Making ABRF Yours - Today and Tomorrow

ABRF-NGS Study Completes Phase-I RNA Sequencing - Initiates Phase-II Genomic Sequencing

Adding Clinical Testing to a Research Core Facility

Interviews with New Executive Board Members

Behind the Scenes with the ABRF 2014 Program Committee

The Science of Science: The Sci2 Tool

The Association of Biomolecular Resource Facilities
Editors’ Note

Welcome to another edition of the ABRF newsletter Communications! Our team (Brian Hampton, Paula Turpen and myself) hopes you enjoy this edition. Inside you will learn about what is involved with clinical DNA testing, what is “six sigma” and “Kanban”, interviews with outgoing EB members and a note from our president. Think something is missing from this edition? Have a great method or technique you want to share? Well, we welcome additions for the next newsletter as we all know learning from and sharing with other ABRF members is what makes this society special.

We also want to say a heartfelt goodbye to our last Editor in Chief Michelle Detwiler. Michelle will certainly be missed from these pages and the newsletter would certainly not exist without her valuable contributions.

Thanks again, & please do not hesitate to contact us with any thoughts, ideas, or possible improvements for future issues.

Brett Phinney
Proteomics Core Facility
UC Davis Genome Center

Brian Hampton
Protein Analysis Laboratory
University of Maryland School of Medicine

Paula Turpen
Director, Research Resources
University of Nebraska Medical Center

The ABRF – Who We Are

The Association of Biomolecular Resource Facilities is a unique membership association comprising over 700 members working within or in the support of resource and research biotechnology laboratories. Our members represent over 340 laboratories and administrative offices in government, academia, research, industry and commercial settings, and are involved in a broad spectrum of biomolecular technologies.
Message from the President - Spring 2014
by David B. Friedman
ABRF President

Happy 25th, ABRF! That’s right, this year marks the 25th anniversary of our incorporation as an association back in 1989, and we’ll be celebrating during our 2014 annual meeting in Albuquerque, NM over March 22-25. Coming off of a wonderful ABRF 2013 Annual Meeting in Palm Springs last year, ABRF has been buzzing along in yet another very active year for our association. There is more to ABRF than just the annual conferences, but let me start with these wonderful meccas of core science, core administration practices and networking.

Once again the ABRF annual conferences have been voted the top technology/instrumentation meeting in the latest GenomeWeb survey of best conferences! As of this writing, numerous people and activities (detailed below) are in high gear preparing for this year’s exciting meeting coming up over March 22-25, 2014 in Albuquerque, NM. With the theme of “Team Science and Big Data: Cores at the Frontier”, this year’s program committee has assembled another outstanding and diverse program that will be of interest to attendees both domestic and international, and in high gear in yet another very active year for our association. There is more to ABRF than just the annual conferences, but let me start with these wonderful meccas of core science, core administration practices and networking.

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Despite all of the effort and activity that goes into our conference each year, there is also plenty going on year-round to keep ABRF members informed and active. For example, over 15% of our members are involved in one of our seven Research Group (RG) studies each year, the planning and execution of which occurs throughout the year, and typically culminates with results presented at the annual meeting. These RG studies are in many ways the heart and soul of the ABRF, and it is through them that many scientists find their way to ABRF. You will find many of these studies presented and discussed during our annual meeting and/or detailed in the Research Group section of the www.abrf.org website, as well as in published form in journals ranging from our own Journal of Biomolecular Techniques, to technical journals such as Proteomics, Nature Biotechnology, and Molecular and Cellular Proteomics. A similar percentage of our members are also involved in one of the 15 active ABRF committees. These include important year-round ABRF activities from the membership, education and chapters/affiliate committees, several award, sponsorship and corporate-related committees, as well as constant update and improvements to our website infrastructure by our website committee. All are fueled and executed by our many wonderful volunteer ABRF members.

This past year saw regional meetings put on by each of the five domestic ABRF chapters. In June, both the Mid-Atlantic Association of Directors and Staff of Scientific Cores (MAD SSC) and the South Eastern Association of Shared Resources (SEASB) had their regional meetings in Frederick, MD and Athens, GA, respectively. The Western Associations of Core Directors (WACD) had their meeting in Los Angeles, CA in September, followed by the Midwest Associations of Core Directors (MACD) meeting in Madison, WI in October. The regional meetings were capped off in November with the North Eastern Life Sciences Regional Core Directors (NERLSCD) held in New York City, NY. Our other chapter (the Centre for Cellular and Molecular Platforms in Bangalore, India) and affiliates (the Canadian Cytometry and Microscopy Association and the MidSouth Computational Biology and Bioinformatics Society) remained strong as well in 2013.

Planning for these meetings is no small task, and it truly takes a village, with the brunt of the effort taken on by the wonderful ABRF members who volunteer their time along with our professional meeting management company, Courtesy Associates. This year the Program Committee is being chaired by Phil Hockberger from Northwestern, and Phil is joined by Susan Meyn (Vanderbilt), Allis Chien (Stanford), Brett Phinney (UC Davis and EB Treasurers) and Tim Hunter (Univ. Vermont). They have worked tirelessly all year and have some wonderful plans and programs to offer for the 2014 meeting. If you want some unique insight into what goes on behind the scenes of putting one of these meetings together, I encourage you to read Allis Chien’s article in this issue of the Communications Newsletter.

Over the past few years, the Executive Board (EB) has been able to bring a new level of consistency and institutional memory to the organization and program committees for our annual meetings. We’ve done this in part by overtaking the roles and responsibilities for all of the planners and organizers, and also significantly by having the EB liaison for the meeting not only play an equal role in the organization process, but also filling that role for multiple years. Having been the liaison and co-organizer myself for both the 2011 (San Antonio) and 2012 (Orlando) meetings, the EB quickly realized the value of a multi-year term, and now Tim Hunter has followed suit, being the liaison and co-organizer for both the 2013 team for Palm Springs and the upcoming 2014 meeting in Albuquerque. This multi-year practice has brought a new level of efficiency in putting these productions together each year, as well as provided an improved experience at the annual meetings for our attendees and exhibitors. The exit-survey comments have definitely noted improvements over recent years!

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“Our association thrives on the involvement and engagement of our members, and we would not exist without the energy you bring to the ABRF.”

I had the pleasure to attend each of our domestic chapter meetings in 2013. This was a result of a joint effort between the Chapters and the EB to enable the same “ABRF Ambassador” to provide consistent messaging for member and exhibitor outreach (beyond the fantastic efforts that each Chapter achieves independently). This also enabled more direct interactions between the EB and the Chapter leaders, and culminated in the ABRF EB inviting the Chapter officers to our face-to-face board meeting at the FASEB office in Bethesda, MD last October, where we engaged in strategic planning together. A direct result of this meeting is the newly formed Chapters and Affiliates Advisory Board (CAAB) comprised of the chapter and EB boards, with a main focus on continued growth and communication, including coordination of activities, branding, membership and sponsorship across the chapters and main ABRF meetings as we move together into a new era for ABRF.

The strategic planning with the Chapters was essential, but due to time constraints it was just a taste of what the EB achieved last March at our face-to-face board meeting during the 2013 Palm Springs meeting. I am proud to say that we now have a 5-year strategic plan to help guide the activities and decisions of the EB, and ensure that they are aligned with the ABRF mission of “advancing core and research biotechnology laboratories through research, communication, and education.” Major areas that have already benefited from the strategic planning process include:

• Restructuring the way we organize putting on the annual meeting. We’ve re-written the guidelines for what the EB does and defined clear lines of communication and included roles with institutional memory, to provide an overall more efficient and productive process.

• Continuing and adjusting the roadmap for website infrastructure. Many will hopefully notice the new conference website and abstract management system that we launched for the 2014 meeting in Albuquerque. There have also been several meetings with Jay Ford and Matt Bland, all of whom have been key to the new conference infrastructure. The regional meetings were capped off in November with the North Eastern Life Sciences Regional Core Directors (NERLSCD) held in New York City, NY. Our other chapter (the Centre for Cellular and Molecular Platforms in Bangalore, India) and affiliates (the Canadian Cytometry and Microscopy Association and the MidSouth Computational Biology and Bioinformatics Society) remained strong as well in 2013.

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• Continuing and adjusting the roadmap for website infrastructure. Many will hopefully notice the new conference website and abstract management system that we launched for the 2014 meeting in Albuquerque. There have also been several meetings with Jay Ford and Matt Bland, all of whom have been key to the new conference infrastructure. These were all designed, built and implemented by Brian Hampton, chair of the Web committee, and they will hopefully be used as templates for the chapter meetings moving forward.

• Forging new partnerships with other associations and corporate entities. New and continuing partnerships are forming with the International Society for Advancement of Cytometry and with the Protein Society to coordinate cross-participation of workshops and tutorials, and exchange of membership information. International efforts have also been underway, including involvement with the Core Management Workshop II in Fara, Portugal, and interactions with the Core Technologies for Life Sciences group in Europe. Discussions are also underway with one of our corporate partners for generating on-line content, such as ABRF educational workshops and informative webinars.

• Membership Committee activities. A new emphasis has been placed on recruitment and retention of our membership. Although we compare favorably with other societies, our membership numbers have remained fairly steady for many years. We
have had about 73% retention each year for the past several years with attrition essentially being replaced with new recruits each year. But we can and should still reach farther -- there are more scientists out there who would benefit from ABRF but just don't know about us. Plans are underway to overhaul the membership value proposition, and have started with an initial membership survey that was sent out at the end of October, 2013.

And while I’m on the subject of membership, here’s a special shout-out for Ron Niece, who has once again stepped in to chair the ABRF membership committee for 2013. For those of you who don’t know, Ron is one of the founding members of ABRF 25 years ago, along with Ron Atherton, Ken Williams, Audree Fowler, Alan Smith, and Rusty Kutner! Both Audree and Ron will be in attendance at the 2014 Albuquerque meeting, and maybe others, too. Look for a nice recognition and recollection of our 25 wonderful years prior to the members meeting at the 2014 Albuquerque meeting.

