PROGRAM & EVENT GUIDE

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ChemBridge™
President’s Welcome to SBI² 2019, 6th Annual Conference!

On behalf of myself and the board of the Society for Biomolecular Imaging and Informatics I welcome you to the 6th edition of the SBI² annual meeting at the Joseph B Martin Conference Center. We are excited to be back at this venue again to put on such a wide range of topics with the support of our sponsors and vendors. From its inception SBI² has been all about providing a forum for the very best research and education in high content screening and informatics with new topics evolving over years, such as 3D imaging, machine learning and new disease models, we have made an effort to stay on top of current trends. This year’s 3-day program kicks off with the educational courses, lead by our experienced instructors and covering topics from introductory high-content screening to areas that will challenge the most experienced. Following this we have our colloquium on “Cell Painting in Drug Discovery”. At the end of the day on Tuesday and Wednesday we have receptions to mingle and discuss the latest research or just socialize.

For the main scientific sessions on Wednesday and Thursday, we are honored to have Keynote Speakers, Aviv Regev from the Broad institute and Chee-Yeun Chung from Yumanity Therapeutics; as well as four main scientific sessions on “HCS-HTS successes and learnings”, “Focus on imaging in neurological disease and oncology”, “Therapeutic drug discovery for complex disease” and “Machine learning/artificial intelligence and/or conventional outputs?”.

As the conference comes to a close, I hope it lived up to your expectations and you travel home with new knowledge and friendships. You might also consider joining us in helping run the society in one of open board positions or helping on a working group. It’s also never to early to make plans to attend our 7th annual meeting in Pittsburgh!

Myles Fennell
President, Society of Biomolecular Imaging and Informatics

SBI² Board of Directors:
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Shannon Mumenthaler, U. of Southern California
Judi Wardwell-Swanson, InSphero

For Logistics and On-site concerns
Please visit the SBI² Registration Desk, Contact one of our SBI² Board Members
Or email us at: info@sbi2.com
Ground Floor:
- Colloquium (Amphitheater)
- Exhibit hall (lobby)
  Booths 1-19
- Scientific sessions (Amphitheater)
- Breakfast/coffee breaks (Wednesday & Thursday only)
- Receptions (Tuesday & Wednesday)

1st Floor:
- Exhibit hall (balcony area)
  Booths 20-23
- CellProfiler Session (Bray)
- Technology Spotlight Lunch (Pechet)

2nd Floor:
- Posters (lounge area)
- Some seating (lounge)
- Breakfast/coffee breaks (Tues. only)
- Tuesday Educational Courses (214, 216, 217)
- Technology Spotlight Lunch Overflow (214, 216, 217)
# Conference at a Glance

## Tuesday, September 17, 2019
- **Registration Opens**: 8:00 AM (Amphitheater entrance)
- **Pre-conference Education Courses**: 9:00 AM - 3:00 PM (Bray and 2nd floor)
- **Exhibitor Move-In**: 1:00 PM - 6:00 PM (Ground and 1st floor)
- **SBI² Colloquium**: 3:00 PM - 5:30 PM (Amphitheater)
- **Reception**: 6:00 PM - 7:00 PM (Exhibit Hall)

## Wednesday, September 18, 2019
- **Registration**: 8:00 AM - 5:00 PM (Amphitheater entrance)
- **Poster Viewing**: 8:00 AM - 5:00 PM (2nd floor lounge)
- **Exhibit Hours**: 8:00 AM - 6:30 PM (Ground and 1st floor)
- **Welcome & Opening Keynote**: 8:50 AM - 10:00 AM (Amphitheater)
- **Scientific Program (AM Session)**: 10:00 AM - 12:30 PM (Amphitheater)
- **Technology Spotlight Lunch**: 12:45 PM - 1:30 PM (Pechet and 2nd floor)
- **Scientific Program (PM Session)**: 1:50 PM - 5:00 PM (Amphitheater)
- **SBI² Annual General Meeting**: 5:00 PM - 5:30 PM (Amphitheater)
- **SBI² Reception**: 5:30 PM - 6:30 PM (Exhibit Hall)

## Thursday, September 19, 2019
- **Registration**: 8:00 AM - 3:00 PM (Amphitheater entrance)
- **Poster Viewing**: 8:00 AM - 3:00 PM (2nd floor lounge)
- **Exhibit Hours**: 8:00 AM - 3:00 PM (Ground and 1st floor)
- **Scientific Program (AM Session)**: 8:50 AM - 10:30 PM (Amphitheater)
- **Poster Presentations**: 10:30 PM - 12:00 PM (2nd floor lounge)
- **Technology Spotlight Lunch**: 12:15 PM - 1:00 PM (Pechet and 2nd floor)
- **Closing Keynote Presentation**: 1:15 PM - 2:15 PM (Amphitheater)
- **Scientific Program (PM Session)**: 2:15 PM - 4:25 PM (Amphitheater)
- **Awards and Closing Remarks**: 4:25 PM - 4:45 PM (Amphitheater)
Automated Spheroid Imaging & Transfer

Yokogawa High Content Confocal
Yamaha Automated Cell Picker

Distributed by Fujifilm Wako Automation

Shedding New Light
On REGENERATIVE MEDICINE

Contract Imaging Services at the Nikon BioImaging Lab

The newly opened Nikon BioImaging Lab offers contract imaging and assay services for pharmaceutical and biotech companies involved in drug discovery.

Nikon BioImaging Lab is a state-of-the-art facility located in Cambridge, Massachusetts that provides a wide variety of drug discovery support services, including development of custom assays for drug discovery research and screening as well as optimization of cell culturing conditions. The Lab also offers advanced image acquisition and analysis services that can be customized to meet the needs of individual clients.

To learn more, call 1-800-52-NIKON or visit www.microscope.healthcare.nikon.com/bioimaging-lab

Nikon Instruments Inc.
www.microscope.healthcare.nikon.com
nikoninstruments@nikon.net
Day 1: Tuesday September 17th, 2019

SBI² HCS/HCA Educational Courses
9:00 AM to 3:00 PM

At the 2019 Annual Meeting in Boston, the Society of Biomolecular Imaging and Informatics will offer three tutorial tracks during the Education Day on Sep. 17, 2019 (first day of the conference). The participants will have an opportunity to learn about biology-related data-science methods (including image processing, data reduction, and visualization), assay development strategies, as well as familiarize themselves with various technologies used in high-content screening and analysis (cytometry, modern imaging modalities, etc.). The educational program is intended for beginners and experienced users of the technology. The flexible schedule is designed to allow participation in three presentations and the practical session. The Data Track includes a hands-on image analysis session employing CellProfiler. The attendees are encouraged to bring their laptop computers with pre-installed CellProfiler software to follow along with the demonstration by the instructor.

