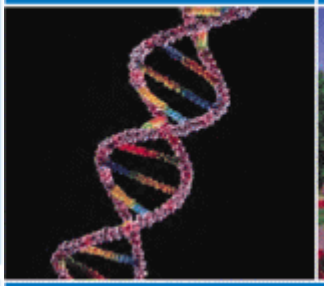
ISPE Boston Area Chapter
ENGINEERING PHARMACEUTICAL INNOVATION

www.ispeboston.org



NEWSLETTER

March 2010, Volume XX, No. 2

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President's Message: Happy St. Patrick's Day or, at least, Happy March

Hello ISPE Boston Area Chapter Members,

Having just returned from the ISPE Tampa Conference, I am writing this President's Message after listening to the weather report of another snow storm on the way. I should have stayed in Tampa a few more days! I'm sure all of you are looking for warmer and sunnier days but in case you like the cold weather, you still have time to sign up for our **Annual Ski Trip** on Friday, March 5th. This year we'll be heading up to Sunday River in Maine and would love to have you join us.

We have a lot to report on for this newsletter but I want to make a few announcements of upcoming events. Most of you are aware that INTERPHEX is in April in NYC. You may not know that the Boston Area Chapter has brought back the **Bus to INTERPHEX**. We understand travel budgets may be limited due to these hard economic times, so this will offer our Members an opportunity to attend one of the largest pharmaceutical and medical manufacturing conferences at a fraction of the air/train travel costs. The bus will leave early on Wednesday, April 21st from Boston and s the way to NYC. We will leave NYC around 6pm on the same day. More information will be coming soon.

On March 27th, the Chapter is Sponsoring the **CEO Free Throw** at the **Bio-Ball** event benefiting the Special Olympics. Pl Marita King's article, "BioBall Needs Volunteers - A Slam Dunk for Chapter Members," for information on how you can volu assist at the event.

Based on the overwhelmingly positive feedback received by many of our valued Chapter Members, as well as non-Membe Board of Directors has voted to once again host a Summer Social. Please reserve June 16th for a night of **"Improv Magic** creative and entertaining experience! Sure to be a memorable experience, the event will be hosted at the Hard Rock Café with heavy appetizers and a spectacular show that will capture the essence of the pharmaceutical industry while leaving y Don't miss it!

One thing I keep hearing over and over from our Members is how important ISPE has been in their career. In the latest **Sp Interview**, Paige Kane of Pfizer describes the role that ISPE has played in her 20-year career in biotech. Another article o

from Allan MacDonald, who recently earned the credentials of **CPIP - Certified Pharmaceutical Industry Professional™** article to learn how Allan and Past President Doyle Johnson are teaming up to help interested Chapter Members qualify fo Lastly, we sponsored a great **Career Development Workshop** in January - see Bob Urbanowski's article for more info. Th was so well received we will be having another Career Development event in the spring.

Membership Stats
In order for us, the Board of Directors and Committees, to properly manage and provide education to our members, we ne understand who are members are. Based on a quick review of the Chapter's membership profiles, I found the following: as we had 1188 members. Out of these, 984 are men and 204 are women; 86 are from our Student Chapter membership.

The profiles also include areas for age, company type, and the role you play in your company. Unfortunately, many Memb these areas blank. So that we can truly understand our Members and offer benefits best suited to their needs, we need the updated to include all of the requested information. Please take a moment and go to www.ISPE.org. Log in and choose **Ac Profile**. At the top of the page you will see My Profile (Page 2) - click on that and update your information. I plan to do ano in two months and hope to have more information to work with at that time. In addition, we will be sending a **Membership** all members soon. Please take some time to answer these questions - we need to hear how we can make your membersh more worthwhile by offering the benefits that are valuable to you.

ISPE Products and Services
Are you aware of all the products and services offered to you as members of ISPE? Check out the International Website a www.ISPE.org and see the list of journals and technical publications including Baseline® Guides and ISPE Good Practice Also available are recorded Webinars and Podcasts. Go to www.ispe.org/cs/online_learning/program. There is a wealth of to be found there. It may not always be easy to find what you're looking for (International agrees and is working on improv don't let that stop you from taking full advantage of your membership.
Well I think that is enough information for now, you still have the rest of the newsletter to read. I look forward to seeing you upcoming events or hearing from you via email.

Sincerely,

Sylvia Beaulieu
President, ISPE Boston Area Chapter

Upcoming Chapter Events: Mark Your Calendar

Thursday, March 18, 2010

Biotech and Pharmaceutical Manufacturing Sustainability - New efficien and Cost Savings

The pharmaceutical and biotech industry is world renown for two things: its development of life-saving therapeutics and fo least efficient within the process industries. This inefficiency is now becoming a drain on company profits, capital and susta remain successful in an increasingly global competitive market, pharmaceutical and biotechnology manufacturing must ag review and revise many of their operating and investment strategies.

This talk focuses on pharmaceutical and biopharmaceutical process improvements, covering topics such as single use tec

line material recovery, waste recovery and plant profit optimization.

Royal Sonesta, Cambridge, Massachusetts

Click Here to Register!

Tuesday, April 6, 2010

Laboratories for the 21st Century (Labs21®)
Introduction to High-Performance, Low-Energy Design and Optimizing Laboratory Ventilation Rates

This course is a full-day workshop that will introduce strategies for designing and constructing sustainable laboratories in b and existing facilities. All are welcome to attend these discussions that will incorporate many aspects of sustainable desig laboratories. Click here for full information and agenda.

AstraZeneca, Waltham, Massachusetts

Click Here to Register!

Tuesday, April 13, 2010

Modeling Protein Degradation Processes for the Development of Rationa Approaches to Stabilization and Continuous Manufacturing of Small Mol

Joint Educational Program with MIT Professional Education

Hyatt Regency, Cambridge, Massachusetts

Save the Date!
Regist ion Will Open Soon at www.ispeboston.org/events

Wednesday, June 16, 2010

Summer Social - Improv Magic

Save the date for a night of "Improv Magic," a unique, creative and entertaining experience! Sure to be a memorable expe event will be held at the Hard Rock Café in Boston with heavy appetizers and a spectacular show that will capture the ess pharmaceutical industry while leaving you laughing. Don't miss it!

Hard Rock Cafe, Boston, Massachusetts

Save the Date!
Registion Will Open Soon at www.ispeboston.org/events

Wednesday, October 6, 2010
Annual Product Show and Educational Seminars

Gillette Stadium, Foxborough, Massachusetts

Save the Date!
Registion Will Open Soon at www.ispeboston.org/events

The Tradition Continues: Another Great Holiday Party at Flat Top Johnny's

by Janet Tice, GMP Piping with photos by Joyce Chiu, Perceptive Informatics

Now an ISPE Boston Area Chapter tradition, the Holiday Social was held at Flat Top Johnny's Billiards in Kendall Square 14th. This year we had our biggest turnout ever - well over a hundred guests from a cross-section of the Chapter's membe operating companies, academic and research institutions, vendors and contractors all well represented. Perhaps even mo important, attendees were more enthusiastic than ever before - definitely in a mood to party with friends, dig into the heart drink, and share a round of billiards with their ISPE cronies.

And once again, the Chapter proved it does a wonderful job of bringing members together to share information with contac and new. The buzz of conversation regarding the latest what's what and who's who in the local life sciences community wa reminder that networking with peers is vital in these difficult times, with the economy weak and the job outlook uncertain.

In addition to the food, drink and conversation, there were fantastic prize giveaways sponsored by A/Z Corp, Aztec Techno Columbia Construction, CRB Consulting Engineers, Spectra Automation and Ultrafiltronics. Plus the Social was a benefit f Package Project sponsored by MarineParents.com, with attendees donating requested items such as single-use cameras batteries and food items for shipment to marines in Iraq and Afghanistan.

Many thanks to the sponsors of this event and to the many hard-working Chapter volunteers who made this tremendous n possible. Kudos to you! We're already looking forward to next year!

ISPE Teams with MDG for Career Development Workshops

by Bob Urbanowski, TUV Rheinland and Kimberly Simpson with photos by Joyce Chiu, Perceptive Informatics

January 12th was a first for the ISPE Boston Area Chapter and MDG (Medical Development Group) - an evening of jointly Career Management Workshops presented for the benefit of members of both organizations. In addition to the timely infor presented, attendees benefited from a chance to mix and mingle with members of an allied organization, adding a new dir the traditional networking reception.

The evening provided something for everyone with its dual focus on 1) succeeding in your current job and 2) conducting a successful job search. With two sessions each, both "tracks" were presented by professional career consultants, the first by Carol Bergeron of Bergeron Associates and the second by Bob Vear and Linda Trowbridge of Change Dynamics.

Presenters Bob Vear and Linda Trowbridge of Change Dynamics, Inc.

Survive and Thrive by Staying Put

In the "Survive and Thrive by Staying Put" workshop, Carol provided practical approaches for managing your career. Through interactive exercises, participants identified their ideal corporate culture by examining the positive features of past achievements. To identify opportunities for career growth and advancement, participants tried to align their talents and preferences with their organizations' goals. Based on this understanding, participants learned techniques to pave the way for advancement by taking charge of their own development and promoting their unique skills and achievements.

Crack the Code on Networking

The "Crack the Code on Networking" workshop introduced participants of relationships and the techniques for building and strengthening them shared a Targeted Networking Technique to enhance networking value with your existing contacts to build relationships and utilizing them to ex network. She also described how to request and conduct an effective i interview and how to work a networking event. To achieve networking

Chapter Past President Doyle Johnson chats with attendees during the networking reception.

Carol emphasized the importance of helping others - in other words, in fully effective, networking must be approached as a two-way street.

Resume Best Practices

Meeting Manager Ric Feldt with Carol Bergeron of Bergeron Assc

The number one piece of advice was to keep your resume updated. Like batteries in a smoke detector, you should probably dust yours off twice a year to keep the document current with your latest accomplishments and acquired skills. If your resume is terribly outdated, the chore starts with some introspective soul-searching. Simply put, you must be able to articulate how you have helped former employers gain business success and what you want to do next.

Beyond the basic tenet that the resume should be either in functional or chronological format, it's pretty much open game on layout and content. And here's where many professionals get sidetracked. According to Linda and Bob, most job seekers stumble by trying to build an all- shopping list of their lifelong responsibilities, employment history and relevant education, associations, etc. Unfortunately, approach is not likely to help the candidate reach their goal, which is to get an interview.

Instead, the resume should be viewed as a piece of "sales" literature, with the "product" being pitched: you. The key take-a this session were: keep all descriptions crisp and brief, include quantitative results of your achievements and customize it type of position being sought or, better yet, for every position.

How to Conduct an Effective Job Search

Patrick Sharp and his daughter Whitney both found the workshops filled with useful information.

Recent studies have shown that almost 60 percent of all jobs found tod through networking. That means the use of networking goes beyond jus profile and a diligent scrub of those 1982 spring break photos from your brother's Facebook page. To be most effective, job seekers need to be their career aspirations at all sorts of social events, such as church coff and even in line at the grocery store.

Linda and Bob recommended that job seekers be mindful of profession and do not ignore the "human touch" in exchange for digital efficiency. explained that the tough economy has made the recruiter even more va employers are more determined than ever to fill every opening with the candidate available. The recruiter can provide information about the hiri landscape and invaluable coaching, including "reading between the line description to identify candidate must-haves. Ultimately all of that ups th successful match between candidate and position.

In the words of one attendee, "Although I went through a job about a year ago and thought that I knew it all, it was still goo the key points reinforced. Linda and Bob did a great job by dispensing real-world advice and not sugar-coa realities of today's job market."

