PRISME Forum

Pharmaceutical R&D Information Systems Management Executives

PRISME Forum

TECH MEETING

PRISME Forum Chair: Matteo di Tommaso, *Pfizer*

Technical Meeting Chair: M. Hall Gregg, Amgen

November 19-20, 2014

Thousand Oaks, CA, USA

Host: Amgen

Download our PRISME Forum 2014 TECH Meeting App

or access it through: http://my.yapp.us/PRISMETECH

Meeting Venue

All sessions and networking events will be held at Amgen's campus located at One Amgen Center Drive, Thousand Oaks, CA 91320-1799.

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PRISME Forum Tech Meeting Steering Committee

M. Hall Gregg, *VP, R&D Informatics, Amgen (Tech Meeting Steering Committee Chair)*

Dan Chapman, *Head of Discovery Research Information Management, UCB*

Thomas Frei, *Global Head, R&D IT, Novartis Vaccines & Diagnostics*

Martin Leach, *VP, R&D Information Technology, Biogen Idec*

PRISME Forum Host

The Steering Committee of the PRISME Forum would like to thank Amgen for hosting its fall 2014 meeting.

PRISME Forum Statement of Compliance

"All meetings, working groups and communications will be open to all Members and any records thereof will be non-confidential and available for inspection by any Member. The Members acknowledge that discussing any commercially sensitive topics, including costs, volumes, inventories, sales level methods, channels of distribution, access to future products, markets, current or future prices, profitability, ***contract pricing or trading terms*** is prohibited. The Members of PRISME will strictly comply with all laws relevant to their activities, including US state and federal anti-trust laws and European competition laws."

THEME:

Collaboration: Types, Technologies and Content

Pharma R&D is becoming more networked as the pharmaceutical industry evolves to meet the challenges of loss of exclusivity and increased pressure to deliver medicines to serve unmet medical need at lower cost and more quickly. The externalization of R&D requires greater collaboration with many partners including academia, contract research organizations, medical centers, payers, providers, and indeed with each other; furthermore, this extends and can compete with existing internal collaboration needs. In parallel, cybersecurity is growing as an issue. Cybersecurity requires more than ever a focused approach to protecting intellectual property. Privacy regulations, to protect personal information, also create regulatory compliance responsibilities and constraints as to how, why, where and when data can be used and managed.

This increased need to collaborate in a networked, externalized environment requires IT solutions that enable virtual teams and facilitate the sharing of data while protecting intellectual property and data privacy. Some of the key points to be addressed are summarized below.

1. Systems and processes that inter-connect with external partners are essential for real-time use of data and scientific decision making
2. Scientific information systems must be able intentionally to silo data to support a rapidly changing set of intellectual property rights from acquisitions, collaborations and divestitures
3. Collaboration technologies to enable virtual teams, increase effectiveness of R&D project teams and reduce travel cost and time are rapidly evolving
4. Security solutions that enable collaboration while protecting against service disruption and loss of intellectual property are essential
5. Privacy and other regulatory responsibilities create a complex set of compliance obligations - which vary across different geographies - that must be well understood and facilitated by IT.
6. How do we use technology to find collaborators as well as to create, enhance, facilitate collaboration?

PROGRAM

WEDNESDAY, November 19, 2014		
19:00	*Joint PRISME Forum Business Group + Tech Group Reception at Westlake Village Inn*	
THURSDAY, November 20, 2014		
07:30	*Shuttle Transfer from Hotel to Meeting Venue*	
08:00	*Check-in; Poster Installation*	
08:20	**Welcome Notes**	**Matteo di Tommaso**, VP, Research Business Technology, *Pfizer*
08:25	**Introduction**	**M. Hall Gregg**, VP, R&D Informatics, *Amgen*
08:30	**SESSION 1: PERSPECTIVES**	**CHAIR: M. Hall Gregg**, VP, R&D Informatics, *Amgen*
08:30	Lecture 1: Pharma Scientific Perspective	**Tom Crabbe,** Director, External Discovery Solutions, *UCB*
09:00	Lecture 2: Technology Perspective	**James Rinaldi,** CIO, Jet Propulsion Laboratory, *NASA*
09:30	Lecture 3: Pharma Security Perspective	**Spencer Mott**, CISO, *Amgen*
10:00	*Coffee Break*	
10:30	Panel Discussion	**CHAIR: Frances Grote**, Senior Director, Clinical Operations Vendor Oversight, *Biogen Idec* **Margaret Keegan**, SVP Enterprise Solutions, *Quintiles* **Jamie O'Keefe**, VP Life Sciences R&D Practice, *Paragon* **Scott Snyder**, Executive Vice President Compound Management, *Evotec* **Ashok Upadhyay**, AVP/Global Practice Head, Life Sciences R&D, *HCL*
11:30	**SESSION 2a: POSTERS and DEMONSTRATIONS**	**CHAIR: Dan Chapman**, Head of Discovery Research Information Management, *UCB*
11:30	Introduction and Logistics	**Dan Chapman**, Head of Discovery Research Information Management, *UCB*
11:40	Poster Session *(Four 15 min rotations)*	
	P1: Collaboration Platform – Merck/Regenstrief Institute	**Patrick Loerch**, Director, Health IT, and **Andrea Kirby,** Director, Global Collaborations, *Merck*
	P2: Biogen Collaboration Capability from Platform to Reality	**Sebastien Lefebvre**, Director R&D IT Platforms, *Biogen Idec*
	P3: Beam Robots as an Aid to Effective Remote Collaboration	**Greg Hamilton**, Enterprise Account Manager, *SuitableTech*
	P4: Collaboration in the Cloud	**Jordin Green**, Marketing Lead, Healthcare and Life Sciences, and **Angel Pizarro**, Technical Business Development Manager, *Amazon Web Services*
	P5: AstraZeneca's Collaboration Journey: from the Inside Out	**Scott Wilkins**, Enterprise Collaboration Director, and **Robert Albert**, Collaboration Specialist, *AstraZeneca*
	P6: Growing a Knowledge Management Capability	**Sandra Bush,** Director of Knowledge Management-Operations, *Amgen*
	P7: BINA Genomics Management System	**Narges Bani Asadi,** CEO, *BINA*
12:40	*Lunch*	
14:00	**SESSION 2b: POSTERS and DEMONSTRATIONS (cont.)**	
14:00	Poster Session *(Remaining three 15 min rotations)*	
14:45	**SESSION 3: KEYNOTE PRESENTATION**	**CHAIR: M. Hall Gregg**, VP, R&D Informatics, *Amgen*
14:45	**Sony Presentation**	**David Ballew,** VP, BRM, Worldwide TV Networks IT, *Sony Pictures Entertainment*
15:30	*Coffee Break*	
16:00	**SESSION 4: BRINGING IT ALL TOGETHER**	**CHAIR: Joseph Cevetello, Director, Learning Environments,** *USC*
16:00	**Round table discussions (with note takers)**	
17:15	**Read out of round table discussions**	
17:45	**AWARDS**	**M. Hall Gregg**, VP, R&D Informatics, *Amgen*
18:00	**NETWORKING RECEPTION**	
19:30	Return to hotel	