I mentioned last year how ABRF benefits from being a member society of the Federation of American Societies for Experimental Biology (FASEB), particularly as a way we stay connected with science policy in the United States and related societies worldwide. Especially this past year with the fiscal crisis looming and negative effect that ended up having on NIH and related funding, Jay Fox (who sits on the FASEB Science Policy board) and I participated in FASEB’s Capitol Hill day last March to lobby with our respective state representatives. Although mostly relevant to our American members, issues such as these affect the entire scientific research enterprise and are particular germane to the ABRF membership.

In addition to being a FASEB member society, we have also contracted our business office support with FASEB for many years. This past year the EB decided to expand those services to now include an Executive Director (ED), and we have recently welcomed Crystal Davis into this position last November. We expect that the ED position will provide ABRF with institutional memory that will transcend the 4-year cycle of the EB terms, as well as focus on critical aspects of ABRF operations while freeing the EB members to concentrate on governing and working on many of the new initiatives that came out of our strategic planning last March. Although this transition meant that we had to say goodbye to our long-time FASEB business office manager, Lisa Hetherington, I am happy to report that Lisa has now been promoted at FASEB to oversee other societies as an Executive Director. She will hopefully be joining us at the Albuquerque meeting to say goodbye, so if you’re coming to the meeting, stop by the ABRF booth to see both Lisa and Crystal!

This is my last message as ABRF President, as my term on the Executive Board will end after the Albuquerque meeting. Joining me in departure will be Tom Neubert, a long-time colleague whom I have had the pleasure of also serving the ABRF with for the past four years. Replacing us will be Frances Weiss-Garcia and Christopher Colangelo - be sure to read all about them in their interviews in this issue of Communications. I also wanted to mention that we had extraordinary voter turnout for our EB elections last December, by far the highest we’ve seen in almost 10 years! It is encouraging to see such engagement and support from the membership. If that is any indication, we are truly in for another wonderful year.

I’ve seen a lot happen at ABRF over the past four years, and there is a lot more in the works. We’ve set many things in motion and ABRF continues to be on a roll. I will close this letter in the same way I did last year, with a reminder that our association thrives on the involvement and engagement of our members, and we would not exist without the continued interest, expertise and energy you bring to the ABRF. Your membership helps to support and communicate our great RG studies, and makes you a part of our wonderful community of education, information-sharing and networking -- it’s all here at ABRF. Only together can our association continue to grow and provide the tools and education necessary to help scientists and administrators continue to succeed in the core facility research environment. If you aren’t one already, there’s no time like the present to become a member!

To a prosperous and productive 2014 for us all,

David B. Friedman, Ph.D.
President, Association of Biomolecular Resource Facilities

Interviews with new EB Members
by Paula Turpen

In keeping with tradition while not filling Seth Crosby’s shoes or stepping on his toes, I asked our newly-elected EB members to tell us a bit about themselves. This year both are from the Northeast, Connecticut and New York. (Actually, I notice that all EB candidates this year were from the eastern seaboard, perhaps an attempt to balance out the Midwestern influence added last year!)

Includes family activities such as hiking and golfing. The past couple of years, I have taken up long distance running and completed my first Marathon in 2013.

What are your ideas for the future of ABRF?

The recent push at ABRF annual meetings has been to focus the sessions on either high-level scientific research or core laboratory administration. While very successful at bringing in new attendees and discussing current issues, the annual meetings could benefit from more content directed at young professional and students. These efforts will hopefully boost attendance and engagement of laboratory staff at annual meetings, as well as ensure the development of the next generation of scientists.

I joined the Yale Keck Biotechnology Resource in February 2003 in efforts to expand the growing demand for Proteomics at Yale.

What do you do when you are not working?

I aim to spend as much of my free time as possible with my wife and two daughters (ages 9 and 7). This includes family activities such as hiking and golfing. The past couple of years, I have taken up long distance running and completed my first Marathon in 2013.

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at the time how valuable this experience would be for the director of a monoclonal antibody core facility.

How did you come to be involved with cores?

The transition from running my own research program to running a core facility that supports the research conducted by others was more accidental than anything else. During the second year of my post-doc a change in my personal life required me to consider other career options. So I let people know I needed to change my trajectory, learn about different career options (some they may have considered themselves) and asked them to let me know of any positions that seemed like a good match. The lead that panned out came from my thesis mentor. The day after I asked him to be on the look-out for alternate career possibilities, he heard, during a casual conversation with the director of Sloan Kettering Institute, that a manager was being sought for the relatively new Monoclonal Antibody Core Facility. After spending so many years working towards a traditional faculty position, I was concerned that I was settling. Thankfully within the first year of working in the antibody core I was comfortable with the change. I have always enjoyed working on team projects so working with various labs on their projects came pretty naturally. After 15+ years working in a support facility, I must say I am much more satisfied than I anticipated and so happy this has become a viable career option for so many.

What do you do when you are not working?

Life outside of work is definitely not boring and almost exclusively centered around family. I am married and we have 2 teenager kids. One just got his junior driver’s license so I have gained a chauffeur and had a heart attack all at once. Thankfully, my husband’s work day ends relatively early so he can handle most of the shuttling from one activity to another while I handle the much later picks. I am pretty involved in our church as well, teaching religious education once a week, organizing the readers at mass and right now working with my daughter, the other teenager, on a fundraiser. Oh, and let me not forget my stepdaughter, her husband and their 2 kids. They live close by so I get to play grandma too, especially when their mom needs a break!

What are your ideas for the future of ABRF?

The future of ABRF is bright. How bright depends on us, the ABRF membership. One way to make it brighter is to grow the membership so more people benefit and we have a stronger collective voice. There are many ways to do this. One is to expand the breadth of expertise within ABRF to better represent the shared resources across our institutions. Another is to reach out to our peers who are not members or are lapsed members and see what activities they would benefit from in a professional association, and then implement those identified by a majority. A third way, is to capitalize on the diverse nature of the ABRF membership. Institutions and core facilities are charged with advancing science, yet each player faces its own challenges. Given that ABRF is comprised of administrators, core facility scientists, and researchers we are in a great position to address these challenges together, talk about them and propose, if not initiate, constructive approaches. Shared scientific resources within ABRF have the added advantage of being within an association that supports research studies. Cross-Research Group studies could promote scientific advancement by developing and/or evaluating hybrid technologies because we have the expertise. So much is possible. Amongst us there are so many amazing ideas! We can achieve great things if we all work together. All we have to do is work together to achieve them and not wait for someone else to do it.

The Science of Science: The Sci2 Tool

“The Science of Science (Sci2) Tool (http://cns.iu.indiana.edu) is a modular toolset specifically designed for the study of science. It supports the temporal, geospatial, topical, and network analysis and visualization of datasets at the micro (individual), meso (local), and macro (global) levels. Users of the toolset can: Access science datasets online or load their own, perform different types of analysis with the most effective algorithms available, use different visualizations to interactively explore and understand specific datasets, share datasets and algorithms across scientific boundaries.”

“The Sci2 Tool is built on the CyberInfrastructure Shell (CiSHell) (CyberInfrastructure for Network Science Center, 2008), an open source software framework for the easy integration and utilization of datasets, algorithms, tools, and computing resources. CiSHell is based on the OSGi R4 Specification and Equinox implementation (OSGi-Alliance, 2008).” This excerpt and the image from “Mendelson’s Evolving Network of Expertise and Knowledge” is courtesy of Michael Ginda. continued on page 34

ABRF 2014 - A View from Inside the Program Committee by Allis Chin

I’ve been an ABRF member since 2000, and have attended the annual meeting for most of those years. I’ve always enjoyed and benefited from the unique blend of science, practicality, and camaraderie that so characterizes ABRF. But it wasn’t until I was asked to join the Program Committee for the upcoming ABRF Annual Meeting in Albuquerque, NM next March that I started to gain a true appreciation for the creative process and massive team effort that goes on behind the scenes to produce such a magnificent meeting each year. The Program Committee is tasked with organizing the meeting program, and does so with a passion, countless others also contribute blood and tears, including the Executive Board, many ABRF Committees and Research Groups, individual Session Organizers, and perhaps most of all, the ABRF President.

ABRF Team Science in Action-The theme for the ABRF 2014 meeting is “Team Science and Big Data: Cores at the Frontier.” Since core labs are, by definition, doing team science, this seemed a natural fit for ABRF and an area in which cores can lead the way, being living embodiments of collaborative science. Similarly, cores are at the front line in dealing with large data sets, and this experience uniquely positions the ABRF to lead efforts not only to optimize and standardize the generation of these large data sets, but also to facilitate solutions for data analyses, management and utilization. The meeting will bring together leaders in these emerging disciplines to address the role that cores are playing in the information revolution. The meeting itself is a team event of sorts, and Facility Directors and Managers, Staff Scientists, Administrators, Government Sponsors and Industrial Partners will all convene to present their latest research results, technologies, programs and products aimed at facilitating Team Science and Big Data initiatives. In addition to specific technologies of interest, meeting attendees will have opportunities to learn about recent Team Science and Big Data advances as well as funding opportunities aimed at addressing these challenges.

We are building on the four track model for the meeting that worked so wonderfully last year in Palm Springs, with a separate track of sessions each for Genomics, Proteomics, Imaging and Administration. Each track is solidifying a fantastic lineup -- not just of big name speakers, though these are in abundance -- but timely topics that address the here-and-now as well as the up-and-coming. Breaking news as of this writing is that Leigh Anderson, the father of the Stable Isotope Standard Capture with Anti-Peptide Antibodies (SIDCAPA) method, will be joining us for a session on SIDCAPA organized by the Antibody Research Group headed by Frances Weiss-Garcia. In the spirit of the Big Data and Team Science theme, other sessions feature multi-omics (genomics, proteomics, metabolomics), high-throughput imaging and the resulting big data challenges, and extracting big data from miniscule samples. Like last year, the Administrative track is check full of sessions that will be of interest not only to administrators, but also to core directors and those who play a dual role as both administrators and scientists. While some “pull” between parallel sessions is inevitable, the PC is acutely aware of the multiple job roles of many ABRF meeting attendees, and is scheduling some of the admin topics with wide appeal as

Continued on page 12
Communications

February 2014

12

stand-alone sessions so that all can attend without missing out on a technology session.

