SCHOOL ON CYTOMETRY

26 JUNE-7 JULY 2017

Valencia, Spain

ANNOUNCEMENT AND PRELIMINARY PROGRAMS

@ CytoSummer

https://www.facebook.com/escca.board
The ESCCA INTERNATIONAL SUMMER SCHOOL ON CYTOMETRY (ISSC) is a part of the ESCCA Program for Continuous Education (CE) in Cytometry that will lead to a future European Certification in Cytometry. ESCCA is also an approved CE provider of the International Cytometry Certification Examination (ICCE). For more details, please visit www.escca.eu.

The Fifth edition of ISSC will be held on 26 June-7 July 2017, organized by European Society for Clinical Cell Analysis (ESCCA), the University of Valencia and the Principe Felipe Research Center, with the collaboration of the Oceanogràfic (City of Sciences and Arts, Valencia) and the Valencia Sur Veterinary Hospital. Course registration is already open.

The previous editions of ISSC have brought together up to now more than 150 students from 25 countries all around the world and more than 30 teachers from 16 European countries. ISSC has been sponsored by 22 companies, including many ESCCA Industrial Partners.

The ISSC courses, taught in English, are informal, open and convivial, and include social activities. Although all the ISSC courses are open to people active in Cytometry, experienced or specialized cytometrists will benefit better from the specialized courses. All the Courses cover data analysis, use and comparison of cytometry software, and real data review, being thus suitable also for those responsible for final results.

Faculty of international teachers of EISC include Alberto Alvarez-Barrientos (ES), Alfonso Blanco (EI), Bruno Brando (IT), Deborah J. Burks (ES), Paolo Cappella (IT), Irene Cervelló (ES), Andrea Cossarizza (IT), Sara De Biasi (IT), Silvia della Bella (IT), Paula Fernández (CH), Guadalupe Herrera (ES), José-Manuel Ligos (ES), Alicia Martínez (ES), José-Luis Mateos (ES), Inmaculada Moreno (ES), Josep Nomdedeu (ES), Luke Noon (ES), Enrique O’Connor (ES), Claudio Ortolani (Venice, IT), Stefano Papa (IT), Martín Pérez-Andrés (ES), Jordi Pétriz (ES), Graham Pockley (UK), Frank Preijers (NL), Katherina Psarra (GR), Andrew Rawstron (UK), Consuelo Rubio (ES), Anabelle Sequeira (FR), José-Carlos Segovia (ES), Pilar Sepúlveda (ES), José Antonio Tapia (ES).
**Summary:** Overview of Single-cell technologies (Flow cytometry, Mass-spectrometry cytometry; Cell Sorting, Image-in-Flow Cytometry, High-Content analysis by Bioimaging). Overview of applications of functional Cytometry and Cytomics. Functional assays of cell health (Cell cycle and cell proliferation; Drug metabolism; Drug effects; Cell death). Functional assays of cell communication and activation (extracellular and intracellular signaling). Functional assays of cell response (Cytoenzimology; Phagocytosis; Oxidative responses; Microvesicle release; Secretion of extracellular molecules; Cytotoxicity). Analysis of microorganisms. Practicals in wet lab and computer room.

This course is organized with the collaboration of the Principe Felipe Research Center, the Oceanogràfic (the largest Aquarium in Europe) and the Valencia Sur Veterinary Hospital. The course will be held mostly in the laboratory of the Principe Felipe Research Center and in the facilities of the Oceanogràfic.
Summary: Overview of applications of cytometry in Hematology. Sample collection and preparation procedures: Blood, bone marrow, lymph nodes and special samples. Multiparametric immunophenotype: Settings, compensations and gating strategies. Data management: Acquisition, analysis, display and interpretation. Assay standardization and validation. Quality control. Case-oriented immunophenotypic studies in wet lab and computer room: Normal Hematopoiesis; Erythrocytes and erythroid cells; Acute and chronic leukemias; Lymphomas; Myelodysplastic syndromes; Analysis of rare cells and clones; Detection of minimal residual disease. Case-oriented functional studies in wet lab and computer room: Paroxysmal Nocturnal Haemoglobinuria; Drug resistance; Stem cells; Platelets and microvesicles.
Summary: Overview of the basic aspects and clinical relevance of stem cells. Overview of Basic and Clinical applications of Cytometry in Stem Cell Research and Therapy. Working with Stem Cells. Basics of cytometer operation, sample preparation and data acquisition. Basics of data analysis and interpretation. Practicals in wet lab and computer files on: Identification, phenotypic and functional characterization of human and murine stem cells. Isolation of Stem Cells by FACS and MACS. Enumeration and isolation of circulating hematopoietic and endothelial stem cells; Assessment of cell therapeutic products.
TRAVEL AND ACCOMODATION

