

The LRIG – New England Chapter 2009 Fall Vendor Exhibition and Symposium

Event Details and Agenda



Wednesday, October 21st, 2009
Boston Marriot Cambridge Hotel
2 Cambridge Center, 50 Broadway
Cambridge, MA 02142

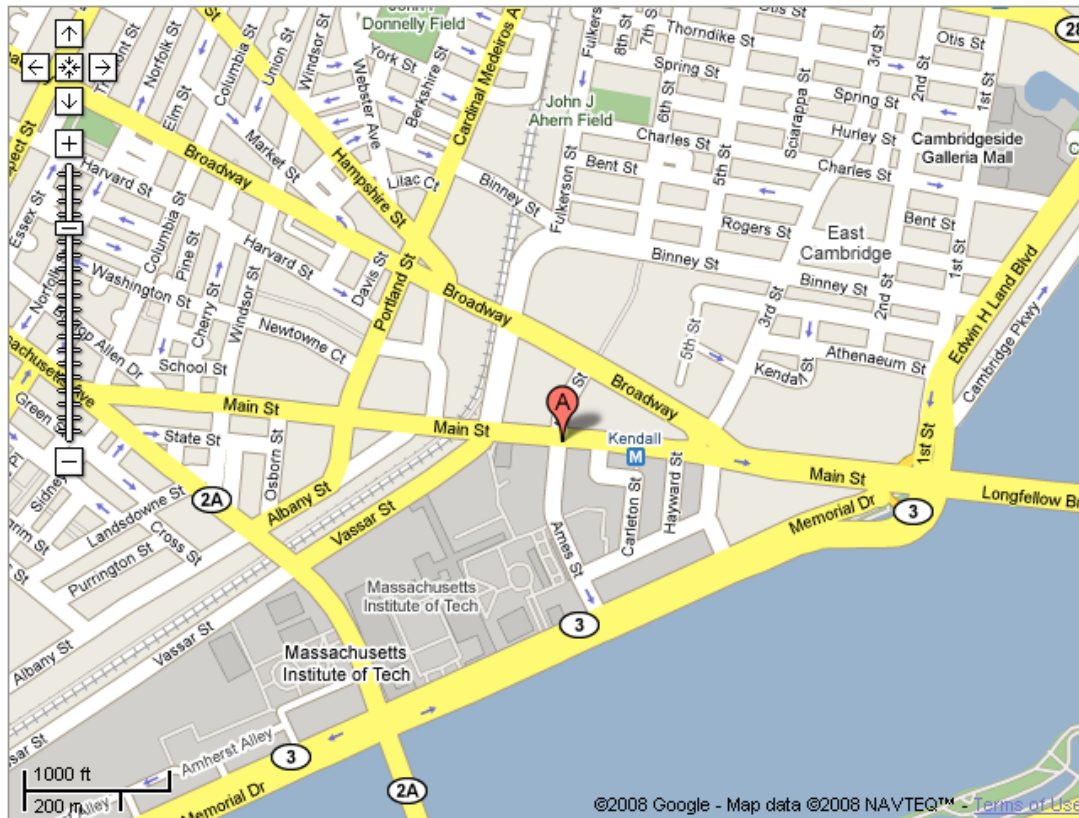
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Maps and General Information:



Parking

- On-site parking, fee: \$8.00 USD hourly, \$23.00 USD daily
- Valet parking, fee: \$30.00 USD daily
- Vehicle height restriction is 6'2".

Area Airports

Boston - BOS

Driving Directions:

Follow signs at the airport to the Sumner Tunnel. Pay the toll and take the Sumner Tunnel to Interstate 93 North. You will see a sign for Interstate 93 North at the end of the tunnel. Take 93 North to Exit 26 and follow the signs to Storrow Drive. Get onto Storrow Drive for approximately a quarter mile. There will be a LEFT exit for Government Center/Kendall Square. Take that exit and at the bottom of the exit take a right. This will put you on the Longfellow Bridge. Go over the Longfellow Bridge which will turn into Broadway. After the first set of lights, the hotel will be on the left

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This hotel does not provide shuttle service.

- Subway service, fee: \$2.00 USD (one way)
- Estimated taxi fare: \$30.00 USD (one way)

Providence - PVD

Driving Directions:

Take I-95 North to I-93 North to Exit 26. Follow the signs to Storrow Drive. Get onto Storrow Drive for about 1/4 mile. There will be a LEFT exit for Government Center/Kendall Square. Take that exit, and at the bottom of the exit, take a right onto Longfellow Bridge, which will become Broadway once over the Charles River. The hotel is about 1/2 mile on the left.