BIOS and ABSTRACTS

PRISME Forum Chair

Matteo di Tommaso, VP, Research Business Technology, *Pfizer*

Matteo leads Research Business Technology for Pfizer where he is responsible for strategy and implementation of IT and informatics services for Pfizer Research.At Pfizer, he has led efforts on cloud solutions for high performance computing (HPC), systems integration resulting from mergers and acquisitions, systems separations as a result of divestitures and IPOs, drug discovery data for decision making and insight, translational informatics solutions for patient stratification and integration of clinical and molecular data, laboratory automation services, and data center simplification. His efforts in pre-competitive collaboration have led to opensource tools for Chemistry eNotebook and biomolecule discovery and contributions to efforts including OpenBEL, Pistoia Alliance and tranSMART.

Before joining Pfizer, in 2004, Matteo led the team at Celera Genomics responsible for building Celera's scientific information products and Applied Biosystems' eCommerce solutions. Prior to that he led the development of the "SeqStore" product line for Genetics Computer Group, a set of products and services for pharmaceutical drug discovery.GCG, he spent 3 years at the European Bioinformatics Institute (EBI) at the start of the institute in Cambridge, UK.Matteo began his career in IT, at Warner-Lambert Parke-Davis, with a degree in Chemistry from Indiana University, leading the migration and replacement of pre-clinical information systems to improve data quality and usability.

Tech Meeting Steering Committee Chair

Mary Hall Gregg, VP, R&D Informatics, *Amgen*

As Vice President of Research & Development Informatics, Dr. Hall Gregg works closely with the head of R&D and the CIO to provide operational and strategic leadership in support of Amgen's worldwide initiatives in drug discovery and development. Hall joined Amgen in May 2011 as Vice President of IS Enterprise Applications Services where she was responsible for managing enterprise resource planning, document and content management, web and collaboration tools, information management and analytics, and development and testing.

Before coming to Amgen, Hall held a variety of roles in information technology and business functions at Quest Diagnostics. Among her positions at Quest Diagnostics, Hall served as CIO and then as VP for global central laboratory services and South American laboratory operations. Prior to joining Quest Diagnostics, Hall was the VP Business Information Systems and Deputy CIO at the American Red Cross. She began her career at Merck as a biostatistician designing and analyzing clinical trials.

Hall received her PhD in biostatistics from Virginia Commonwealth University, and her bachelor's in mathematics from Vanderbilt University. In 2009, Hall was appointed by the Governor of NJ to serve as a commissioner on the NJ Healthcare IT Commission and participated in the development of the statewide healthcare IT plan.

SESSION I: PERSPECTIVES

Chair: M. Hall Gregg, VP, R&D Informatics, *Amgen*

Pharma Scientific Perspective:

Borderless Innovation in Drug Discovery: Why is it Needed and How Do We Get There?
Tom Crabbe, Director, External Discovery Solutions, *UCB*

Technology Perspective:

Creating a Collaborative Strategy out of Chaos
James Rinaldi, CIO, Jet Propulsion Laboratory, *NASA*

Pharma Security Perspective:

The Only Opportunity our Industry has against Cyber Criminals is to Work Together
Spencer Mott, CISO, *Amgen*

Tom Crabbe, Director, External Discovery Solutions, *UCB*

Tom Crabbe has worked in drug discovery at UCB (formally Celltech) for 27 years as a lab scientist, project leader, and department head. His scientific focus is on using of proteins as therapeutics and tools.

Tom's current position, Director, External Discovery Solutions, allows him to explore how best to use the knowledge and resources that exist outside of UCB to drive their pipeline of innovative medicines.

Borderless Innovation in Drug Discovery: Why is it Needed and How Do We Get There?

Drug discovery is a complex process, where success is entirely dependent on the co-operation of multi-disciplinary teams. As we struggle to find innovative therapies to the medical issues that remain and are emerging from changing lifestyles and demographics it is even more important that we tap into collective wisdom and effort. In the past this was accomplished largely by personal contact and bias but this is an inefficient process that allows geography and culture to impede best practice. Tools that allow better sampling and use of available global resources are required but they must also take account of the human factor: scientists are no less able to resist tribal instincts and the mind-set that disruptive change is unwelcome. The talk will take examples from my work to highlight the challenges and enormous opportunities that exist in bringing together scientists for the common good.

James Rinaldi, CIO, Jet Propulsion Laboratory, *NASA*

James Rinaldi is JPL's Chief Information Officer. He has direct management responsibility over JPL's Information Technology Directorate supporting end users of the engineering, interplanetary network and finance/business operations. As CIO, Jim has the responsibility for establishing the IT architecture, planning and strategy for the Lab. In addition, Jim serves as a member of JPL's Executive Council and various management councils to provide Lab governance.

Jim has more than 30 years of experience with information systems in government and industry. He was the Chief Information Officer at the U.S. Food and Drug Administration where he had overall responsibility for the planning, development and delivery of information systems across the FDA. Prior to that, he was the Chief of Information Technology Services at the IRS and Chief of Business Systems Integration. While at the IRS, Jim helped develop the Free Tax Alliance e-Gov initiative as well as provide guidance and expertise on the IRS Modernization efforts. Jim spent 16 years at the Marriott International Corporation in Bethesda, MD, where his last position was senior vice president for information resources, operations and services. Jim has a bachelor of arts in computer science from the University of North Florida in Jacksonville. He has successfully completed executive and leadership development programs at the University of Maryland in College Park. Jim is an award recipient of several industry and government awards including Federal 100, NASA Awards and CIO 100.

Creating a Collaborative Strategy out of Chaos

Evolving a collaborative strategy today with more choices and capabilities offers many ways to collaborate. This presentation will discuss some ways, JPL is collaborating with others in creative ways while traversing proprietary and open solutions.

