Sunday, April 29, 2018

15:30-17:00

WORKSHOP 1
Balancing Science and Service in a SRL

Facilitators: Joanne Lannigan and Rui Gardner

Overview:
The mission of SRLs is to provide key technological services to researchers/investigators, as well as provide guidance and expertise on the use of such services in scientific investigations. A major role of SRLs is to also insure quality data which is reproducible. However, another very important role of the SRL is to be on the forefront of new technologies and their applications, as well as the development of new applications and tools to enhance an investigator's resources for discovery. While one may think these roles should be complimentary, often due to time, staff and other resource limitations, they may be competitive and in conflict. This workshop will involve small working groups (5-7 people) assigned key questions to discuss. The results of such discussions will be shared with the entire group. The following key questions will be addressed in this workshop:

What are the benefits/penalties of having both science and service activities within a core?
Where do resources to perform the science part come from?
Who pays for the component of staff salaries dedicated to research?
How can SRL personnel balance the need for both science and service?
Should everyone be involved in science and service or should there be dedicated individuals for

each?
How do you allocate time and priorities for each of these activities?

Agenda:
Introduction (30 minutes): Joanne Lannigan & Rui Gardner

Small Group Discussion (30 minutes): All participants

Small Group Summaries (20 minutes): Small Group Facilitator

Workshop summary and conclusions (10 minutes): Joanne Lannigan and Rui Gardner

WORKSHOP 2
A Successful Imaging Flow Cytometry Facility: Guidelines for Management and Publication

Facilitators: Dominic Jenner, Ziv Porat, and Aja Rieger

Overview:
Imaging flow cytometry (IFC) is a main stream technology being utilised worldwide to great effect. However, there are still obstacles in the way between the acquisition of an imaging flow cytometer and its successful integration in a flow core or Scientific Research Laboratory (SRL). In this workshop we aim to discuss and put together guidelines for the best ways to manage your IFC equipment within a flow core or SRL. In addition the guidance on the best practice for publishing imaging flow cytometry data is still lacking and MIFlowCyt guidelines for the publication of imaging flow cytometry data would be of great benefit to the community. In this workshop we aim to discuss both of these topics and gather the thoughts of the IFC community.

Agenda:
The workshop will be split into three sections:

Introduction (5 minutes):

Discussion theme 1 (30 minutes): How to run an IFC in an SRL?
a. How best to train staff/users to run samples
b. Best ways to train staff and/or users to analyse samples
c. How best to retain the analysis capability with staff turnover
d. The most appropriate people to perform IFC analysis e.g. Researcher or SRL staff
e. User management (advertising, recruiting users, follow-up and maintaining users, contact with PIs, academic credit)

Discussion theme 2 (30 minutes): Guidelines for publication of IFC data. There is some guidance (Filby et al) on publishing IFC data, but no solid guidelines. These can include: instrument setup, acquisition details, gating strategy, full description and justification for the masks and features used,

Discussion theme 3 (20 minutes): Open Q&A.

If you have any questions for the open session please email them to any one of the workshop organisers or post them on the IFC google plus community.

WORKSHOP 3
Dr. Reproducibility or How I Learned to Stop Worrying and Love Validation

Facilitators: Steven Eck, Chris Groves, Jennifer Stewart, and Cherie Green

Overview:
A practical discussion for basic, clinical and translational researchers to explore validation for flow cytometry assays and ask if such testing should be part of publication expectations? If not, why not? If so, what data should be provided for which kinds of assays?

WORKSHOP 4
Cytometer Setup, Characterization and Standardization

Facilitators: Toralf Kaiser, Konrad von Volkmann, and Claudia Giesecke

Overview:
We propose a workshop in which standard (bead based) methods as well as a LED (quantiFlash) based method shall be discussed for cytometer setup and standardization. In line, we would like to talk about basics on signal processing and initiate the discussion on determination and technical terms for noise and background as this would be very helpful to distinguish both precisely from target signals.

Agenda:
a) Bead based cytometer setup / Interpretation of Q and b values
b) PMT gain range SNR and DNR curves for cytometer setup
c) Determination of the instrument operation point
d) General conceptions of functioning of a PMT & signal processing
e) Discuss the introduction of unequivocal technical terms for instrument characterization (noise, background, dynamic range (DNR), signal-to-noise (SNR))

WORKSHOP 5
Identification of Areas Where Software Tools can Contribute to the Successful Operation of a Shared Resource Laboratory

Facilitators: Gert Van Isterdael, Michael Gregory, Cláudia Bispo, Christian Kukat, Gelo Victoriano Dela Cruz, Diana L. Bonilla Escobar

Overview:
The primary goal of this workshop is to identify areas where implementation of software tools will help contribute to the successful operation of SRLs. To accomplish this we will poll the SRL community on which new software tools they would like to see developed in the future to make the operations of the facility more comfortable and efficient and to discuss software solutions that SRLs

are currently using and how they might be improved.