9:00 - 3:00 Educational Courses (2nd Floor Classrooms and Bray Room)

Introductory HCS/HCA Training Course Topics:

1. Introduction to Image and Data Analysis Mark Bray (Novartis)
2. Introduction to Flow Cytometry David Gebhard (Gebhard Cytometry Consulting)
3. Basic Concepts in Imaging-Based High-Throughput Screening and High-Throughput Profiling Assay Development Joshua Harrill (U.S. Environmental Protection Agency)
4. Fundamentals of Statistical Analysis of Screening Data Bartek Rajwa (Purdue University)

Practical Course:
1. Hands-on CellProfiler Tutorial Santosh Hariharan (Pfizer)

Advanced HCS/HCA Course Topics:

1. Advanced Image Analysis: Feature Extraction, Machine Learning Beth Cimini (Broad Institute)
2. Multimodal Biological Imaging of 3D Models for High-Throughput Phenotypic Screening Seungil Kim (University of Southern California)
3. Data Dimensionality Reduction: PCA, t-SNE, UMAP Anna Belkina (Boston University)
4. Imaging Mass Cytometry 101 Jared K. Burks (MD Anderson Cancer Center)
5. Robust or Go Bust: An Introduction to the NCATS Assay Guidance Manual Nathan Coussens (NCATS)
6. 3D Cell Culture for Advanced High-Content Imaging and Screening Olivier Frey (InSphero, AG)
7. HCS Compatible Protein-Protein Interaction Assays Paul Johnston (University of Pittsburg)

See Page 8 for Educational Course Schedule at a Glance

See Page 10-13 for detailed descriptions of the Educational Courses
### Educational Courses Schedule at a Glance

<table>
<thead>
<tr>
<th>Time</th>
<th>Data Track</th>
<th>Assay Development and Standardization Track</th>
<th>Technology Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00-10:00 AM</td>
<td>Room 214</td>
<td>Room 216</td>
<td>Room 217</td>
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<tr>
<td></td>
<td>Introduction to Image Analysis</td>
<td>Basic Concepts in Imaging-based HTS and HT Profiling Assay Development</td>
<td>Introduction to Flow Cytometry for Microscopists</td>
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<tr>
<td>10:00-10:15 AM</td>
<td>Coffee Break</td>
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<tr>
<td>10:15-11:15 AM</td>
<td>Data Dimensionality Reduction: PCA, t-SNE, UMAP</td>
<td>Introduction to Statistics for HCS/HTS</td>
<td>Multimodal Biological Imaging of 3D Models for HTS</td>
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<tr>
<td>11:15-11:30 AM</td>
<td>Coffee Break</td>
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<tr>
<td>11:30-12:30 PM</td>
<td>Advanced Image Analysis: Feature Extraction, Machine Learning</td>
<td>Robust or Go Bust: An Intro to the NCATS Assay Guidance Manual</td>
<td>Imaging Mass Cytometry 101</td>
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<tr>
<td></td>
<td>Bray Room</td>
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<tr>
<td>12:30-1:15 PM</td>
<td>Grab lunch and head to the Bray room for:</td>
<td>Lunch</td>
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<tr>
<td>1:15-2:15 PM</td>
<td>Hands-On CellProfiler Tutorial</td>
<td>HCS of Protein-Protein Interactions</td>
<td>3D Cell Culture for Advanced High Content Imaging and Screening</td>
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<tr>
<td>2:15-3:00 PM</td>
<td></td>
<td>Break</td>
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#### Day 1: Tuesday September 17th, 2019 (continued)

**SBI² HCS/HCA Educational Courses**  
**9:00 AM to 3:00 PM**

**Educational Courses Schedule at a Glance**

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<td></td>
<td>Break</td>
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#### Lunch

12:30 PM **Pick up lunch bags**  
(2nd Floor Lounge)

**Lunch Sponsored by FUJIFILM**

Value from Innovation

2:15 - 3:00 **Break for coffee & refreshments**
Day 1: Tuesday September 17th, 2019 (continued)

**Colloquium: Cell Painting in Drug Discovery**

3:00PM to 5:30PM

SBI² is leading a Cell Painting for Drug Discovery Colloquium, an exciting opportunity for the SBI² community to participate in an interactive discussion. This colloquium will address the state of the art in Cell Painting, including adaptations of imaging and analysis for drug discovery, challenges and opportunities, and the future of this approach. This session will be conducted by thought leaders in the field from the Broad Institute and the pharmaceutical industry.

The Colloquium is sponsored by:

3:00 - 3:15 Welcome & Introduction.
Justin Boyd Pfizer

3:15 - 4:00 State of the art in Cell Painting
Santosh Hariharan Pfizer

4:00 - 4:45 The Future of Cell Painting
Anne Carpenter Broad Institute

4:45 - 5:30 Panel Discussion on Cell Painting in Drug Discovery
Justin Boyd Pfizer
Santosh Hariharan Pfizer
Anne Carpenter Broad Institute
Veronica Soloveva Merck
Susanne Swalley Biogen
Mark Bray Novartis
John Concannon Novartis
James Evans PhenoVista
Ann Hoffman GSK
Patrick Faloon Biogen

6:00 - 7:00 OPENING RECEPTION (Exhibit Hall)
Sponsored by SBI²
Educational Course Abstracts:

Introductory Level Courses:

Introduction to Image and Data Analysis
Mark Bray
Novartis Institutes for BioMedical Research, Cambridge, MA
This introduction will acquaint attendees with the concepts, methods, software and workflows behind automated image analysis. We will introduce the researcher to the basic principles behind determining which pixels in an image belong to each cell and/or cellular compartments and measuring properties of interest, with the intent of providing a fuller understanding of the rich information available for discerning phenotypes of interest. No prior knowledge is assumed, though attending the companion introductory sessions is recommended.

Introduction to Flow Cytometry
David Gebhard
Gebhard Cytometry Consulting
Flow cytometry is a legacy technology for single cell analysis that shares many of the same underlying fundamental principles with quantitative image analysis. Flow cytometry and quantitative image analysis are both used to derive high content data from single cells. This tutorial will review the concepts and fundamentals of flow cytometry, terms, operations and processes, and will compare and contrast flow and image cytometry to help the attendees better understand how flow and image cytometry can complement and inform each other. No prior knowledge of flow cytometry is required. The material assumes a working knowledge of fluorescence applications.