We’ve invited three exciting speakers for our plenary sessions: Peggy J. Farnham, PhD (ENCODEx Project), Peter Friedl, MD, PhD (Imaging - Tumor Niches) and Albert Heck, Phd (Proteomics - Enabling Technologies). Philip Bourne, PhD, who was recently named Associate Director of Data Sciences at NIH will deliver the keynote lecture “Bio-medical Research as Part of the Digital Enterprise.” We will also be providing the types of sessions that our attendees have consistently enjoyed over the years, including nuts-and-bolts workshops and roundtables, and sessions related to government grants and funding issues (organized by our NIH Ambassador-in-chief and past ABRF president, Mark Lively).

The Program Committee Rocks—As mentioned at the beginning, these meetings don’t come about by magic, and being a part of this creative and energetic Program Committee has been a wonderful and eye-opening experience. While I had certainly been aware of this cast of characters by name, getting to know them personally and working with them has been and continues to be a privilege and a pleasure.

Brett Phinney, the EB Treasurer, is the only one I knew well, being in the same field (proteomics) and the same geographic area (Northern California). Having his input and expertise for the proteomics track was extremely beneficial—ana-

Phil Hockberger, our fearless leader and PC Chair, I can say is that if Phil calls you up with some idea (some of our best ideas/hot topics come from our Far From Home Roundtables), develop a productive team; one facet how I ended up on the PC). Phil is articulate, persistent, and amazingly persuasive in the most pleasant and positive of ways. In Evanston (see below), we got to meet Phil the Renaissance man -- scientist, administrator, tour guide, philosopher, and patron of the arts.

Though he is not an official member of the Program Committee, we also rely on ABRF President David Friedman. David was the EB liaison for the meeting organizers for the two years prior before becoming the ABRF President, and is easily accessible for advice and additional institutional memory when needed.

Phil was extremely generous to invite and host us in Evanston, Susan, and me at the Science of Team Science (SciTS) Conference at Northwestern University in June. Being used to hard science and technology conferences, it was a bit of a fish-out-of-water experience for me and other first-time attendees, until we realized that we (scientists) were, in essence, the conference presenters’ ‘lab rats!’ Their research was the study of scientists, and the way we interact and work together (or not, depending on how you view the interplay of computing and scientific research). We spent most of our time trying to develop a rapport, develop trust, and gel into a productive team; one facet how I ended up on the PC. Phil is articulate, persistent, and amazingly persuasive in the most pleasant and positive of ways. In Evanston (see below), we got to meet Phil the Renaissance man -- scientist, administrator, tour guide, philosopher, and patron of the arts.

During the initial calls, we discussed potential themes, and developed the catchphrase for the selected theme of Team Science and Big Data. We scheduled the keynote and plenaries at the beginning of the program, with an eye to balance and coherence. The remaining sessions were on select Team Science topics, to the ABRF community at the 2014 meeting.

Equally as important as the conference topics, I find even more so, was the opportunity for the PC to meet face-to-face and interact over the several days of the SciTS Conference. One of the findings presented at the conference was that it could take months to years for researchers at dispersed geographical locations to build rapport and establish collaborations. The idea of a productive team that could reduce this “gelling” time was in-person meetings. This certainly held true for us; the face-to-face time enabled us to rapidly get to know each other, our communication styles and strengths, and find our niches as members of a team.

Last year, the Executive Board overhauled the roles and responsibilities for the annual meeting to enable us to concentrate on providing a top-level, high-impact program to our members and other meeting attendees. To reflect this change, we are now called the Program Committee rather than the Organizing Committee. Many thanks to those who have taken up the meeting organization responsibilities! The PC has weekly conference calls, often joint with members of our Meeting Management team from Courtesy Associates. In the midst of their busy schedules, each member of the team goes to great lengths to participate in the calls, whether dialing in from the lab, car (complete with rambunctious kids in the back seat), or office (sometimes with competing construction noise in the background). The calls are only an hour long with much ground to cover, so there’s not much time for chitchat — another reason why the time together in Evanston was so valuable.

The site visit group also got to tour potential offsite venues for the 23rd anniversary closing social. I hope to see you all there!

We are excited to introduce the Sci2 tool, along with select Team Science topics, to the ABRF community at the 2014 meeting.

One outstanding workshop introduced a toolkit for the analysis and visualization of large-scale data sets, called Sci2 (<http://sci2.cs.nmsu.edu>). The Sci2 tool is powerful, yet easy enough to use that in about 30 minutes, I was able to generate a geospa-

Phil Hockberger

Tim Hunter

Susan Meyn

Brett Phinney

line and R Statistical Computing Software, SW3 - Next Generation Sequencing (NGS) Data Analysis Flip Camp, and SW4 - Introduction to Image Processing and Analysis.

A Southwestern Venue—Back in 2011, the Executive Board actually held their face-to-face board meeting in Albuquerque at our meeting hotel and toured the Convention Center at that time, as a way to bring an overall more hands-on and informative approach to the process of selecting future site locations. Albuquerque promises to be a wonderful venue for our meeting attendees -- small enough to be friendly and convenient, and big enough to be sophisticated and impressive. Both hotels are in close proximity to the Convention Center, break-out sessions are directly across from the Exibition Hall, and there are plenty of superb restaurants close by or just up the street in Old Town Albuquerque. While the end of March is still snowly winter in many places, Albuquerque is generally clear, sunny and dry, with daytime temperatures in the sixties.

At the beginning of this summer, Phil and Tim went out to Albuquerque along with our Meeting Management personnel to scope out the site first hand, paying particular attention to the meeting space, hotel and surrounding areas. They returned with glowing reports about the city, venue, hotels, and especially the food and overall affordability of the location. The proximity to Santa Fe and the convenience of being only an hour’s train ride away offered the possibility of independent visits there before or after the meeting. The site visit group also got to tour potential offsite venues for the 23rd anniversary closing social. I hope to see you all there!
Making ABRF Yours - Today and Tomorrow

by The 2013-2014 Membership Committee: Frances Weis-Garcia, David Friedman, George GriFFs, Ronald Niece, Elke Kuster-Schock, Claire Reardon, Margaret Robertson, Aaron Sin, William Hendrickson

The ABRF Membership Committee conducted a survey in the Fall of 2013 to seek a clearer picture of us (i.e., ABRF members), how we are engaged and what we value most about the ABRF on an individual level. The results of this survey can be used as a springboard for discussions on how we would like our association to evolve. But let’s first listen to what we had to say about ourselves.

The membership survey began with the simple question, “How likely are you to encourage your colleagues to join the ABRF?” Members could answer by a rating scale and a comments box. Of the 611 members polled, 40% responded to this first question and 30% completed the entire survey. This great response rate clearly indicates that we are not a quiet group! On a scale of 1 to 5, where 1 is “highly likely” and 5 is “not likely”, the average response was slightly less than 2. As can be seen in Figure 1, 93% of respondents indicated that they would encourage their colleagues to join the ABRF. When the responses to this question were parsed out by different membership categories (e.g., by years with the ABRF), there were no substantial differences in the results. The survey results show that we view our association in a very favorable light. Moreover, we believe that our peers would benefit from what the ABRF offers.

We, the ABRF membership, were also asked to rate the value (benefit) to ourselves individually, of a range of ABRF activities. These responses were on a scale of 1 (“most valuable to me”) to 4 (“not valuable to me”). Networking with each other and participation in the annual meetings were both rated as having the greatest personal value to us, each scoring 1.0 to 1.5. Participation in ABRF Research Groups (RG) and Committees, participation in RG studies, and participation in ABRF online discussion forums were also all rated highly in regards to personal benefit, each scoring 1.5 to 2.0.

Open comment fields were included in the survey to allow responders to provide “non-cookie cutter” opinions on how they personally benefit from being ABRF members. The responses indicate that we find that the major benefit provided by the ABRF is that it enables us to network with our peers to discuss best practices, to identify common challenges, and to evaluate new advancements in our fields of interest. The responses also show that learning how each of us manages our cores is a major interest of ABRF members. Moreover, responses showed that participants in the ABRF annual and regional meetings, discussion forums, and research groups and committees, find these endeavors very worthwhile. Given the broad spectrum of core facilities, it was not surprising that the survey results indicate that the existing RGs do not cover all the fields of interest of all the members. Thus, there appears to be a need to expand the range of technologies covered by RGs. This is in process, as evidenced by the formation of new RGs, such as the Flow Cytometry Research Group (FCRG) and the Biomedical Omics Research Group (the BORG!). Another potential area of future growth for the ABRF is “Omics Research Group (the BORG!). Another potential area of future growth for the ABRF is “O

This survey gathered information not only on our demographics, but also on why we think that the ABRF is a valuable association in which to be a member. The survey results help us know who we are and what we find valuable. Moreover, the results can be used as a springboard to discuss who potential area of future growth, and how can we be suggested by many respondents is expansion of ABRF educational efforts through more webinars and workshops.

When the ABRF was founded 25 years ago, our members were overwhelmingly focused on proteins (what would eventually be called proteomics) and, to a much lesser degree at that time, on genomics. These areas of expertise continue to be well represented (Figure 2). A total of 38% of respondents self-identified their field of interest as proteomics; 44% of these respondents have been ABRF members for more than 10 years. As evidence that the ABRF successfully expanded over the past 25 years to respond to the evolution and then revolution in genomics technologies, another 38% of current respondents selected genomics as their field of interest.

A total of 23% of respondents listed administration as their field of expertise. Not surprisingly, almost all of these respondents have been ABRF members for just the past 1-5 years, which is the period in which the ABRF started to focus on actively engaging institution-wide administrators of core facilities. Administrators now represent the largest growing sector of our membership. This has driven the creation of an additional parallel track, focused on core facility administration, at the annual ABRF meeting. Our community has also grown with respect to the technologies we span. Survey respondents included experts in light microscopy (13%), flow cytometry (9%), and antibody development (6%). Reflecting the institutional affiliation of the membership of the ABRF as a whole, the majority of survey respondents work in an academic versus corporate environment, by a ratio of 9 to 1, respectively.