Spencer Mott, CISO, *Amgen*

Spencer Mott is Amgen's Chief Information Security Officer, and Vice President, Information Systems. Prior to Amgen, Spencer spent six years at Electronic Arts, 15 years in the Metropolitan Police (London, UK), and five years in media and copyright protection for a major film copyright trade association. Spencer's experience in the Security industry includes Corporate Risk Management, IT security, Cyber Defence, Software Development Security, Law Enforcement and Intellectual Property Compliance.

The Only Opportunity our Industry has against Cyber Criminals is to Work Together

Payor, provider and pharmaco technology ecosystems are rapidly evolving in response to converging reform, consumerism, payment/delivery model innovation and IT innovation forces. The rapid digitization of healthcare is manifesting itself through highly interoperable, multi-party information exchanges, platforms to ensure care across the health continuum, digital marketing targeted to consumers, virtual care models, health management devices and instrumentation etc. Collectively these digitization trends are introducing new security risks to already susceptible IT ecosystems through:

- Vastly extended technology surface that touches every aspect of the health management system from care delivery facilities to insurance exchanges to “smart” biomedical engineering devices to payment mechanisms to personal health management portals e.g., Target’s breach was initiated through the HVAC monitoring system
- Expended interconnectivity between vendors and other 3rd parties participating in the complete consumer health journey under emerging shared risk paradigms
- Emerging technologies becoming embedded in “every-day” operations and devices outside traditional IT function boundaries i.e. the Internet of Things e.g., wireless control of “blinds” and thermostats in patient rooms etc.

Exacerbating these new risks is the notion that the healthcare industry traditionally viewed security and privacy with a lens towards compliance versus risk management, and that the industry continues to employ practices that are inherently risky (e.g., using SSN as primary means of identity management and authentication). As a result, decisions are oftentimes optimized to comply with laws instead of actually managing risk. The issue is that laws have not adequately kept up with security risks, leaving healthcare companies vulnerable if they comply with laws alone.

While healthcare as an industry is increasingly focused on cyber security (e.g., ~40% increase in security-related spending across the industry in last 3 years), it continues to be reactive and lags mature industries like financial services and retail in the size and scope of investments in the overall cyber security apparatus and the existence of shared infrastructure to combat an ever-increasing set of risks and threat vectors. At the same time the relative attractiveness of industry players as an “easy target” is growing evidenced by the increased scale and scope of recent breaches and the growing value of health data in black markets.

As payors, providers and pharmacos enter a tumultuous period of change in the overall industry, this level of spend has typically been neither budgeted nor prioritized relative to other competing compliance, consumerism and growth imperatives. Further, the talent required to effectively structure and manage complex cyber security programs across large enterprises has been scarce. Emerging talent needs in this space span more than information security expertise to also cover vendor risk management, data architecture, biomedical engineering, physical security, and privacy. These programs also have a high level of dependency on core IT infrastructure decisions (e.g., asset and patch management practices, architecture standardization, migration to cloud, IT resiliency choices, storage and archival policies, network performance expectations, surveillance protocols) within each organization that can delay investment decisions and action.

Regardless of the level of investment, no single organization is capable of repelling 100% of the attacks against it nor is it capable of sustaining the level of vigilance required to stay ahead of malicious actors. We believe that collective action is vital. As healthcare organizations pivot from viewing privacy and security as a compliance issue to more of a risk management concern they will increasingly come to rely on each other to not only raise mutual awareness of new threat vectors and actors but also to effectively combat the rapid proliferation of attacks and vulnerabilities through pooled resources.

SESSION I: PANEL DISCUSSION

Chair: Frances Grote, Senior Director, Clinical Operations Vendor Oversight, *Biogen Idec*

Frances Grote has been in the biopharma industry for over twenty years. She has worked extensively in both Clinical Operations and Clinical Vendor Management, including an "ex-pat" in Strategic Sourcing. Fran has always been an innovator in Drug Development Outsourcing, focusing on leading-edge approaches to maximizing the value of outsourced relationships for both the customer and the provider.

She is currently Senior Director of Clinical Vendor Management at Biogen Idec, where she is focusing on collaborating both internally and externally to implement a best-in-class outsourcing vision and strategy. Fran is also the mother of four amazing kids, and a novelist. Her latest book was just published in September of 2014.

Margaret Keegan, SVP Enterprise Solutions, *Quintiles*

Margaret Keegan joined Quintiles in 2007 and is currently SVP, Global Head of Enterprise Solutions Development. In this role her remit includes strategic customer account strategy, driving customer value propositions, developing offerings (from clinical through commercial) to meet customers' needs and developing transformational and strategic solutions for customers that maximize value to them.

Her previous roles as Global Head of Integrated Processes and Technologies included operational oversight of strategic clinical alliances (3rd party vendors); the Quintiles Contact Center; all major cross functional new systems (including CTMS, portfolio planning and resource management) as well as Quintiles Infosario™. Margaret has over 20 years of pharmaceutical industry experience and has held senior leadership roles in statistics, programming, data management, late phase and clinical operations. She has worked for CROs as well as a pharmaceutical company. Margaret holds a Bachelor of Science degree in Pure and Applied Mathematics and is a Chartered Statistician.

Jamie O'Keefe, VP Life Sciences R&D Practice, *Paragon*

James O'Keefe leads the Research & Development Domain for Life Sciences Solutions. Mr. O'Keefe is responsible for piloting the domain's growth with capabilities that are centered on business consulting and process optimization. In this role, Mr. O'Keefe has focused on driving change and adoption of new business capabilities such as: Structured Protocol and Content Authoring; the transition to electronic management of Trial Master Files and Investigator Interactions; and optimizing Clinical and Regulatory business processes.

Formerly with a division of EMC Consulting, Mr. O'Keefe has over 15 years of business and IT consulting experience, with the past six years focused in the R&D space of Life Sciences. His expertise includes enabling efficiencies in Clinical Site Monitoring, Regulated Content Management, and the implementation of electronic Trial Master Files and Clinical Investigator portals.

Mr. O'Keefe holds a BA in English Literature from Fordham University. He is an active member of the Drug Information Association, most recently sitting on the Document Management SIAC working group for Trial Master File Reference Model recommendations.

Scott Snyder, Executive Vice President Compound Management, *Evotec*

Mr. Scott Snyder joined Evotec (US) Inc. in 2008 and has direct responsibility for its U.S. operations and leading its global Sample Management services division. This division has responsibility for providing a complete suite of services around small molecule sample management in support of client specific screening sciences. Current services encompass the identification, selection, and acquisition of small molecules as well as quality control, storage, and delivery of assay ready materials. Prior to joining Evotec Scott has spent the previous sixteen years working in both operational and business development capacities all within the discovery space of biotechnology, ecommerce, and innovative automation providers.