Agenda:
(15 min) Presentation about the goal of the workshop
(15 min) Show results of the user survey (Purdue list and Google+ Cytometry Forum)
(30 min) Dividing the attendees in sub groups for focussed discussions:
1) Identifying areas where software could help within the SRL
2) Discuss existing software solutions for specific questions e.g. Quality control, scheduling, project management, communication to users
3) New tools (or addons to existing software) that the SRL community would like to see being developed

(30min) Make a recap of group discussions and final discussion

WORKSHOP 6
Cytometry in the Era of the Human Cell Atlas

Facilitators: Andrea Holme, Rob Salomon, and Joseph Powell

For the questionnaire connected with this workshop, click here.

Overview:
The field of single-cell genomics has been transformed by technology and methodology developments in molecular biology, microfluidics, cytometry, imaging and computational biology. These have given rise to a multitude of protocols, academic and commercial systems, and computational challenges.
This workshop will begin with an overview of exciting developments and considerations in the field over the past year, highlighting the practical details and considerations in developing genomics-cytometry workflow pipelines. Following this the floor will be open to panel and audience discussion of how and what is needed from the cytometry community to develop the best practices and how we should contribute to the human cell atlas.

Agenda:

- To generate discussion on how cytometry cores and researchers can work in line with best practices so their data can be used in a Human Cell Atlas Project;
- To have an overview of the different genomics pipelines and novel developments which will become commonplace in the next 5-10 years and discuss their considerations;
- To discuss how the cytometry community may contribute to the Human Cell Atlas Project

Monday, April 30, 2018

15:45 - 17:15

WORKSHOP 7
CYTO Labhacks: Inspiring Innovation in Cytometry Through Open Collaboration

Facilitators: Jakub Nedbal, Dominic Gagnon, and Bunny Cotleur

Overview:

- Introduce CYTO Labhacks.
- Form strategy to inspire and incentivize openness within ISAC.
- Derive strategical objectives and actions for Cyto 2019 and beyond.
- Recruit volunteers.

Agenda:

- Present success stories, real world examples and advocate benefits of open/free science.
- Propose and agree on name, branding & logo.
- Discuss CYTO Labhacks strategy.
- Form a group of engaged ISAC members, agree on a communication platform.

WORKSHOP 8
Aptamers in Cytometry

Facilitator: Henning Ulrich

Overview:
This workshop shall introduce researchers and students into the development of fluorescence labeled aptamers for specific cell type detection (stem or cancer cells or parasites) by flow and tissue cytometry. Aptamers are developed by in vitro selection and provide high-affinity ligands with similar binding characteristics as monoclonal antibodies. Aptamers are promising candidates for cytometry, due to their small molecules character and structural flexibility, easily accessing even hidden binding sites. Further, aptamers are synthetic compounds, synthesized at low costs without any activity variations between lots, and easily fluorescence-tagged.

Agenda:
90 min total
Teaching in an interactive way with the audience
• Problem Focus and Key Questions: Synthetic ligand (aptamer) selection and fluorescence labeling for specific cell phenotype targeting (20 min)
• Technical aspects and innovation, fluorescence tagging; chemical modification for enhancing stability and selectivity of aptamers (15 min)
•Applications for flow and imaging cytometry; novel protocols and assays for epitope detection for stem and cancer cell identification as well as parasite detection (15 min)
•Comparison com features of antibodies (i.e. mesenchymal stem cell detection by CD29, CD90 and

CD105: multipanel antibody detection vs. using a single aptamer for detection). Easy labeling of aptamers for flow and imaging cytometry (10 min)

- Interactive discussion of technical points and responding to the questions of the audience (30 min)

- Protocols for aptamer development, including reagents (random templates, primers, fluorescence labeling, polymerases, target cells and their preparation), amplification steps, selection and affinity determination by flow cytometry

-To understand flow cytometry and cell sorting using aptamers as fluorescent ligands: Mesenchymal stem cells can be identified and sorted from a heterogeneous mixture of cells.