Basic Concepts in Imaging-Based High-Throughput Screening and High-Throughput Profiling Assay Development
Joshua Harrill
The National Center for Computational Toxicology, U.S. Environmental Protection Agency, Research Triangle Park, NC
This session introduces basic concepts of imaging-based high-throughput screening (HTS) and high-throughput profiling (HTP) assay development. HTS assays are designed to evaluate a discrete cellular process and produce a single, or small number of quantitative outputs. In contrast, HTP assays measures dozens to thousands of features and provide highly-multiplexed quantitative outputs. Either type of approach may be used to evaluate the effects of chemicals or other perturbagens on cellular biology. Topics for this session include (but are not limited to) considerations for model selection, endpoint selection, HCS assay design, identification and use of positive control and reference chemicals, methods for evaluating assay dynamic range and approaches for evaluating assay reproducibility. Attendees will gain a basic foundational knowledge of guiding principles underlying the development of imaging-based HTS and HTP assays. The views expressed in this presentation are those of the author and do not necessarily reflect USEPA policy.

Fundamentals of Statistical Analysis of Screening Data
Bartek Rajwa
Bindley Bioscience Center, Purdue University, West Lafayette, IN
This tutorial will briefly review the statistical approaches used to analyze, visualize and interpret the HT/HC screening data, and formulate conclusion regarding the screening results. We will discuss the measures of effect sizes (Cohen’s d and its multivariate generalization), the dedicated metrics of assay quality such as Z’ (Z-prime) and Sw (assay window), and demonstrate the relationship between them. The presentation will explain the conceptual origins of the common HT/HC assay quality indices, the logic behind the formulas, as well as their applicability, implicit assumptions, and limitations. The talk will address the relationship between the traditional measures used in screening, and classification performance measures employed in machine-learning (sensitivity, specificity, predictive values, F1 score, and AUC). The tutorial will also touch upon other essential concepts of data analysis in phenotypic screening: the notions of significance, replication, statistical power, fixed and random effects, and meta-analysis, and link those ideas to the everyday praxis of assay design, optimization, and execution. The intended audience includes the screening practitioners working with all the types of HT or HC screens (bulk assays, image-based system, and flow cytometry instruments).
Practical Course:

Hands-on CellProfiler Tutorial
Santosh Hariharan
Primary Pharmacology Group, Pfizer, Groton, CT

Automated imaging and analysis have become the workhorse for the current high content screening strategy. In combination with machine learning methods, biologists can now get additional insights regarding fundamental biological processes. CellProfiler is one of the most widely used open-source software for automated analysis of cell images. With its easy to use user interface biologists can build advanced analysis pipeline without the need for in-depth knowledge of image processing. In this workshop, we will demo the installation and usage of CellProfiler. We will go through all the basic steps necessary to build pipeline, extract numerical features from cell images as well as analyze high dimensional data using CellProfiler Analyst through sample image datasets. Attendees can bring their laptops and work alongside using instructions from the workshop.

IMPORTANT COURSE PREPARATION INFORMATION:

Attendees are encouraged to bring their laptop computers with pre-installed CellProfiler software to follow along with the demonstration by the instructor.

CellProfiler experts will be available on Tuesday morning sessions and during the Lunch Break (Bray Room) to answer CellProfiler installation questions. Please check in with the SBI2 Registration Desk on Tuesday morning if you require assistance.

The CellProfiler Tutorial was sponsored by Fujifilm “Fujifilm has group of companies supporting scientists with cellular research and is happy to sponsor the CellProfiler Workshop, used to assist in advancing scientists' understanding of cells.”
Advanced Level Courses:

Advanced Image Analysis: Feature Extraction, Machine Learning
Beth Cimini
Broad Institute, Cambridge, MA
Image analysis can be a powerful tool for biologists due to its adaptability and flexibility. In addition to finding and counting objects, it can create hundreds or thousands of measurements for every object found, allowing users to classify objects on either simple or complex criteria. In this session, we will cover some classes of measurements frequently used in bioimaging assays, tools for capturing them, and cases where this sort of learning can be particularly powerful. The tutorial will expand the topics covered in the introductory image analysis session presented by Mark Bray.

Multimodal Biological Imaging of 3D models for High-throughput Phenotypic Screening
Seungil Kim
Lawrence J. Ellison Institute for Translational Medicine, University of Southern California, Los Angeles, USA
Phenotypic image analysis of traditional 2D cell cultures has afforded large-scale drug screenings in the preclinical setting. However, high failure rates of lead compounds in clinical testing suggests we need better models during the drug development process. 3D biomimetic models such as spheroids and organoids have increased in popularity because they can provide a 3D microenvironment that more closely recapitulates in vivo conditions compared to 2D monolayer cultures. There are multiple imaging platforms and available image analyses to elicitate interesting and dynamic biological processes in 3D. In this educational session, we will introduce basic concepts for different imaging techniques such as confocal, 2-photon and light-sheet microscopy, considerations and limitations in designing 3D imaging approaches, integration with high-throughput and high-content applications, and the types of analyses available for specific examples. This session will be beneficial for those who want to gain a basic knowledge on 3D imaging and for advanced users interested in discussing potential challenges associated with scaling current imaging workflows for large scale drug screening applications.

Data Dimensionality Reduction: PCA, t-SNE, UMAP
Anna Belkina
School of Medicine, Boston University, Boston, MA
Both human expert-analysts and many machine learning algorithms struggle with multidimensional datasets. However, such datasets often contain partially redundant features, and with so-called dimensionality-reduction methods, one can create a low-dimensional representation of high-dimensional data while retaining most of the information. In this tutorial, the participants will be first presented with a general overview of dimensionality reduction concepts, followed by an exploration of various popular dimensionality reduction methods such as PCA, t-SNE, and UMAP. Using several toy and real-life datasets, we will demonstrate and discuss each of these techniques and their applicability for biological data analysis. Although we will briefly touch on feature extraction approaches for cell imaging, the tutorial will focus mainly on visualization-enabling data processing methods. This tutorial is intended for biologists who are interested in computational approaches designed to explore their data in a comprehensive and unbiased manner. The participants will learn how various classes of single-cell data (including microscopy, flow and mass cytometry, and single-cell transcriptomics) can be processed for 2- and 3-D representation, allowing convenient visualization and easier interpretation.