PERSPECTIVE:
Drug Discovery Service providers collaborate with many partners including Pharma, academia, foundations, government, and everyone in between. Consequently, the types of collaborations can vary greatly as well as the supporting technologies and expectations of those partners. However, the underlying requirements of all collaborations is to ensure a 'high level of security' without encumbering the discovery process. In this session we will share our experience with a variety of collaboration types, 'enabling' technologies, and content as well as our expectations for a next generation platform which aims to meet the ever-changing expectations of the industry.

Ashok Upadhyay, AVP/Global Practice Head, Life Sciences R&D, *HCL*

Ashok leads HCL technologies' Life Science global R&D, Manufacturing, and supply chain management practice responsible for HCL's go-to market, products and solutions strategy focused on business growth through innovative service offerings leading to unique and differentiated value to its customers. Ashok brings over 19 years of progressive IT leadership experience in the field of biopharmaceutical R&D informatics, financial/consumer services, and management consulting.

Prior to joining HCL, Ashok spent 7 years at Merck leading large scale change programs including M&A related process harmonization and technology integration, functional and IT sourcing partners selection and relationship management, IT portfolio and program office management across Clinical Development, Regulatory and Safety functions. In his most recent role, as an IT business partner for Merck's Global clinical operations and data management organization, Ashok led efforts to create one of the most forward looking, multi-year, and strategic business-IT investment roadmap aimed at transformation of clinical development business processes and information systems. Prior to that he led Capgemini's North American practice for information management providing management consulting and advisory services helping clients evaluate, select, implement, and operate business enabling global technology platform and services across various industry verticals including pharmaceuticals, auto manufacturing, data brokerage, financial, banking, consumers and retails. Ashok holds Master's degree in computer science from National Institute of Technology in India.

SESSION II: POSTER PRESENTATIONS

Chair: Dan Chapman, Head of Discovery Research Information Management, *UCB*

Dan Chapman is part of the leadership team within Informatics at UCB with responsibility for Software Development and Architecture and Therapeutic Informatics (UK). Dan has 15 years experience working within the Pharmaceutical industry in a variety of roles.

After completing a PhD in Chemistry at Warwick University, Dan transitioned to informatics during post-doctoral research at Cambridge University as part of the CLIC consortium.

Dan joined AstraZeneca in 1997 and worked on a variety of global projects before joining UCB in his present role in 2005. Since then, Dan has driven several projects to revolutionize the informatics platform within UCB and is currently actively involved in promoting Data Science across UCB.

P1: Collaboration Platform – Merck/Regenstrief Institute
Patrick Loerch, Director, Health IT, and
Andrea Kirby, Director, Global Collaborations, *Merck*

P2: Biogen Collaboration Capability from Platform to Reality
Sebastien Lefebvre, Director R&D IT Platforms, *Biogen Idec*

P3: Beam Robots as an Aid to Effective Remote Collaboration
Greg Hamilton, Enterprise Account Manager, *SuitableTech*

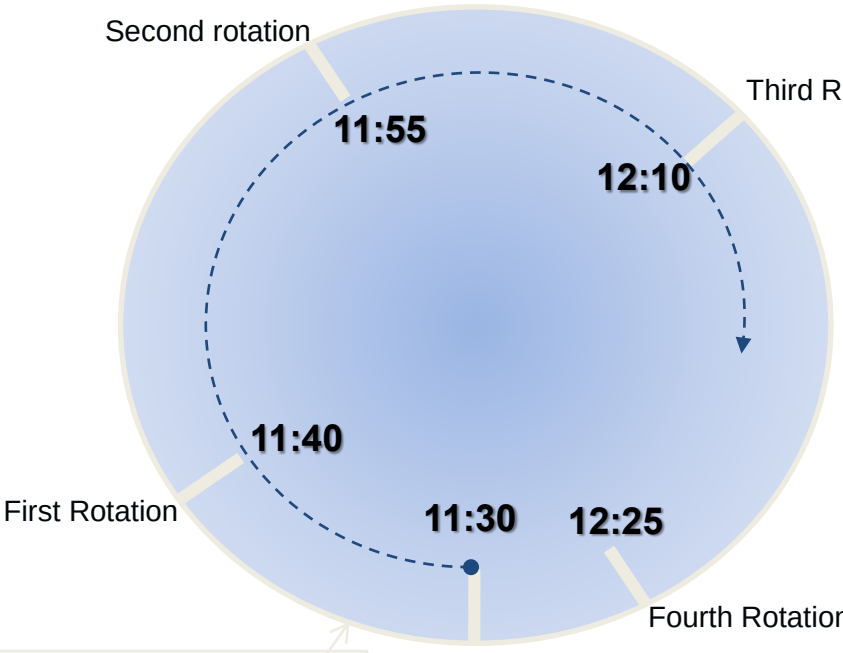
P4: Collaboration in the Cloud
Jordin Green, Marketing Lead, Healthcare and Life Sciences, and
Angel Pizarro, Technical Business Development Manager, *Amazon Web Services*

P5: AstraZeneca's Collaboration Journey: from the Inside Out
Scott Wilkins, Enterprise Collaboration Director, and
Robert Albert, Collaboration Specialist, *AstraZeneca*

P6: Growing a Knowledge Management Capability
Sandra Bush, Director of Knowledge Management-Operations, *Amgen*

P7: BINA Genomics Management System
Narges Bani Asadi, CEO, *BINA*

SESSION STRUCTURE



GET READY @11:35
Session Chair and staff invite delegates to move towards the first rotation.

INSTRUCTIONS @11:30

- Session Chair (Dan Chapman) will invite participants to take their seats.
- Chair will open the session by setting the poster presentation within the larger theme of the event and will present the structure and flow.
- Chair/PRISME Forum staff will ring the bell on each rotation (minute 13 of each presentation and then minute 15 at which time the presentation must end).
- Delegates are invited to identify the color of their badge and match to rotation called out loud by staff: “Rotation 1, 2, …n”.
- Rotations will involve shift of participants’ groups to the next poster on their right.