This hotel does not provide shuttle service.

- Estimated taxi fare: \$175.00 USD (one way)

Other Transportation:

Bus Station

- [South Station](#) (2 miles SE)

Subway Station

- [Kendall Square/ MIT- Red Line](#)

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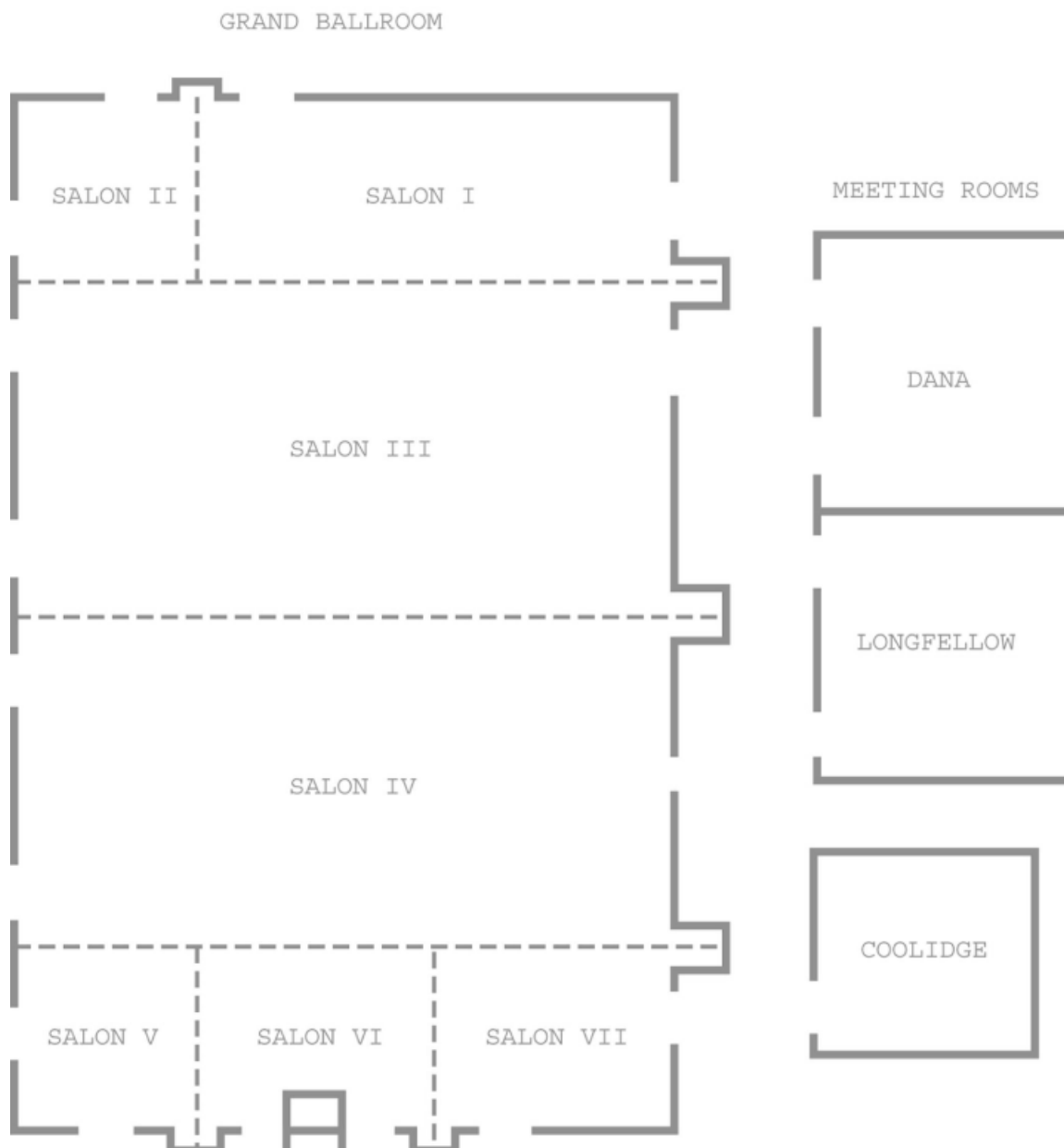


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Exhibition and Workshop Floor Plan

The Grand Ballroom is located on the 2nd floor of the hotel. It can be accessed using the escalator or the elevator. The Dana and LongFellow meeting rooms are located on the 3rd floor. There is a stairwell just outside the Grand Ballroom which will lead directly to the meeting rooms. The elevator will also access the 3rd floor meeting rooms from the 2nd floor.