If we look at ourselves based on years with the association (Figure 3), the survey results indicate that we are a vibrant community, with a solid core of long-term members (48% of respondents) who have been with the ABRF for 6 years to over 10 years, and with a "newer crowd" of members who have been with the ABRF for a period of less than 1 year to up to 5 years (52% of respondents). This distribution suggests a long-standing and continuing need for a professional organization like ours, focused on core facilities and shared resource centers.

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Making ABRF Yours - Today and Tomorrow

A round table discussion focused on strengthening the benefits of ABRF membership, Monday, March 23rd, 7:30-8:30 pm

If you cannot attend this discussion session, please note that ABRF Membership Committee members will be available to talk to at the FASEB / ABRF booth in the center of the exhibit hall. You can also e-mail any of the committee members. We are looking forward to hearing your thoughts on how we can all make an even better ABRF!

Fields of Interest of ABRF Members

Respondents could select multiple fields of interest

How many years have you been an ABRF Member?

< 1 year 16% 1-5 years 38% 6-10 years 29% > 10 years 26%
I Get by With a Little Help From My ABRF Friends: Adding Clinical Testing to a Research Core

by Kevin Knudtson

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ike many core facilities, the University of Iowa DNA Facility has undergone many changes over the years with regard to the instrumentation it houses and the services it supports and provides. These changes are exciting as it gives us new toys to play with and an opportunity to work with gifted researchers who are doing cutting-edge science. My association with the ABRF has been extremely beneficial in helping me adopt and implement new technologies into my core.

Recently, an entirely new and unexpected set of challenges were presented to my core as we were asked to modify our genome sequencing operation to become CLIA (Clinical Laboratory Improvement Amendments) certified to provide next generation sequencing (NGS)-based clinical testing. Again, my association with the ABRF helped me and my lab successfully navigate this challenge.

In the Winter of 2011, I was approached by Dr. Richard Smith, Professor in the Department of Otolaryngology and Director of the Molecular Otolaryngology and Renal Research Laboratories who had been tasked with setting up a personalized medicine initiative at the University of Iowa, to provide clinical genetic testing at the DNA Facility. The proposed clinical tests to be performed at the DNA Facility included whole exome sequencing (WES) and custom targeted disease panels using NGS platforms, and pharmacogenetics (PGx) testing using real-time PCR platforms.

Dr. Smith explained that the DNA Facility would be a “pass-through” lab for these clinical tests in which the core would only run tests on de-identified samples and would not be involved in sample collection and data interpretation. Essentially, someone else would handle the headaches of receiving and managing patient samples and providing results.

In August 2012, this personalized medicine initiative led by Dr. Smith formally became the Iowa Institute of Human Genetics (IHIG) (http://www.medicine.uiowa.edu/human_genetics/). The DNA Facility was renamed the IIHG Clinical Diagnostics Services, directed by Carla Nishimura to take the necessary steps to become CLIA compliant using the CAP 2012 molecular pathology guidelines. I found it invaluable to be able to reach out to my ABRF colleagues when I had questions about meeting these guidelines with respect to the PGx assay for clopidogrel (Plavix*) metabolism and WES tests we were developing.

The IIHG Genomics Division was inspected in November 2013 and was informed in January 2014 that we are now a fully accredited clinical laboratory. The successful conversion of my research core to provide clinical testing was a team effort that included a little help from my ABRF friends.

In February 2013, the Genomics Division received its CLIA Certificate of Registration to provide clinical tests. The Certificate of Registration is akin to getting a driving learner’s permit in that the lab is able to perform tests but the lab is not fully accredited until it passes inspection or driving test. While operating under the Certificate of Registration, it is incumbent upon the lab to become compliant with the inspecting agency’s guidelines for providing clinical tests.

One of the first steps I took to “becoming clinical” was have our operation inspected by the hospital clinical testing compliance officer, Chris James, to determine where we were at and what we needed to fix. Chris began looking around the lab and pointed out potential violations that we would need to address. As an example we needed to have expiration dates on all our reagents used in the clinical workflows, including water.

I was pleased to learn that the records we had been keeping on our instrumentation were well within the guidelines and was feeling really good about bringing in clinical testing to the lab. Then we went over to the clinical pathology lab and I was floored by the amount of documentation they maintain for sample validation, personnel proficiency, lab safety, protocols, etc. they maintain for their tests.

At this point my view on adding clinical services changed from excitement to “What in the hell have I gotten myself into?” My lab group was not happy either. It was a very quiet walk back from the pathology lab and I did not know if my team would speak to me again. It was clear that adding clinical testing was going to be a much bigger task than we first thought. My lab was clearly not prepared to take this on.

The timing of the ABRF 2013 meeting in Palm Springs could not have been better. Lisa White, Baylor College of Medicine, organized a session entitled “The challenges and successes of establishing CLIA certification for Modern genomics technologies”. While the session was not quite orgasmic, I did leave the session with a newfound sense of confidence that we can do this.

Later that evening during some pool side conversations, while enjoying various adult beverages, with Lisa, Seth Crosby, Director of Partnerships and Alliances in the Department of Genetics at Washington University, Nick Ambulos, University of Maryland School of Medicine, and Donna Muzny, Baylor College of Medicine I received some great advice on the interpretation and how to successfully comply with some of the guidelines.

While at the Palm Springs meeting I also learned that George Grills, Cornell University and EB member, was recruiting for and organizing a new research group that would focus on being a resource for core lab directors interested in, or in the process of, converting or expanding academic core facility resources into clinical diagnostic resources. The Biomedical Omics Research Group was formed and the members include: Lisa White (Chair), Seth Crosby, Nick Ambulos, Katia Sol Church (AI duPont Hospital for Children), George Grills (EB liaison), and myself. We are BORG!

Over the summer, my lab worked closely with the IIHG Clinical Diagnostics Services, directed by Carla Nishimura to take the necessary steps to become CLIA compliant using the CAP 2012 molecular pathology guidelines. I found it invaluable to be able to reach out to my ABRF colleagues when I had questions about meeting these guidelines with respect to the PGx assay for clopidogrel (Plavix*) metabolism and WES tests we were developing.

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The ABRF-NGS Study Completes Phase I on RNA Sequencing and Initiates Phase II on Genomic Sequencing

by Scott Tighe, Don Baldwin, Charles Nicolet, George Grills, Christopher Mason, and the ABRF-NGS Consortium

As the result of the highly cooperative work among members of multiple ABRF Research Groups (RGs), the results of the first phase of the ABRF Next Generation Sequencing (ABRF-NGS) Study was recently submitted for publication in Nature Biotechnology. Titled “Multi-platform and Cross-methodological Reproducibility of Transcriptome Profiling by RNA-seq in the ABRF Next-Generation Sequencing Study,” the manuscript described the results of RNA reference standards and synthetic RNA spike-in in controls analyzed on the Illumina HiSeq 2000/2500 and MiSeq, Roche 454 GS FLX+, Life Technologies Ion Torrent PGM and Proton, and Pacific Biosciences RS platforms. The study assessed sequencing accuracy (basecall and relative expression levels, RNA splice junction detection, and differential expression detection between samples. A wide range of variables were tested, including input amount, alternate library preparation methods, specific size fractionation, and performance on degraded RNA.

The goals of the ABRF-NGS Study are to evaluate the performance of all commercially available NGS platforms and to identify optimal methods and best practices across sites. The study is not intended to be a “bake-off” but rather is an effort to establish a reference dataset for each platform, to help users of high-throughput sequencing technologies improve accuracy, absolute and relative expression levels, RNA splice junction detection, and differential expression detection between samples. A wide range of variables were tested, including input amount, alternate library preparation methods, specific size fractionation, and performance on degraded RNA.

The ABRF-NGS Study is a coordinated effort of multiple ABRF Research Groups, involving over 20 core facility laboratories. The study is a collaboration between the members of the DNA Sequencing Research Group (DSRG), Genomics Research Group (GRG), Nucleic Acid Research Group (NARG), and the Genomics Bioinformatics Research Group (GBIRG). The ABRF-NGS leadership group consists of scientific leads, project coordinators, and the chairs of the RGs that are involved in the study. Platform working groups focus on instrument-specific protocols and generate data at core laboratory sites. A bioinformatics/bio-IT working group is focused on analytical tools and approaches and on building a web-based community database resource. The membership of these working groups is expected to expand as the study evolves.

The ever newly emerging results of the ABRF-NGS Phase I Study were presented at the Advances in Genome Biology and Technology (AGBT) meeting in February 2013, the ABRF 2013 meeting in March 2013, the Cold Spring Harbor Laboratory (CSHL) Biology of Genomes meeting in May 2013, and the NIST Genomes in a Bottle meeting in August 2013. The results have also been accepted and will be presented at the American Society for Human Genetics (ASHG) meeting that will be held in October 2013, and as a podium presentation during a shared plenary session between the RNA-Seq and Transcriptome Analysis / Genome Informatics meetings that will be held in December 2013, in Lisbon, Portugal. A session dedicated to presentation of the ABRF-NGS Study results is also planned for the ABRF 2014 meeting.

Needless to say, the coordination, execution, and data analysis for this study was a lot of work. The participating ABRF members agreed that a break was needed to relax after submitting the manuscript and before starting the next phase of the study; but no, of course not, that just couldn’t happen with such a motivated (maybe even slightly delirious) group and hence the next phase of the study started the same week. Some might think all we do is think about the ABRF-NGS Study, but that is not true. All this work happens late at night, early in the morning, in the hallway walking between meetings or airplanes, in the back row of the weekly departmental seminar, and by the pool at ABRF annual meetings. In fact it is not uncommon to get an e-mail from Chris Mason at 10:00 pm to see if anyone else can join a conference call at 4:00 am… on a weekend! (OK, just kidding, but everyone working on this project is enthusiastic!) Phase I of the investigation showed that degraded RNA can be just as useful for RNA-seq as intact RNA and that platforms generally agreed on quantification, but showed highly variable splice junction performance. We realized that a complementary study using reference DNA should be considered. Thus, Phase II of the ABRF-NGS Study was born. The current design of Phase II includes the available well-established NGS instruments and some newly launched sequencing technologies. We are working with the NIST Genome in a Bottle consortium to choose DNA samples that can serve as reference standards for the sequencing community. These samples will likely include human genomes from a mother, father and child trio, a panel of cell lines carrying sequence variants known to occur as somatic mutations in various cancers, and small genomes from bacteria that span a range of GC compositions. Comparisons will be made between high and low quality samples to model the genomic DNA recovered from clinical FFPE specimens. The ABRF-NGS Study Phase II project design, sequencing data generation lab sites, and data analysis groups are currently being assembled and new participants are always welcome!
Accepting Work from External Customers
by Brett Phinney

So there appears to be two schools of thought that I know of (maybe there are more) in regards to university core facilities doing work for other universities and companies.