Imaging Mass Cytometry 101
Jared K. Burks
Flow Cytometry & Cellular Imaging Core Facility, Department of Leukemia, M.D. Anderson Cancer Center, Houston, TX
Imaging Mass Cytometry was developed from a suspension-based mass cytometry (CyTOF) founded in inductively coupled plasma (ICP) mass spectroscopy. Using carrier molecules, isotopically enriched lanthanide metals are attached to antibodies. These metal-labeled antibodies are then used to detect target proteins in tissues, cells, or most anything attached to a microscope slide. Detection of these metal labeled antibodies occurs when a laser is used to ablate the sample material from the slide thus introducing the lanthanide metals to the ICP. Once the material and lanthanide metals are ionized in the ICP torch, 5500-7500 Kelvin, the lanthanide metals (high mass) are separated by their relative masses in a time of flight (TOF) chamber. The sample is interrogated via a raster scan, introducing the sample material into the detector a pixel at a time. When the pixel data is reassembled a quantitative image is generated. Come to the talk for the details, high-plex imaging that results, and what and why we employ this technology.
Robust or Go Bust: An Introduction to the NCATS Assay Guidance Manual

Nathan P. Coussens
Molecular Pharmacology Branch Laboratories. Frederick National Laboratory for Cancer Research, Frederick, MD

The NCATS Assay Guidance Manual (AGM) is an eBook of best practices for the design, development, and implementation of robust assays for early drug discovery. Initiated by pharmaceutical company scientists, the manual provides guidance for designing a “testing funnel” of assays to identify genuine hits using high-throughput screening (HTS) and advancing them through preclinical development. With contributions from more than 100 scientists, much of this information was previously "tribal knowledge" within the pharmaceutical industry and is not readily found in a classroom or the literature. Combined with a workshop/tutorial component, the overall goal of the AGM is to provide a valuable resource for training translational scientists. Expected Educational Benefits: The NCATS Assay Guidance Manual eBook is intended to benefit the worldwide drug discovery community by providing guidelines and best practices for the successful design, optimization, implementation, and interpretation of robust assays suitable for early stage discovery. The eBook is complimented by a workshop series, data analysis tools, and educational videos. This presentation will highlight the wide range of topics, tools, and events enabled by the AGM, as well as the AGM history and future perspectives. Targeted Audience Level: This presentation will benefit students, early-career researchers, and experienced investigators, who are interested in robust assay design, development, and implementation to support early-stage drug discovery.

3D Cell Culture for Advanced High-content Imaging and Screening

Olivier Frey
InSphero AG, Schlieren Switzerland

The use of 3D cell culture models and organ-on-chip systems is rapidly expanding because they are recognized as representing more structurally and physiologically relevant models of in vivo biology. Making 3D cell structures accessible to high content imaging and screening poses a next level of multi-disciplinary challenges on development teams. This course will provide a short overview of available scalable 3D cell culture models ranging from individual scaffold-free culture approaches to complex multi-organ devices. The advantages and limitations of the various culture models, assays and imaging approaches will be addressed and discussed.

HCS Compatible Protein-Protein Interaction Assays

Paul A. Johnston
Department of Pharmaceutical Sciences, University of Pittsburgh School of Pharmacy

Protein-protein interactions (PPIs) are obligatory for all cellular functions and represent potential therapeutic targets for drug discovery. Never-the-less, the relative paucity of approved PPI inhibitor/disruptor drugs indicates that the discovery of such molecules remains challenging and the prevailing perception has been that PPI targets are essentially “undruggable”. However, the structural elucidation of several PPI complexes has revealed that protein-binding interfaces contain discrete “hot spots” that may preferentially facilitate binding interactions. It’s been proposed that a relatively small number of amino acids at the PPI interface contribute most of the binding energy, and that the contact surfaces exhibit some degree of flexibility with cavities, pockets and grooves available for small molecule binding. The enormous potential of PPI inhibitors/disruptors as therapeutics has prompted the development and implementation of many biochemical and cell-based assay formats compatible with HTS and/or HCS. In cell-based PPI formats, the interacting partners are generated in situ and PPIs occur within the cellular milieu where cofactors or post-translational modifications are available. This course will describe three distinct PPI assays compatible with HCS: fluorescence resonance energy transfer (FRET) based assays, protein complementation assays (PCA), and positional biosensor assays.
Challenged to develop more predictive cellular assays?

3D cell cultures bridge the gap between 2D cell cultures and animal models, and more closely mimic the biological processes that occur in vivo. Now you can address the challenges of growing, detecting, and analyzing these advanced models with our state-of-the-art solutions for 3D cell cultures, including high-content imaging systems, microplates, and reagents. And with new Harmony® 4.9 software, you can visualize and analyze your samples in 3D for more relevant information and new insights.

Learn more at www.perkinelmer.com/3DCellSolutions
Day 2: Wednesday September 18th, 2019

SBI² Conference Scientific Program

8:00 - 5:00  Registration Open

8:00 - 6:30  Exhibit and Poster Viewing

8:50- 9:00  Introduction & Welcome to the 6th Annual SBI² Conference
            Myles Fennell, President SBI²

9:00 - 10:00 Opening Keynote Presentation

Integrating Cellular and Spatial Maps for a Human Cell Atlas

Aviv Regev
Institute Member, Chair of the Faculty, Co-director of the Cell Circuits Program, Broad Institute

Session I:  HCS-HTS Successes and Learnings

Session Chairs & Scientific Program Committee:

Debra Nickischer, co-chair  Regis Doyonnas, co-chair
Arvinas                              Pfizer

High content screening allows us to interrogate simultaneously many cellular parameters representative of the biological activity present in physiologically and disease relevant cell-based assays. By exploring high dimensional phenotypic signatures, complex biological pathways can be mapped so that novel drugs with subtle effects or complex mechanism of actions may finally be identified. The HCS-HTS Successes and Learning session at the 6th Annual SBI² conference will cover success stories and lessons learned when applying these complex assays to drug discovery in industry and academia.