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List of Participating Vendors:

Agilent Technologies	Alpaqua Engineering, LLC
Apricot Designs	ArcticWhite LLC
Artel	ASDI, Inc.
Atlantic Lab Equipment	Aurora Biotechnologies
Axygen Scientific	Beckman Coulter
Berthold Technologies	Biodirect, Inc.
BioDot Inc.	BioMicroLab, Inc.
Biosero, LLC	BioTek Instruments Inc
BioTrove	Black Dog
BMG Labtech	Boston LIMS and Laboratory Informatics Group
Caliper Life Sciences	Cisbio US, Inc.
Core Informatics	Covaris
Curiox Biosystems Pte Ltd	CyBio US Inc
Digilab	DiscoverX
DRD Diluter Corporation	Eppendorf N. America
Essen Instruments, Inc.	fluidX
Formulatrix, Inc.	forteBIO, Inc.
Galen Laboratory Supplies	Genetix
GraphLogic	Greiner Bio-One
Gyros, Inc.	Hamilton Storage Technologies / Hamilton Robotics
Hettich Centrifuges	HighRes Biosolutions Inc.
Hudson Robotics, Inc.	IDBS
IDEX Health & Science	IntelliCyt Corporation
Invitrogen	JVR Scientific
Labcon, North America	Labcyte Inc.
LiCONIC US Inc.	Life Chemicals Inc
Manufacturing Applications eXperts, Inc	Masy Systems, Inc.
Matrical Bioscience	MeCour Temperature Control
Mettler-Toledo	Microsonic Systems
Modular SFC, Inc.	NanoScreen LLC
Nexus Biosystems	Ohlheiser Corp.
Panomix Inc. (Affymetrix)	PerkinElmer
QIAGEN	RAININ Instrument LLC
Rapid Sheet Metal Inc.	REMP
ReTiSoft, Inc.	RTS Life Science
Seahorse Bioscience	Specs
SRU Biosystems	STEMCELL Technologies
Tecan US, Inc.	Thermo Fisher Scientific

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Vendor Workshop Schedule and Agenda:

We strongly suggest you try to attend the Workshop being presented during the exhibition. The workshops will be held in the Dana and Longfellow rooms located on the floor above the exhibition space. Signs will be posted to the stairs/elevators to direct you to the rooms. Below is the current schedule including abstracts:

	Longfellow Room	Dana Room
3:30	Cyntelect	DiscoverX
4:00	Velquest	CisBio
4:30	Perkin Elmer	Agilent
5:00	High Res Bio	Tecan
5:30	Labcyte	Genetix

LongFellow Room Workshops:

3:30pm

Cyntelect's

Ed Machuga

ANALYSIS AND PURIFICATION OF LIVING CELLS *IN SITU* FOR HIGH THROUGHPUT BIOLOGY

Cyntelect's platform technologies combine *in situ* high throughput single cell counting, of entire live cell populations, with laser based manipulation to enable rapid analysis and purification of diverse cell types directly in microplate-based formats. These innovations are highly complementary to flow cytometry, particularly for adherent cells, and have been demonstrated effective for challenging cell types (rare cells, primary and sensitive cells, ES and iPS cells etc.). This presentation will provide an overview of Cyntelect's core technologies and highlight representative applications performed on the LEAP™ System and the new Celigo Cytometer including; stable cell line generation, automated purification of embryonic and induce pluripotent stem cells, high secreting cell line development, and *in situ* multi-parameter morphologic and functional analysis.

4:00pm

Velquest

John Helfrich, VP ePMC Lab Automation Programs is our Speaker.

"From Science to Compliance™"/Navigating the Regulatory Maze in Moving from Lab to Plant

Issues and Considerations for Biotech and Pharmaceutical Companies

Moving your bio-pharma product from Discovery to IND thru to Production requires critical compliance choices at each step in the process. In this workshop, you will learn how compliance choices for life science companies guide the workflow management process. Good choices lead to intelligent tradeoffs in the capture and cataloging of intellectual property (IP), product development research, product quality characterization for clinical trials, and final product QC/QA record keeping for FDA compliant scaled production release. Where you are in your company life-cycle, whether you are an emerging new business or an innovative established business, often constrains the cost/benefit and associated risk/reward tradeoffs in how you implement quality programs at each step in the product commercialization process. Learn the ins and outs of the regulatory maze so you can make the right compliance choice at the right time.