FIRST SET OF ROTATIONS:

ROTATION 1 - 11:40	ROTATION 2 - 11:55	ROTATION 3 - 12:10	ROTATION 4 - 12:25
P1 – Orange	P1 – Blue	P1 – Yellow	P1 – Brown
P2 – Red	P2 – Orange	P2 – Blue	P2 – Yellow
P3 – Green	P3 – Red	P3 – Orange	P3 – Blue
P4 – Purple	P4 – Green	P4 – Red	P4 – Orange
P5 – Brown	P5 – Purple	P5 – Green	P5 – Red
P6 – Yellow	P6 – Brown	P6 – Purple	P6 – Green
P7 – Blue	P7 – Yellow	P7 – Brown	P7 – Purple

BREAK FOR LUNCH 12:40

SECOND SET OF ROTATIONS:

ROTATION 5 - 14:00	ROTATION 6 - 14:15	ROTATION 7 - 14:30
P1 – Purple	P1 - Green	P1 – Red
P2 – Brown	P2 – Purple	P2 – Green
P3 – Yellow	P3 – Brown	P3 – Purple
P4 – Blue	P4 – Yellow	P4 – Brown
P5 – Orange	P5 – Blue	P5 – Yellow
P6 – Red	P6 – Orange	P6 – Blue
P7 – Green	P7 – Red	P7 – Orange

Patrick Loerch, Director, Health IT, *Merck*

As Director Health IT Patrick identifies, funds, and manages external-facing IT and informatics-based opportunities in support of Merck's digital health and real world evidence strategy. These activities include acting as chief data scientist for a wholly owned consumer-facing mobile health company, overseeing the development of a cloud-based, cross-organizational real world data analytics platform, and leading an effort to use an integrated view of internal and external datasets to anticipate future data gaps. He is also responsible for driving the collaborative development of electronic patient reported outcomes and natural language processing capabilities in partnership with the Regenstrief Institute. Prior to his current role Patrick was a member of the Informatics leadership team, overseeing its health informatics strategy. He has also previously led analytics groups focused on the development of novel algorithms to identify specific pathways underlying various diseases. Patrick has a PhD in Biostatistics from Harvard University and a BS in Biochemistry from Washington State University.

Andrea Kirby, Director, Global Collaborations, *Merck*

Andrea Kirby is an IT Director managing enterprise programs at Merck driving internal/external collaboration and data exchange. She has been at Merck for the last 13 years. Prior to her current position, Andrea held positions in MRL IT supporting Business Development, Regulatory Affairs, Animal Health as well as Consumer Care. Andrea's interests lay primarily in driving operational efficiencies cross divisional at Merck. She is very interested in global innovation and new technologies supporting Merck's preparation for the future by remaining objective, agile and open minded. Please refer to the LinkedIn profile for references and details.

P1: Collaboration Platform – Merck/Regenstrief Institute

Global adoption of electronic medical records (EMRs) and the decline in the cost of genetic sequencing are creating valuable new real world data repositories that pharma, providers, payers and governments can use to assess the effectiveness of new pharmaceutical interventions. Though accessing this content is costly and requires navigation of numerous technical and regulatory hurdles. We believe that by coordinating our efforts, pharmaceutical companies are uniquely positioned to reduce costs, improve transparency in the market and increase the breadth and depth of real world data sources. With the Merck-Regenstrief partnership we have developed a pay-per-use data and analytics partnership model. This partnership structure provides flexible access to slices of data needed for specific research studies, as opposed to the large annual licenses for bulk access to current databases. Through the creation of a cloud-based, collaborative analytics platform (referred to as HDex), we aim to scale this partnership model across the globe. Using the Life Sciences Identity Access Management Hub (SAM) the basis of HDex is a federated identity management system across organizations. Building on this capability, we have partnered with a global cloud infrastructure provider to enable us to spin up secure collaboration spaces around the world in which researchers from multiple organizations can collaboratively analyze data. The workflow mirrors an IRB, where a slice of real world data is associated with a project to which researchers from across organizations are granted access for a period of time. We also provide an open application layer that allows researchers to select the applications they prefer to use. The owner of the data (ex Regenstrief) retains the provisioning rights throughout the duration of the project, allowing them to maintain control over their sensitive data. When the project is complete, the "airlock" capability allows researchers to select the files they would like to remove from HDex, conditional on the data owner's approval. The entire project environment can then be deleted or archived, making space for the next project. Moving forward we envision an ecosystem that supports multiple data owners and data consumers. In order to realize this vision we plan to make the platform broadly available to organizations throughout healthcare. We are also beginning to design the necessary workflows around HDex; including metadata-based searching for available data sources, streamlined data import/export, and the creation of partnership legal templates. We are aiming for the first release in Q1 2015, however this effort is still in its relative infancy, so we are actively seeking input from others.

Sebastien Lefebvre, Director R&D IT Platform, *Biogen Idec*

Sebastien Lefebvre spent the last 15 years in the pharma industry working closely with scientists in all parts of R&D helping them cope with an ever-changing environment both scientifically and technologically. He spent 2011 to 2013 leading the R&D Information Architecture Practice at AstraZeneca where he personally focused on the 3 years IS/IT roadmap and cloud strategy to support their latest R&D strategy including the newly formed virtual Neurology unit.

Recently joined Biogen to lead the R&D IT Platform team which focuses on Knowledge Sharing and Collaboration looking at innovative ways to surface the right information at the right time to the right people using social media concepts, MDM and Search.

P2: Biogen Collaboration Capability from Platform to Reality: Creating a Complete Capability that Captures, Finds and Channels Information and Insights out to the Right People

It's the combination of technologies being used that makes this approach unique. Discover how combining the latest and greatest technologies to harness data, with 21st Century social media concepts to channel the information to the right people. You'll get an honest insight into the recent launches of master data management, an information sharing portal and next generation search techniques.

- Lessons to be learnt from the social media giants on profiling and targeting
- How to pull information together across a whole business unit
- Fitting the different pieces of the puzzle together
- Making the system intuitive for the user
- Taking a holistic approach that gives an end -to-end picture across the R&D unit

Greg Hamilton, Enterprise Account Manager, *SuitableTech*

Greg Hamilton joins Suitable Technologies with a strong and diverse background in technology sales, business development and marketing. He started out his career at IBM in software marketing focused on launching and showcasing its emerging technologies. After a few years, he transitioned into an enterprise field sales role selling the entire IBM portfolio including services, software and hardware to strategic accounts.

Most recently, he was at Adobe as an enterprise account executive where he was responsible for generating growth in new and existing accounts for its EchoSign product.

Prior to Adobe, Greg held enterprise sales roles at MicroStrategy, a leading advanced analytics company, and at Demandforce, a SaaS startup which has been acquired by Intuit.