- To be introduced to labelling of live cells using fluorescent aptamers: binding reversal with DNA nucleases

- Knowledge on Specific applications: - Aptamer kits for cell isolation and flow cytometry

- Explanation for which application aptamers would be advantageous over antibodies: Detect not easy accessible targets; a second oligonucleotide can be used for increasing target-binding versus noise ratio. Aptamers can denatured and renatured (different from antibodies)

- Discussion of reagent selection and validation for cytometry (aptamers and antibodies)

WORKSHOP 9
Control Cells or Not

Facilitators: Yanli Liu, Paul Wallace, Virginia Litwin and Lili Wang

Click here to fill out the workshop survey.

Overview:
Biological controls can be used as positive, negative and process controls; they can also be used for instrument set-up or standardization, reagent quality control, panel characterization, and for multi-instrument and multi-center longitudinal studies. However, effective and stable control cells are difficult to secure for cell-based assays. This workshop will be an in-depth discussion of the challenges that we are facing as a community. Sample discussion questions are listed below:

- What and why do we standardize?
- What are the options in biological control materials today?
- What would be ideal biological control materials-normal and abnormal?

Agenda:

The workshop will include a survey and discussion of all current products as well as non-commercial approaches. It will focus on interactive discussions between panelists and attendees as well as between attendees.

The following are the confirmed panelists for discussion and technical presentations:

- Jonni S. Moore, University of Pennsylvania, USA
- Paul Wallace, Roswell Park Cancer Institute, USA
- Virginia Litwin, Caprion Biosciences, Canada
- Lili Wang, NIST, USA

The agenda will consist of a panel discussion, technical presentations, and Interactive discussion and panel recommendation as listed here:

Part I: Introduction and Attendee Survey (15 min):
The objectives of part I are problem statement and solution survey.
Part II: Technical Presentations (30 min):
This part will consist of four technical presentations covering most of the existing biological controls from different vendors. Each presentation will be ~8 minutes per speaker plus 5 minutes for a Q&A session at the end.
Part III: Interactive Discussions and Panel Recommendations (45 min):
The last part of the workshop is intended for overall discussion, brainstorming, problem solving and recommendations for best practice.

WORKSHOP 10
Best Practices for Development and Implementation of Automated, Standardized Multiparameter CyTOF Panels

Facilitators: Radhika Rayanki, Chris Groves, Thomas Ashhurst, Nicole Paul, and Caryn Van Vreden

For the survey associated with this workshop, please click here.

Overview:
Mass cytometry promises to be a potential game changing technology that provides unmatched depth of immune system characterization at the single cell level. The method dramatically expands the capability of cell subset identification and phenotype compared to flow cytometry (FCM). The use of rare-earth metal isotopes conjugated to monoclonal antibodies to evaluate multiple parameters simultaneously on individual cells is measured with minimal overlap between channels. The difficulties in this platform typically concern (1) ease-of-use (2) high cost (3) creation of large panels (4) data analysis and visualization, all of which can be limiting factors or roadblocks to the wide spread implementation and use of this technology compared to flow cytometry.

Format/Agenda:

The format will include a discussion of the results of pre-conference survey on what SRL (Shared Resources Laboratories) are currently doing. There will be an “open mic” session where attendees will be encouraged to bring information to share on situations/mistakes/troubleshoot/success & failures/challenges for clinical validation studies. This will be followed by a few brief presentations that are composed of:

1. Ease of use: Methods optimization and reagent testing for environmental contaminants and rigorous instrument setup and performance testing
2. Cost savings: Assay miniaturization and Reagent management techniques are critical for CyTOF assay optimization
3. Automated Robotic cocktailing for panels to increase capacity and reduce variability help move

quickly to identify problems
4. Data analysis and visualization methods are questionable given variability in results generated by clustering algorithms
5. Discussion and conclusion with audience participation and feedback

Workshop 11
Flow Cytometry Application in Multi-Center Global Clinical Studies: The Importance of Standardization and Harmonization. Is the Quality of Data Only as Good as the Weakest Control Planned?