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4:30pm

Perkin-Elmer

Steve Hurt, PhD Application Scientist

AlphaLISA® Automation

Use of the JANUS Workstation to automate AlphaLISA assays, a no wash ELISA alternative technology

Immunoassay is a mainstay for the quantification of a variety of bio-molecular analytes in drug discovery, drug development, and life sciences research laboratories. While ELISAs have traditionally been the most popular form of immunoassay, they are limited by the need to perform multiple wash steps. To overcome these ELISA limitations, PerkinElmer has introduced AlphaLISA®, a novel, homogeneous immunoassay technology that eliminates wash steps. Compared to ELISA assays, AlphaLISA assays generally have a wider dynamic range and at least comparable sensitivity. AlphaLISA assays also can be scaled up from 96-well to 384-well format with no need for re-optimization. Using PerkinElmer's JANUS® family of automated workstations AlphaLISA assays can be easily and reliably prepared, incubated, and analyzed without the need for complex and error-prone wash steps, time-consuming manual processing, or costly custom automation systems. To demonstrate the performance of the JANUS workstation in automating AlphaLISA assays, four AlphaLISA cytokine assays (IL1 β , TNF α , IL17, and IFN γ) were prepared.

5:00

High Res Bio

Ira Hoffman, Managing Director of HighRes Biosolutions

Cellario 2.5 New Features and Functionality

The new features and functionality included in the Cellario 2.5 Release. This is the 2nd major release of Cellario in 2009. This paradigm shift for frequent software updates provides the newest features and functionality without having to custom build Cellario for any given system. Some of the key features that will be demonstrated:

- Real Time Gantt Chart
- Decision Making/Branching Operations
- Critical Timings Displayed during Simulation
- Device Utilization Analysis and Plot

5:30pm

Labcyte

Joe Olechno, Ph.D., VP Business Development

Moving Liquids with Sound: Acoustic Drop Ejection

The impact of acoustic liquid handling technologies on sample manipulation, particle formation, surface coating and more.

Acoustic droplet ejection (ADE) is now the state-of-the-art technology for liquid handling in high-throughput screening as well as secondary screening. This presentation will highlight how ADE delivers better results, cost savings and environmental technology for the HTS lab. The presentation will also cover recent advances in the transfer of oligonucleotides and fluids beyond DMSO.

Of special interest will be applications beyond traditional liquid transfer where ADE can be used for other applications. Examples of ADE outside of traditional liquid handling includes the formation of ultra-mono-dispersed particles, point-by-point coating of medical devices, fluid encapsulation, transfer of ultra-viscous fluids, array formation and biomedical imaging

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Dana Room:

3:30pm

DiscoverX

Elizabeth R. Quinn, PhD

EasyScreen™ β -Arrestin GPCR Assays: Development of a Culture-Free, Single-Use GPCR Assay for Functional Receptor Screening

DiscoverX now offers an extensive menu of over 150 human and ortholog GPCR assays based on the proven PathHunter™ β -Arrestin technology which monitors the interaction of β -Arrestin with activated GPCRs using β -galactosidase (β -gal) Enzyme Fragment Complementation. Until recently, these assays were only available as clonal cell lines. In this study, we describe the development of an innovative series of kits containing frozen cells over expressing the GPCR of interest, optimized cell culture medium and chemiluminescent detection reagents designed to provide the end user with access to the full menu of DiscoverX cell lines in a convenient, assay-ready format. To develop the single-use EasyScreen format, PathHunter cell lines were first modified to prevent long-term propagation and expansion by treatment with a proprietary compound and then frozen in complete medium with no apparent change in morphology or cellular signal transduction. All assays were optimized in a 384-well format and cells were incubated in optimized culture medium for 24 hours prior to the assay. Our data demonstrates the utility of the kits for fast and simple confirmation screens that can be run in-house, potentially saving weeks of time in outsourcing the compounds to a second provider and waiting for results to be returned. Moreover, EasyScreen assays can be run in agonist, antagonist and allosteric modulator modes making the EasyScreen format the ideal way for customers to access GPCR functional assays in a cost and time effective manner for rapid and reliable small to medium screens on a variety of lead compounds, peptides or natural ligands without the lengthy and time consuming cell culture.

4:00pm

CisBio

Anna Sinsigalli, Scientific Consultant, New England Region

New Tag-lite Technology for Investigation of Cell Surface Receptors

Tag-lite is a new cellular platform for cell surface receptor study and drug screening. It is a homogeneous, non-radioactive and cost-effective alternative for the study of cell surface receptor dimerization and ligand binding, two important avenues in drug discovery research.

Tag-lite, developed by Cisbio Bioassays, combines two technologies, HTRF, highly sensitive, robust technology for the detection of molecular interactions in vitro, and SNAP-tag, Covaly Biosciences' self-labeling protein tag system. Streamlined for highly sensitive assays, Tag-lite offers a comprehensive reagent and method selection for the investigation of G-protein coupled receptor (GPCR) binding and mechanistics, and preserves the functionality of the receptor and the intracellular signaling pathway.