P3: Beam Robots as an Aid to Effective Remote Collaboration

About Suitable Technologies™ Suitable Technologies develops products for people to live and work remotely. The Beam™ SPS (Smart Presence System), which includes products BeamPro and Beam+, combines mobility and video conferencing to create an immersive communication experience anywhere and everywhere conversations take place. Beam enables people to be there, and interact naturally by seeing and being seen, hearing and being heard, and the freedom to move about, from anywhere in the world. Founded in 2011, Suitable Technologies products are designed and manufactured at its headquarters in Palo Alto, CA. Follow @suitabletech on twitter, like us on Facebook, follow us on Instagram, plus us onGoogle+, or elevate your communication at https://www.suitabletech.com.

Jordin Green, Marketing Lead, Healthcare and Life Sciences, *Amazon Web Services*

Jordin Green is the marketing lead for healthcare and life sciences at Amazon Web Services (AWS), the cloud computing division of Amazon.com. Prior to joining AWS, Jordin held various positions within Siemens Healthcare, including roles in strategic planning for Siemens' in vitro diagnostics division, and as a medical scientist in Siemens' Magnetic Resonance Imaging business unit. He is very interested in how technological trends are shaping the wider healthcare industry and how data can be used to improve operational efficiency and patient outcomes. He holds a PhD in Biomedical Engineering from Northwestern University.

Angel Pizarro, Technical Business Development Manager, *Amazon Web Services*

Angel Pizarro is a Technical Business Development Manager on the Scientific and Research Computing team at Amazon Web Services. He is focused on accelerating genomic scientific computing utilizing large-scale cloud architectures. Prior to joining AWS, he spent 15 years at University of Pennsylvania practicing bioinformatics, both from a research and development standpoint, and as a operations and service provider of computational resources for biomedical research scientists.

P4: Collaboration in the Cloud

Sequencing technologies have lowered costs and increased data outputs at a much faster rate than what traditional hardware refresh cycles are able to service effectively. With lowered costs, more biomedical research and clinical operations are integrating sequencing into a larger portion of their projects, compounding an already tough problem for IT operations. In our poster session we will discuss how AWS customers are utilizing a variety of AWS services to create scalable, performant, collaborative, and cost effective solutions for genomics, health and big-data workflows. Come learn from technical experts demonstrating best practices for combining S3, Glacier, EC2, EMR, RDS, and RedShift to produce a robust platform for science at scale.

Scott Wilkins, Enterprise Collaboration Director, *AstraZeneca*

Dr. Scott Wilkins is an Enterprise Collaboration Director for AstraZeneca and plays a pioneering role in growing the company's collaboration and innovation capability. He's currently accountable for the company's collaboration technology portfolio which spans across the enterprise and delivers to business units in over 100 countries. Prior to that, Scott led the strategic direction and implementation of AstraZeneca's first collaboration and innovation platform. In addition, he played a key role in delivering the company's culture programme. These initiatives have connected over 30,000 colleagues across the company which has resulted in a new way of working with proven impact across R&D and commercial functions. Scott joined AstraZeneca in 2000, and has held various scientific and technical leadership roles across the organization. He holds a doctorate in Medicinal Chemistry.

Robert Albert, Collaboration Specialist, *AstraZeneca*

Robert Albert is a Collaboration Specialist with a background in Medicinal Chemistry. When he joined AstraZeneca in 2002, it was hard to keep him solely at the bench, as he was always playing around with cool new technology. From pioneering the electronic lab notebook at AZ, to helping develop a molecule design tool for the chemists, he was always looked to as a superuser for new software. It was this passion for technology that led him to the collaboration and innovation space. Over the last year he has been involved with the Open Innovation Program, which aims to engender collaboration between academics, other pharma, and the greater scientific community. He has also been involved in the in-house crowdsourcing initiative which aims to help solve issues internally, across all company boundaries. The most successful example was from the Middle East and Africa region, where he was able to help facilitate communications between 2,500 colleagues spread out over 60 countries.

P5: AstraZeneca's Collaboration Journey: from the Inside Out

AstraZeneca has world-class scientists tackling some of the most difficult scientific challenges. We recognize that while we have expertise in our own areas of focus, there is no denying the success of crowd-sourcing to solve problems. Over the last 3 years, AstraZeneca has been building programs for open innovation and collaboration across all functions. The business first turned to Innocentive who offered iSolve as a way to crowdsource solutions internally - starting with R&D. It was so successful, that it spread as a tool to be used across the whole company. This past July, we utilized the platform in a culture jam for our Middle East and Africa colleagues as a way to collaborate across vast distances, and to feel part of a larger organization. This jam was a mini version of a much larger jam we held in 2013 which targeted all employees. During that jam, we leveraged technology from Microsoft, which saw over 34,000 people engage with colleagues and leaders from more than 100 countries. The spirit of collaboration has spread across the enterprise. On March 25th of this year, AstraZeneca launched the Open Innovation web portal. So far, over 3,800 individuals have visited the site worldwide and >120 research proposals have been submitted. Clinical, Preclinical, Target Innovation/Validation, New Molecule Profiling, and of course, R&D proposals are supported. There are over 7 billion people in the world. Getting them to communicate and collaborate is getting easier and more important every year. This is part of what AstraZeneca has been doing to embrace the shrinking world. What have you been doing? Come tell us!

Sandra Bush, Director of Knowledge Management-Operations, *Amgen*

As the director of knowledge management for the operations function, Sandra was responsible for developing the first formal knowledge management team in the company. She has focused the team strategy, supporting processes and technologies around the ideal of an effective learning organization. Sandra joined Amgen in 2001 and has held roles in environmental health and safety and quality specializing in management systems. In 2011, she was promoted to Director of Knowledge Management. Prior to joining Amgen, Sandra worked at Ball Corporation, the Ohio EPA and the U.S. Public Health Service – Indian Health Service. She co-authored a paper for the Parenteral Drug Association (PDA), Knowledge Management and ICH, was a contributing member of American Productivity and Quality Center (APQC) advanced working group on Knowledge Management and is currently serving on the APQC 2015 Conference planning committee.

Sandra received her Bachelor of Science degree in Environmental Health from Bowling Green State University in 1993 and her Master of Business Administration with an emphasis in Operations from Regis University in 2009

P6: Growing a Knowledge Management Capability

Over the last few years we have been developing a knowledge management capability in Amgen's Operations group. Our goal has been to enable knowledge flow through the organization to create value. We have focused our efforts on providing programs and tools to capture, share and search for knowledge. We have seen a steady growth in knowledge sharing. We will be sharing some of the technics and lessons we have learned along the way and a view into our plans for the future.

Narges Bani Asadi, CEO, *BINA*

Narges Bani Asadi, PhD, is the founder and CEO of Bina Technologies. She founded Bina to bring the results of many years of multidisciplinary research on systems biology and high performance computing at Stanford University and UC Berkeley to the world of genomics.