Biotech Process Scale-up & Tech Transfer: Everything You need to Know for Success the

Previous Issues

Time

article & photos by Joyce Chiu, Perceptive Informatics

On January 26th, on a cold winter evening, nearly 70 ISPE members and guests visited the beautiful Boston Seaport facili firm Foley Hoag to network and listen to three experienced industry practitioners share their experiences on "Biotech Proc up & Technology Transfer," a topic central to the development and manufacture of pharmaceutical drug substances.

The attendees first enjoyed some wonderful appetizers and informal networking. Many area biotech engineers showed up higher-than-usual number of women and young professionals. Many also lingered after the formal program ended and co networking.

What a Process Technology Transfer Needs to Accomplish: Hurdles and Techniques

Jeff S. Socolow, MBA, Sr. Project Manager, Shire Human Genetic Therapies

Jeff opened the evening by providing a general overview of technology transfer - its definition, guiding principles, governar structure, project structure, requirements and pitfalls of the originating and receiving organizations, as well as other consid

Process tech transfer is the faithful and compliant transfer of technology, information, documentation and skills from the pr owner (the originating organization) to a GMP manufacturing organization (the receiving organization). A tech transfer has chance of success with

- minimal equipment and process changes,
- early partnership with Quality,
- established governance structure,
- extensive planning, and
- team-owned decisions.

A tech transfer consists of five to eight stages and starts with a rigorous facility fit assessment to identify equipment compa gaps at the receiving organization. Included in the assessment are: readiness to establish standards of product quality and productivity, scale (lab or pilot) and considerations for manufacturability.

A tech transfer governance structure consists of an organizational chart where roles and responsibilities are defined; and a stage-based process map with deliverables for each stage, from which a detailed project schedule can be developed.

A breathtaking view from the 13th floor of the Foley Hoag Seaport facility greeted attendees

For the originating organization, having an accurate and locked-down process description (both upstream and downstrean Typically the downstream process tends to lag behind the much longer upstream process. Where external CMOs are invo sometimes not all the issues can be anticipated; therefore upfront due-diligence and risk assessment and management ar much more important.

For the receiving organization, assessing their process capability, facility fit and risks; and locking down the bill of material possible are key. Some common pitfalls include automation issues, the time it takes to finalize documentation, and trainin operators.

The key factors for a successful tech transfer include an approved project scope and plan, effective meeting management issues while keeping governance apprised, a detailed and baseline schedule, team ground rules and holding members ac standard reporting and collaboration tools, and a well-defined communication strategy.

Technology Transfer: What You Need Before You Start ... and Probably Don't Have

Sheila G. Magill, PhD, BioProcess Technology Consultants

Sheila continued with a definition, kinds of tech transfers, protocols, materials and knowledge. The definition echoes what - a process transferred from one organization to another, whereby the same results and outcome are achieved.

There are process transfers and analytical method transfers. In analytical method transfers, it is important to define the cr materials, not only going by the vendor's QC methods and release criteria, but also by how they are used in the particular that is, their fitness-for-use.

Risk management is an important consideration in tech transfer. In early clinical stages, it may not be critical, or even des use cGMP rigor because the process and analytics are still early in their development. As the process gets closer to late s cGMP manufacture, the rigor and compliance to cGMP standards become more important and must be adhered to.

Tech transfers require a clear description of the process or method, deep knowledge about the process in documentation materials to enable the transfer, and what constitutes a successful transfer. These will enable the receiving organization t the results of the originating organization. In the transfer protocol, there needs to be a clear definition of responsibilities, e materials, activity and personnel.

In addition, to allow a smooth knowledge transfer, frequent meetings and exchange of information are required, which can lot of time and resources, and the commitment and goodwill of both parties. These entail the commitment of senior manag provide necessary resources, the need for clear and realistic timetable and a plan.

Tech Transfer from Development to cGMP Manufacture: Challenges & Solutions in Scaling up a New Microbial Pr 5L to 1000L+

Susan Dana Jones, PhD, BioProcess Technology Consultants

Susan concluded the evening by sharing a detailed case study of a microbial process scale-up from 5L to 1000L+. Becau large gap in equipment scale and the fact that microbial processes are developed individually, this tech transfer must inclu assessments of each unit operation, their performance requirements and any variance noted during development.

This SynCo process scale-up has multiple unit operations in both upstream and downstream processes. The upstream processes at 5L scale include: pre-culture (shake flask), fermentation, cell disruption, batch centrifuge, depth filtration and ultra-filtration. The downstream processes include cation exchange chromatography, ultrafiltration, gel filtration (fractionation), 0.22 µm filtration and bulk fill.

The audience payed close attent during the evening's presentatio

During process development, tech transfer considerations were included. Established E.coli fermentation medium, conditions, etc. compatible with the large scale facility were used. There were no animal-derived media components and no complex feeds or supplements other than pH and dO_2 control. In addition, knowledge of facility operations at the larger scale influenced process development choices at the 5L scale - a simple fermentation batch operation was used with minimal downstream steps while achieving product quality and purity, as well as half of the fermentation culture was used for downstream processing at scale.

During scale-up, all operating parameters at 5L scale were verified with three batches prior to an engineering batch at scale. The raw materials intended at scale were used in process development. Scale-up for chromatography and filtrations steps was linear; fractions in chromatogra were collected to allow flexible pooling strategy at scale. In addition, breakthrough studies at small scale can support the filter area at large scale.

With the above strategies in place, the volumes and times between the two scales were established, with good reproducib while the 1000L scale cell growth, as indicated by optical density, was not as good as at 5L, because of the challenges of heat transfer at the large scale. All of the unit operations showed good to excellent scaleability results, with the exception centrifugation, because that process is a batch process at 5L and a continuous process at 1000L.

This case study exemplifies some of the best practices used in process development and tech transfer, where the develop small scale incorporated many careful considerations and minimized risks at the larger scale.

By the end of the evening, attendees not only had a good idea of the general framework and guiding princ process scale-up and tech but had enjoyed a riveting case study where success was clearly demonstrated. area biotech engineers expressed interest in learning more about tech transfer, in particular the best pract management from early to late stage development, as well as new technologies for the unit operations use bioprocess manufacturing.

Meet the Young Professionals

by Rob DeCoste, Commissioning Agents, Inc.

The Young Professionals is a new organization within ISPE that was formed to foster the ideas and professional needs of who consider themselves new in their career and/or the biotechnology and pharmaceutical industries. The primary focus Professionals is education, career/professional development and networking.

The Boston Area Chapter Young Professional planning committee has been formed by members within the industry. The volunteer for and develop events while addressing specific needs of the young professional demographic. The current me the committee are:

Dan Ramsey, Commissioning Agents, Inc.
Jillian Willard, Genzyme Corporation
Jared Marshal, Genzyme Corporation
Aarash Navabi, Invensys
Rob DeCoste, Commissioning Agents, Inc.
AJ McMahon, Sentinel Process
Christa Miller Shelley, Commissioning Agents, Inc.
James Grunwald, A-Z Corporation

The committee is currently working on numerous events, including educational forums, facility tours, and social gatherings creation of a database for white papers and publications. Recent accomplishments include developing educational sessio Annual Product Show in October 2009, hosting an educational program at Genzyme on PAT and bioreactors, and launchi Facebook page.

Upcoming events for 2010 include an April Red Sox outing, the Second Annual Harbor Cruise, as well as nu educational seminars. The Young Professionals are also working with ISPE International to help launch sim throughout the US and Puerto Rico. The group is open to anyone who would like to participate or volunte additional information, join the Facebook page (Young Professionals - ISPE Boston Area Chapter), contact Boston Area Chapter office at ISPE@camihq.com, or Dan Ramsey at Daniel.ramsey@cagents.com.

Genzyme Hosts Young Professionals Educational Program

by Dan Ramsey, Commissioning Agents, Inc. with photo by Jim Landers, Wentworth Institute of Technology

The ISPE Boston Area Young Professionals group was recently formed to serve the professional needs of individuals wh establishing their careers in the biotechnology and pharmaceutical industry. The primary focus of this group is education, career/professional development and networking. On January 21st, the Young Professionals held its most recent educatio sponsored by Genzyme at their corporate headquarters at 500 Kendall Street in Cambridge. The event was a great oppor young professionals, students and those new to the biotechnology and pharmaceutical industry to meet with experienced professionals and at the same time brush up on the basics in two areas, Process Analytical Technology (PAT) and biorea operations.

The first presentation, on PAT, was entitled "Process Analytical Technology: What it is and Why it is the Future of Process Engineering, Validation and Quality" and was given by Lou Traglia of Commissioning Agents. Lou gave a thorough explanation of PAT including an overview of the FDA guidance, PAT process control, how PAT is used in other industries and its future in the biotechnology and pharmaceutical industries. The seminar ended with an excellent question and answer series on

the current roadblocks and issues with implementing PAT.

The second presentation, "Bioreactors: Making Sense of the Requirements, Operations and the Utilities They Require" was given by Aarash Navabi who works for Invensys and specializes in the operation, commissioning and validation of bioreactors and their support systems. Aarash focused on the basics of bioreactors, including the different types of bioreactors, their design and construction, their monitoring requirements and the types of instruments required, and the basics of CIP and SIP operations. Aarash gave the audience an in-depth understanding of bioreactors and their requirements for efficient and effective operation.

The Young Professionals appreciate the support they receive from industry professionals who are willing to share their experience and knowledge and extend special thanks to Genzyme for sponsoring this event.

Genzyme provided an impressive and comfortable venu the Young Professionals educational program.

Spotlight Interview with Paige Kane, Pfizer

Spotlig Intervie are a regular Newsle feature allowin membe to share their industr experie and perspe and a few more personal details with their peers.

Spotlight Interview with Paige Kane, Pfizer

- Where did you grow up, attend college? How did you begin your career in biotech? What do you like to do fo not at work?

I grew up in Texas and Missouri and had always been interested in being a veterinarian. While in University I decided I'd r on research than charging customers money to treat their pets. I attended Lincoln University, Jefferson City, Missouri, whe

specialized in Reproductive Physiology and Plant and Soil Science while participating in numerous undergraduate researc competitions (BS Animal Science). While in University I worked for the USDA and US Customs Service. The combination science and regulatory/law enforcement prepared me for my first job at Monsanto (St. Louis) as a Quality Assurance Asso Animal Science Division. At that time, Monsanto had the first biologic therapeutic for use in animals (rBST), hence starting in Biotech.

I'm a big fan of adventure - my husband (David Tremblay) and I enjoy hiking, traveling and we try to spend time every yea Africa and/or the Alps paragliding (I fly, he takes photos). Our 2010 adventures include the birth of our son on February 1

- Describe your job. What do you like best about it?

After 15 years of working in the Quality and Engineering Organizations, I now work in the Operational Excellence Group fo Global Manufacturing, leading the Knowledge Management function. This is probably the most rewarding position I have career because of the satisfaction of helping our colleagues connect to work more effectively - it is a win for our colleague for the business. We blend Knowledge Management approaches (Communities of Practice, content management, Web 2 best suit the situation and the business need. We also work to create internal "organizations" and better leverage our part industry groups such as ISPE.

- How did you get to where you are today?

Perseverance and working outside of my comfort zone! I had a very difficult time finding a job in the early 90s and ended u position with a temporary agency to get my foot in the door at Monsanto. I worked very hard to learn as much as I could. I wonderful supervisor who mentored me and provided me with the courage to reach outside what I thought were my bounc moved to Boston in 1996 to work for Genetics Institute - moving from animal biologics to human biologics - a very big gam

In the late 90s I attended my first ISPE conference in Puerto Rico to learn more about industry guidance for computer vali in a role to ensure we had compliant computerized systems. I sought out ISPE because I needed help to practically imple quality system and there wasn't much information available at that time. At that session I met a member of the GAMP grou that point forward, I developed a strong relationship with the GAMP group. I have served on the Steering Committees in th and Europe for the past 10 years and have held leadership roles in the GAMP CoP for the last 2 years. My volunteer worl via ISPE has provided me many opportunities to learn and to share my knowledge with others.