This presentation will show several GPCR and ligand types, either small molecules or peptidic by nature, demonstrate that the activity of both assay partners remains unaffected by labeling procedure. Tag-lite can also be used for the study of the receptor homo and heterodimerization. The presentation also shows another use of HTRF in a HTplex assay for detection of IP1 and cAMP in a single well assay.

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4:30pm

Agilent

Brian Sheldon

The Agilent Direct Drive Robot: A Next Generation Solution for Life Science Automation

TBA

5:00pm

Tecan

Tim Schroeder

INNOVATIVE HIGH THROUGHPUT PROTEIN PURIFICATION IN 96-ARRAY FORMAT

A new platform technology has been developed which enables 96 array format column chromatography. The design allows the user to select any chromatographic material which is packed with due consideration to individual material compression requirements. Bed containment between two filter frits ensures high efficiency and peak symmetry similar to that of preparative and process separation columns, and distinguishes the system from the current filter based systems for simple on/off sample equilibration operation.

Quality packed MiniColumns allow high performance separations to be achieved with minimal use of mobile phase and extremely low sample volumes and mass.

Liquid flow in the columns (CV 50 to 600µl) was driven with positive displacement fluid transfer systems, thus mimicking the situation in columns individually connected to a one channel stand-alone chromatography system. Fractions from step elution were collected into standard microplates, utilizing an automated microplate transport system and subsequently submitted to analysis in a UV plate reader or other analytical methods (ELISA, MS or HPLC).

The combined robotic system (Atoll MiniColumn and Tecan Freedom EVO) allowed to perform automated high throughput small scale bio-chromatographic separations of protein samples by running up to eight individual columns simultaneously. Application examples shown, include protein separations by step gradient elution after binding the samples to affinity chromatography media, followed in a second dimension by de-salting under isocratic conditions.

These applications were successfully implemented in industry for parameter elucidation and optimization in process development of therapeutic protein production, in-process monitoring of fermentation broth for mAb-production and sample preparation for mass spectrometry analysis in antibody screening. Furthermore it was applied in depletion of abundant components from CSF and blood plasma. The result was to establish fully automated, walk-away procedures with a significant reduction in processing time and increased process security.

5:30pm

Genetix

Hans Muller-Kahle, Dir. Of Business Development

Rapid selection of clonal high producing CHO and NSO cell lines for the production of biotherapeutic proteins

In this presentation we will describe an automated system that allows the screening of several thousand transfected clones in a few hours. The top producers for the target protein can then be picked and measured for stability and clonality. Data will be presented that shows that the top producing cell lines only appear in populations at a frequency of less than 1 in 1,000, and it is these that must be selected to achieve the highest levels of protein production.

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Poster Presentations:

New HTRF solutions for cell surface receptors study and screening. Application to GPCR dimerization and highly selective ligand binding assays.

Cynthia Cormier, Cisbio US Inc.

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Experimental Strategies for High Throughput Experiments

James Cawse, Cawse and Effect

As our ability to generate large numbers of experiments using robotics and high throughput methods has accelerated, we have become more conscious of the need to plan these experiments effectively. We find that the kinds of problems, the desired outcomes, and the appropriate strategies are significantly different from conventional experimentation. Classical experimental design strategies grew up in a period of slow, laborious, error-prone experimentation; massively parallel experimentation now allows more runs in a day than were once done in a week, month or year! New experimental strategies and designs are necessary for success in this exciting new area.

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An Example of automation and miniaturization of an ELISA for HTS and Protease drug discovery

Vincent Yu, Novartis Institutes for BioMedical Research

Enzyme-Linked ImmunoSorbent Assays (ELISAs) provide a sensitive and relatively straightforward method for indirectly measuring enzymatic activity with minimal signal interference from test compounds. Typically however, ELISAs require long incubation times and multiple washing steps, and are thus usually carried out in a low-throughput manner. In this poster, we describe the adaptation and miniaturization of a manually performed proteolytic enzyme assay to an automated fluorescence intensity ELISA suitable for high throughput screening. The assay was successfully miniaturized to 384-well plate format (6 μ l total reaction volume per well) and the full assay time reduced from 2 days to 4.5hr. This was done by a combination of reduced incubation times and steps and reducing the multiple washing steps down to 1 extensive wash. Most importantly, this was done without losing the sensitivity of the assay, as evidenced by a comparison of IC₅₀ values of identified inhibitors to the non-automated Disease Area partner results during our pilot studies. These time and reagent saving measures allowed us to screen a 250,000 compound collection to identify leads for the Disease Area. In conclusion, we present here a method for successfully adapting and miniaturizing a sensitive ELISA for high-throughput screening.