10:00- 10:30  Identification of novel factors involved in the nuclear export of mRNA using RNAi and CRISPR-based cellular phenotyping screens.
Invited Speaker, Kaylene Simpson (Victorian Centre for Functional Genomics ACRF Translational Proteomics)

10:30 - 11:00  Break for coffee– Exhibit & Poster viewing

11:00 - 11:30  Development and Use of a High Content Imaging-Based Phenotypic Profiling Assay for Bioactivity Screening of Environmental Chemicals
Invited Speaker, Joshua Harrill (National Center for Computational Toxicology, US EPA)

11:30 - 12:00  Live imaging of epigenetic landscape
Invited Speaker, Alexey Terskikh (Neuroscience and Aging Research Center, Sanford Burnham Institute)
12:00 - 12:20 Phenotypic Discovery Platform for Efficacious Antioxidants
Selected Abstract, Kyle Vick (Aerie Pharmaceuticals)

12:20 - 12:30 A “Brighter” future: Introduction to unique imaging reagents from Funakoshi Company
10 Min Spotlight, Kelvin Lee (Funakoshi)

12:45 - 1:30 Perkin Elmer Technology Spotlight Lunch
(Pechet Room, overflow rooms 214, 216, 217)

Object-Based Imaging Reduces Data Volume and Time to Results,
Speaker, Alexander Schreiner (PE)
An Automated Deep-learning Workflow for Analyzing HCS screens,
Speaker, Oren Kraus (Phenomic AI)

See Page 22-23 for detailed description of Technology Spotlights

Wednesday PM Sessions (Ampitheater) 1:50 PM– 5:00PM

1:50 - 2:00 Genedata Imagence® - Deep Learning Automates the Analysis of Cell Painting Assays
10 Min Spotlight, Matthias Fassler (Genedata)

Session II: Focus on Imaging in Neurological Disease and Oncology

Session Chairs & Scientific Program Committee:

Le Ai Trinh, co-chair
University of Southern California

Vance Lemmon, co-chair
University of Miami

Phenotypic screening is increasingly dependent on modeling, computational approaches and 3D imaging to attack complex biological problems at both high-content and high-throughput. This has been especially empowering in oncology and neuroscience where the use of pluripotent stem cells, self-organized organoids and whole animal models are enabling screens for a range of cellular phenotypes from the electrophysiological profile of individual neurons to their degeneration. This session will highlight recent developments that expand our ability to understand the local environment in tumor progression and degeneration and regeneration of the nervous system.

2:00 - 2:30 High content analysis of tumor-fibroblast crosstalk in colorectal cancer
Invited Speaker, Shannon Mumenthaler (University of Southern California)

2:30 - 3:00 Scalable Measurements of Intrinsic Excitability in Human iPS Cell-Derived Excitatory Neurons Using All-Optical Electrophysiology
Invited Speaker, Graham Dempsey (Q-State Biosciences)
### Day 2: Wednesday September 18, 2019 (continued)

<table>
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<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker/Details</th>
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<tr>
<td>3:00 - 3:10</td>
<td>Spheroid Painting with DRAQ9™: Simple Identification and Measurement in 3D Cell Culture</td>
<td>10 Minute Spotlight, Roy Edward (Biostatus)</td>
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<tr>
<td>3:10 - 3:20</td>
<td>FAST-HDR: A novel vector system for the rapid development of knock-in cell lines</td>
<td>10 Minute Spotlight, Oscar Perez-Leal (Temple University)</td>
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<tr>
<td>3:20 - 3:50</td>
<td>Break for coffee- Exhibit and Poster viewing</td>
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<tr>
<td>3:50 - 4:20</td>
<td>Dynamic Arrays for Profiling Antitumor Activity of CAR T Cells</td>
<td>Invited Speaker, Daniel Irimia (Harvard Medical School, Massachusetts General Hospital)</td>
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<tr>
<td>4:20 - 4:40</td>
<td>Using a novel colorectal cancer-on-chip model to investigate tumor microenvironment-mediated cancer progression</td>
<td>Selected Abstract, Carly Strelez (USC)</td>
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<tr>
<td>4:40 - 5:00</td>
<td>3D Co-Cultures of Prostate Cancer Patient-Derived Xenografts, Stroma, and Endothelium in a Perfused Microplate</td>
<td>Selected Abstract, Lindsey K Sablatura (Rice University)</td>
</tr>
<tr>
<td>5:00 - 5:30</td>
<td>SBI² Annual General Meeting</td>
<td>(Amphitheater)</td>
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<tr>
<td>5:30 - 6:30</td>
<td>SBI² Sponsored Reception</td>
<td>(Exhibit Hall)</td>
</tr>
</tbody>
</table>

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Please plan to attend the 2019 SBI² Annual General Meeting

The general meeting is a business meeting required for non-profits. This is an excellent opportunity to learn more about the society and find out how you can participate.

**On Wednesday, Sept. 18 at 5:00 p.m.**

in the amphitheater

followed by the SBI² sponsored reception in the exhibit hall

Your input is valuable to our success and we look forward to your attendance!

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SBI² Mission Statement

The Society of Biomolecular Imaging and Informatics (SBI²) is an international community of leaders, scientists, and students promoting technological advancement, discovery, and education to quantitatively interrogate biological models to provide high context information at the cellular level.
Go from assays to answers faster and more reliably.

Learn about the latest tools to capture, visualize and analyze data, enabling faster answers your research questions.

- Accelerated phenotypic classification
- True 3D image analysis
- Water immersion objective support
- EDGE enhanced confocal technology
- Multiplexed imaging solutions

Visit booth #6
gelifesciences.com/cellanalysis
Day 3: Thursday September 19, 2019

8:00  5:00  Registration Open
8:00 - 3:00  Exhibit and Poster viewing
8:50 - 9:00  Day 2 Opening Remarks
            Myles Fennell, President SBI²

Session III:  Therapeutic Drug Discovery for Complex Disease
Session Chairs & Scientific Program Committee:

George Lee, co-chair  Daniel Levner, co-chair
Bristol-Myers Squibb  Emulate

Novel technologies such as 3D models and digital pathology are transforming drug
development through the quality, complexity and human-relevance of the data they produce.
In particular, recent advances in Organ-Chip and organoid technologies have provided new
disease models that more closely recapitulate human disease, while advances in digital
pathology and image analysis allow for the appreciation of spatial relationships within the
tissue microenvironment. In this session we explore these technologies and address their
potential to reveal mechanisms for therapeutic response.