The first School of thought goes something like this:

The university is paying for your equipment, space and salary (we wish right…) and you will spend your time supporting our faculty. If the faculty can’t keep your machine or service busy then obviously it is not needed. Some universities don’t even let you do work for anyone outside your own campus.

The Second school of thought is usually along these lines:

Doing work for external customers helps to keep the machines and people busy, brings in revenue and generally is a good thing, essentially it subsidizes on campus customers…so why not do it.

I have seen both of these practiced over the years, and I have observed that the first school of thought is generally short sighted, does not actually result in a greater number of faculty samples being analyzed nor does it increase the quality of research on your campus.

The second school of thought is usually a good thing and can be critical for maintaining a service for on campus customers that would otherwise not be available. In addition it ensures that there is local expertise available that is often critical for your on campus researchers to be successful.

Let’s look at an example from my core facility at UC Davis (Obvious conflict of interest here as my core makes money (well actually we try to break even…) when we do this)

One of the things we have been doing for a long time is Post-Column Amino Acid Analysis (AAA). In fact there are very few places that actually do this any longer. This is great for business, but obviously bad for science as the technique is surprisingly awesome (2% CV’s anyone). Most places have shut down their AAA because they thought there was little support for it on campus, or that it was not cutting edge or not innovative.

In contrast to most places we have kept ours running. We have 3 amino acid analyzers (2 for physiological samples, 1 for hydrolysates) that essentially run non-stop. Yes about 80% of our AAA is off campus, but without that 80%, we would not be able to support the 20% of our customers who are on campus that really really need this service for their research (surprised me as well). We do a lot of plasma and biological fluid samples (mainly Milk) and a lot of analysis of such things as biofuels and samples for synthetic biology applications. And in our hands our dedicated amino acid analyzers beat the pants off any LC-MS or GC-MS system. I have seen for analyzing amino acids (except in terms of sensitivity and some non-standard AAs of course).

So in essence: would our faculty be better off if we shut down our AAA because only 20% is on campus? No way.

Does it cost our university a lot of money to keep our AAAs running? Not a penny, they completely pay for themselves.

Do our Proteomics parts of the core benefit from having 3 operational amino acid analyzers? Of course…Who would not want to get extremely accurate numbers on your protein or peptides. And AAA doesn’t care if your proteins have been digested into peptides, unlike techniques like Bradford and BCA.

Do we have the local expertise to support people on campus that need this service? We do, and this is something that is frequently overlooked by administrators. Once you shut down a service like this, that’s it. You will probably never be able to bring it back up again if you change your mind later. Especially for something like AAA, where there are very few places to learn how to do it…

This topic has been on my mind recently because I see the same trend happening for Edman Sequencing and I predict that in 5 years there will be even less people still practicing that compared with AAA. With Life-Tech not supporting it any longer and the lack of support from university administrators, it is only a matter of time. Which would be a shame as it is still a very valuable technology. Don’t get me wrong, I love my mass spectrometers, but they still can’t do what our Edman and AAs can do in a lot of cases.

Anyway let me know what you think, FYI the message board is a great place to discuss things like this!

There is also a very nice recent paper in JBT that covers best practices for working with external customers, it is definitely worth checking out if you do this.

"Best Practices for Core Facilities: Handling External Customers"
Philip Hockberger, Susan Meyn, Connie Nicklin, Diane Tabarini, Paula Turpen, and Julie Auger
http://dx.doi.org/10.7171/08.13-2402-001

KANBAN IN YOUR LAB
by Joe Rutledge

Have you not been able to provide a service because you were out of critical supplies? Have you seen your laboratory staff searching for the right supplies or borrowing a pair of gloves from down the hall to complete an experiment? When was the last time you found an expired reagent? How much time does your staff spend in ordering, reordering, or phoning in rush orders? How efficient is that new computer system from purchasing? To be sure, we can not eliminate all of these issues (especially for the unanticipated work that comes with grant deadlines), but there are proven methods that can make life easier for you and your “clients.” One system is the Kanban system used in the Toyota Production System (and elsewhere in manufacturing).

Kanban is the signal to replenish inventory, which in situations when you do not have the supplies to perform an analysis, that is too late. The use of this term goes beyond a visual signal, and also implies a system to insure the right amount of supplies. How does one easily know when to order new supplies? Let me give you two examples from our lab.

Several years ago we had a phlebotomist spend ½ of a day / week surveying the inventory and reordering blood drawing supplies. Moreover our sweeps before inspections found expired supplies. We instituted a kanban system that followed these steps:

1) Clean and organize the area so all the inventory is in place and easy to see.

2) Determine for each supply how fast it was used and how long it took new supplies to be received (in the lab).

3) For each supply the items to be used were in the front, while a like amount equal to that needed before the next order was filled was stacked behind. In between was the Kanban card. This card has the name of the supply, the amount on hand, the maximum amount allowed, the amount needed, the supply name, and the next order date.

"Kanban in Your Laboratory: An Idea Whose Time Has Come"
Diane Tabarini, Paula Turpen, and Julie Auger
Philip Hockberger, Susan Meyn, Connie Nicklin, Diane Tabarini, Paula Turpen, and Julie Auger
http://dx.doi.org/10.7171/08.13-2402-001

Having a visual signal is a great place to discuss things like this!
the number to order, the purchasing # for the computer, and the supplier.

4) When the front supply of an item is used up, the back supply is moved forward and the KANBAN card is put in a basket. Once a day, those cards are collected and the orders input. The second set of supplies allows testing to proceed. The new supplies are put behind the lab in use with the Kanban card in between.

5) Having the supplies visible to all insures that critical changes will be seen. Essentially this means keeping supplies in the open and not in drawers or cabinets.

A functional system results in no searching for the supplies, no depletion, no mistakes in ordering, and since supplies are used quickly, no expirations unless you reaching to the back of the milk supply in the grocery store to get the freshest milk.

“OK, you say, “but what about something other than syringes and gloves?” Our technologists applied this same principle to our expensive FISH reagents. For each, we attached a back up vial with enough drops of reagent to keep the FISH assays going until the new order was received, that order being prompted by the main tube being dry. No more counting how many drops are left; good-bye to the use log for the reagents. By developing a system, you will simplify the process and remove tedious steps.

On a small scale our supply kanban system was very successful. Laboratory to reorder and use it as the information aid to input the order. The new supplies are put in a basket. Once a day, the back supply is moved forward and the KANBAN card is put in a basket. Once a day, those cards are collected and the orders input. The second set of supplies allows testing to proceed. The new supplies are put behind the lab in use with the Kanban card in between.

Get Your Lab in Order
by Candace Johnson Bowers & Renitra Robinson-Stacker

O ften times I am asked “how can Lean/six Sigma make laboratory processes better?” In the following paragraphs I hope to shed some light on improvement opportunities as well as challenges that most laboratories are faced with. Most labs have to strike the balance of meeting customer demands with available resources all in the least amount of time as possible; can never be too fast! This of course, presents several other challenges; availability of equipment, supplies, most efficient layout and the list goes on and on.

In a production based lab, one of the most important resources to meeting customer demands is the appropriate stock of process critical items. Reagents and consumables that are required to complete a protocol from beginning to end are considered process critical. These include general items such as pipette tips and sample storage plates as well as process specific items such as sample reaction kits. Because most production based labs perform multiple processes, the list of process critical items can be very long.

Once all of the process critical items have been identified, the next step is to order your lab in order to determine the quantities required to maintain production. Not having the appropriate amount of process critical items will cause a stoppage in production, and on the other hand, having an oversupply of items is a type of waste, as the reagents could expire before they are used. Knowing the lab’s sample throughput is necessary in order to determine the quantities of process critical items needed to maintain production. However, the ability to accurately forecast a lab’s throughput can be a challenge if the number of samples being submitted in a given month is unknown. In addition to knowing exactly what is needed to maintain production, it is also important to know when the items are needed. It is economically feasible to have a surplus of items in stock. The best way to approach this is to take a count of the number of samples processed in previous months, and use this average of this to forecast the lab’s needs. It is also beneficial to implement a sample submission process so that there is an expected sample delivery date to use as a guide to determine the process critical items needed, as well as how many are needed, and when they will be needed.

At times there are unexpected or uncontrollable challenges associated with maintaining the appropriate stock of process critical items. For example, the submission of non-forecasted samples is an unexpected challenge. However, this could be a minor challenge if there is a sample submission process in place because the lab can inform the customer of when to expect their product based on when they submitted the samples. Another example of a minor challenge is when the lab runs out of a process critical item. This can occur if an item is purchased in bulk and therefore is ordered infrequently. To avoid running out of an item, when having to place a rush order, a Kan Ban system can be used so that the lab knows when it is time to request that another order be placed. Kan Ban systems include visual cues that signal the initiation of production or withdrawal of items in a pull system; in this case when an item should be ordered.

A major uncontrollable challenge associated with maintaining proper inventory is when the manufacturer is out of stock. Despite knowing how many dollars annually.

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In a production based lab, one of the most important resources to meeting customer demands is the appropriate stock of process critical items. Reagents and consumables that are required to complete a protocol from beginning to end are considered process critical. These include general items such as pipette tips and sample storage plates as well as process specific items such as sample reaction kits. Because most production based labs perform multiple processes, the list of process critical items can be very long.