- Why did you decide to join ISPE?

Back in the late 90s I was a member of a Quality Assurance organization but I found that my area of Quality Systems focu computer (enterprise and plant floor) and the biotech equipment validation was not adequately covered in that organizatio hesitant at first to join ISPE because I wasn't an engineer but once I attended my first conference I realized that these wer that I needed to learn from and share experiences with. ISPE has been the "go to" organization that helped me better wo company and as a bonus I have developed an excellent personal and professional network.

- What do you see as the biggest current challenge for the pharma/biotech industry?

Balancing cost and technology. Time to market for our new products is very important and the ability for us to deliver a sa effective product in a cost effective manner is challenging. As an industry we are called upon to develop innovative engine scientific solutions to support development and manufacturing. The days of the super-facilities are passing and we need m innovation and collaboration in the industry.

- Where do you see the pharma/biotech industry going over the next five to ten years?

We certainly will see more bio-similars and there will be even greater competitiveness for molecules and IP. Techniques v be employed to drive down the cost of goods to remain competitive (Lean, Six Sigma, utilization of risk-based approach).

- What changes have you seen in the industry in response to the launch of the FDA's risk-based initiative?

A more pragmatic approach to qualification and validation of systems, more thought given to the intent of the regulations r meeting the "letter of the law." I also believe that using a risk based approach is more conducive to innovation in our indus

- How do you balance the demands of your career while continuing to stay current?

It is tough to stay current but I have traveled considerably in the past and those long waits in the airport, on the plane and are the times I use to stay current. I enjoy reading *Pharmaceutical Engineering*, subscribe to many news threads and alsc I am fortunate that because of my ISPE Committee work and COP leadership I am able to attend most large ISPE confere also try to attend as many Boston Chapter events as I can - the Product Show in the fall is my favorite!

- What ISPE activities have you participated in?

Every year I participate in the Boston Area Chapter Product Show, the ISPE Annual Meeting and try to get to 1-2 other ISI conferences a year. I'm also co-leading the ISPE Biotech COP with Richard Priester - we are looking to reinvent the way v collaborate in Biotech and work to build a stronger Biotech network within ISPE.

- If you weren't in the pharma/biotech industry, what other profession do you see yourself in?

I really couldn't imagine myself in any other industry. If I had to do something else it would involve teaching or mentoring. I such wonderful mentors and I feel it is very important to give back.

- How do you balance the demands of your career and the needs of your family?

Pfizer and my manager are very supportive of work life balance so I feel fortunate. With the addition of the new baby I'm s be challenges ahead but I have a very supportive husband and we have to be a bit creative on sharing family time and oth that are important to us. My primary volunteer activity is via ISPE and we try to work that into family time too. Our first fami may be to Washington, DC in June to attend the ISPE Conference and visit some dear friends in the area.

- What advice would you give new graduates planning a career your field?

I think the hardest thing to do is to recognize an opportunity. Sometimes opportunities present themselves in very strange don't be afraid to try something, even if it isn't your major. If you decide to try something, set boundaries (I'll do this for x ar time and then re-evaluate). You never know what could happen.

- What has been the most important benefit you have received from ISPE?

The mentoring and the network I have developed. As a woman in the manufacturing/engineering side of the industry, it ca daunting - my first few ISPE meetings I looked around the room and was a bit intimidated. At a second glance, I realized I some wonderful women who are very willing to coach and mentor anyone who would just ask for an introduction. Winnie C (GAMP and now ISPE Board of Directors) has been a wonderful mentor to me. She has more years in this industry than m

has always been willing to share her knowledge. Although I have been in this regulated environment for over 20 years, I a learning and it is still important to have mentors outside of your company.

BioBall Needs Volunteers - A Slam Dunk for Chapter Members

by Marita King, Maritek, Inc.

The ISPE Boston Area Chapter is a proud sponsor of BioBall - a one-day tournament and Special Olympics fundraiser which brings together teams participating biopharma companies and partners them with Special Olymp Chapter Members can join in on the excitement as volunteers to help pull together and support the teams. While the opportunity to participate in this event is a "slam dunk" for Chapter Members, the Chapter will be recogniz prominent sponsorship of the CEO Free Throw competition. The BioBall t will take place Saturday, March 27th at the athletic center of the Buckingh Browne, & Nichols school in Cambridge.

The Chapter has pursued many avenues for charitable giving during Chapter events but this is the first time we are reachi the community to help sponsor a fund-raising event and give our members a chance to participate. BioBall's efforts were b the Board's attention by Chapter President Sylvia Beaulieu, who also serves on the BioBall volunteer committee. Commur was identified as a Chapter goal during an earlier strategic planning session and the Board agreed that BioBall presented for its exposure to our local industry, while members would have an opportunity to get involved.

With the sponsorship, ISPE Boston Area Chapter members are eligible to participate as volunteers in this exciting event. E organizers will provide volunteers with breakfast, lunch, and a T-shirt. The Chapter will also have a give-away item for all r present, whether they are officially representing ISPE or their own participating companies. All volunteering members shou join Sylvia down at the court as the CEO Free Throw gets underway.

BioBall is in its sixth year and has risen over $300,000 for Special Olympics Massachusetts through the support of particip companies and sponsorship from service providers and suppliers to the local biopharma industry. This year's team roster i companies such as Archemix, Alnylam, CombinatoRx, Infinity, Genzyme, Momenta, Novartis, PAREXEL, Sepracor, Shire

Please visit the BioBall website (http://www.bioball.org/) for a description of opportunities and to sign-up - click the "Volunt Registration" link. There are various needs with varying time commitments, including assistance on Friday prior to the eve have any questions about the event, or have any ideas for other community events, please contact us at ispe@camihq.co

Interested in Becoming an ISPE Certified Pharmaceutical Industry Professional™? The B Area Chapter Can Help...

The ISPE Boston Area Chapter is planning a new initiative to make it convenient and fun for our members to obtain the CP Certified Pharmaceutical Industry Professional credential. This credential is only available by exam through the ISPE and i to recognize those in the industry whose experience and knowledge make them outstanding leaders. The Chapter will hos meetings beginning this spring with free learning materials and expert help in a friendly group environment. There will be li places available so to reserve your spot you may call the ISPE office now.

We interviewed Allan MacDonald, CPIP, one of the Boston Area Chapter members who recently earned this credential, to more:

What stimulated you to get the CPIP?
My entire adult career has been in the pharmaceutical industry. This was an opportunity to be vetted by industry professio recognized for the experience and knowledge I had accumulated.

Were you at all nervous when you decided to go for it?
At first I was excited when they announced the program. Then I was apprehensive as I reviewed the eligibility requirement explanation of the testing in the knowledge elements. I tried to gauge the amount of work it would take to obtain the certifi relieved when I finally started to talk to some of the first recipients of the certification and decided that it was within my gra

How much did you actually study? Where did you get the materials?
Studying wasn't really the toughest part since I have been in the industry for a while. I have been exposed to all of the kno elements at least to a certain degree. Of course I was most comfortable in the elements that I dealt the most with in my da work. Amassing the required documentation probably took more time than the studying. The example questions ISPE put a good gauge of my starting point. Without studying I tried to answer all of the questions and I only got about 60% of them was able to identify my weaker areas. I obtained the study guide that gave a good list of reference documents and I syste went through each source document title and then read those that were freely available in articles and government websit FDA.gov or the ICH guidelines.

How much time elapsed between the time you decided to go for it and the time you took the exam? Was that about how lo expected? How did you know when you were "ready"?
About three months elapsed from the time I decided I was going to try it until I wrote the exam. One of the original "CPIPe told me that for him the paper work and studying all told was about 200 hours of work. After doing it myself I would have to was a pretty good estimate. But of course this will vary depending on one's experience. I really never knew for certain that "Ready." I had a deadline and continued to read study references right up to the exam date.

What sort of difference, if any, has having the CPIP made for you?
The biggest difference has been within me. It was very satisfying to have gone through the process. In writing the experien exemplars and getting industry colleagues to attest to them I was able to look back on my industry experience and capture my accomplishments. I decided to seek the CPIP certification after I had resigned from an operating company and decided career as an independent contractor. I believe the credential provides a certain boost in baseline credibility when approach potential clients that do not know me or my work. It is one thing for me to just say to a client I have a broad pharmaceutica background; it is quite another for me to explain what the CPIP means and what it takes to be awarded the credential.

Have you encountered people who knew about it? What was their reaction to finding out you are a CPIP?
Most people are curious since they may have seen the CPIP referenced especially if they are ISPE members. But most do what it involves. The ones who do are eager to hear about what it took to get it as they are trying to evaluate if they should themselves.

Anything else you think our readers might like to know?
I would encourage anyone thinking of becoming a CPIP to seek out as many of those that currently hold the credential as and ask them questions. I am also sure that CPIPs would like to hear what you think of the credential.

Volunteer Opportunities for Subject Matter Experts

The international ISPE organization is seeking subject matter expert (SME) volunteers to provide assistance in two areas: questions for the Certified Pharmaceutical Industry Professional™ (CPIP) examination and updating the content of severa courses designed to provide fundamental global industry knowledge. These volunteer positions are described in detail bel

Subject Matter Expert - CPIP Exam Item Writer

Job Overview:

Become qualified to serve as a subject matter expert and write examination questions (items) for the Certified Pharmaceu Professional (CPIP) examination.

Qualification:

- Send a detailed resume identifying your job positions, primary duties and assignments, and years of industr experience to the ISPE Professional Certification Department.
- The ISPE Professional Certification Commission (PCC) Examination Development Committee reviews your re determines where your expertise matches the technical knowledge areas to be covered on the exam.
- Attend an on-line item writing webinar.
- Receive your item writing assignment and password.

Item writing:

1. Log-on to the ISPE-PCC item writing Website
2. Fill-in the item writing template for each item assigned

Purpose and Objectives:

Your expertise as a subject matter expert will greatly assist the CPIP™ certification program in providing exam questions segment and geographical diversity. As a qualified SME your capability and service as an item writer will receive industry

Complete by Date: ASAP

Response Method: Email your response to Jerry Roth jroth@ispe.org

ISPE Staff Contact: Jerry Roth, PE, ISPE Director of Professional Certification

Subject Matter Expert - To Provide Content Updates for Online Training Courses

Job Overview:

Among the wide range of educational products ISPE offers, is a series of online courses to provide fundamental global ind knowledge. We are seeking subject matter experts to help us update the content of the following courses.

1. Facilities and equipment - Controls and automation
2. Product Development - Production scale-up and optimization
3. Production Systems - Production unit operations - drug (small molecule) and biologics
4. Supply Chain Management - Warehouse and distribution

Responsibilities of this Position:

Contribute job-related industry experience for updating content. Administrative and design support provided by ISPE staff.

Skills/Experience Requirements for this Position:

1. **Facilities and Equipment:** Knowledge of building management systems and types of process automation and associated controls

2. **Product Development and Product scale-up and optimization**: Knowledge of the options to increase and/or optimize production, critical factors of scale-up and their impact on manufacturability, impact of factors that can positively or negatively affect scale-up, and modeling techniques for optimization of product cycle time.

3. **Production Systems - Production unit operations - drug (small molecule) and biologics**: Knowledge of manufacture of active pharmaceutical ingredients, components, and excipients, unit operations, labeling and packa operations, critical process equipment and utility systems' attributes (performance, functionality, construction, instrumentation) and their impact on personnel and product, controls required for receipt, storage, and dispensing raw materials, and packaging materials, and industrial engineering standards, facility and equipment utilization, an operational efficiencies.

4. **Supply Chain Management - Warehouse and distribution management:** Knowledge of warehouse and distribution management systems, transportation and logistics systems, environmental storage and transportation controls for hazardous and non-hazardous materials, and distribution chain security and product disposition contro

Length of Service: 2 to 3 days for each course

If you are interested in volunteering for this position please click the link to complete a Volunteer Profile http://www.ispe.org/volunteerprofile

Tech Talk: Improvements in Installation Practices of Bioprocess Piping Systems

by Barbara K. Henon, Ph.D., Arc Machines, Inc.