9:00 - 9:30  Structure-function relationships in human organ models
             Invited Speaker, Janna Nawroth (Emulate Inc)

9:30 - 10:00  Phenotyping the tumor micro-environment with advanced tissue-
               based multiplexing assays
              Invited Speaker, Bonnie Philipps (Ultivue Inc)

10:00 - 10:20  Maximizing the Value of Cancer Drug Screening in Multicellular
               Tumor Spheroid Cultures: Are you Analyzing your 3D Tumor Models
               Appropriately?
              Selected Abstract, Paul Johnston (U of Pittsburg)

10:20 - 10:30  Introducing two software modules that bring new functionality in
               image acquisition and analysis software from Amnis, now a part of
               Luminex Corporation
               10 Minute Spotlight, Darin Fogg (Luminex)

10:30 - 11:00  Coffee Break– Exhibit Viewing

10:30 - 12:00  Poster Presentations (authors at posters)

SBI2 High Content 2019 Poster Competition
Sponsored by ChemBridge: 1st, 2nd, & 3rd place awards

12:15 - 1:00  GE Healthcare Technology Spotlight Lunch
              (Pechet Room, overflow rooms 214, 216, 217)
              Pick up Lunch in 2nd floor lounge
              Diving Deeper: Advances in 3D High Content Screening Solutions
              and Quantitative Image Analysis
              Speaker, Will Marshall (GE)

See Page 22-23 for detailed description of Technology Spotlights
Magnetic 3D Cell Culture
3D in a 2D Workflow

- Fast 3D tissue assembly
- Reproducible - one spheroid per well
- Scalable – single well to 1536 well
- High-throughput Screening (HTS) with flat bottom for optical imaging
- Easy to handle / no sample loss
- Ready for automation

Take your imaging to new depths
Capture more data at greater depths for 3D and thick tissue samples

NEW Water Immersion Objectives

- Increase penetration depths into samples
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Stop by Booth 9 or visit bit.ly/WaterImmersion

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Day 3: Thursday September 19, 2019 (continued)

1:15 - 2:15  Closing Keynote Presentation

From Yeast to Neurons to Patients: A Novel Drug Discovery Platform for Neurodegenerative diseases

Chee-Yeun Chung
Scientific Co-Founder, Director, Discovery Biology
Yumanity Therapeutics

Session IV:  Machine Learning/Artificial Intelligence and/or Conventional outputs?

Session Chairs & Scientific Program Committee:

Sam Cooper, co-chair  Neil O. Carragher, co-chair
Phenomic AI  MRC Institute of Genetics & Molecular Medicine

Machine learning has been a feature of drug discovery for almost four decades and delivered multiple successes, with early algorithms focused around in silico optimization of compounds. So what’s all the fuss about now? In contrast to the rules and simulation based approaches of past decades, new machine learning approaches such as deep-learning allow us to extract valuable insights from a wide variety of data types, including imaging, sequencing, and compound data, without having to explicitly engineer new features for each data type. In this session we will bring together a group of researchers working on state-of-the art techniques for microscopy image analysis, and explore how imaging data can be integrated with other data modalities to answer key questions in biological and pharmaceutical research.

2:15 - 2:45  Deep learning for single cell biology
Invited Speaker, David A. Van Valen (California Institute of Technology)

2:45 - 3:15  Machine learning: a new approach enabling drug discovery
Invited Speaker, Eric Lubeck (Insitro)

3:15 - 3:45  Break for coffee & exhibit viewing

3:45 - 4:05  Comparison of classical image analysis methods and deep-learning approaches for 3D single cell measurements within multi-cellular spheroids
Selected Abstract, Ty Voss (NCATS/NIH)

4:05 - 4:25  Nucleus segmentation across imaging experiments: The 2018 Data Science Bowl
Selected Abstract, Juan Caicedo (Broad Institute)

4:25 –4:45  Awards Ceremony and Closing remarks
Myles Fennell, President SBI

The President’s Award is sponsored by PerkinElmer
10 Minute Spotlight Presentations

**Genedata**

**Genedata Imagence® - Deep Learning Automates the Analysis of Cell Painting Assays**

Matthias Fassler Genedata

Here we show how the new software solution Genedata Imagence enabled the complete analysis of a Cell Painting screen of 1'500 test compounds within a few hours. In our case study we employed this workflow to train a neural network to recognize the cell-painted phenotypes of reference compounds with known mode-of-action (MoA). This network was used to analyze the entire BBBC022 data set and successfully detected compounds with similar MoA. Genedata Imagence provides a streamlined workflow that facilitates discovery by making powerful deep learning approaches intuitive and easily accessible to any HCS biologist.

**Funakoshi**

A “Brighter” future: Introduction to unique imaging reagents from Funakoshi Company

Kelvin Lee Funakoshi

Funakoshi Company has been a contributing leader providing research reagents and instruments for life science markets. In this spotlight session, our unique imaging tools will be introduced – targeting for lipid droplets <LipiDye>, cytoplasm <CytoSeeing>, nucleus <NucleoSeeing>, neuron receptors <LiveReceptor>, cell-based GST assay probes and intracellular temperature monitoring tool <Thermoprobe>. These imaging reagents are truly innovative, receiving favorable response from our research users and only available through Funakoshi Company.

**BioStatus**

**Spheroid Painting with DRAQ9™: Simple Identification and Measurement in 3D Cell Culture**

Roy Edward Biostatus

Cell-based assay reproducibility is critical to drug discovery and tissue engineering. It is widely accepted 2D assays limit representation of in vivo responses - 3D formats are, therefore, desirable. Integral to 3D object analysis is boundary identification, failure results in inaccurate downstream morphometrics. Current methods for automated segmentation use grayscale transmission images with complex filtering which struggle with debris, matrices or scaffolds. Fluorescent nuclear counterstaining enables cellular localization in 2D. We adapt this using DRAQ9™, a far-red cell-permeant cytoplasmic probe, as whole 3D-object “paint” for reliable boundary identification, using an inexpensive universal platform, simplifying image analysis, for rapid, effective screening.

**ExpressCells**

**FAST-HDR: A novel vector system for the rapid development of knock-in cell lines**

Oscar Perez-Leal Temple University

While CRISPR/Cas9 greatly facilitates gene editing, its use for tagging endogenous proteins via reporter gene knock-in remains constrained because the process is tedious and time-consuming. Here we describe a homologous recombination system (FAST-HDR) that, in combination with CRISPR/Cas9, makes this process far more efficient. We developed advanced cell lines with 3 fluorescently tagged endogenous proteins, permitting high-content phenotypic drug screening without staining or immunofluorescence. Thus, the FAST-HDR system can be used for developing enhanced cell-based models for drug discovery.