Dr. Asadi holds multiple patents, and has several publications, as well as a Masters and a PhD in Electrical Engineering from Stanford University.

P7: BINA Genomics Management System

I will be presenting the scalable compute and data management system we have developed at Bina that has been optimized for the analysis of NGS datasets. Our technology can play a fundamental role in unifying and streamlining the data management and processing of NGS datasets across large the institution serving Technician, Bioinformatics, Scientists, and Clinician through one system in several ways:

1. Bina System provides "Research" and "Clinical" interfaces to the same datasets for different users in the Inst. the research user will access to the ensemble of tools, reference datasets, databases, and visualizations without the patient info and the clinical users will access the validated, locked-down, streamlined process that can be integrated with the reporting systems.

2. Our Hybrid IT infrastructure can be deployed as on-premises or on the cloud and provide the same functionality and interfaces.

3. Bina data management and processing solution manages the data from its initial raw format (FASTQ/BAM) all the way to secondary (VCF) and then tertiary analysis (Annotation, Filtering, Revisable Report) without friction.

4. One platform to support multiple sequencing technologies (Ion Torrent, Illumina, Pac Bio) and be able to combine and compare the results.

5. Bina platform provides Integrative Genomics analysis by combining DNA and RNA datasets, and providing an ensemble (combination of many tools and merging them intelligently) approach for characterizing somatic, Indel, and SV variatons and RNA-Seq analysis.

6. The unique backend database and indexing technology we have built can integrate and combine any annotation database including your in-house datasets to provide real-time filtering and analytics capability for the user to narrow the list of variants to relevant ones.

7. Bina provides Clinical ready software that supports audit-ability, QC, security and privacy, reliability, and different user roles in a clinical setting.

SESSION III: KEYNOTE PRESENTATION

Chair: M. Hall Gregg, VP, R&D Informatics, *Amgen*

Keynote Speaker: David Ballew, VP, BRM, Worldwide TV Networks IT, *Sony Pictures Entertainment*

SESSION IV: BRINGING IT ALL TOGETHER

CHAIR: Joseph Cevetello, Director, Learning Environments, *USC*

Dr. Cevetello is Assistant Chief Information Officer for Learning Technologies, Information Technology Services at the University of Southern California. In this role, he directs strategy, vision, and operations for USC's Technology Enhanced Learning Organization and provides leadership toward fulfilling the strategic goals for educational technology set forth in USC's academic plan. He has primary responsibility for a $5million per annum initiative to build and support physical and virtual learning spaces to enhance learning, teaching, research, and outreach on campus, in the community, and at a distance. Joseph is also Assistant Professor, Clinical Education at USC Rossier School of Education. In 2013, the Chronicle of Higher Education recognized him as one of the Top 100 Technology Innovators in higher education.

Before joining USC, Joseph consulted with KPMG for the King Abdullah University of Science and Technology (KAUST) in Jeddah, Saudi Arabia. As Engagement Manager and Lead Consultant, he designed and documented the information technology strategy for this landmark undertaking; the largest university project in the 21st century (Cost $12.5 billon). Upon opening in September 2009, KAUST became one of the top five largest endowed universities in the world ($10 Billion) and is targeted to be amongst the top five universities for science and technology in five to ten years.

From 2005-2009, Dr. Cevetello was Senior Director of Information Technology and Director of Academic Technology at Loyola Marymount University. In this role he provided strategic leadership and vision in support of online learning infrastructure, policy and faculty integration of technology in their teaching and research. Prior to joining LMU, Joseph was a consultant to a number of higher-education institutions and organizations including the University of Chicago, Harvard University, The Massachusetts Institute of Technology, The Austrian National Bank, and the World Bank.

Dr. Cevetello received his masters and his doctorate from the Graduate School of Education at Harvard University. His research and teaching interests encompass how online learning technologies affect adult learner and teacher interaction/collaboration, how media influence student and faculty perspectives of learning and their roles, and how the use of technology impacts organizational effectiveness, communication, and change. At Harvard and MIT he instructed courses on Adult Development, Educational Philosophy, Education for Social Change, and the History of Education Technology.

From 1995-2002, Dr. Cevetello was an instructor and coordinator for information technology in the MPA Masters program at the Kennedy School of Government at Harvard University. He has received numerous grants and fellowships including: the Perry Chapman Prize (2013), James N. Snitzler Scholarship, Harvard University (2001), Action for Children's Television (ACT) Fellowship (1999), and the Spencer Research Apprentice Grant (1998), where he conducted a study of qualitative research methodology for technology use in organizations. From 1988-1990, Joseph was a Fulbright Scholar in Vienna, Austria. In the early 1990's, Dr. Cevetello began to experiment with the use of educational technology in his role as senior communications lecturer at the Vienna based Austrian Bankers' College International. ABCi was a widely recognized and influential professional development program that provided bankers and businesspeople from twenty countries of the former Eastern-Bloc with cutting edge business knowledge.