The NA_STAR Influenza Neuraminidase Inhibitor Resistance Detection Kit: Chemiluminescences Assay for Detection and Quantification of Influenza Neuraminidase Activity

Alison Sparks, Life Technologies

The NA-Star Influenza Neuraminidase Inhibitor Resistance Detection Kit provides the NA-Star 1,2-dioxetane chemiluminescent neuraminidase substrate, together with all necessary assay reagents and microplates, to measure the resistance level of influenza virus isolates to neuraminidase inhibitor antiviral therapeutics. The NA-Star chemiluminescent substrate provides highly sensitive detection of neuraminidase enzyme activity from influenza virus types A and B, including human, avian, porcine and equine viruses.

Neuraminidase assays performed with the NA-Star 1,2-dioxetane chemiluminescent substrate provide approximately 50-fold higher sensitivity than neuraminidase assays with the MUNANA fluorescent substrate. The chemiluminescent assay with NA-Star substrate provides linear results over 3-4 orders of magnitude of neuraminidase concentration compared to 1-2 orders of magnitude achieved with the fluorescent assay, providing a greater assay dynamic range. Virus dilutions are briefly incubated with neuraminidase inhibitor, and then the two-reagent detection assay is performed. The entire assay is completed in approximately one hour. Data analysis, using non-linear curve fitting dose response analysis software (not provided), is performed to determine the IC₅₀ value of the neuraminidase inhibitor with each viral isolate. The NA-Star chemiluminescence assay has been compared to fluorescence assays performed with MUNANA with isolates of the major influenza types, H1N1, H3N2 and influenza B strains, including NI-sensitive and resistant strains. Results obtained with both oseltamivir and zanamivir inhibitors will be presented.

The NA-Star Influenza Neuraminidase Inhibitor Resistance Detection Kit combines highly sensitive and rapid chemiluminescent quantitation of neuraminidase activity from flu virus isolates using supplied reagents and a simple assay protocol to provide a convenient method for use in research laboratories to monitor the resistance levels of both human and animal influenza virus isolates to neuraminidase inhibitors.

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Chemiluminescent Substrates and Chemiluminescent Assays for Monitoring Cytochrome P450 Enzyme Activity

Zhixian Wang, Life Technologies, Inc

We have developed chemiluminescent CYP450 1,2-dioxetane substrates and assays to address CYP450 activity surveillance in a simple, microplate-based assay format amenable to high or medium throughput screening. Preliminary CYP450 inhibition assays based on these substrates have been developed for the five isozymes responsible for the majority of drug metabolism: CYP1A2, CYP2C9, CYP2C19, CYP2D6, and CYP3A4. These end-point assays have a robust signal to background, are simple to perform, and provide IC50 values for known inhibitors in the expected ranges. Most substrates have an apparent Km below 10mM for the matched CYP isozyme. These assays compare favorably with commercially available fluorescent and indirect chemiluminescent assays. We have recently developed additional chemiluminescent CYP450 substrates that show adequate isozyme specificity to support isozyme-specific enzyme monitoring in human liver microsomes. These include sensitive and specific CYP3A4 substrates and substrates that allow for monitoring 2C19-specific activity in as little as 10 min assay time.

Simple and Fast Performance Verification for Ultra-Low-Volume Liquid Handlers:

Nanoliter Aqueous Fluid Transfers Assessed with Dual-Dye Technology

Keith Albert, Artel

Poor liquid handling performance can lead to poor assay results. When the volume verification methodology used to assess liquid handler performance is not properly executed, errors will enter into the process and the results could lead to incorrect conclusions regarding instrument performance. This presentation discusses proper techniques and best practices for assessing aqueous liquid transfer accuracy and precision for low-volume liquid handlers. These practices were established using both acoustic droplet ejection (Echo® 555 liquid handler, Labcyte Inc.) and a feedback-controlled, tip-based dispenser (Deerac® GX reagent dispenser, Labcyte Inc.). Volumetric accuracy and precision were measured using a standardized volume verification platform based on a dual-dye absorbance technology (MVS®, Artel) and compared to fluorescence-based tests. For absorbance testing, manufactured aqueous-based dye solutions were employed for all target volumes and diluents. For fluorescence testing, sodium fluorescein (150 mM) in water was used for target volumes and sodium hydroxide (10 mM) was used as diluent. In both cases, the dye solution was transferred into a 384-well test plate with the Echo (30 ± 200 nL) or the Deerac GX system (200 ± 800 nL) followed by the addition of buffer. Using the MVS, the measured accuracy and precision for both the Echo and Deerac GX Series were below 5% inaccuracy and 5% CV for the volume transfers indicated. Some of the best practices developed and discussed herein include source plate preparation, assay plate preparation and assay plate reagent mixing. By following these recommended practices, optimal conditions for measuring liquid handler performance can be achieved.