**Luminex**

**Introducing two software modules that bring new functionality in image acquisition and analysis software from Amnis, now a part of Luminex Corporation**

Vidya Venkatachalam Luminex

Amnis imaging flow cytometers deliver objective, quantitative and statistically significant high-content data to inform decisions regarding cellular processes, drug discovery, drug development and basic research. The richness of the image data and the associated features in the IDEAS® Software provides huge benefits for the user, but also introduces complexity in the data analysis. We address this by providing a tool for automated feature creation using machine learning that enables the creation of new features tailored to sets of image data. We will discuss the details of this tool and provide examples of features generated by the tool to identify populations of interest.
Perkin Elmer
Object-Based Imaging Reduces Data Volume and Time to Results
Alexander Schreiner Perkin Elmer

A bottleneck challenge in 3D imaging is the huge volumes of image data generated and extended time needed to acquire and analyze images. For example in hydrogel assays and other 3D matrices, a large number of image fields will be either empty or only contain partially cover objects. To reduce the acquisition of unnecessary images, our latest software includes an update to our intelligent image acquisition solution, PreciScan. This automated process identifies objects of interest in x, y, and z dimensions using a pre-scan and re-scan approach. We will showcase in a hydrogel cell model how PreciScan reduces image acquisition time by 36x and decreases the data volume of the re-scan by a factor of 50.

An Automated Deep-learning Workflow for Analyzing HCS screens
Oren Kraus Phenomic AI

Imaging-based phenotypic screening of cell-based disease models has become an indispensable tool for modern drug discovery. Despite the growing adoption of HCS, analyzing complex imaging data can take weeks and require hands-on programming by data scientists. Here we described a cloud-enabled deep learning platform for analyzing and visualizing HCS data. The workflow involves importing raw HCS feature data and experimental metadata to ColumbusPlus™. Known reference control conditions are selected in Spotfire and a segmentation-free deep convolutional multiple instance learning model is trained to classify fields-of-view based on control treatments. This classifier is then used to score the rest of the unknown treatments screened. The resulting scores and images highlighting positive phenotypes are displayed in Spotfire.

GE Healthcare
Diving Deeper: Advances in 3D High Content Screening Solutions and Quantitative Image Analysis
Will Marshall GE Healthcare

High Content Analysis (HCA) tools continually evolve with changing research trends, resulting in a large breadth of current applications and potential to advance research in completely new areas. Recent adoption of 3D cell culture models and generation of high dimensional phenotypes have already generated enough success stories to signal that the HCA community is on a promising path toward disruptive change. However, the use of microtissues and more comprehensive computational methods present new challenges. To maximize the utility of these technologies for HCA, innovations in automation and interpretation of the exponentially larger and more complex datasets will be critical.

GE Healthcare’s Cell Analysis team intends to facilitate advancements in HCA by developing products that not only provide researchers access to cutting edge methods, but also address the overarching complexities that arise when combining the methods into a single workflow that can generate reliable results.
Poster Presentations

1. An automated deep-learning workflow for HCS POSTER  Alberto Pascal and Oren Kraus
2. Novel plate-based detection method for T cell activation/proliferation, migration, and cytotoxicity assay using image cytometry  Jordan Bell and Leo Li-Ying Chan
3. Watch It Live With DRAQ9™: Time-lapse Imaging of Cell Behaviour on 2D Substrates and in 3D Aggregates  Roy Edward
4. Semi-automated approach for 3D retinal tissue differentiation and analysis  Petr Baranov and Evgenii Kegeles
5. Developing an efficacious high-content, high-throughput chemoresponse assay for personalized CLL treatment  Mark Xiang Li
6. Live Imaging of Gene Expression in High-Throughput and at the Single Transcription Site Level  Yihan Wan, Diana Stavreva, Varun Sood, David Garcia, George Zaki, Gordon Hager, Tom Misteli, Dan Larson, Gianluca Pegoraro
7. Cell Painting predicts impact of cancer variants  Juan C Caicedo, Shantanu Singh, Jesse Boehm, Anne E. Carpenter
8. Withdrawn
9. Exploring cell-cell interactions with weakly supervised learning  Oren Kraus
10. High content analysis (HCA) of tau aggregation in primary neurons: screening anti-tau antibodies and modeling tauopathy progression in vitro  Katherine Titterton
11. Deep Learning-derived Features Outperform Classical Computer Vision in Low Dimension-Embedding of High-Content Screening Data  Matthias Fassler, Daniel Siegismund, Marusa Kustec, Stephan Heyse, Stephan Steigele
12. Development of phenotypic high content imaging assays for the evaluation of ROS induction and mitochondrial ATP levels in induced pluripotent stem cell derived cardiomyocytes for pharmacological safety assessment of cardiotoxicity  John Bassett and Elena Trepakova
13. 3D Spheroid Models for Oncology and Immunology Applications  Jennifer Gasparek, Apeksha Villath, Kirsten Dean, Mehar Cheema, Matthew Betzenhauser, Grant Carr, Rory Curtis, Maria Tsompana
15. High-content Profiling in Oesophageal Adenocarcinoma Identified Selectively Active Classes of Compounds for Repurposing and Novel Drug Discovery Neil Carragher

16. Shape Matters - Development of a Morphometric Imaging Assay for Sickle-Cell Disease Sheila Kantesaria

17. Top Tips and Guidelines for a Successful High-Content Screening Assay with a 3D Cell Model System Angelika Foitzik, Karin Boettcher, Hartwig Preckel, Joe Trask, Stefan Letzsch, Alexander Schreiner

18. Spatio-temporal activation of androgen receptor (StAR): a novel drug discovery workflow Harish Sura, Katherin Patsch, Grzegorz Zapotoczny, Boris Kashemirov, Emma Fong, Chao Liu, Yuanye Sun, Dane Lemons, Nolan Ung, Maya Aljehani, Ren Sun, Daniel Ruderman, Charles E. McKenna, David B. Agus

19. Using 3D Neural Spheroids to Accelerate Drug Discovery with Kinetic and High Content Imaging Blake Anson, Fabian Zanella, Cassiano Carromeu, Oivin Guicheritt, Kendra Prum, Javier Pineda, Chris Koehler

20. A Human Stem Cell-derived Oligodendrocyte-based Screen for the Discovery of Re-myelinating Drugs Donald J. Zack, Xitiz Chamling, Alyssa Kallman, Cindy Berlinicke, Peter Calabresi

S/A A Phenotypic Discovery Platform for Efficacious Antioxidants Kyle Vick
Don’t forget to pick up your complementary hardcopy of 
*
**Assay and Drug Development Technologies, September 2019**!