Facilitators: Kamila Czechowska, Alessandra Vitaliti, Attila Tarnok, David Lanham, Ryan Brinkman Paul Trampont

Overview:
Flow cytometry is a powerful analytical tool in drug development, and supports a number of areas including drug-target engagement analysis and pharmacodynamic biomarker assessments, covering a wide range of end use applications, from basic biology and exploratory endpoints to critical safety and efficacy decisions. Following the steps of flow cytometry assay development and validation, outlined in international guidelines and white papers, these methods can be implemented in clinical studies.
Testing of patient samples require special measures to ensure high quality standards, due to sample instability and limited availability of reference materials. This presents challenges in multi-center global studies. The collaboration between the clinical and analytical teams, process harmonization/standardization, from sample collection to data reporting, are the foundations for success and the generation of robust and reliable results for decision making conclusions. In this respect - the assurance of result quality is strengthened in analytical laboratories that follow regulations such as those from the Good Clinical Practice (GCP), College of American Pathologist (CAP), International Organization for Standardization (ISO), or the Clinical Laboratory Improvemen Amendments (CLIA).

In this workshop, we will present and discuss key aspects critical to achieving standardization and harmonization of flow cytometry applications in multi-center clinical studies.

This workshop is intended to target attendees who are currently involved in, or considering implementing, sophisticated flow-cytometry based assays in multi-site clinical testing for global clinical trials in regulated laboratories. The discussion will also be of interest of young scientists fron academia, and to manufacturers of the flow cytometric controls/reagents and analysis software, and will expose participants to current challenges and solutions in this area.

The scope of this workshop will be to address the following questions:

1. Considerations for specimen selection - based on clinical settings and marker stability assessed during method development Presenter Alessandra Vitaliti

2. What are the challenges and opportunities of local vs centralized analysis? Presenter David

Lanham

3. What are the critical steps that one should take in order to assure processes harmonization and instrument standardization? Presenter Kamila Czechowska-Kusio

4. What are the controls and how can be introduced in multi-site clinical sample testing? (e.g., what calibrators or controls do attendees use: fresh-, stabilized-, dried-, lyophilized- cells? Beads? How reagents can be managed (importance in long-term studies)? Presenter Attila Tarnok

5. How can we standardize data analysis? (manually-multianalyst or centralized?, automated algorithm based gating?) Presenter Ryan Brinkman

Agenda:
Several of weeks prior to the conference, recipients of the Purdue mailing list will receive an email with the link for online answering of the set of questions. At the beginning of the workshop, the participants will be asked to choose or give answers to the questions listed above, after which, each co-author of this workshop will briefly introduce the subject (each participant will present 3 slides, time predicted 15 minutes in total). Before the end of the workshop the query will be repeated.

To maximize the number of answers, we will use the CYTO 2018 mobile application in order to gather the answers to our questions from the Congress participants.

The outcomes of the brainstorming at the workshop, final conclusions, the results of the mobile application survey as well as results obtained from the pre-Congress voting will be gathered, analyzed and published in the Cytometry part A and/or on the ISAC website.

Workshop 12
Induced Biomarkers

Facilitators: Soren Ulrik Sonder, Jennifer Stewart, Ruth Barnard, and Maciej Cabanski

Overview:
Not all biomarkers are presented on the surface of resting cells. Some biomarkers require that the cells are stimulated first. This can be something as simple as a general activation of the cell or specific stimulation targeting a well-defined receptor on a subset of cells. The advantage of this type of assay is that it allows the scientist to utilize the cells' functional response as a biomarker and not just what the resting cell presents on the surface.
Inducible biomarkers require more complex and time-consuming assay that can pose problems in validation and even though the cells' immunophenotypes do not change, their ability to respond might be compromised sooner than expected depending on the various conditions the cell is exposed to (i.e. drawn into a vacutainer of a certain coagulant) unless the correct measures are taken.
Short presentations on the topic from the audience are encouraged. All that is required is that you bring your presentation of max 5 minutes to the workshop!

Agenda:

1. Welcome and introduction (10 min).
2. How can we best stabilize our inducible biomarker samples at the clinical site? What tube types work best for the different assays/matrices? What is your experience with SMART tubes, Cytochex, Transfix, TruCulture? Pre-loaded or train the site to add the stimulus (35 min)?
3. How to manage the stimulation. Challenges in optimize and validate an assay that measures a transient event. Finally, how do you select and design good controls (35 min)?
4. Summary and concluding remarks (10 min).

Tuesday, May 1, 2018

17:00-18:30

Workshop 13
Building Measurement Assurance in Flow Cytometry

Facilitators: Lili Wang, Stephen Perfetto, Robert Hoffman, Virginia Litwin

Click here to take the pre-workshop survey.