Installation practices at modern biopharmaceutical, pharmaceutical and some food and dairy plants today are quite different than those at similar construction sites 20 years ago. The specification for the use of machine or orbital GTA welding together with the development of the ASME Bioprocessing Equipment (BPE) Standard has resulted in cleaner, more repeatable welding of piping and components such that thousands of welds are routinely installed with very low reject rates. Today's improvements in hygienic design and cleanability of process piping systems are considered essential for the production of bioengineered pharmaceutical products.

Figure 1. An orbital welding operator welding a tubing assembly at a biotechnology expansion in Singapore.
Photo courtesy of Kenyon Engineering

The ASME Bioprocessing Equipment (BPE) Standard [ref 1]

Problems with defective welds on process equipment imported from Europe was the initial catalyst that led to work on the BPE Standard. In 1988 an engineer at a biotechnology plant in San Francisco, California was preparing to install some process equipment and recognized that the welds on the equipment were of insufficient quality to meet the stringent hygienic requirements necessary for growing cells in culture. Since existing standards were insufficient for this new technology, the engineer recruited a group of suppliers and end use industry and they approached the American Society of Mechanical Engineers (ASME) for permission to begin the writing c standard for the developing Bioprocess Industry. Work on the BPE was begun and the first edition was published in 1997.

appeared in 2002, 2005, and 2007. A new BPE edition for 2009 was released for publication in October, 2009.

Achieving welds of consistent high quality compatible with the principles of hygienic design was an initial goal of the BPE C but the Standard is by no means limited to welding and fabrication issues. The BPE Standard deals with the requirements bioprocessing and pharmaceutical industries, as well as other applications with relatively high levels of hygienic requireme bioburden control. BPE covers directly or indirectly the subjects of design of process equipment for cleanability and sterilit component manufacture, materials of construction, fabrication including welding, pressure systems (vessels and piping), examinations, inspections, testing and certifications.

The BPE Standard applies only to new construction and only to those systems and components that are in direct or indire with the product. It does not apply to those components that are not in contact with the finished product or part of the inter manufacturing stages. The BPE is an American National Standard that, by 2002, had become an adopted International St referenced in 29 countries. Use of the BPE Standard has continued to grow to the point that virtually all new biopharmace in the United States and many foreign countries, have been designed to, or have retroactively incorporated its requiremen specification.

Orbital Welding to the BPE Standard - Improved Weld Quality and Repeatability

The stated purpose of BPE Part SD of the BPE Standard - Design for Sterility and Cleanability is "to create a design fram proven practices, for maintaining clean and sterile process systems." From the beginning, orbital GTA welding was recom the BPE for joining of piping and process components. (Figure 1.) Although the repeatability of orbital welding power supp potential to deliver higher productivity than manual welding because of improved weld repeatability and less need for re-w conditions existing in the Industry at that time made the fulfillment of this promise problematic. Prior to the introduction of t 1997, there was no consistency in material chemistry or in the dimensions of weld fittings used in biopharmaceutical appli Material chemistry is important because stainless steel shows considerable heat to heat variation in weldability so that wel parameters that produced successful welds on one heat of material would need considerable adjustment for other heats. C dimensions are important as the welding current is based on wall thickness. Other dimensions affect fit-up, etc. Welds at t were often discolored due to poor inert gas purging. These conditions were addressed by the BPE Subcommittee on Mate (MJSC) and the Subcommittee on Dimensions and Tolerances (DTSC).

The MJSC developed a set of weld criteria that, in addition to code criteria for adequate structural integrity, was designed the growth of microorganisms and promote cleanability. Orbital welds are smoother than manual welds and, when done pr free from crevices, pits and other defects that could harbor microorganisms. All welds must have complete penetration to t surface of the weld which, in bioprocess applications, is usually the product contact surface. Unpenetrated welds are entra for product and are difficult to clean. Process piping lines are sloped for drainability as gravity is the most efficient means c fluid from a system. Limits on inside diameter (ID) and outside diameter (OD) concavity and misalignment are set to promo drainability and cleanability of weld surfaces.

Control of Material Chemistry and Weld End Dimensions

Prior to the introduction of the BPE, piping and component materials in biopharmaceutical applications could be 304 or 316 or 304L or 316L stainless steel. The BPE recommended the use of 316L for weld ends but there is considerable heat-to-heat variation in the weldability of stainless steel so even when only 316L is used, variations in trace element composition, especially sulfur content can cause problems in welding. Very low sulfur material is difficult to weld since the weld pool tends to be shallow, wide and difficult to obtain uniform joint penetration. But a greater problem results when welding fittings to tubing with large differences in the sulfur content. In this case, the weld pool may shift favoring the low sulfur heat and lack of penetration may occur. While the AISI specified only an upper limit for sulfur of 0.030 wt%, BPE has specified both an upper limit of 0.017 and a lower limit of 0.005 wt.% sulfur for weld ends of fittings, valves and other

components. This has virtually eliminated all of the problems related to sulfur content and greatly improved installation of biopharmaceutical systems.

In the 2009 Edition of BPE there will be a new Part CR Certification. Manufacturers of tubing and/or fittings that comply with ASME requirements for certification will be permitted to mark their products with an ASME BPE Stamp that certifies that the facilities have the capability to manufacture compliant products and that products so marked have the specified chemical and dimensional properties and appropriate surface finish.

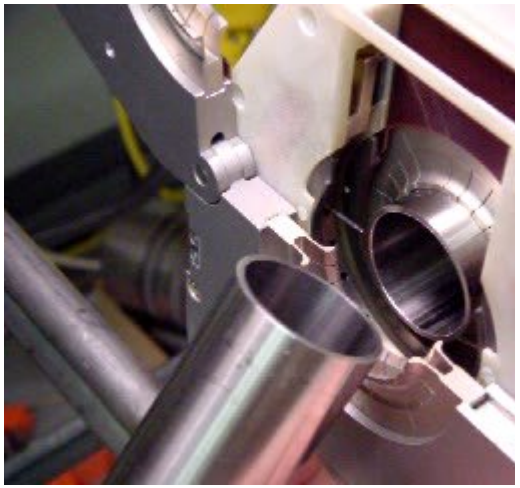

Figure 2. A good machined end-preparatio important for fit-up of the weld joint and f achieving repeatable orbital welds.
Photo courtesy of Arc Machines, Inc.

Discoloration

One of the contribu of the BPE Standar to achieving high quality hygienic welds

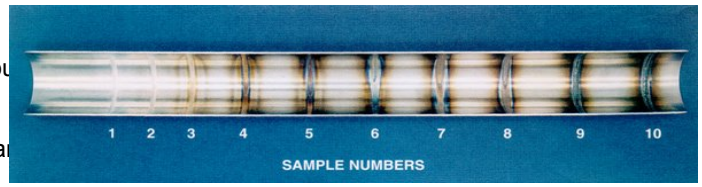

Figure 3. Color chart from AWS D18.1/D18.2. Weld discoloration relative o amounts of oxygen added to ID purge gas.
Photo courtesy of American Welding Society.

was to specify the amount of color permitted on the ID of the weld and heat-affected zone (HAZ). While no color is permitt weld itself, a slight color may be allowed on the HAZ. As a guide, the BPE refers to the American Welding Society (AWS D AWS D18.2) Specification for Welding of Austenitic Stainless Steel Tube and Pipe Systems in Sanitary (Hygienic) Applica which published a color photo showing the amount of weld discoloration on the ID surface of a series of orbital welds. We coloration was shown to increase with increasing amounts of oxygen added to the ID (argon) purge. (Figure 3.)

This figure allows owners, installing contractors and QA people to agree in advance to the amount of weld discoloration ac a particular application. Since the amount of discoloration has been shown to correspond to a loss in corrosion resistance, products of corrosion can result in contamination of the system, this is not just a cosmetic issue. Contaminants other than including moisture, oil or grease on the tubing, etc. can result in weld discoloration, thus the color on the chart rather than content of the purge gas is the acceptance criterion. Owners typically specify sample number three as the upper allowable obviously would prefer welds in the 1-2 range with minimal discoloration.

Facility Design for Improved Workflow and Efficiency

An example of how a manufacturer of bioprocessing equipment optimized their production, Sartorius BBI Systems, Inc. (SBBIS) designed and organized an entire facility to improve workflow and efficiency and to streamline procedures.[ref 3] These procedures included improved work flow for orbital welding of tubing and components in compliance with the BPE Standard (Figure 4.) In addition, the facility is arranged so that fabrication is performed in areas where the product contact surfaces are protected from contamination and surface contamination is prevented. When electropolishing of welded assemblies is specified, SBBIS does the electropolishing in-house to prevent the contamination that

would result from transport to another facility. This has significantly improved the hygienic aspects of installation technology in their facility.

Reasons for Greater Percent of Orbital Welds

In the past there were many places in systems and equipment that an orbital weld head would not fit so a larger percentage of welds had to be done manually. Newer designs in weld heads such as the Arc Machines, Inc. Model 8 series, which is narower than previous designs, has led designers of equipment and piping systems to design for orbital welds and now virtually 100% of field welds in biopharmaceutical applications are done orbitally.

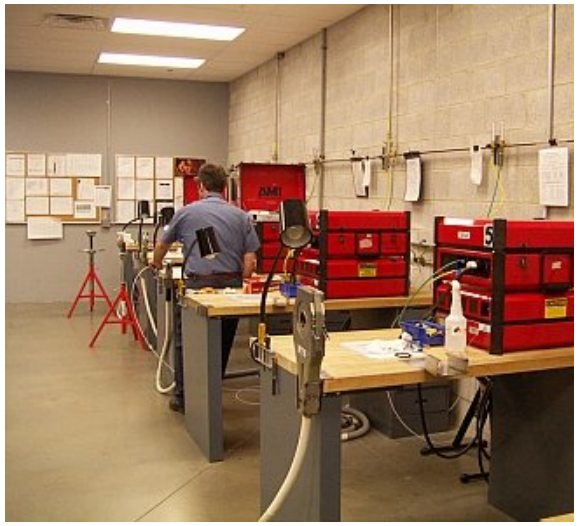

Figure 4. Arc Machines Model 207 power suppli Model 8 weld heads used in the manufacture o bioreactors and fermentors.
Photo courtesy of Sartorius BBI Systems, Inc & Arc Mac

Inspection and Examination of Welds

Weld Inspection and Examination has become more systematic in recent years. The ASME BPE, in accordance with the ASME B31.3 Process Piping Code, makes the distinction between Examination and Inspection. B31.3 requires that the external surface of all welds be examined and a minimum of 20% of the welds be inspected internally on the product contact surface with a borescope or, when accessible, by direct visual inspection. Examination is done by the installer or the person performing the weld while inspection must be done by the owner or his representative who may be a third party QA/ QC company or consultant. The contractor must submit an inspection plan in which the percentage of welds to be inspected must be agree the owner/user, installing contractor and/or engineer. This in-process borescopic examination is done in lieu of radiograph otherwise be required.

Test coupons or sample welds are made and evaluated pior to production welding to demonstrate that the welding equipment is working properly and that the purge is satisfactory (Figure 5.). Coupon welds are done at specified intervals throughout the project such as at the beginning of a shift, when the power supply is moved, etc. A BPE Weld Log is maintained during a project for coupon welds as well as for production welds. Each weld has a unique number and the locatiion of any weld in a facility can be traced to a particular isometric drawing creating a weld map (Figure 6.) For each weld there is a record of the date it was welded, the welding operator's ID number, and whether the weld was examined or inspected. Any component welded into the system is identifiable and the materials from which it was fabricated can be traced back to the mill.