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Identification of Chemical Probes for the Study of Platelet Granule Secretion

Lynn VerPlank, Broad Institute

The NIH Molecular Libraries Probe Centers Network (MLPCN) initiative supports the testing of a publicly available 300K compound library to identify small molecule probes effective at modulating a given biological process or disease state. As a network member, The Broad Institute Probe Development Center (BIPDeC) participates in a comprehensive program that supports projects through assay development, execution of primary HTS, confirmation in secondary assays, and lead optimization with medicinal chemistry to identify biological probes. All data from completed probe development campaigns are made available to the wider community through PubChem. As part of this program, we undertook a screen to identify novel probes that inhibit platelet activation. Such probes will provide additional insights into the mechanisms regulating platelet granule secretion, and may also result in a regulator(s) of platelet-mediated arterial thrombosis. The screen was conducted entirely in platelet-rich plasma (PRP) obtained from normal, healthy adult donors. The screen assessed the ability of compounds to inhibit the activation of platelets when stimulated with the recombinant thrombin peptide fragment SFLLRN. To assess platelet activation, a luciferin/luciferase reaction was used to detect ATP that is released upon granule secretion. In the primary screen, the criterion for a hit was set at 50% or greater inhibition relative to the positive control Cilostazol, a known inhibitor of platelet activation. The screen showed a hit-rate of 0.2%. A “cherry-pick” list of 1684 compounds was selected including all hits from the primary screen plus non-active compounds of related chemical structures. These compounds were retested in an 8-point dose response. Further secondary screens were conducted to identify false positives and select for specificity toward platelet response pathways.

Label-free BIND Technology Automation of SRU Biosystems Label-free BIND® Technology Using Beckmans Biomek® Platform: A Universal Solution for 384- and 1536-well GPCR Screening and Profiling.

Amy Mitchell, SRU Biosystems

Today's drug discovery efforts require technologies that produce physically relevant data in a high throughput, cost effective manner. SRU Biosystems™ label-free BIND® technology provides the application flexibility, robust performance, and automation simplicity to meet those needs in a high density, miniaturized format. SRU had created a custom, plug-and-play platform in which the BIND ultra-high throughput reader, the SCREENER, is fully integrated within Beckmans Biomek FX robot for streamlined screening and profiling. This poster highlights the BIND SCREENER-Biomek FX integration platform and discusses platform components, assay performance and throughput capabilities using a cell-based GPCR assay.

Key Assay Performance Results:

- Screen over 130,000 samples in an 8 hour day
- 1536-well screening with z-factors as high as 0.87
- 384-well assays with z-factors as high as 0.93
- High level well-to-well, plate-to-plate and day-to-day reproducibility

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A LIMS integrated dashboard tool for automation asset management and protocol reliability

Joshua Bittker, Broad Institute

The high throughput screening and compound management groups in the Broad Institute Chemical Biology Platform execute automated compound formatting and assay protocols using a set of integrated modular robotic systems (High Resolution Biosolutions.) A common concern in HTS labs that is a particular issue with modular systems is the tracking of physical assets and their integration with the automation informatics environment.

We have developed and implemented an equipment tracking system that is tightly integrated with our existing LIMS system, CBIP (Chemical Biology Informatics Platform.) This system provides a centrally located inventory and status report of all automation-related instruments and accessories that can be accessed through any web browser. The most basic function tracks the physical locations and the current functional status of each piece of equipment, providing coordination for all personnel in the screening and compound management groups.

Thanks to the integration of the Broad LIMS, automation, and record keeping databases, the system is also able to validate protocols prior to execution to avoid runtime failures due to nonfunctional equipment or invalid automation parameters. The High Resolution Biosolutions scheduling software, Cellario, assigns physical instruments to virtual resources required for protocols. By using this mapping through the equipment tracker, the system can prevent the execution of any protocol that would require an instrument marked as nonfunctional or not robotically accessible. Protocols can also be automatically checked prior to runtime to ensure that the expected accessories, such as pin transfer tools or reader filters, are assigned to each instrument. Finally, by accessing the screening group's record keeping database, Cambridgesoft E-Notebook, information on the most recent QC status of all instruments can be tracked and flagged at appropriate intervals. By integrating in a central location information from all the databases necessary to design and execute automated HTS and compound formatting protocols, we are able to avoid unnecessary errors and improve overall automation efficiency.