Overview:
Building measurement assurance in flow cytometry requires proper controls and standards, e.g. particles for instrument calibration, performance characterization, and standardization, biological cell reference materials, and validated measurement procedures. The workshop is intended to foster the information exchange between ISAC standards committee/task force, NIST, FDA, NIH, and user communities and address key questions: 1) how best to characterize cytometer performance and standardize flow cytometers using calibration beads with ERF value assigned that is traceable to NIST SRM 1934? 2) experimental purpose and design of a first round-robin standardization study; 3) additional needs for standards/reference control development for overcoming gaps in obtaining sufficient measurement assurance for flow cytometry for critical application fields.

Agenda (tentative): There will be four technical presentations (15 min each) followed by 30-minute discussion and conclusion section.

1) "Building Measurement Assurance in Flow Cytometry". Lili Wang, NIST; Heba Degheidy, FDA; Robert Hoffman, Consultant, CA
2) "Instrument standardization and detector operating voltage optimization". Stephen Perfetto NIAID, NIH and James Wood, Wake Forest University School of Medicine, USA
3) "Optimization of Flow cytometry assays for biomarker development". Chelsea Xue, Novartis, USA
4) "Guidance Document for Flow Cytometry Validation on the Horizon". Virginia Litwin, Caprion Biosciences, Canada

For handout, click here.

Workshop 14
Photobleaching and Phototoxicity in Live Cell Imaging

Facilitators: Jaroslav Icha, Silas Leavesley, and Rachel Errington

Overview:

This aim of the workshop is to discuss and agree on general guidelines for treating phototoxicity in fluorescence microscopy. We will address questions like what is the level of awareness of the challenges associated with phototoxicity in ISAC, how many ISAC members would benefit from further content on phototoxicity? What are the barriers to adopting best practices against phototoxicity (instrumentation, time, experimental protocol)?

Agenda:
The workshop will start with a 20-minute overview talk by Jaroslav Icha. This will summarize the current understanding of phototoxicity, the methods of its characterization and mitigation. The talk will be followed by questions arising from the presentation and by an active outreach to gain feedback from the audience. We will learn how many within the society are pursuing live cell imaging and of those how many consider the challenges associated with phototoxicity. We will then pursue a discussion on defining the best experimental practices for live cell fluorescence microscopy. This discussion will draw from the talk, the questions asked, the feedback from the audience. The discussion will be moderated and facilitated by Silas Leavesley and Jakub Nedbal.

Workshop 15
Cytometric Fingerprinting for Routine Diagnostics of Microbiome Dynamics in Medical and Environmental Settings

Facilitators: Hyun-Dong Chang, Jakob Zimmerman, Frederik Hammes, Susann Müller, Peter Rubbens, Ruben Props, Frederiek - Maarten Kerckhof

For more information about this workshop, click here.

Overview:
Microbiomes perform essential services, ranging from the human microbiome to man-made and natural ecosystems. Human microbiome dysbiosis can be indicative of the host health status, while environmental microbiome changes can impact global biogeochemical cycling, which is intricately linked with climate change.

Agenda:
-17:10-17:15 Part 1: Set-up and standardized methods for microbial community flow cytometry (MCFC) – Hyun-Dong Chang
Many methods exist for differentiation of microbial cell types by fluorescent dyes ranging from the whole microbiome to specific functional or phylogenetic groups. Standardization of measurements is an essential issue here. This involves decisions on cytometer setup but also automation for fast

response assessment of microbial communities.
-17:15-17:25 Discussion pt. 1
-17:25-17:30: Part 2: Screening microbiomes in human environments- Jakob Zimmerman
In a real world example, we will show how flow cytometry and cell sorting in conjunction with gnotobiotic mouse models were relevant to microbiome research.
-17:30-17:40 Discussion pt. 2
-17:40-17:45 Part 3: Complementarity of MCFC in combination with other 'omics'-approaches – Ruben Props
To increase the (phylo)genomic resolution of MCFC, it can be used in tandem with "-omics" approaches. Current challenges and opportunities of integrating MCFC with "omics" will be discussed (with a specific focus on cell sorting).
-17:45-17:55 Discussion pt. 3
-17:55-18:00 Part 4: Ecological measures derived from flow cytometric fingerprinting (FCFP) – Susann Müller
MCFC single-cell data can be evaluated using macro-ecological concepts in an intuitive and actionable way. These ecological metrics can be of interest for both medical and environmental applications. The high temporal sample densities provide new insight into the ecology of microbiomes and may also lead to strategies for microbiome based health management.
-18:00-18:10 Discussion pt. 4
-18:10-18:15 Part 5: Computational challenges for FCFP – Peter Rubbens
The analysis of FCFPs requires high-dimensional multivariate analysis techniques. In addition, temporal aspects need to be addressed, as routine diagnostics require on-line measurement. Therefore, FCFP faces computational challenges, which will be highlighted in this workshop, followed by possible strategies to resolve them.
-18:15-18:25 Discussion pt. 5 and Concluding remarks + data challenge