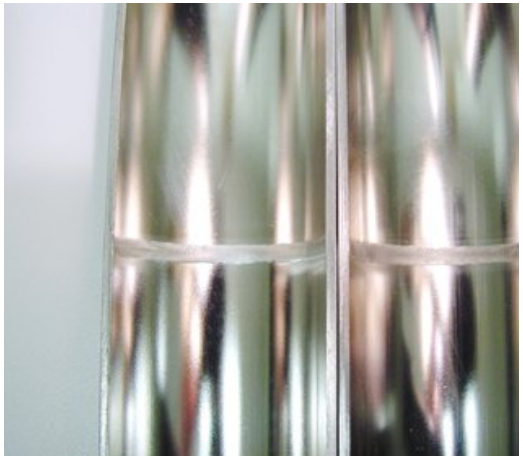

Figure 5. Orbital weld cut open for inspection of t ID surface. Weld coupons or test welds are routinely used for Quality Assurance of biopharmaceutical process piping systems.
Photo courtesy of Protech Process, Inc. and Arc Machines

Welding Documentation

Welding documentation includes documents certifying the welding procedures and welding

personnel to ASME Sect. IX of the Boiler and Pressure Vessel code which consist of Welding Procedure Specifications (WPSs), Procedure Qualification Records (PQRs), and Welder Performance Qualifications (WPQs) for manual welders, and Welding Operator Performance Qualifications (WOPQs) for orbital welding operators. The Qualifications for Inspectors and Examiners must also be included.

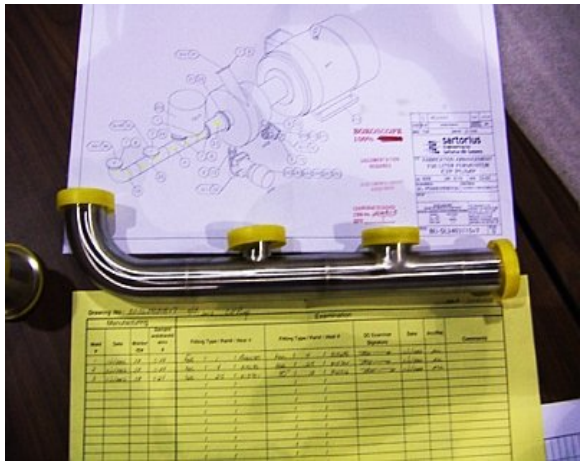

Figure 6. An orbitally welded assembly for a CIP pump for a 750-l fermentor. The location of the assembly is shown on the weld map with the position of each weld numbered. The yellow control document travels with the part as it is fabricated.
Photo courtesy of Sartorius BBI Systems, Inc.

Equipment Installation

Installation of equipment in biopharmaceutical applications have been made more efficient by the use of skid-mounted eq modules so that installation and fabrication can be telescoped into a shorter timescale. Fabrication and in some cases ins commissioning of the skids can occur at the same time as plant construction. This means that all of the materials and com must be inspected prior to installation and provision for weld inspection and documentation must happen during the manuf the skid. For the recent expansion at Lonza Biologics Expansion in Singapore, process equipment for the large scale mam biopharmaceutical production plant was fabricated, tested and disassembled in the United States, and then shipped to Sin reassemblyonsite. Orbital welding in a clean facility done in accordance with the BPE Standard assured the compliance to design concepts. (Figure 1.)

Passivation Procedure Qualification

Field welds in hygienic piping systems are typically left in the as-welded condition; the only post weld treatment being cher passivation with nitric or citric acid solutions following installation. Passivation restores, at least in part elements in the pas layer that are disturbed by welding and the concomitant loss of corrosion resistance. The BPE Surface Finish Subcommitt added a new non-mandatory appendix to the 2009 Edition of BPE that offers guidelines to owners for qualification of their procedures.

Living Standard

The BPE Standard is a consensus standard with work done by volunteers. It has helped to consolidate acceptable practic procedures for examination, inspection and documentation of welds in bioprocess piping systems.

While the BPE Standard specifies what the end result must be, it does not provide guidelines for installers telling them hov the desired results. Installation practices (SOPs) developed by installing contractors are written procedures that all welding

installation personnel must follow. This assures that procedures are consistenly carried out and increases the likelyhood th will be of similar high quality. The contractors' SOPs become part of the Turnover Package submitted for validation of the

Standards such as BPE operate on the assumption that quality must be built in - it cannot be added after the fact. The Sta continuosly being updated to represent a consensus of current good manufacturing practices (cGMP) for the biopharmace industry.

Summary

The last 20 years have seen dramatic improvements in fabrication technology. Orbital welding has been central to this adv while standardization of weld end dimensions and chemistry by the BPE have resulted in more repeatable welding proced BPE Committee has reached its initial goal of achieving welds of consistent high quality compatible with the principles of h design.

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3. Stadler, Henon and Koiro. Designing a CGMP Equipment Manufacturing Facility. BioProcess International, June 2007

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Barbara K. Henon, Ph.D., is a contract employee for Arc Machines and a member of the ASME Bioprocessing Equipment Standards Committee. Dr. Henon joined Arc Machines in 1984. From 1984 to 1994 she performed orbital welding training welding operators in the field; she has also written operator training manuals and articles on customer applications.

Dr. Henon joined the ASME BPE Standards Committee in 1989 and served for two terms as Vice Chair of the Main Comm currently a member of the BPE Materials Joining and Surface Finishes subcommittees and the Subcommittee on General Requirements. She is the official Liaison between the ASME BPE and ASME B31.3 Process Piping Committee which is cu writing a High-Purity chapter. She also serves on the American Welding Society (AWS) D10 Committees and AWS D18 C

Other articles by Dr. Henon can be found on the Arc Machines website http://www.arcmachines.com/ under Applications. reached at http://email01.secureserver.net/compose.php?sendto=barbara.henon@arcmachines.com or at 206-546-9601.

Industry News In Brief

by Patti Charek, RF Walsh Collaborative Partners

RXi Pharmaceuticals and UMass Medical Announce Research Collaboration

RXi Pharmaceuticals, a biopharmaceutical company pursuing the development and commercialization of proprietary thera based on RNA interference (RNAi), today announced a collaboration with Shalesh Kaushal, M.D., Ph.D., Chairman of the of Ophthalmology at The University of Massachusetts Medical School (UMMS). The research collaboration will be focused application of RXi's self-delivering RNAi (sd-rxRNA®) compounds for ocular diseases such as age-related macular degen leading cause of blindness in Americans over 55 years of age.

RXi previously presented encouraging data on spontaneous cellular uptake and potent activity of sd-rxRNA compounds in The collaboration with UMMS will further advance RXi's therapeutic platform by evaluating the delivery and silencing activi rxRNAs in preclinical models of ocular disease. Noah D. Beerman, President and CEO of RXi Pharmaceuticals commente "Leveraging academic collaborations is an essential part of our business strategy and we are looking forward to collaborat of the top clinical research ophthalmologists in the US." Dr. Kaushal commented, "RXi's next generation sd-rxRNA compo

incorporate many drug-like properties of a successful therapeutic and may improve the clinical success of RNAi therapeuti
enthusiastic about the opportunity to work with such promising technology from one of the leading RNAi therapeutics comp

RNA interference (RNAi) is a naturally occurring mechanism whereby short, double-stranded RNA molecules interfere with
expression of genes in living cells. This mechanism has the potential to be harnessed to "silence" or specifically block the
of disease-causing proteins before they are made. This technology can potentially be used to treat human diseases by "tu
genes that lead to disease in the first place. RXi Pharmaceuticals is using RNAi technology to develop RNA-derived molec
targeting disease-causing genes. Self-delivering rxRNA® (sd-rxRNA®) is a proprietary technology developed at RXi which
potential to enable the efficient delivery of RNAi compounds without the requirement of an additional delivery vehicle. This
has potential clinical applications for diseases where localized delivery is an option and also has the potential to be applied
indications requiring systemic delivery of RNAi. (Source: RXi Website, 14 January, 2010)

Charles River To Close Shrewsbury Lab

Charles River Laboratories International of Wilmington will close its 400,000-square-foot facility off Route 9 in Shrewsbury
middle of the year, leaving 300 people without jobs. The company said it expects to save about $20 million this year as a r
closing and that it would consider reopening the facility when the market for preclinical studies improves.

Charles River said it expects the preclinical research sector to begin showing improvement in the second quarter, but the l
months have seen "extended softness" throughout the contract research industry. The company bought the Shrewsbury fa
2005 and later moved there from its building at 55-57 Union St. in Worcester, which it had outgrown. (Source: Matthew L.
Worcester Business Journal, 12 January, 2010)

Acton Pharmaceuticals Hopes to Hire 100 in 2010

Fresh off landing $15 million in venture capital funding, Marlborough-based Acton Pharmaceuticals executives hope to hir
employees in 2010. The company, founded in 2008, specializes in development and marketing of respiratory products and
hire about 80 sales staff around the country and 10 to 20 managers in the next calendar year, according to president and
L. Kreisler. Acton executives also recently finalized a deal with Forest Laboratories of New York to market and distribute th
company's newest asthma inhaler product, Aerospan.

Kreisler and co-founder John W. Simon, who serves as CEO, are no strangers to the life science industry, or Forest Labs.
spent 10 years as vice president at Sepracor in Marlborough until 2007 and before that spent six years with Forest Labora
Kreisler spent 16 years with Forest before helping to co-found another company, JDS Pharmaceuticals, in 2004. The two s
Acton Pharmaceuticals in 2008 with the intention of specializing in respiratory products. Forest Laboratories newest inhale
Aerospan, immediately piqued Kreisler and Simon's interest. "We see a tremendous unmet need in this field," Kreisler said
is still not adequately controlled by medications on the market. The $15 million in venture capital funding will help Acton fu
develop the product, ready it for manufacturing, and develop a commercialization strategy. Acton plans to outsource manu
Aerospan to 3M facilities in California and expects the product to be launched in the first quarter of 2011.

Kreisler and Simon were attracted to Aerospan because of its unique qualities that they hope will make it a hit in the $7 bil
inhaler market. Like most asthma products, Aerospan uses inhaled steroids as anti-inflammatory medication. Asthma caus
airways to close and tighten, and products like Aerospan loosen the muscles and allow breathing. But Aerospan is differer
major reasons. Firstly, the product uses only environmentally-friendly chemicals in the inhaler's propellant. Aerospan also
in spacer, which optimizes proper inhalation of the steroid. The spacer helps coordinate the breathing in of the medication
pushing down of the inhaler. That increases the chances the medication will work effectively. (Source: Brandon Butler, Me
26 January, 2010)

Genzyme Expands Framingham Campus

Genzyme has expanded its presence in Framingham with the lease of nearly 136,000 square feet at the 9/90 Corporate C
company now occupies more than 1.2 million square feet in Framingham at the Framingham Technology Park and 9/90 C
Center, which is near the intersection of Route 9 and Interstate 90, just east of Interstate 495. The company already occup
square feet at 200 Crossing Blvd. in the complex and expanded to 80,000 square feet there. The company also leased a 5
square-foot building at 200 Staples Drive, according to CB Richard Ellis, the Boston-based commercial real estate broker

represented Genzyme in the deal. The lease was signed in mid-December. The complex's landlord is National Developme Realty Investors, which were represented by FHO Partners of Boston in the deal. (Source: Matthew L. Brown, Worcester B Journal, 2 February, 2010)

Caliper Life Sciences Makes Time Magazine's Top Discoveries List

The top 10 discoveries of 2009, according to Time Magazine, include identifying a possible cure for colorblindness, a com examination of the earliest human skeletal remains ever found and finding gallons of water on the moon. Add to that list H based Caliper Life Science's contribution: a robot that could revolutionize the way scientists perform experiments. "It beat water on the moon," said Caliper CEO Kevin Hrusovsky. "This is truly a game-changing discovery."