ISSC may provide accommodation in a University Residence located at walking distance (about 15 min) of Course Facilities. The on-line reservation fee provided by ISSC organization includes 6-night lodging (Sunday-Friday) at bed & breakfast rate in a University Residence, at 15 min walking distance from venue. Additional nights may be requested to the organization.

Valencia international airport is connected directly by regular and low cost airlines to Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Italy, Morocco, Netherlands, Portugal, United Kingdom, Romania, Russia, Switzerland, Turkey and Ukraine. Valencia is also connected by plane and by high-speed trains to Madrid (1h 30 min) and Barcelona (3 hours). For more information on Valencia, please visit www.turisvalencia.es
WHO SHOULD ATTEND THE SUMMER SCHOOL ON CYTOMETRY?

Although all the ISSC courses are open to people active in Cytometry, experienced or specialized cytometrists will benefit better from the specialized courses. All the Courses cover data analysis, use and comparison of cytometry software, and real data review, being thus suitable also for those responsible for final results. The registration fee for participants who are not members of ESCCA, includes a one-year membership in ESCCA.

SUMMER SCHOOL TRAVEL FELLOWSHIPS

ISCC offers a limited number of Travel Fellowships (150 €) to participants from developing countries or from countries not having a local cytometry society. To this purpose, a motivation letter should accompany the Registration form (see Registration Section) or e-mailed to José-Enrique O’Connor (jose.e.oconnor@uv.es)
### 5th International Summer School on Cytometry

**26-30 June and 3-7 July 2017**  
Valencia, Spain

#### REGISTRATION FEES

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*) For members of ESCCA, SIC, UVEG or CIPF, and attendants of previous editions of the Summer School. Includes Course materials, lunches and coffees, Welcome Party and Course Dinner and membership in ESCCA.

‡) Includes Course materials, lunches and coffees, Welcome Party and Course Dinner and membership in ESCCA.

⁰) Registrants in two courses (one in Week 1 and one in Week 2) will have 20% reduction in course fees.

#### ACCOMMODATION PER WEEK ²

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²) Includes 6-night lodging (check-in: Sunday; Check-out: Saturday) at bed & breakfast rate at walking distance from venue. Additional nights may be requested to the organization.

Students from emerging countries and from countries with no national Cytometry society may apply for one of the ESCCA Travel Fellowships covering the cost of accommodation (equivalent to 300 € value). To apply, please send a short CV and a motivation letter to: jose.e.oconnor@uv.es

**Course Information and Registration Forms:**

https://escca.eu/education/international-course  
http://www.cipf.es/web/portada/summer-school

Registration: jose.e.oconnor@uv.es  
Additional Information and requests for official Invitation Letters (for Visa purposes): jose.e.oconnor@uv.es
REGISTRATION FORM

Name and Surname:
Address:
e-mail:
Phone:

COURSE AND ACCOMODATION CHOICES
(Tick one or two courses and accomodation as appropriate)

Course 1  FUNCTIONAL CYTOMETRY: A PRACTICAL APPROACH (26-30 June 2017)
Course 2  FLOW CYTOMETRY IN VETERINARY AND ANIMAL SCIENCES (26-30 June 2017)
Course 3  FLOW CYTOMETRY IN HEMATOLOGY: A TECHNICAL APPROACH (3-7 July 2017)
Course 4  CYTOMETRY OF STEM CELLS: A PRACTICAL APPROACH (3-7 July 2017)
Week 1    ACCOMODATION
Week 2    ACCOMODATION