Workshop 16
Therapeutic Cell Sorting

Facilitators: Grace Chojnowski, Jeffrey Carrell, and Christopher Groves

Overview:
In this workshop, we will share our experiences and ask the participants to actively participate in discussion and presentation. We will review our approaches to therapeutic manufacturing and cell therapy and the instrumentation platforms currently employed. We will discuss the benefits and current limitations of these systems and discuss qualities of microfluidic systems well as other types of cell sorters being used for GMP sorting. We encourage participants to be prepared to share short (5 min max) presentations of their own challenges and successes.

Agenda:
Introduction:
Grace, Jeffrey, Christopher.
Brief overview of developments and progress in Therapeutic Cell Sorting over the last year in both instrument development and progess in processing methods.
15 mins

Presentations:
Presentations from leaders in the field performing therapeutic cell sorting, the use of different platforms and how they are used to isolate the different cell types required as a curative for different disease states.
Discussion on the different approaches, technical challenges, validation, sterility, quality control and regulatory considerations involved in isolating cells for therapeutic purposes.
40 mins

Interactive Discussion:
With audience and organisers, members of the audience will be asked prior to the workshop material they would like to share slides, submit questions and points of discussion they would like addressed during the workshop. 30 mins.

Conclusion/Summary:
What are the major challenges that still need to be addressed ? 5 mins.

A survey will go out prior to the workshop to help gather topics for discussion and areas that will help those already performing therapeutic cell sorting and those that are planning on pursuing in cell isolation for therapeutic purposes.

Workshop 17
A New Solution to an Old Problem: Key Performance and Delivery Indicators (KPIs and KDIs) for a Research Technology Platform (RTP) as a Sustainable Enterprise

Facilitators: Michael Thomson, Andrew Filby, Reiner Schulte, and Anna Petrunkina

For the survey associated with this workshop, click here.

Overview:
Research Technology Platforms (RTPs) and SRLs facilitate the application and utilisation of specific analytical technologies to the highest possible standard thus delivering reputable data across a broad spectrum of research themes. The broad variation in specialism, institutional policies, needs of users and operational models does not only make the benchmarking and performance monitoring virtually impossible, it also affects the prospects of becoming a sustainable enterprise. An important aspect of sustainability is defined by the staffing of the SRLs/RTPs. In this workshop we would like to review current practices and initiate a discussion focused on how to describe a set of customisable KPIs for a flow cytometry-focused RTP service (FCM-RTP), with the ultimate goal of optimising the performance thus making it sustainable and competitive. This should allow for benchmarking across the full breadth of RTPs, extending beyond the particular science specialism, demands of the users and institutional/overarching policies.

Agenda:
Following questions will be discussed
1. How is the performance of a FCM-RTP currently measured?

2. How should a FCM-RTP performance be measured?
3. What are the variable that affect this?
4. How can these be measured and thus optimised/reassessed?
5. Could these KPIs be used to set true customisable performance benchmarks?
6. How to select the right staff for the needs of particular SRL with respect to the desired education level and ongoing responsibilities
7. Determining Staffing Levels
8. How to make a case for funding for staffing

Workshop 18
Flow Cytometry Trends and Drivers

Facilitators: Giacomo Vacca and Nao Nitta
Problem Focus: The most vibrant areas of current innovation and application development in flow cytometry will be reviewed by leading researchers and developers.
Overview: The workshop will consist of short presentation by 4-6 speakers on their research or innovation, preceded by an introduction by the facilitators. The audience will be encouraged to participate in the discussion and contribute their perspectives, key trends will be examined, and the facilitators will challenge the speakers to offer predictions as to where the field is headed.

Agenda:
• exosome / microvesicle / nanoparticle detection
• spectral flow cytometry
• microfluidic chip-based sorting
• pushing the boundaries of multiplexing and multi-parameter analysis

Each of the speakers will be given 10-12 minutes to present on their area of expertise; the remaining time will be devoted to Q&A and discussion with the audience.

Desired Outcomes: A look at some of the most advanced solutions and challenging applications in flow cytometry; a broad consensus on the areas of greatest innovation and of greatest unmet need; crowdsourcing on issues most affecting users.