Conceived by a British scientist and developed by Caliper, the robot can run an entire scientific experiment with virtually n intervention. It can form a hypothesis, create a testing method, execute the procedure, analyze the results and revise the h That means more scientific tests can be done faster and with better accuracy. "Having technology like this allows for a sig amount of additional experimentation and for even greater discoveries down the road," Hrusovsky said.

Working with robots and some of the world's leading scientists is nothing new to Caliper. The company began in the early a specialty focus in robots. Today, Caliper offers a variety of products in lab automation, imaging technologies and develo optimization techniques. The company works with scientists and engineers across the world to make tools that can accele pace of study. For the robot that Time Magazine cited, the company teamed with Dr. Ross King of Aberystwyth University who was studying yeast genes. "We work with people from Harvard, Stanford and MIT," Hrusovsky said. "Many of these a are trying to innovate the next great technology. We're able to commercialize those great ideas." At any one time Caliper i about 10 of projects, but Hrusovsky said the company is always looking to partner with scientists to find a new breakthrou technology.

Caliper's revenues have grown from about $25 million in 2002 to $130 million in 2009. Preliminary figures released in mid- show the company could end the year in a cash-positive position. (Source: Brandon Butler, MetroWest495, 2 February, 20

Life Sciences Investment Outpaces Other Industries

Companies in the life sciences sector captured the largest share of venture capital during 2009, according to Pricewaterho LLP. In a new report entitled "Under Recovery," PWC says life sciences funding for 2009 totaled $6 billion in 715 deals, ac 34 percent of all venture dollars invested, compared to 28 percent in 2008. Demand for new pharmaceuticals, diagnostics, medical devices has the potential for further growth as the population ages, PWC said.

For all sectors, venture capitalists invested $17.7 billion in 2,795 deals in 2009, marking the lowest level of investment sinc Compared with 2008, investments into life sciences plunged 22 percent while the number of deals dropped 19 percent. In quarter of 2009, biotechnology investments totaled $1 billion in 108 deals with another $719 million going into 87 medical equipment deals. Biotechnology funding declined by 7 percent year over year. (Source: Matthew L. Brown, Worcester Bus Journal, 10 February, 2010)

Glaxo to Stop Research on New Antidepressants as It Shifts Focus

GlaxoSmithKline PLC said it will stop research into new antidepressants and focus on diseases for which it believes it can more valuable drugs, a major shift for a company that developed some of the biggest-selling antidepressants of the past 2 Profits at the UK drug giant, which posted a 66 percent increase in fourth-quarter earnings were long fueled by antidepres and Wellbutrin, which at their peak generated billions of dollars a year in sales. Similar medicines, such as Eli Lilly & Co.'s Pfizer Inc.'s Zoloft, also generated big sales for those companies.

However, low-cost generic copies have eroded demand for name-brand antidepressants, which accounted for just 2.3 per Glaxo's total sales last year, down from 14 percent in 2002. Chief Executive Andrew Witty said Thursday that the company further investment in the market wouldn't be prudent. Part of the reason is financial risk. Clinical trials of antidepressants a the "most expensive and highest-risk" of all drug trials, Mr. Witty said, because companies often don't know until the end o studies whether a drug works. It is also hard to prove that a depression drug is working, he said, because patient improver measured by subjective mood surveys, and not by the clear-cut blood tests and biological measures used in other disease

drawback in an era when insurers and other health-care payers want to see clear value for their money, Mr. Witty said. Pa
big benefits to make it worth their while to invest their resources," he said, adding that Glaxo would scrap research into pa
the same reasons, focusing instead on diseases including Alzheimer's, Parkinson's, multiple sclerosis and a clutch of rare

Other companies, such as Lilly, Sanofi-Aventis SA and AstraZeneca PLC, continue to invest in antidepressant research. I
AstraZeneca paid a biotech company $200 million for the rights to develop an experimental antidepressant. But companie
are more eager to invest in cancer and diseases tied to aging, where the need for new treatments is greater.

Mr. Witty said Glaxo aims to invest even more of its research funds in experimental drugs discovered by outside academic
biotech companies, which he said would improve the company's return on investment. Overall it aims to boost its return or
in late-stage drug development to 14 percent, from 11 percent currently. (Source: Jeanne Whalen, Wall Street Journal, 5
2010)

Pfizer Plans to Cut R&D by Up to $3 Billion

Pfizer plans to cut research-and-development spending by as much as $3 billion by 2012, in an attempt to wring efficiencie
its take-over of Wyeth without sacrificing future product development. The New York pharmaceutical giant outlined the agg
cuts, which represent more than a quarter of the two companies' combined research budgets in 2008.

Research is considered the lifeblood of pharmaceutical companies. Big drug makers like Eli Lilly & Co. and Bristol-Myers S
are increasing their spending to find new products that can replace aging blockbusters. Yet drug discovery is unpredictable
industry scientists have struggled in coming up with big new products. Pfizer's announcement suggests executives believe
research hasn't been worth the high levels of investment.

The largest drug makers have been retrenching as blockbuster drugs start facing competition from less expensive generic
After early cost cutting focused on trimming sales representatives, companies have set their sights on labs and scientists.
AstraZeneca PLC said it would cut about 3,500 research jobs as part of a larger work-force reduction.

Pfizer also targeted research previously, cutting as many as 800 research workers last year and closing six of 20 research
part of the Wyeth acquisition completed in October. Meantime, the $68 billion Wyeth takeover and other deals are filling P
pipeline with therapies discovered elsewhere. Chief Executive Jeffrey Kindler said he believes Pfizer has struck the "right
between efficiency and innovation by embracing deals and partnerships while still investing heavily in internal research. "T
monolithic approach to either research or commercialization are behind us," he said.

Pfizer said its research expenses would be $8 billion to $8.5 billion in 2012. The combined research spending for the two c
was $11 billion in 2008, the last full year before the merger. Chief Financial Officer Frank D'Amelio said the research cuts
reduce overlaps in the two companies. The planned cuts are part of a total of $7 billion in savings Pfizer expects to realize
the Wyeth deal and its cost-cutting efforts begun before the acquisition. Pfizer will still have among the industry's biggest r
budgets, company officials said.

Chief executives at GlaxoSmithKline PLC and Sanofi-Aventis SA have talked about the poor returns from company labs a
reworking their approach to drug development. Sanofi Chief Financial Officer Jerome Contamine said in July that the comp
planned to cut R&D spending by 20 percent between 2008 and 2011.

Consultants like Terry Hisey, vice chairman and U.S. life sciences leader at Deloitte LLP, is telling drug makers that it is "n
effective" to bring in promising therapies from the outside than trying to develop them all in-house. Yet Sanford Bernstein a
Anderson said the research cuts by drug conglomerates could "come back to bite" the companies because they will need
products. (Source: Jonathan Rockoff, Wall Street Journal, 4 February 2010)

Novartis Puts Bet on Heart Treatment in Deal Worth Up to $620M

Novartis AG said it is paying up to $620 million for the world-wide rights to an experimental heart drug in a deal that boosts
drug maker's portfolio of cardiovascular medicines. Novartis, based in Basel, is buying privately held US bio-pharmaceutic
Corthera Inc., based in San Mateo, California, for $120 million. If the experimental drug, called Relaxin, meets certain dev

and revenue goals, Corthera's current shareholders would be eligible for additional payments of up to $500 million, Novart

Novartis's portfolio of cardiovascular medicines is built around its blood-pressure-lowering pill Diovan, which will start to fa competition from cheaper generics as early as next year. Diovan is Novartis' best-selling drug, with annual sales of close t last year.

Relaxin is in late-stage development as a potential treatment option for patients who have acute decompensated heart fail illness that typically afflicts older people. Novartis is expecting to submit the drug for regulatory approval in both Europe ar 2013. (Source: Anita Greil, Wall Street Journal, 24 December 2009)

AstraZeneca to Acquire Novexel

UK drug maker AstraZeneca said it has agreed to acquire Novexel, in a deal that adds to its pipeline of potential new drug infections and deepens an alliance in the field with Forest Laboratories Inc. The deal centers on Paris-based Novexel's tw advanced drug-development programs, CAZ104 and CEF104, which aim to treat infections that have gained resistance to antibiotics, a trend that is spurring research into new anti-infective medicines.

Under the terms of the deal, AstraZeneca will pay $350 million to acquire Novexel's shares and $80 million for its cash. If c milestones in the development of its drug programs are met, shareholders in the French company will receive another $75 AstraZeneca said. However, once the deal has been completed, Forest has agreed to pay AstraZeneca half of whatever it the acquisition in total.

AstraZeneca said it will share the costs of developing CAZ104 and CEF104 with Forest, and the companies have agreed t will sell them in North America should they reach the market, while AstraZeneca will market them in Europe and most othe CAZ104 is a combination of a compound developed by Novexel called NXL-104 and ceftazidime, an antibiotic that is facin from strains of bacteria. The addition of NXL-104 helps to overcome that resistance, according to AstraZeneca. The drug developed to treat serious infections in the abdomen and urinary tract, as well as pneumonia, and is scheduled to enter Ph clinical trials in late 2010. CEF104 is a combination of NXL-104 and ceftaroline, a novel antibiotic from Forest to which Ast bought the European rights in August.

The demand for new anti-infection drugs is being driven by the ever-increasing development of bacterial resistance to the antibiotics. AstraZeneca wants to build a franchise in the treatment of infection and has created a research facility dedicate study in the US. In July, it said it would continue to develop CytoFab, which is an experimental treatment for severe sepsis from BTG PLC. (Source: Jason Douglas, Wall Street Journal, 24 December 2009)

Biogen Idec Has To Look Beyond Facet

Facet Biotech Corporation is outright rejecting the buyout offer from Biogen Idec Inc. The company issued a press release the stockholders rejected Biogen Idec's unsolicited tender offer for $17.50 per share. Furthermore, it noted that Biogen Id terminated its tender offer after the company recently raised its offer as a "last and final offer."

The company did note that it offers Biogen Idec the opportunity to conduct due diligence discussions to see if a materially offer could be made. Facet has a pipeline of five clinical-stage products and is seeking to identify and develop new oncolo and applying its proprietary protein engineering technologies to potentially improve the clinical performance of protein ther main targets are in oncology for cancers, which could have opened a new pipeline up for Biogen Idec. (Source: Jon C. Og BioHealth Investor, 17 December 2009)

FDA Rejects J&J Antibiotic Developed with Swiss Partner

The FDA has rejected a promising antibiotic, the superbug drug ceftobiprole being developed by Johnson & Johnson and partner Basilea Pharmaceutica AG for complicated skin infections, telling the companies it had serious questions about th of late-stage clinical trials J&J conducted to make the case for approving the drug. The companies said the FDA would rec additional studies before approving the drug - a condition that analysts said could delay its reaching the market for as long more years.

Ceftobiprole aims to treat complicated skin and soft tissue infections, including diabetic foot infections. J&J and Basilea ha

the drug as a novel agent against antibiotic-resistant bacteria, including methicillin-resistant Staphylococcus aureus, or MR
Analysts estimated annual sales of as much as $300 million for the drug if approved to treat skin infections, and $1 billion i
for other uses.

The drug has been approved in several countries, including Canada, where it is called Zeftera. European health regulators
weighing approval after their own delay. Basilea expects a decision in the first quarter of 2010.

The news isn't only a setback for a potential new treatment against antibiotic-resistant infections, but the latest twist in a co
dispute between the companies over J&J's handling of the late-stage studies. It also reflects the challenges and risks inhe
growing number of joint-venture partnerships between Big Pharma and small biotechnology companies that have become
increasingly important strategy in the quest to develop new medicines.