Once all of the process critical items have been identified, the next step is to order your lab in order to determine the quantities required to maintain production. Not having the appropriate amount of process critical items will cause a stoppage in production, and on the other hand, having an oversupply of items is a type of waste, as the reagents could expire before they are used. Knowing the lab’s sample throughput is necessary in order to determine the quantities of process critical items needed to maintain production. However, the ability to accurately forecast a lab’s throughput can be a challenge if the number of samples being submitted in a given month is unknown. In addition to knowing exactly what is needed to maintain production, it is also important to know when the items are needed. It is economically feasible to have a surplus of items in stock. The best way to approach this is to take a count of the number of samples processed in previous months, and use this average of this to forecast the lab’s needs. It is also beneficial to implement a sample submission process so that there is an expected sample delivery date to use as a guide to determine the process critical items needed, as well as how many are needed, and when they will be needed.

At times there are unexpected or uncontrollable challenges associated with maintaining the appropriate stock of process critical items. For example, the submission of non-forecasted samples is an unexpected challenge. However, this could be a minor challenge if there is a sample submission process in place because the lab can inform the customer of when to expect their product based on when they submitted the samples. Another example of a minor challenge is when the lab runs out of a process critical item. This can occur if an item is purchased in bulk and therefore is ordered infrequently. To avoid running out of an item, when having to place a rush order, a Kan Ban system can be used so that the lab knows when it is time to request that another order be placed. Kan Ban systems include visual cues that signal the initiation of production or withdrawal of items in a pull system; in this case when an item should be ordered.

A major uncontrollable challenge associated with maintaining proper inventory is when the manufacturer is out of stock. Despite knowing how many dollars annually.
The meeting was also attended by representa-tive technical representatives from 37 companies, research centers as well as regional sales and service personnel to be acknowledged in grants and publications for their contributions; (d) NIH FAQ (NOT-OD-13-053): what's included, what's not.

The following sections describe some of the issues involved with each topic as well as consensus recommendations on how to address these issues. A reprint of this article can be found on the CAN-CC web-site under Publications (‘Compiled notes from the MWACD administrative meeting held Oct. 17, 2013’ - http://www.abrf.org/index.cfm/group.show/CoreAdministratorsCommittee.69.htm).

Rate-setting: Towards a Sustainable Financial Model

Q: Core facilities are typically subsidized by departments, schools, centers and/or by the central administration. Is this model sustainable? If not, should the goal be to move toward a full-cost recovery model? What are the downsides of such a model? How do we prevent a race to the bottom?

A: While a full-cost recovery model improves the likelihood of sustainability, it does so at the expense of driving up costs for researchers. A reasonable compromise is to strive for 80-85% cost recovery with the remainder covered by internal subsidies, core grants and external customers. Financial models that generate less than 80% recovery are also sustain-able if stakeholders are willing to provide additional support. In the absence of subsidies, researchers will be motivated to look for cheaper services outside the institution. Regional partnerships and consortia provide alternative options for splitting the costs of core facilities.

In general, running a deficit is bad but running a surplus is worse. The reasoning here is that deficits force the institution to pay, whereas surpluses give the impression that researchers are being overcharged. If the latter are using federal grants to pay for services, then auditors will look closely at whether the institution is generating a profit for services (which is not allowed).

The race to the bottom (lowering prices to unsustainable levels) is a recipe for disaster because it sends a confusing message to researchers and staff. Quality and affordability are linked. Costs are directly related to staff salaries (expertise and experience) and types of resources (instruments, services). Lowering prices below cost is literally saying your services are not worth that cost. Convincing stakeholders that subsidies are worthwhile is the most cost-effective way to keep costs affordable. Generating 80-85% cost recovery makes this request more palatable for the stakeholders.

Evaluating cores: beyond bibliometrics

Q: Many institutions and federal agencies ask for bibliomet-ric user publications and grants, staff publications and grants) when evaluating core facilities. How does your insti-tution evaluate core facilities? Besides bibliometrics, some institutions use annual reports, professional development, user surveys and program review. Are there institutions willing to share these tools? Would it be useful to create a virtual repository of tools, accessible to others?

A: Most institutions have developed a set of metrics for evaluating core facilities either by the school or university administration. There was interest in sharing ideas and tools that facilitate evaluation.

The more important point was the desire by core facility per-sonnel to be acknowledged in grants and publications for their services. This practice enhances the accuracy of bibliomet-ric metrics used for evaluating their impact. Various ideas were discussed to encourage researchers to acknowledge the ser-

A: The skill set and mentality of a scientist versus the skill set and mentality of a business entrepreneur are often non-overlapping. Running a successful core requires a thorough understanding of both. It is important for core managers to acquire the business acumen needed to properly promote their facility, appropriately price services, and manage the finances of what is essentially an independent small business.

Executive certificate courses (e.g., Northeastern’s “Busi-ness for Scientists & Engineers” course offered through the Kellogg School of Management) are helping to bridge the divide between the business and science worlds.

NIH FAQ (NOT-OD-13-053): what’s included, what’s not?

Q: Purpose – paragraph 3 states that the FAQ document is NOT intended to establish new policies or interpretations; rather it is intended to provide “broad guidance.” Paragraph 5 reminds us that these guidelines are subject to future revis-ion and updating. Will this document withstand the scrutiny of auditors? What about the recent fine at Iowa State Uni-versity? (http://oig.hhs.gov/oas/reports/region7/71106024. asp) Does this document apply to federal agencies beyond the NIH? Which federal agency negotiates FRA rates with your university?

A: It is important to understand which federal agency is responsible for negotiating the “Facilities and Administration rate” (FRA) for your institution. If the negotiation to deter-mine this rate takes place with the department of Health and Human Services (HHS), then the NIH FAQ is directly perti-nent to all core facilities at your institution (since the inclu-sion and exclusion of certain costs is relevant to the FRA negotiation). The negotiation sets a precedent for which branch of the federal government will be responsible for audit. An audit of one federal grant can lead to closer scrutiny of any institutional core facility, if that core charged the grant undergoing an audit.
Q: Section 1.b – provides information for pricing a simple, single service. It does not address how to set prices for more complex services, or whether it is appropriate to distribute personnel costs over multiple services. It is reasonable to distribute personnel costs over multiple instruments that require minimal technical support after training of users? What methods do you employ at your institution?

A: There is a recharge rate calculation template and instructions available on the Northwestern website (http://www.northwestern.edu/coststudies/recharge.html) that was revised this past year in light of the FAQ. The "effort billable" hours tab specifically addresses how salary is distributed over various services offered at any given core. More complex, and also more varied, is how different types of subsidy models are handled by our rate calculation process. If a grant provides salary support to a core, that must be accounted for very differently than if the grant is providing a "per-unit" subsidy (as per the example in the FAQ). We have developed different procedures for different models, but this gets very complex very quickly (e.g., see the tab to support salaries for all users of the core, or only a subset of users). In short, the FAQ has raised the bar in terms of how to calculate rates.

Q: Section 1.c – acknowledges that F&A rates do not cover all administrative services provided by core facilities. An example: depreciation of equipment purchased with university funds. What other administrative services might be charged to users? How will we know if these are acceptable charges? Is there a rule-of-thumb?

A: There are many “it depends” distinctions in terms of admin costs in a facility. Time spent writing grants is generally unchargeable in the rate structure, but what about “equipment grants” specifically for the facility? Controversial. Advertising is generally unallowable as a category, but what about internal advertising, time spent promoting the facility to internal users? Probably allowable. Financial management of the core might be considered a part of the university’s overall F&A agreement, but what if core personnel are directly responsible for maintaining the financial management of the core? Look closely at the job descriptions associated with this work may be relevant. There is a great deal of ambiguity in terms of what might be acceptable and what might be considered unallowable in terms of the inclusion of costs in the rate. The FAQ is sparse on details here. One useful recommendation was to make sure that job descriptions of administrative assistants in core facilities specifically mention their responsibilities regarding core facility administration. Be specific.

Q: Sections 1.e & 1.f – acknowledges that institutions have administration. Be specific. Specifically mention their responsibilities regarding core facility management of the core? Look closely at the job descriptions. Administrators are left to make this call using their expert judgment. If you think there is substantial overlap in services and user base, then you can probably group the facilities for purposes of cost accounting.

Q: Section 2.c – lists a couple of simple examples of allowable costs (personnel and service contracts) and acknowledges that other costs that support day-to-day operations are allowable. What other activities would satisfy this condition? Internal advertising, professional development (travel to meetings, poster presentations, business courses), costs associated with personnel recruitment (job advertisement, travel for interview)?

A: See response to section 1c (above). In general, these costs are allowable if they can be shown to directly apply to the operation and mission of the facility.

Q: Section 2.g – provides a general rule-of-thumb for recovering F&A costs: those that are not covered in the institution’s F&A rate, and those that are not included in the service rate. This necessitates that you understand what is included in your F&A rates. Confusion occurs when one has to decide between billing the service as an indirect (F&A) cost versus building it into the direct (service) cost. This would seem to require careful planning, but then there is no question that most if not all admin costs should be built into direct costs. Other indirect costs (building depreciation, heating, electricity) may be appropriate to charge under the indirect cost umbrella if it is not included in the F&A (e.g., because the core facility is renting space off site).

A: See response to section 1c (above).

Q: Section 4.d – indicates that differential pricing is allowed for certain services and purchases IF this reduces the unit price for users based upon documented cost differences (voluntary discount, off hours usage) and is available to all users. But sometimes it is difficult to define and document the cost differences that can justify differential pricing. What methods do you use to justify differential pricing? Should this be based strictly on actual costs (discount averaged over all users, no labor charge for usage after hours) or is any reduction in price acceptable as long as its applied uniformly? How do you justify (quantify) reducing a bottleneck for users?

A: The true ambiguity of the FAQ is whether or not the rationale for an off-hours discount must be specifically cost-based. If a core decides to charge all users a lower amount during certain periods, is a cost-based argument absolutely required? After all, the lower rate offered off hours will certainly be lower than the calculated rate (since the day time rate is already lower than the calculated rate) and the nighttime discount does not discriminate against any particular user. Is it justifiable to lower the rate at night with an argument along the lines of “there are less personnel here at night, therefore, the cost basis for running instrumentation is lower at this time”? It is difficult to quantify just how cheaper it is to run a core at night, and that does not address the broader question of the necessity of such an argument. In short, some cores make a specific cost-based argument on their cost study, while others do so essentially by fiat.