EARLY REGISTRATION FEES

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LATE REGISTRATION FEES

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<td>Single Course + Accomodation</td>
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<tr>
<td>Double Course</td>
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TOTAL REGISTRATION (€)

Please transfer the funds to:
Bank: BANKIA
IBAN: ES14 2038 9938 4160 0020 4038
SWIFT CODE: CAHMESSMXXX
Account Holder: FCV CENTRO INVESTIGACIÓN PRÍNCIPE FELIPE

VERY IMPORTANT: Please indicate your name and “ESCCA Summer School 2017” as the Concept of the Bank Transfer

For confirmation, please send a copy of this Registration Form to: jose.e.oconnor@uv.es
## REGISTRATION FEES

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## ACCOMMODATION

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Students from emerging countries and from countries with no national Cytometry society may apply for an ESCCA Travel Fellowship covering the cost of accommodation (equivalent to 300 € value).

**Course Information and Registration:**

- [https://escca.eu/education/international-course](https://escca.eu/education/international-course)
- [http://www.cipf.es/web/portada/summer-school](http://www.cipf.es/web/portada/summer-school)
- Confirmation and Additional Information: jose.e.oconnor@uv.es

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**5TH ESCCA INTERNATIONAL SUMMER SCHOOL ON CYTOMETRY**

**FUNCTIONAL CYTOMETRY: A PRACTICAL APPROACH**

**5th EDITION**

26-30 June 2017

Cytometry Laboratories

Valencia University and Principe Felipe Research Center

VALENCIA (SPAIN)
Flow cytometry and related Cytomic technologies have become a complex and powerful tool for cell analysis, essential in many aspects of interest for basic and applied research in Cellular and Molecular Biology, Biotechnology, Drug Discovery and Toxicology, among others. Knowledge of the basic principles of Flow Cytometry and Cytomics and the critical points of their practical use are essential in the basic and applied laboratories.

**ESCCA INTERNATIONAL SCHOOL ON CYTOMETRY (EISC)**

EISC is a program of integrated educational and training initiatives oriented to provide new skills and tools to design and optimize and manage cytometric experiments and interpret the results obtained. EISC consists of a series of parallel 5-day courses limited to 20 students per course. Previous editions of EISC have brought together each year more than 50 students from 25 countries, and more than 30 teachers from 16 countries.

**FUNCTIONAL CYTOMETRY: A PRACTICAL APPROACH**

This is a Basic Course that will address the most relevant applications of Flow Cytometry in Cellular and Molecular Biology in academic and industrial settings. In this course, the technical bases of Flow Cytometry and Cytomics and the most relevant methodologies will be addressed through theoretical lessons and practical wet-lab sessions.

Emphasis will be placed on the technical principles of flow cytometry and management tools, the fundamentals of the main applications, the essential aspects of data analysis and interpretation of the results and the procedures of quality control. Different brands of cytometers, reagents and third-part software will be available for wet-lab practicals and computer-based exercises.

**THE ESCCA CYTOMETRY SCHOOLS AND ACRREDITATION**

This course is part of the ESCCA Program for Continuous Education (CE) in Cytometry. At the end of this Course, students may take the examination for the ESCCA European Certification in Cytometry. For more details, please visit www.escca.eu

**LECTURES AND TECHNICAL SEMINARS ON:**
- Overview of Cytometry and Cytomic technologies
- Preanalytical phase: Sample preparation, cytometer operation and standardization
- Analytical phase: Protocol design and optimization
- Data analysis and interpretation
- Cytometry resources in the Internet
- Detailed review of specific applications of functional Cytometry