For pharmaceutical giants such as New Brunswick, N.J.-based J&J, the partnerships are a way to acquire promising thera
buying the smaller firms outright. Drug makers are looking to biotech companies, in part, because their own research labs
struggled to come up with new products. The big companies face patent expirations in the next few years on major drugs
than $30 billion in annual sales. Biotechs, in turn, are in the throes of one of the toughest financing climates in the industry
history, all but shutting them out of the capital markets. Many have sought out pacts with pharmaceutical companies for bo
and the expertise needed to give promising compounds in midstage development the final push to surmount costly hurdles
on the market. (Source: Jonathan D. Rockoff and Julia Mengewein, Wall Street Journal, 21 December 2009)

Novartis to Gain Full Ownership of Global Leader in Eye Care

Novartis intends to gain full ownership of Alcon, a global leader in eye care, by first completing the April 2008 agreement w
S.A. to acquire a 77 percent majority stake and subsequently entering into a direct merger with Alcon for the remaining 23
minority stake. "The addition of Alcon will strategically strengthen our healthcare portfolio and our position in eye care, a s
dynamic growth due to the increasing patient needs of an aging population," said Dr. Daniel Vasella, Chairman and CEO o
Novartis' costs for full acquisition of Alcon, including the initial 25 percent stake purchased in mid-2008, are estimated at 4

Alcon and Novartis both have attractive global activities in eye care, each offering their own competitive positions in highly
complementary segments that together cover more than 70 percent of the global vision care sector. Following successful c
of the merger, Alcon would be established as a new Novartis division that incorporates these highly complementary assets
eye care division will have enhanced opportunities to accelerate expansion in high-growth regions, generate greater value
combined product portfolios and capitalize on strengthened R&D capabilities. (Source: Novartis Website, 4 January, 2010

Genzyme Shifting Work from Allston Plant; Jobs Unaffected

Genzyme will move all its filling, packaging, and distribution operations out of its Allston drug manufacturing facility becaus
latest problems involving contamination at the plant. Genzyme officials said that they had entered into an agreement with
Hospira Inc., based in Lake Forest, Illinois, to take over the filling and finishing process so that Genzyme will be able to rep
its manufacturing equipment. Genzyme will also move the bulk of the operations to its own site in Waterford, Ireland. The s
operations will not result in the loss of any jobs, the company said.

The changes come after bits of steel, rubber, and fiber were found in Genzyme's medications, which are packaged in glas
distributed to doctors to be administered intravenously. The company decided to move the operations after a three-week F
investigation in November found new contamination at the Allston site. It was only the latest problem at the plant. Last sun
contamination forced the company to ration two drugs, Cerezyme and Fabrazyme, both of which are used to treat rare ge
disorders.

"We're continuing to take steps to address the challenges we faced at the facility in 2009," Genzyme spokesman Bo Piela
of those steps is the need to update the filling and finishing capability at the [Allston] plant." Piela said the company will rep
manufacturing equipment associated with the final stages of the process, including distribution. Under the new agreement
do that work for Genzyme through 2015. The agreement must be approved by the FDA. Piela said the FDA must approve
before Genzyme can take action, a process that could take about six to eight months.

He said the changes should not further complicate past problems with maintaining the supply of medications to patients. G

distributes Cerezyme, Fabrazyme, Myozyme and Thyrogen out of its Allston plant; it manufactures Myozyme and Thyroge location. (Source: Megan Woolhouse, Boston Globe, 5 January 2010)

Vertex Cystic Fibrosis Drug Meets Goals

Vertex Pharmaceuticals said its experimental cystic fibrosis drug VX-809 has met key safety and tolerability goals in a mid The company also said the drug prompted a response in a key protein for patients in the study, though that was not the st goal. The results are preliminary, Vertex noted. The study involves 89 patients receiving one of four doses of VX-809, or a addition to standard therapies, for 28 days. The company plans on moving forward with combining VX-809 with its other e cystic fibrosis drug, VX-770, for additional studies in the second half of 2010. Cystic fibrosis causes a fluid imbalance in th resulting in mucus plugging, infection and inflammation. (Source: Associated Press/Boston Globe, 4 February 2010)

$3 Million for Life Sciences Grants Approved by Massachusetts Life Sciences Center

The board of the Massachusetts Life Sciences Center, a quasi-public agency formed to oversee the state's $1 billion life s initiative, yesterday approved up to $3 million in new matching grants to small businesses in 2010. Under its new small-bu matching grant program, the center will give as much as $500,000 to start up biotech, medical device and diagnostic comp have received federal funding from agencies such as the National Institutes of Health, the National Science Foundation, o Department of Defense. The center said it will focus on emerging life sciences businesses with production-ready products potential to create jobs in Massachusetts. (Source: Robert Weisman, Boston Globe, 28 January 2010)

Regulatory & Legislative Highlights

by Deepen Joshi, Sepracor

FDA to Present Workshops on Applying for Orphan Drug Designation

The FDA can grant a special status, known as orphan designation, for drug products intended to treat rare diseases. Orph are drugs or biologics used to treat conditions affecting fewer than 200,000 people in the United States. Orphan drugs ma already-approved or experimental drugs. As part of its continuing effort to make the agency more transparent and accessi has scheduled a series of workshops about orphan drug designation for academics, biotech companies and those unfamil process.

To obtain orphan drug designation, drugs must be for the treatment, prevention or diagnosis of a rare disease or condition Designation also requires there be a medical rationale for expecting the proposed drug to be effective in the treatment, pre diagnosis of that disease or condition. During the past 25 years, the FDA has granted orphan drug designation to about 2, of which 344 have become approved products.

For more information:

Do a Designation: FDA Orphan Drug Workshops

http://www.fda.gov/downloads/ForIndustry/DevelopingProductsforRareDiseasesConditions/UCM189586.pdf[1]

Designating an Orphan Product: Drugs and Biologics

http://www.fda.gov/ForIndustry/DevelopingProductsforRareDiseasesConditions/HowtoapplyforOrphanProductDesignation/

(Source: FDA Website, 23 December, 2009)

FDA to Study Safety of Medications Taken During Pregnancy

A new research program called the Medication Exposure in Pregnancy Risk Evaluation Program (MEPREP) will fund rese study the effects of prescription medications used during pregnancy. The program is a collaboration among the FDA and r at the HMO Research Network Center for Education and Research in Therapeutics (CERT), Kaiser Permanente's multiple

centers and Vanderbilt University.

About two-thirds of women who deliver a baby have taken at least one prescription medication during pregnancy accordin journal article published in the American Journal of Obstetrics and Gynecology. There are very few clinical trials that test t medications in pregnancy due to concerns about the health of the mother and child.

To overcome the challenges presented by the lack of clinical trial data about the use of medications during pregnancy, the program will link health care information for mothers and their babies in each of the participating research sites. Collectivel participating sites have health care information for about 1 million births over the past seven years (2001-2007). Many of t associated with these births likely used medication during their pregnancies and now, with the program in place, the FDA participating researchers have a systematic and timely way of retrieving information from this network. (Source: FDA Web December, 2009)

FDA Contracts with Harvard Pilgrim to Develop Pilot for Safety Monitoring

The FDA has awarded a contract to Wellesley-based Harvard Pilgrim Health Care to develop a pilot of the FDA's Sentinel which will use automated health care data to evaluate medical product safety.

Reports filed by hospitals, health care professionals, and industry account for much of information that the FDA relies on r medical product safety. For a variety of reasons, these reports may be incomplete or not filed in a timely manner. The Sen System, once operational, will bolster the FDA's efforts in monitoring product safety. Sentinel will provide FDA with the abi analyze information collected during the course of routine health care, such as data from electronic health record systems administrative and insurance claims databases and medical registries.

The one-year contract includes four renewable years for a total of $72 million. Under the terms of the contract, Harvard Pil establish a coordinating center that will operate as a scaled down version of the Sentinel System. This center, or "mini-Se identify appropriate databases, develop a scientific framework for obtaining real-time data, and ensure data quality. To pro personal information, only summary results will be sent to the coordinating center. The data itself will remain within its data

For more information, visit the FDA's Web Page on the Sentinel Initiative

http://www.fda.gov/Safety/FDAsSentinelInitiative/default.htm

(Source: FDA Website, 8 January, 2010)

FDA Approves New Genentech Drug for Rheumatoid Arthritis

The FDA has approved Actemra (tocilizumab) to treat adults with moderate to severe rheumatoid arthritis who have not ad responded to or cannot tolerate other approved drug classes for rheumatoid arthritis. Recommended use is limited to patie have failed other approved therapies because of serious safety concerns that were noted in clinical studies. These safety include elevated liver enzymes, elevated low-density lipoprotein (LDL) or bad cholesterol, hypertension and gastrointestina perforations.

The FDA is requiring the sponsor to conduct a post-marketing clinical trial to further evaluate the long-term safety of Acten Specifically, the FDA wants to evaluate the impact of elevated LDL cholesterol and blood pressure seen in some patients term trials on the cardiovascular health of patients treated with Actemra. In addition, a Risk Evaluation and Mitigation Strat will require the drug sponsor to implement a Communication Plan for physicians informing them how to appropriately moni patients for liver and/or gastrointestinal side effects. The REMS will include a Medication Guide to ensure that patients are the benefits and risks of Actemra.

Patients treated with Actemra are at increased risk for developing serious infections. Most patients who developed these i clinical trials were also taking other drugs that suppress the immune system such as methotrexate or corticosteroids. (Sou Website, 11 January, 2010)

FDA Unveils First Phase of Transparency Initiative

The FDA has unveiled the first phase of its Transparency Initiative designed to explain agency operations, how it makes d and the drug approval process. During an online presentation, the chair of the FDA's Transparency Task Force, Principal I Commissioner Joshua Sharfstein, described a Web-based curriculum called "FDA Basics," aimed at helping the public bet understand what the agency does. The curriculum is accessible via a link on the FDA Web site. In addition, senior officials product centers and offices will answer questions on various topics during future online sessions. Each of these sessions announced on the FDA Web site.

The Transparency Initiative was launched in response to the Obama Administration's commitment to openness in Governi with the strong support of the Department of Health and Human Services. In recent months, the Task Force solicited publi improving agency transparency through a public docket, an online blog, and two public meetings. The Transparency Task received hundreds of comments from various stakeholders, including regulated industry, consumers, patients, health care and others. As a result of comments from the public, the Task Force decided to develop its recommendations in three pha Basics represents the result of the initial phase, to be followed by two additional phases. (Source: FDA Website, 12 Janua

FDA Approves Ampyra to Improve Walking in Adults with Multiple Sclerosis

The U.S. FDA approved Ampyra (dalfampridine) extended release tablets to improve walking in patients with multiple scle In clinical trials, patients treated with Ampyra had faster walking speeds than those treated with an inactive pill (placebo). first drug approved for this use. Ampyra will be manufactured under licenses from Elan of Dublin, Ireland, and distributed b Therapeutics Inc. of Hawthorne, N.Y.

MS is a chronic, often disabling, disease that affects the central nervous system - the brain, spinal cord, and optic nerves. about 400,000 people in the United States and 2.5 million people world-wide with MS. The progress, severity, and specific of MS are unpredictable and vary from one person to another. Symptoms can be mild, such as numbness in the limbs, or as paralysis or loss of vision. About half of all people with MS experience cognitive impairments like difficulties in concentr attention, memory, and judgment, although these symptoms are usually mild and are frequently overlooked. Depression a common among MS patients. (Source: FDA Website, 22 January, 2010)

FDA Panel Rejects Early Use of Tarceva

A FDA panel rejected earlier use of the cancer drug Tarceva in patients with advanced lung cancer. Tarceva, co-marketed Pharmaceuticals and Genentech, is currently approved to treat non-small cell lung cancer after chemotherapy has failed to cancer's spread. The drug is considered a second-line therapy. The companies want FDA approval to use Tarceva immed chemotherapy, as a maintenance treatment in patients whose disease is stable after chemotherapy. However, the panel o medical experts voted 1 to 12 against approving Tarceva for the proposed indication as a first-line maintenance treatment. usually follows its panel's advice but isn't required to.