Q: Section 5.a – acknowledges the appropriateness of charging external customers a different (higher) rate for services as long as the rates are “reasonable.” There is no indication as to what is reasonable, and no distinction between non-profit and for-profit customers. There is also no mention of a limit on the amount of external business that can be generated by a facility. There is information elsewhere in OMB Circular A-21 that addresses some of these issues (profit is allowed up to 2 months of working capital, taxes must be paid on unrelated business income, can’t underprice local businesses), but reasonable appears to be a relative term. How does your institution address these issues? What other models might be adopted? For example, there is an entire world of philanthropy that is untapped when it comes to core facilities. How do you position your cores to take advantage of such opportunities?

A: The distinction between non-profit and for-profit customers is important and laid out in a best practices paper published by the ABRF’s core administrator’s committee (CAN-CC). This publication describes how to handle external customers and addresses most of the common issues that arise from this practice - http://www.ncbi.nlm.nih.gov/pubmed/23814500.

The NERLSCD is pleased to provide two $500 travel awards to ABRF 2014 annual meeting attendees. The goal of these awards is to promote ABRF to NERLSCD attendees by helping them defray the cost of attending the ABRF meeting. Applicants had to have attended a NERLSCD meeting and be employed in a core facility or have an administrative position in the support of a core facility. All applicants had to write a personal statement describing how attendance at the ABRF 2014 meeting would enhance their institution’s core operations and their professional growth. Preference was given to first-time ABRF meeting attendees. Please reach out and welcome the 2014 NERLSCD Travel Award recipients to our ABRF Community.

The MWACD is pleased to announce that three $500 travel awards to the MWACD members that have made outstanding scientific and/or administrative contributions in their institutional core facilities; have developed new technologies with applications in core facilities; and/or have been active in MWACD and/or ABRF activities. Past attendees of any of the MWACD Chapter Meetings were eligible to apply. Preference was given to first-time attendees to the ABRF meeting. Congratulations to the MWACD ABRF 2014 Chapter Travel Award winners: Channabasaviah Gurumurthy, Mouse Genome Engineering Core, University of Nebraska Medical Center

Thomas Abbott, Biotechnology Associate II, W.M. Keck Biotechnology Resource Facility Mass Spectrometry/Proteomics Core, Yale University

Philip Hexley, Cell Analysis/Flow Cytometry Facility, University of Nebraska Medical Center

Raymond Hovey, Center for Genomics and Bioinformatics, University of Wisconsin-Milwaukee
Core Technologies for Life Sciences
by Herbert Auer, Spencer Shorte & George Grills

The first Core Technologies for Life Sciences (CTLS) conference will be held June 2-5, 2014, in Paris, France. Launched just last year, CTLS is an initiative that aims to help European life sciences core facilities to achieve the highest levels of excellence in service, delivery of results, and support of research and training.

The velocity of technological development in life science research is rapidly increasing, leading to many universities, research institutes and industry placing a wide array of advanced bio-technologies in core facilities. These core facilities enhance the productivity of high-tech equipment by having dedicated scientists working in the core facilities to provide outstanding support in specialized technology areas.

The CTLS initiative was founded by Spencer Shorte (Paris, France) and Herbert Auer (Barcelona, Spain), whom you all likely already know or will eventually get to know, since they are both regular and active attendees of the ABRF annual meetings. Spencer is also a founding member of the new International ABRF Committee. The goal of this "iABRF" Committee is to explore ways of facilitating and expanding the international scope of the ABRF mission, by encouraging the establishment and growth of core facility organizations and meetings around the world.

Spencer and Herbert recognized the need for better coordination and cooperation among members of the European core facility community. The aim of CTLS is to create a European core facility "cooperat-ive" that provides scientific, managerial and educational support via networking, workshops and conferences. A major goal of CTLS is to enhance the exchange of knowledge between individual European core facilities and to empower them in the face of technological and administrative challenges. CTLS seeks to engage with concerned stakeholders across the life sciences spectrum in order to advance the performance of core facilities for the benefit of all.

ABRF Research Group-like core facility collaborations and projects are expected to be eventually established under the European CTLS umbrella; it is expected that these will often work closely with existing ABRF Research Groups. The scope, scale and quality of many Research Group projects are expected to substantially benefit through such international collaboration of core facilities.

Many Europe-based ABRF members were physically present at the first CTLS organizing meeting, which was held in Paris in April 2013, and George Grills, an ABRF EB member who is based in the USA, joined this first organizational meeting and subsequent ones via Skype. The first CTLS meeting will include presentations and discussion on ways that the CTLS and the ABRF could best closely coordinate, integrate and interact in future meetings and in other core facility related activities.

We all are very excited about the new CTLS initiative and we look forward to exchanging ideas, sharing experiences and working together. Please mark down June 2-5, 2014, in your calendar, to attend the first CTLS conference, to be held in Paris, France! More information is available at www.ctls2014.org.

CTLS Organising Committee
Spencer Shorte, Institut Pasteur, France
Herbert Auer, IBR, Spain
Patrick England, Institut Pasteur, France
Reinhard Hölzer, EPGR, South Africa
Charlotte Douard, Ouest Valorisation, France
Joshua Rappport, BALM, UK
Samantha Blazquez, Institut Pasteur, France

A Special Thanks to Our Award Sponsors

ABRF Annual Award for Outstanding Contributions to Biomolecular Technologies

The 2014 ABRF Award recipient is Dr. Patrick O’Farrell, for the development of 2-dimen-sional gel electrophoresis. The ABRF Award is sponsored by GE Healthcare and ABRF.

Dr. O’Farrell will present the ABRF Award Lecture titled “From Binder Clips to Lasers: Creating Technology over Four Decades” at ABRF 2014. Dr. O’Farrell will talk about his research spanning 50 years, from developing 2D gel technology to his current focus on cellular imaging and microscopy for studying the embryonic cell cycle.

Dr. O’Farrell is a Professor of Biochemistry & Biophysics, School of Medicine, University of California, San Francisco

ABRF Outstanding Scientist/Technologist Travel Awards

Recipients of the ABRF Travel Awards are those ABRF members who have made outstanding contributions in their institutional core facilities, have developed new biotechnologies with applications in core facilities, and/or have been active in ABRF activities.
Reflections on Serving the ABRF from the Outgoing Executive Board Members

A brief Q&A with David Friedman and Thomas Neubert

How did you first become involved with ABRF?

Tom: I first joined ABRF in 1998, when I accepted a position as Assistant Professor and Director of the NYU Protein Analysis Facility at the New York University School of Medicine. I had no idea how to run a core facility and for that matter never had formal training in mass spectrometry, so I was quite terrified of the new position. I learned so much at that first ABRF meeting, for example about the NIH Shared Instrumentation Grant program from Dr. Marjorie Tingle. It was a really great way to get up to speed fast, and to learn that so many of the difficulties and challenges of running a core facility were common to almost everyone. I really benefitted from the opportunity to meet other folks and to learn from them. Later I became active in some of the proteomics research groups, and helped organize the 2007 Annual Meeting.

David: I had known about ABRF originally through Kathryn Ressing back when I was doing a second post-doc at the University of Colorado back in the late 1990’s, but I didn’t end up attending an ABRF conference until 2006. It was Kathryn Lilley who eventually got me involved with the association. We were introduced to each other by a mutual colleague, Reiner Westermeier, at the 2004 ASMS meeting in Savannah, GA, as we were all working with the 2D gel based Difference Gel Electrophoresis (DIGE) platform at the time. Shortly thereafter, Kathryn and I began what would end up being a lovely collaboration of coauthoring reviews and technical book chapters (which, comically, began when an editor mistakenly asked us both independently to write the same review - and I only found out because I was then asked to review the piece that Kathryn had written!). Kathryn was also on the ABRF Executive Board at the time, and invited me to give a talk at ABRF2005 in Savannah, GA, which I had to decline due to the impending birth of my third child. So I didn’t get started formally with ABRF until the Long Beach meeting in 2006 (when Kathryn invited me again). After that I was hooked, quickly joining the Proteomics Research Group and then the membership committee before being elected to the Executive Board starting in 2010.

What initiatives that you took part in gave the greatest satisfaction?

Tom: Probably the idea to have a fourth scheduling track at the annual meetings to provide more time to disciplines such as imaging and flow cytometry, in an effort to expand the ABRF membership beyond the traditional emphasis on genomics and proteomics. Plus my involvement with several of the Research Groups’ several very worthwhile publications have resulted.

David: Realizing that there was something I could do that could make a difference. In addition, the experience that I gained on the board, including being president for two years, has really opened up new doors of opportunity for me in the non-profit world that didn’t exist before, and allowed me to exercise skills that were not otherwise being utilized.

What was the most rewarding aspect of serving on the EB?

Tom: There were many rewards associated with working with such a talented, generous and motivated group on the EB and ABRF at large. So the camaraderie is a major reward. Also the opportunity to help shape the direction in which the ABRF is headed - core facilities are much different today than they were 16 years ago when I first joined. For example, there has been a significant trend to increase central management and oversight of core facilities, as opposed to the autonomous single-technology shops of the wild old days when I started. And of course the technologies themselves are evolving at an amazing pace.

David: There are so many things I could mention in that regard, but I’ll focus on just three. The first was addressing the benefits and needs of the companies that come to exhibit at our annual meeting. Although the 2010 Sacramento meeting provided a wonderful scientific program, the location of the exhibit hall, and the small time built into the schedule to accommodate, created a very poor vendor experience that did not engender many companies to return. I was just coming onto the Executive Board, and was very passionate about addressing those issues. Luckily Michelle Detwiler (who was president at that time) gambled by putting me as a newbie onto the meeting committee for the 2011 San Antonio meeting with Mark Lively, Preston Hensley and Katia Sol-Church. We started to turn a lot around that year - things like moving the exhibit hall up into close proximity of the break-out rooms (a requirement that we have now built into future site selections). We also adjusted the exhibit hall hours to be more open and less in competition with other events, and we brought events into the hall as well. I remained the meeting liaison for a second year to bring some institutional memory to the position, and continued to improve upon these ideas along with Laurie Steinke and Kathryn Lilley for the 2012 Orlando meeting. Tim Hunter has now carried on with what should now hopefully become a regular practice of having the meeting EB liaison serve for multiple years as a full co-organizer.