Tag-lite, the new HTRF solutions for cell surface receptor studies and screening. Application to GPCR dimerization and highly selective ligand binding assays

Anna Sinsigalli, Cisbio US Inc.

Cisbio introduces Tag-lite, a new technological concept for the investigation of cell surface receptors. Tag-lite combines HTRF[®] and SNAP-tag technology, a unique method to accurately label a protein of interest with a fluorescent dye. Tag-lite can be used in a comprehensive range of applications such as receptor mechanistics and dimerization, ligand binding assays, and second messenger assessment.

SNAP-tag is a suicide enzyme which can be fused to the N-terminal position of a GPCR[™]'s 7TM fragment. A plasmid construction can be engineered and once transfected into cells, leads to the expression of the GPCR of interest tagged with the SNAP at the cell membrane surface.

For this platform, Cisbio has developed highly selective derivatized SNAP substrates. These substrates are labeled with HTRF fluorophores such as terbium cryptate (Lumi4-Tb) and green or red HTRF acceptors. As the Tag-lite SNAP substrates are non-permeating, only the SNAP tagged GPCR expressed at the cell surface can be labeled with the appropriate HTRF-compatible fluorophores.

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Flexible, Customized Liquid Dispensing Systems for Use in High-Throughput Experimentation

Joe Marchionna, TransForm Pharmaceuticals, Inc

As liquid handling technology has continued to advance, experience in running high-throughput experiments with these systems has increased as well, as have the ideas of engineers and scientists on how to do even more with these tools. Blending off-the-shelf and in-house developed hardware and software to deliver more flexible solutions has been a goal at TransForm Pharmaceuticals from the company's founding. This poster will outline the hardware and software features of two automated flow-through dispensing systems recently developed at TransForm to perform liquid dispensing operations in various work-flows.

The first system is based on a 30-channel IVEK liquid dispenser with custom motion control, environmental control, fluid-line temperature control, and fluid handling components, controlled by a custom software application developed based on input from TransForm's high-throughput experimentation scientists. This system has been successfully used to dispense dozens of screening experiments for vaccine re-formulation efforts. These types of screens usually contain in the range of 768 to 1728 unique, sterile samples, containing quinary combinations of 800 ul per well, and resulting in dispense times of approximately 35 min per 96 well plate.

The second system is based on a 32-channel BioDot liquid dispenser outfitted with custom environmental control and other hardware improvements, as well as a similar custom software interface. It has been used to dispense similar-sized screening batches of aqueous combinations for biological experiments with a dispense time of approximately 15 min per 96 well plate.

This poster will describe the benefits of custom hardware solutions implemented and the flexibility the custom control software has provided in operating the instrument, as well as dispensing results achieved.

Reducing the Cost of Poor Quality Screening Using Vision Technology

Significant time and effort is expended in screening sample libraries; however, no matter how advanced the screening system, the end results are only as good as the quality of the sample in the plate wells.

Sue Jones, RTS Life Science

Survey data gathered by RTS suggests that as many as 5% of plate wells may be empty, and 3 to 5% of wells may have samples at the wrong concentration; whilst the cost of this poor quality can readily be calculated, the implications are perhaps not fully appreciated by screening and compound management groups.

In order to improve the quality of the delivered plates, and reduce the cost of wasted screening (time, effort, reagents, missed hits etc) a major pharma company partnered with RTS to incorporate a vision system that routinely and accurately audits sample tubes to calculate volumes and also identify any particulate matter; key in understanding the quality of the final delivered plate wells.

This system has now been in operation for over 12 months, and this paper highlights the benefits achieved, and outlines how this established technology might be more widely utilised to reduce the cost of poor quality screening.

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Dual Resolution Syringe lets syringe drives go 10-20X lower with high precision and contact-free delivery

Donald Schwartz, DRSLongstroke/DRD Diluter

Dual Resolution Syringe LONGSTROKE's very long Differential Mode stroke minimizes variance to give unsurpassed precision and accuracy for minute samples. Built-in high flow Single Mode handles large volumes and eliminates bubbles and priming problems for robustness and low maintenance. Smooth controllable flow power gives optimal Tip Escape Velocity (TEVIA) for contact-free delivery from plopoff through splatoff morphology of even sub-microliter (nanoliter) volumes, including viscous and biological materials, with disposable tips. LONGSTROKE can be swapped for a conventional syringe in any syringe drive, typically empowering automated liquid-handling systems to go 10-20X lower with excellent P & A while keeping high volume capability. Mechanical design, data, automated robot use and 6 powerful applications are shown.

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