**WET LAB AND COMPUTER PRACTICALS ON:**
- Fluorescent reporter proteins and FRET techniques
- Nucleic acid content and expression
- Cell cycle and cell proliferation
- Apoptosis, necrosis and autophagy
- Polychromatic surface- and intracellular immunophenotype
- Real-Time Cytometry
- Cell signaling, cell activation and cell communication
- Cell metabolism, mitochondrial function and oxidative stress
- Drug Metabolism and in vitro toxicity testing
- Functional analysis of Immune responses
- Functional analysis of stem cells
- Analysis of microorganisms and microparticles

**FACULTY OF INTERNATIONAL TEACHERS**

Alberto Alvarez (Badajoz, ES), Alfonso Blanco (Dublin, EI), Andrea Cossarizza (Modena, IT), Sara De Blasi (Modena, IT), Guadalupe Herrera (Valencia, ES), Alicia Martinez (Valencia, ES) Jose-Enrique O’Connor (Valencia, ES), Graham Pockley (Sheffield, UK), Francisco Sala (Lausanne, CH), Anabelle Sequeira (Dijon, FR
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Students from emerging countries and from countries with no national Cytometry society may apply for an ESCCA Travel Fellowship covering the cost of accommodation (equivalent to 300 € value).

Course Information and Registration:
https://escca.eu/education/international-course
http://www.cipf.es/web/portada/summer-school
Confirmation and Additional Information: jose.e.oconnor@uv.es
Flow Cytometry is a very important technology, based on the multiparametric analysis of single cells and biological particles. The use of flow cytometry is well established since the 1970's for clinical diagnosis and basic research.

Because of the growing interest of cellular analysis in animal models, flow cytometry has become an essential tool in basic and applied research involving animals. Flow cytometry in laboratory animals is currently applied in many biomedical research areas, especially relevant to Immunology, Oncology, Pharmacology, Toxicology, and Cardiovascular Disease.

Recently, the application of flow cytometry to evaluate animal health has received increased attention, for sanitary, industrial and environmental reasons. Flow cytometry can be implemented for surveillance, diagnosis, prognosis and therapy in many areas of Veterinary Sciences, from infectious diseases to oncology and animal reproduction, and in many animal categories, from companion animals to marine mammals.

This is a novel and unique course, addressing specifically the most relevant applications of Flow Cytometry in the study of animal cells, at the experimental, clinical, industrial and environmental levels. Emphasis will be placed on the technical principles of flow cytometry and the issues of sample preparation from living animals.

Theoretical lectures, technical seminars and laboratory practicals will take students through the current applications of cytometry in clinical and industrial Veterinary, and in emerging fields like studies in marine mammals.

Theoretical and technical lectures will be delivered by international teachers in the field. The Course will include hands-on practicals on assay design and performance in wet-lab experiments. Different brands of cytometers, reagents and data analysis software will be available for laboratory practicals and computer analysis of real case files.

**ESCCA INTERNATIONAL SCHOOL ON CYTOMETRY (EISC)**

- EISC is a program of integrated educational and training initiatives oriented to optimizing, managing and interpreting cytometric experiments. EISC consists of a series of parallel 5-day courses **limited to 20 students per course**. Students and teachers from near 30 countries have attended EISC so far.
- This course is part of the **ESCCA Program for Continuous Education (CE)** in Cytometry. At the end of this Course, students may take the examination for the **ESCCA European Certification in Cytometry**. For more details, please visit [www.escca.eu](http://www.escca.eu)

**COURSE CONTENTS**

**LECTURES AND PRACTICALS:**
- Basic aspects and general applications of Cytometry
- Applications of Cytometry in Laboratory Animals
- Applications of Cytometry in Clinical Veterinary
- Applications of Cytometry in Industrial Veterinary
- Applications of Cytometry in Marine Mammals and Fish
- Applications of Cytometry in Animal Reproduction

**PRACTICALS IN VETERINARY LAB AND COMPUTER ROOM:**
- Optimizing sample collection and preparation procedures
- Polychromatic immunophenotype: Compensations and gating strategies
- Functional analysis of innate immune responses
- Analysis of cell proliferation and cell death
- Diagnosis of leukemias and lymphomas in animals
- Functional analysis of hemostasia
- Data management: Acquisition, analysis, display and interpretation.
- Standardization, assay validation and Quality control