The second accomplishment I’d like to focus on is re-igniting the strategic planning process and then leading the EB through it at our face-to-face board meeting during the Palm Springs meeting. This resulted in a working 5-year strategic plan, including identifying new initiatives and opportunities to add value to the membership. Having a strategic plan in place is essential for any board, to help guide and ensure that our activities and decisions are aligned with the mission (which, in turn, is based on the needs and values of the membership). This included an overhaul of the rules and regulations for how we put on the annual meeting, and a road map for overhauling our antiquated website infrastructure (with many thanks to Brian Hampton for helping us along that road). We then did a mini-version of this with the leadership of the five domestic ABRF chapters during our Fall face-to-face board meeting. Although this was too soon to create a formal strategic plan, we made significant progress and created a more formalized process to bring leaders together. We were able to define common goals and are now working more efficiently towards our continued growth together.

Lastly, I would say that my recent work with the Membership Committee has been extremely satisfying as well. I had been on Memcom before joining the EB, and rejoined this past year. The group is really energized now, and late last fall we launched a membership survey and are currently analyzing the data. This is an initial first step to understand better what our members benefit from and/or find of value. The results will be beneficial to the Executive Board, to help inform our decisions and help us govern more efficiently. It will also help Memcom to overhauls and improve the overall membership value proposition, as well as potentially help to formulate some exciting new membership programs in the future.

What was the most difficult problem you encountered during your tenure?

Tom: That would be finding the time to devote to the nearly infinite number of worthy projects that would

Continued on page 32

Communications 30

February 2014
be of value to the ABRF membership. I really admire my fellow EB members who devote so much time and effort to the ABRF, it has been both humbling and inspiring. My colleague in EB retirement David Friedman is a prime example, his efforts and accomplishments never cease to amaze me.

David: Although we spend a lot of time on the EB governing and doing good deeds for the association, there never seems to be enough time to get it all done. And we’ve taken on a lot of new things over the past few years, too. For example, our website infrastructure has been heavily integrated into many different areas of our association over the years (membership database, conference website, etc.) but was also antiquated, with issues building up over time that affected the EB, our FASEB business office, and our professional meeting managers, Courtesy Associates. Most associations look into this every five to seven years or so, and we were long overdue. We have now put many new website and database systems into play, most of which have worked out wonderfully. But there have certainly been bumps along the road as well - no transition of this magnitude is ever without issues (especially because we had become so intertwined with our older system). But overall, I think we are doing this for the right reasons, and in the end we’ll be a lot better off.

What new opportunities do you feel the ABRF should pursue for the future?

Tom: As I mentioned above I think we should make a strong effort to bring core facilities from all biomolecular disciplines into the ABRF fold. This effort has already started for example by the joining of a number of outstanding flow cytometers who have a lot to offer the ABRF, as well as efforts to make the annual meeting more attractive to the imaging community. Ideally at least some of every biomolecular core facility in the world should at least be aware of the ABRF and what it has to offer, which unfortunately is not the case.

David: Part of our strategic plan included evaluating new initiatives that could provide added benefit to the membership, but they are too undeveloped to really comment on. There is a big push right now to expand internationally, something that a lot of people are excited about and I think can be very important for us. But at the same time, I think there are still many important issues for us to focus on domestically (USA and Canada) that we should not lose sight of, including evolving together with our chapters and making a better membership value proposition overall.

What advice would you give to a new EB member?

David: Don’t hesitate to speak your mind, but be mindful of how you speak. From a president’s perspective, you want to hear from everybody and have an efficient flow of governance and, that is more challenging to do if the newbies are too cautious and quiet. Just let it out - we’re all friends on the board, even if we have differing opinions and personalities, and everyone on the board is there because they care passionately about ABRF. In the end, we govern as a board and not as individuals. I feel confident that our two newest members, Frances Weiss-Garcia and Christopher Colangelo, will do a marvellous job, and I hope they hit the ground running. And don’t necessarily back down if somebody says “hey, we’ve already tried that”, or “that’s a terrible idea”.

Tom: I think we need to pay attention to the health and vitality of the Research Groups. Often this means strong direction (and nagging) from the EB liaisons, and lots of attention to making sure the RGs are filled with enthusiastic and motivated members. Also, while I believe we need to keep the quality of the science we do and present at the annual meetings at the highest level, we should keep our focus on the central mission of helping biomolecular core facilities to do the best and most efficient work possible. And of course to have fun while doing all of this.

Recent Research Group Publications

Proteome informatics research group (iPRG)_2012: a study on detecting modified peptides in a complex mixture.

Abstract: The proteome informatics research group of the Association of Biomolecular Resource Facilities conducted a study to assess the community’s ability to detect and characterize peptides bearing a range of biologically occurring post-translational modifications when present in a complex peptide background. A data set derived from a mixture of synthetic peptides with biologically occurring modifications combined with a yeast whole cell lysate as background was distributed to a large group of researchers and their results were collectively analyzed. The results from the twenty-four participants, who represented a broad spectrum of experience levels with this type of data analysis, produced several important observations. First, there is significantly more variability in the ability to assess whether a results is significant than there is to determine the correct answer. Second, labile post-translational modifications, particularly tyrosine sulfation, present a challenge for most researchers. Finally, for modification site localization there are many tools being employed, but researchers are currently unsure of the reliability of the results these programs are producing.

Comparison of commercially available target enrichment methods for next generation sequencing.

Abstract: Isolating high-priority segments of genomes greatly enhances the efficiency of next-generation sequencing (NGS) by allowing researchers to focus on their regions of interest. For the 2010-11 DNA Sequencing Research Group (DSRG) study, we compared outcomes from two leading companies, Agilent Technologies (Santa Clara, CA, USA) and Roche NimbleGen (Madison, WI, USA), which offer custom-targeted genomic enrichment methods. Both companies were provided with the same genomic sample and challenged to capture identical genomic locations for DNA NGS. For the target region totaled 3.5 Mb and included 31 individual genes and a 2-Mb contiguous interval. Each company was asked to design its best assay, perform the capture in replicates, and return the captured material to the DSRG-participating laboratories. Sequencing was performed in two different laboratories on Genome Analyzer IIx systems (illumina, San Diego, CA, USA). Sequencing data were analyzed for sensitivity, specificity, and coverage of the desired regions. The success of the enrichment was highly dependent on the design of the capture probes. Overall, coverage variability was higher for the Agilent samples. As variant discovery is the ultimate goal for a targeted sequencing project, we compared samples for their ability to sequence single nucleotide polymorphisms (SNPs) as an overall test of the ability to capture both chromosomes from the sample. In the targeted regions, we detected 2546 SNPs with the NimbleGen samples and 2073 with Agilent’s. When limited to the regions that both companies included as bait, the number of SNPs was R1000 for each, with Agilent and NimbleGen finding a small number of unique SNPs not found by the other.

MIRG Survey 2011: snapshot of rapidly evolving label-free technologies used for characterizing macromolecular interactions.

Abstract: The field of label-free biophysical technologies used to quantitatively characterize macromolecular interactions has expanded rapidly and with small molecules has grown enormously in the last 10 years. The most widely used analytical technologies for characterizing biomolecular interactions are mass spectrometry (MS) and surface plasmon resonance (SPR)....
Protein-protein interactions identified through high-throughput proteomics efforts continue to advance our understanding of the protein interactome. In addition to highly specific protein-protein interactions, it is becoming increasingly more common for yeast two-hybrid, pull-down assays, and other proteomics techniques to identify multiple protein ligands that bind to the same target protein. A resulting challenge is to accurately characterize the assembly of these multiprotein complexes and the competition among multiple protein ligands for a given target. The Association of Biomolecular Resource Facilities-Molecular Interaction Research Group (ABRF-MIRG) benchmark study: molecular interactions in a three-component system.


Abstract: Protein-protein interactions identified through high-throughput proteomics efforts continue to advance our understanding of the protein interactome. In addition to highly specific protein-protein interactions, it is becoming increasingly more common for yeast two-hybrid, pull-down assays, and other proteomics techniques to identify multiple protein ligands that bind to the same target protein. A resulting challenge is to accurately characterize the assembly of these multiprotein complexes and the competition among multiple protein ligands for a given target. The Association of Biomolecular Resource Facilities-Molecular Interaction Research Group (ABRF-MIRG) conducted an online survey designed to capture the current profile of label-free technologies, including ITC, SPR, and other biosensors used in academia and the pharmaceutical industry sector. The main goal of the survey was to take a snapshot of laboratory, instrumentation, applications for measuring various biophysical parameters, confidence in data interpretation, data validation and acceptability, and limitations of using various technologies. Through this survey, we anticipate that the participating laboratories will be able to gauge their own capabilities and gain insights into the relative success of the different technologies that they use for characterizing molecular interactions.

This article will summarize the experimental approaches taken by participants to characterize the molecular interactions, the interpretation of the data, and the results obtained using different biosensor instruments.

continued from page 10 (Sci2 Tool)

The Cyberinfrastructure for Network Science (CNS) Center was founded in October 2005 by director Dr. Katy Börner. The Center’s mission is to advance datasets and tools for the study of biomedical, social and behavioral science, physics, and other networks. A specific focus is research on the structure and evolution of science and technology and the communication of results via science maps and information visualizations.

The Center has developed open source services and tools that help our researchers and other users perform big data analysis and data visualization. The Cyberinfrastructure Shell (CIShell) is a Java based platform that supports the integration of datasets and algorithms created by users. CIShell powers scientific data analysis tools, such as the Science of Science (Sci2) tool and the Epidemic Cyberinfrastructure (EpiC) tool.

CNS Center co-organizes international workshops and conferences, promotes network science and visualization at national and international initiatives, organizes a weekly talk series on Networks and Complex Systems, hosts national and international visitors/faculty each year, and teaches regular workshops on the infrastructures and tools it develops and supports.

The new ABRF Core MarketPlace is the central place for making the connections that have always been made through the networking at ABRF.

• List your core facilities services.
• Post services and experiments needed.
• Connect your services offered with researcher’s requests.
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