The SBI\(^2\) conference special issue includes a summary program with invited speaker abstracts, research articles and an editorial review of the meeting. A second special online issue will be published in January including a summary of the final program including abstracts from oral presentation and posters. A synopsis of the colloquium is scheduled for publication in January 2019. See [www.SBI2.org](http://www.SBI2.org) for more details.
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Exhibitor Company Descriptions

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Booth 6  
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www.gelifesciences.com/cellanalysis

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our expertise in cellular imaging and information technologies, drug discovery, and biopharmaceutical manufacturing technologies is advancing and accelerating how our customers discover, make and use patient biotherapeutics.

Booth 7
www.funakoshi.co.jp/exports

Funakoshi company, located in Tokyo, Japan has been contributing as a leader to providing research reagents and instruments for researchers in the life science fields since its foundation. Our corporate mission is to provide products to broad range of customers throughout our worldwide network.

Booth 8
www.chroma.com

Chroma Technology designs and manufactures optical interference filters using advanced sputtering technologies. Our high performance filters are intended for imaging applications ranging from widefield and confocal fluorescence microscopy, TIRF and Super-Resolution techniques to flow cytometry, high content screening, multi-photon and Raman spectroscopy. Chroma also provides comprehensive technical and applications support.
Exhibitor Company Descriptions

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www.moleculardevices.com

At Molecular Devices, we enable our customers to unravel the complexity of biological systems. We provide platforms for high-throughput screening, genomic and cellular analysis, colony selection and microplate detection. These leading-edge products empower scientists to improve productivity and effectiveness, ultimately accelerating research and the discovery of new therapeutics.

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www.wakoautomation.com

Fujifilm Wako Automation supplies high throughput platforms for 3D assays. The Yokogawa CV8000 platform provides high content imaging in the fastest and most versatile dual spinning disk platform. The Yamaha Cell Handler provide automated selection and transfer of spheroids and organoids to plates for screening.

Booth 11

www.olympus.com

Olympus is a global technology leader, crafting innovative optical and digital solutions in medical technologies; life sciences; industrial solutions; and cameras and audio products. Throughout our nearly 100-year history, Olympus has focused on being true to society and making people’s lives healthier, safer and more fulfilling.

Booth 12

www.corelifeanalytics.com

Core Life Analytics gives biologists the ability to analyze their own high content data. With our StratoMineR online data analytics platform, they can apply powerful analytical methods, including A.I to large, complex numeric data sets. It is especially useful for advanced phenotypic screening methods such as Cell Painting.
Exhibitor Company Descriptions

Booth 13
Www.bluecatbio.com

Blue®Washer uses centrifugation to remove liquids from 96, 384 and 1536w plates, eliminating background and variability in assay data. Highly reproducible, low residual volumes < 0.3 µl/ well raise z’ by 0.1-0.3 for typical cellular assays. Higher z’ means more reliable compound profiles - fewer truly active compounds missed AND fewer false positives to re-screen.

Booth 14
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De Novo Software specializes in producing high quality cytometry data analysis software. Our flagship product, FCS Express 7, is a full feature solution for Flow Cytometry data. FCS Express 7 Image Cytometry introduces the same support and flexibility for imaging data files. FCS Express combines a user-friendly modern interface with powerful analysis tools, visualization capabilities, and sophisticated presentation features, making it the tool of choice for thousands of researchers needing results quickly from their data.

Booth 15
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InSphero sets the standard for in vitro drug discovery and safety testing with innovative 3D cell-based technology and comprehensive preclinical research solutions. Its robust and highly physiologically relevant suite of 3D InSight™ Platforms for liver toxicology, liver disease, diabetes, and oncology are used by major pharmaceutical biotechnology companies worldwide.

Booth 16
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Exhibitor Company Descriptions

Booth 17
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Union Biometrica Large Particle Flow Cytometers automate the analysis & dispensing of objects too big/too fragile for traditional flow cytometers. Samples include large delicate cells (adipocytes), cell clusters (EBs, islets), organoid bodies (enteroids), spheroids (neurospheres, tumorspheres), hydrogel-encapsulated samples, and others. COPAS and BioSorter instruments cover the full 10-1500μm size range.

Booth 18
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Booth 19
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ExpressCells creates custom, knock-in cell lines for drug development, toxicology, and other biologic research, tagging multiple proteins of interest in cell lines far faster than is possible with conventional methods. Researchers can follow intracellular processes longitudinally—in target- or phenotype-based assays, for example—reducing or eliminating fixation, staining, and immunofluorescence.

Booth 20
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Our mission is to empower labs to obtain reliable, timely, and actionable answers, ultimately advancing health. We serve markets including clinical diagnostics, life science research, immunology, and personalized medicine. Our goal is to transform global healthcare with innovative instruments and assays that deliver cost-effective, rapid results to clinicians and researchers.
Booth 21

Thermo Fisher Scientific supplies innovative solutions for the world’s biomolecular imaging & informatics industry. With applications that span the bio-informatics processes – from CRISPR libraries through high content analysis products – we provide a broad range of products and services including validated antibodies, fluorescent probes, siRNAs, and proprietary fluorescence ISH (FISH) and sequential branched-DNA amplification techniques to visualize RNA with single-molecule sensitivity. Collectively these tools can be integrated for multiparametric phenotypic screening and downstream Cell Painting applications to help elucidate the detection of next-generation drug targets and mechanism of actions.

Booth 22

For over 50 years, BioTek has been a global leader in the design and manufacture of innovative life science instrumentation, including cell imaging systems, microplate readers, washers, dispensers, automated incubators and stackers.

Booth 23

Nikon Instruments Inc. is the US microscopy arm of Nikon Healthcare, a world leader in the development and manufacture of imaging technology for biomedical applications. Leveraging our expertise in optics, image acquisition and analysis, Nikon is able to offer a wide range of solutions for high content imaging.

Spotlight Presenter

BioStatus - the home of DRAQ5™ & DRAQ7™! These far-red alternatives to traditional DNA-binding vital and viability dyes offer new opportunities in assay design and investigation of 3D cellular structures. Our latest product – DRAQ9™ - enables robust masking of spheroids and real-time tracking of cell migration and proliferation.
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