**FACULTY OF INTERNATIONAL TEACHERS**

Alberto Alvarez (Badajoz, ES), Alfonso Blanco (Dublin, EI), Andrea Cossarizza (Modena, IT), Guadalupe Herrera (Valencia, ES), Alicia Martínez-Romero (Valencia, ES), Enrique O’Connor (Valencia, ES), Consuelo Rubio (Valencia, ES), José Antonio Tapia (Cáceres, ES).
### REGISTRATION FEES

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**Course Information and Registration:**

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- [http://www.cipf.es/web/portada/summer-school](http://www.cipf.es/web/portada/summer-school)

Confirmation and Additional Information: jose.e.oconnor@uv.es

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**5th ESCCA INTERNATIONAL SCHOOL ON CYTOMETRY**

**FLOW CYTOMETRY IN HEMATOLOGY: A TECHNICAL APPROACH**

**5th EDITION**

**3-7 July 2017**

Cytometry Laboratories
Valencia University and Principe Felipe Research Center

**VALENCIA (SPAIN)**
Flow Cytometry has become a complex and powerful tool for cell analysis, essential in many clinical applications for diagnosis, prognosis and therapy monitoring. Knowledge of the basic principles of Flow Cytometry and the critical points of its practical implementation are essential for proper use of cytometry in the basic and clinical context.

ESCCA INTERNATIONAL SCHOOL ON CYTOMETRY (EISC)

EISC is a program of integrated educational and training initiatives oriented to provide new skills and tools to design and optimize and manage cytometric experiments and interpret the results obtained. EISC consists of a series of parallel 5-day courses limited to 20 students per course. Previous editions of EISC brought together each year more than 50 students from 25 countries, and more than 30 teachers from 16 countries.

FLOW CYTOMETRY IN HEMATOLOGY: A TECHNICAL APPROACH

This is a Basic Course that will address the most relevant applications of Flow Cytometry in Hematology. Emphasis is placed on the technical principles of flow cytometry and management tools, the fundamentals of the main applications, the essential aspects of data analysis and interpretation of the results and the procedures of quality control.

Theoretical and technical lectures will be delivered by international teachers in the field. The course will include hands-on practicals on assay design and performance in wet-lab experiments. Case-oriented, interactive exercises on analysis and interpretation of real data files will be led by the experts. Different brands of cytometers, reagents and third-part software will be available for wet-lab practicals and computer-based exercises.

THE ESCCA CYTOMETRY SCHOOLS AND ACRREDITATION

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LECTURES AND SEMINARS:
- Overview of applications of cytometry in Hematology
- Sample collection and preparation procedures: Blood, bone marrow, lymph nodes and special samples
- Polychromatic immunophenotype: Compensations and gating strategies
- Data management: Acquisition, analysis, display and interpretation
- Assay standardization and validation
- Quality control

CASE-ORIENTED STUDIES IN WET LAB AND COMPUTER ROOM:
- Normal Hematopoiesis
- Erythrocytes and erythroid cells
- Acute and chronic leukemias
- Lymphomas
- Myelodysplastic syndromes
- Minimal residual disease
- Paroxysmal Nocturnal Haemoglobinuria
- Platelets and microvesicles
- Preparation and analysis of usual and special samples
- Use of specific flow cytometry software

FACULTY OF INTERNATIONAL TEACHERS

Bruno Brando (Legnano, IT), Sara de Biasi (Modena, IT), Paula Fernández (Aarau, CH), Josep Nomdedeu (Barcelona, ES), José-Enrique O’Connor (Valencia, ES), Claudio Ortolani (Venice, IT), Stefano Papa (Urbino, IT), Martín Pérez-Andrés (Salamanca, ES), Graham Pockley (Sheffield, UK), Frank Preijers (Nijmegen, NL), Katherina Psarra (Athens, GR) Andrew Rawstron (Leeds, UK)
REGISTRATION FEES