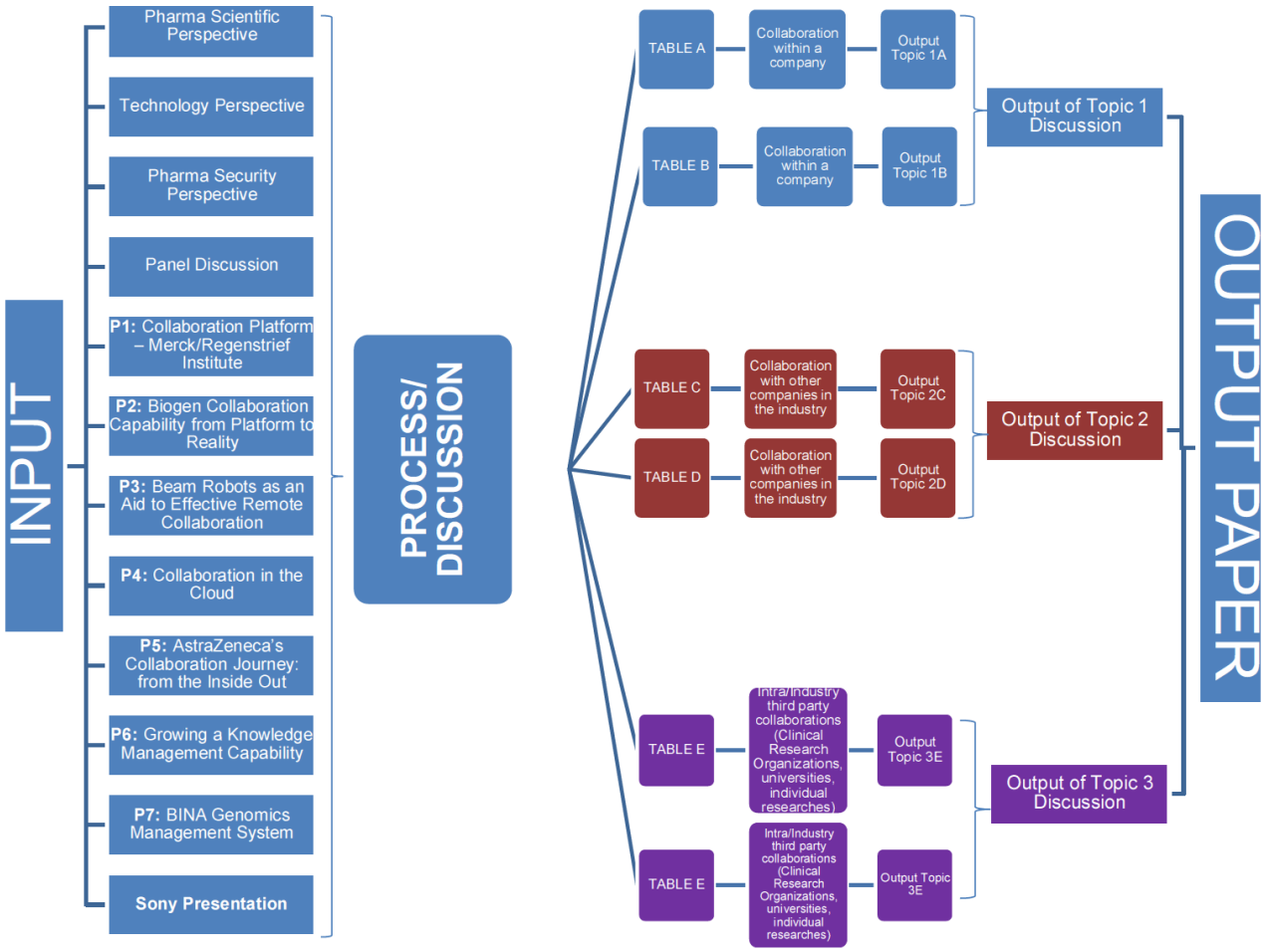
Roundtable Discussion

Objective	**Create a white paper on the learnings and actions from the PRISME Forum Technical Meeting on "Collaboration: Types, Technologies and Content"**
Section 1	Organizing Principles for workgroups; three themes will be discuss as numbered.
Topics	1. **Collaboration within a company** 2. **Collaboration with other companies in the industry** 3. **Intra/Industry third party collaborations (CROs, universities, individual researches)**

Section 2	Joseph Cevetello will introduce the activity and explain how the roundtable discussion will be carried out
	• There will be 6 tables, each with approximately 10 delegates, labeled accordingly:
	  ○ Tables A and B will address Topic 1
	  ○ Tables C and D will address Topic 2
	  ○ Tables E and F will address Topic 3
	• The groups for each of the 6 tables are pre-selected.
	• Each table will have a table captain:
	  ○ Alastair Binnie, Matteo di Tommaso, Olivier Gien, Mike Montello, Susie Stephens, Jason Swift
	• The table captain will appoint a scribe who must be equipped with a tablet or a laptop - for scribing will be performed electronically.
	• The scribe will take notes and enter them into MS Work Space established by Slalom Consulting

Section 3	Each table will reflect on content from the conference as outlined below, discuss and identify key points • Plenary Presentations • Panel Discussion • 7 Poster Sessions • Key Note Address

Section 4	Support will be provided as outlined below:
	• Supporting tools:
	  ○ Office 365; PPI Big Tablet connected to video projector; Input devices for Table Scribes
	• Supporting Personnel:
	  ○ Erin Griffin (Amgen), Joe Cevetello (USC), Trent Johnson & Greg Sincock (Slalom Consulting)



ROUNDTABLE DISTRIBUTION

TABLE A - TOPIC 1

TOPIC 1: Collaboration within a company

Susie Stephens	Pfizer
Martin Erkens	F. Hoffmann-La Roche AG
Steven Frederick	Moderna Therapeutics
Andreas Friese	Bayer HealthCare AG
David Sedlock	Takeda Pharmaceuticals
Rob Albert	AstraZeneca
Narges Bani Asadi	Bina Technologies
Sandra Bush	Amgen
Scott Snyder	Evotec AG

TABLE B - TOPIC 1

Olivier Gien	Sanofi
Ingrid Akerblom	Amgen Inc
Joel Ekstrom	Daiichi-Sankyo
Edward Leong	Shire
Scott Oloff	Boehringer Ingelheim
Andrea Kirby	Merck
Tom Crabbe	UCB
Klaus Hofenbitzer	Celgene

TABLE C - TOPIC 2

TOPIC 2: Collaboration with other companies in the industry

Matteo di Tommaso	Pfizer
Guenther Kurapkat	Merck KGaA
Martin Leach	Biogen Idec
Alex Schuleit	H. Lundbeck A/S
Greg Hamilton	Beam
Angel Pizarro	Amazon Web Services, Inc.
Ashok Upadhyay	HCL Technologies
James Rinaldi	NASA
Brian Ellerman	Sanofi

TABLE D - TOPIC 2

Jason Swift	AstraZeneca
Hall Gregg	Amgen
Thomas Lønborg-Jensen	Novo Nordisk A/S
Jianying Shi	Ipsen
Linda Smart	Allergan
Sharon Barr	Bina Technologies
Margaret Keegan	Quintiles
Spencer Mott	Amgen
Jonathan Usuka	Celgene

TABLE E - TOPIC 3

TOPIC 3: Intra/Industry third party collaborations

Mike Montello	Shire
John Apathy	Celgene Corporation
Dan Chapman	UCB
Tomoyuki Matsunaga	Takeda Pharmaceutical
Jordin Green	Amazon Web Services
Scott Wilkins	AstraZeneca
Patrick Loerch	Merck & Co
James O'Keefe	Paragon Solutions, Inc.
Arun Nayar	Amgen

TABLE F - TOPIC 3

Alastair Binnie	Bristol-Myers Squibb
Dermot BarryWalsh	Merck & Co., Inc.
James McGurnk	Diaachi Sankyo
Nick Wright	AstraZeneca
Preben Klavsen	H. Lundbeck A/S
Frances Grote	Biogen Idec
Sebastien Lefebvre	Biogen Idec
David Ballew	Sony
Yury Rozenman	BT Global Services

NOTES