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Confirmation and Additional Information: jose.e.oconnor@uv.es

INTERNATIONAL SCHOOL ON CYTOMETRY

CYTOMETRY OF STEM CELLS: A PRACTICAL APPROACH 5th EDITION

3-7 July 2017

Cytometry Laboratories

Valencia University and Principe Felipe Research Center

VALENCIA (SPAIN)
Flow cytometry and related Cytomict technologies have become a complex and powerful tool for cell analysis, essential in many aspects of interest for basic and applied research in Cellular and Molecular Biology, Biotechnology, Drug Discovery and Toxicology, among other.

For many years now, flow cytometry has been successfully used in the study of hematopoietic stem cells and their pathologies. Nowadays, the new challenges of Regenerative Medicine and Cell Therapy have extended the applications of flow cytometry and cytomics to many other stem cell types and lineages.

Knowledge of the principles of Flow Cytometry and Cytomics and the critical points of their practical use are essential for laboratories performing basic or clinical studies related to stem cell biology and application.

ESCCA INTERNATIONAL SCHOOL ON CYTOMETRY (EISC)

EISC is a program of integrated educational and training initiatives oriented to confer new skills and tools to design and optimize and manage cytometric experiments and interpret the results obtained. EISC consists of a series of parallel 5-day courses limited to 20 students per course. Previous editions of EISC have brought together each year more than 50 students from 25 world countries, and more than 30 teachers from 16 countries.

CYTOMETRY OF STEM CELLS: A PRACTICAL APPROACH

The course will approach methods and applications of Cytometry and Cytomics in basic, translational and clinical fields of Stem Cell research, and will include practical aspects of assay design and performance, data analysis and interpretation. Theoretical and technical lectures delivered by international experts will alternate with practical exercises in wet labs and computer rooms.

Emphasis will be placed on the technical principles of flow cytometry and management tools, the fundamentals of the applications, the essential aspects of data analysis and interpretation of the results and the procedures of quality control. Different brands of cytometers, reagents and third-part software will be available for wet-lab practicals and computer-based exercises.

THE ESCCA CYTOMETRY SCHOOLS AND ACREDITATION

This course is part of the ESCCA Program for Continuous Education (CE) in Cytometry. At the end of this Course, students may take the examination for the ESCCA European Certification in Cytometry. For more details, please visit www.escca.eu

COURSE CONTENTS

LECTURES AND TECHNICAL SEMINARS ON:

- Overview of the basic aspects of Stem Cells.
- Overview of the clinical relevance of Stem Cells.
- Overview of the technical aspects of Cytometry and Cytomics.
- Basic applications of Cytometry in Stem Cell Research
- Clinical applications of Cytometry in Stem Cell Therapy.
- Working with Stem Cells.
- Basics of data analysis and interpretation.

WET LAB AND COMPUTER PRACTICALS ON:

- Basics of cytometer operation, sample preparation and data acquisition.
- Identification, phenotypic and functional characterization of human and murine stem cells.
- Isolation of Stem Cells by FACS and MACS.
- Absolute count and isolation of hematopoetic and endothelial precursors.
- Assessment of cell therapeutic products.

FACULTY OF INTERNATIONAL TEACHERS

Deborah J. Burks (Valencia, ES), Irene Cervelló (Valencia, ES), Silvia Della Bella (Milano, ES), Guadalupe Herrera (Valencia, ES), Alicia Martínez-Romero (Valencia, ES), José-Luis Mateos (Madrid, ES), Inmaculada Moreno (Valencia, ES), Luke Noon (Valencia, ES), José-Enrique O'Connor (Valencia, ES), Jordi Pétriz (Barcelona, ES), Frank Preijers (Nijmegen, NL), Katherina Psarra (Athens, GR), Francisco Sala (Lausanne, CH), Pilar Sepúlveda (Valencia, ES), José-Carlos Segovia (Madrid, ES)