Tarceva is an oral drug that blocks an enzyme involved with cancer growth. The companies conducted a study involving 8 with advanced lung cancer who had completed four cycles of chemotherapy without their disease progressing or getting w the patients were given Tarceva while the other half were given a placebo or fake treatment. The study showed patients re Tarceva had a median progression-free survival of 12.3 weeks, or the time before the disease started getting worse, comp 11.1 weeks for those on placebo. The panel said the benefit of using Tarceva earlier in treatment was modest and that it w whether using the drug earlier was better than using the product after lung cancer had started getting worse.

The FDA said Tarceva, and another drug, Docetaxel, have a median survival of 2-3 months longer compared with placebo to patients after chemotherapy has failed. Docetaxel is sold as Taxotere by Sanofi Aventis. "This raises the question whetl treatment with single agent erlotinib (Tarceva) or Docetaxel after progression are better options than treatment with erlotin maintenance," the FDA said. OSI said Tarceva provides "an important new therapeutic option" when given immediately af chemotherapy. (Source: Jennifer Corbett-Dooren, Wall Street Journal, 17 December 2009)

First Percutaneous Heart Valve Wins FDA Approval

The FDA has approved the Medtronic Melody Transcatheter Pulmonary Valve and Ensemble Delivery System, the first he be implanted through a catheter, or tube, in a leg vein and guided up to the heart. This new approach to the treatment of a

children with previously implanted, poorly functioning pulmonary valve conduits can delay the need for open-heart surgery

Conduits are surgically implanted valves used to treat congenital heart defects of the pulmonary valve. Patients with conge defects have narrowed, leaky, or missing pulmonary valves that impede the proper flow of blood from the heart's right ven pulmonary artery, which then sends the blood on to the lungs for oxygenation. Conduits can have a limited lifespan and of replacement. The Melody is intended to provide another option to conduit replacement.

Like other valves, the Melody does not cure the heart condition and over time, the Melody may wear and require replacem However, it is implanted without open heart surgery, can prop open the poorly functioning conduit, and can keep blood flo proper direction because of the tissue valve in the Melody. These characteristics will allow a patient's conduit to function lo usual, which can delay the need for more invasive open-heart surgery. (Source: FDA Website, 25 January, 2010)

FDA Approves New Treatment for Type 2 Diabetes

The FDA has approved Victoza (liraglutide), a once-daily injection to treat type 2 diabetes in some adults. Victoza is intenc lower blood sugar levels along with diet, exercise, and selected other diabetes medicines. It is not recommended as initial patients who have not achieved adequate diabetes control on diet and exercise alone.

Insulin is a hormone that helps prevent sugar (glucose) from building up in the blood. People with type 2 diabetes have dif making and using insulin. Victoza is in a class of medicines known as glucagon-like peptide-1 (GLP-1) receptor agonists th pancreas make more insulin after eating a meal.

Victoza was not associated with an increased risk for cardiovascular events in people who were mainly at low risk for thes FDA approved Victoza, however, with several post-marketing requirements under the FDA Amendments Act (FDAAA) to e the company will conduct studies to provide additional information on the safety of this product.

To ensure the safe and effective use of this product, Victoza was approved with a Risk Evaluation and Mitigation Strategy of a Medication Guide and a Communication Plan to help patients and providers understand the risks of Victoza and to en benefits of the drug outweigh the risk of acute pancreatitis and the potential risk of medullary thyroid cancer. Victoza is ma by Novo Nordisk of Bagsvaerd, Denmark. (Source: FDA Website, 25 January, 2010)

FDA Approves Morphine Sulfate Oral Solution as Part of Unapproved Drugs Initiative

The FDA has approved Morphine Sulfate Oral Solution for the relief of moderate to severe, acute and chronic pain in opioi patients. This medicine will be available in 100 milligrams per 5 mL or 20 milligrams per 1 mL. This is the only FDA approv morphine sulfate oral solution available at this concentration. Although the use of this medicine to manage pain has been practice for many years, this form and concentration of morphine was not FDA approved until now.

This action is part of the FDA's unapproved drugs initiative. As part of this program, the FDA has worked with Roxane Lab the manufacturer of the product, to ensure that there is enough drug available for patients. The FDA will also be working w organizations and prescribers so that they are aware that an approved product is available, and can notify the FDA if there problems with availability.

One benefit of the FDA approval process is a requirement for manufacturers to provide sufficient information on how to sa prescribe and use a drug. Manufacturers may also have to establish additional safety measures to manage unique risks o For this formulation of morphine, the manufacturer had to develop a safety program prior to approval to address the known morphine misuse, abuse and overdose. (Source: FDA Website, 26 January, 2010)

FDA Expands Use of Approved Breast Cancer Drug

The FDA has approved Tykerb (lapatinib) in combination with Femara (letrozole) to treat hormone positive and HER2-posi advanced breast cancer in postmenopausal women for whom hormonal therapy is indicated. HER2 is a protein involved in growth. It is found on some types of cancer cells, including breast cancer cells.

In hormone positive breast cancer, the presence of certain hormones contributes to breast cancer growth. In HER2-positiv cancer, stimulation of the HER2 receptor contributes to cancer cell growth. Breast cancer is the second leading cause of c

women. More than 192,000 women will be diagnosed with breast cancer this year.

Tykerb works by depriving tumor cells of signals needed to grow. Tykerb enters the cell and blocks the function of the HEF
Tykerb was initially approved in combination with a chemotherapy drug, Xeloda (capecitabine) in 2007. This combination v
treat women with advanced breast cancer tumors with the HER2 protein who had received prior treatment with chemother
including an anthracycline and a taxane, and Herceptin (trastuzumab), an anti-cancer antibody used to treat HER2-positiv
breast cancer. Tykerb is marketed by GlaxoSmithKline; Femara is marketed by Novartis AG. (Source: FDA Website, 29 Ja
2010)

FDA Collaboration Seeks to Speed Development of Pneumococcal Vaccines for Children in Devel Countries

The FDA has announced a collaboration with PATH to advance development of a vaccine to protect children against disea
by *Streptococcus pneumoniae* (pneumococcus), especially pneumonia. Worldwide, the bacterium also causes infections c
(meningitis), blood (sepsis), and middle ear (otitis media) and each year kills about 1 million children younger than 5 years
collaboration aims to improve the techniques used to produce effective, safe, and affordable vaccines against pneumococ
for children in the developing world.

PATH is an international nonprofit organization based in Seattle that creates sustainable, culturally relevant, and affordabl
to help communities worldwide to break cycles of poor health. The collaborative project, expected to run for two years, is b
conducted under the Cooperative Research and Development Agreement (CRADA) program. The program allows federal
and businesses to form partnerships that help expedite research activities.

The goal of the CRADA is to evaluate the application of Center for Biologics Evaluation and Research (CBER) conjugation
to pneumococcal vaccines. If it holds promise for fulfilling the goal of providing safe, effective, and affordable pneumococc
the CRADA permits transfer of the technology to the China National Biotec Group's Chengdu Institute of Biological Produc
eventually to groups in other developing countries as appropriate. (Source: FDA Website, 1 February, 2010)

FDA Announces Safety Risk Associated with Bristol-Myers Squibb HIV Drug

The FDA has announced that non-cirrhotic portal hypertension, a rare, but serious, liver disorder, has been reported in so
patients taking Videx/Videx EC (didanosine).

Videx is an antiretroviral medicine first approved by the FDA in 1991. Videx EC is a delayed-release version of Videx appr
2000. Videx/Videx EC is used in combination with other antiretroviral medicines to treat HIV infection in children and adult

During an 18-year period, 42 cases of non-cirrhotic portal hypertension were reported to the FDA's Adverse Event Reporti
for patients taking Videx/Videx EC. Four patients died from bleeding or liver failure after developing the condition. Non-cirr
hypertension occurs when blood flow in the portal vein - a major vein in the liver - slows down and leads to severely enlarg
the esophagus. These enlarged veins, called esophageal varices, are thin and can break open, resulting in serious, and p
fatal, bleeding. The Videx and Videx EC product labels have been revised to help ensure that health care professionals ar
are aware of the risk and the signs and symptoms of non-cirrhotic portal hypertension.

The FDA evaluation concluded that the clinical benefits of Videx/Videx EC in certain patients with HIV continue to outweig
safety risks. Videx/Videx EC does not cure HIV infection, may not prevent development of HIV-related illnesses, and may
the spread of HIV to other people. (Source: FDA Website, 1 February, 2010)

FDA Approves Xiaflex for Debilitating Hand Condition

The FDA has approved Xiaflex (collagenase clostridium histolyticum) as the first drug to treat a progressive hand disease
Dupuytren's contracture, which can affect a person's ability to straighten and properly use their fingers. Dupuytren's contra
the connective tissue found beneath the skin in the palm of the hand. Too much collagen can build up, forming thick, rope-
tissue that can prevent the fingers from being able to relax and straighten normally. The disorder is most common in Cauc
in men over age 50.

Xiaflex is a biologic drug that works by breaking down the excessive buildup of collagen in the hand. Xiaflex is injected dir

collagen cord of the hand and should be administered only by a health care professional experienced with injections of the because tendon ruptures may occur.

The most common adverse reactions in patients treated with Xiaflex were fluid build up, swelling, bleeding, and pain in the area. Although no serious allergic reactions have been observed, such a response would not be unexpected because this protein could prompt an immune system reaction. Xiaflex is manufactured by Auxilium Pharmaceuticals based in Malvern, (Source: FDA Website, 2 February, 2010)

FDA Issues Guidance to Help Streamline Medical Device Clinical Trials

The FDA has issued guidance on Bayesian statistical methods in the design and analysis of medical device clinical trials t result in less costly and more efficient patient studies. The Bayesian statistical method applies an algorithm that makes it p companies to combine data collected in previous studies with data collected in a current trial. The combined data may pro sufficient justification for smaller or shorter clinical studies.

The FDA has substantial experience in the use of Bayesian statistical methods for the design and analysis of scientifically studies. The FDA has approved a number of medical devices whose approval applications submitted to the FDA included studies that used these statistical methods.

The final guidance, titled "Guidance for the Use of Bayesian Statistics in Medical Device Clinical Trials," describes use of E methods, design and analysis of medical device clinical trials, the benefits and difficulties with the Bayesian approach, and comparisons with standard statistical methods. The guidance also presents ideas for using Bayesian methods in post-mar (Source: FDA Website, 5 February, 2010)

FDA Approves New Indication for AstraZeneca's Crestor

The FDA has approved the cholesterol-lowering medication Crestor (rosuvastatin) for some patients who are at increased disease but have not been diagnosed with it. The new indication is for reducing the likelihood of a heart attack or stroke or for a procedure to treat blocked or narrowed arteries in patients who have never been told they have heart disease but are nevertheless at increased risk of a cardiac event. Specifically, this includes men 50 years of age and older and women 60 age and older who have an elevated amount of a substance known as high sensitivity C-reactive protein in their blood and additional traditional cardiovascular risk factor such as smoking, high blood pressure, a family history of premature heart d low amounts of high-density lipoprotein or HDL cholesterol, the so-called "good cholesterol."

Crestor is in a class of drugs called statins, which work by stopping an enzyme called HMG-CoA reductase from making c High amounts of low-density lipoprotein or LDL cholesterol, the so-called "bad cholesterol," is a known risk factor for heart strokes, and heart disease. Crestor is already approved for use in combination with diet and exercise to lower LDL cholest related substance known as triglycerides in patients with a high amount of these substances in their blood. (Source: FDA V February, 2010)

New Members

Mr. Scott M. Barbick, *Development Engineer I,* Shire HGT

Mr. Markus B. Bracke, *Development Engineer,* Eisai Research Institute

Mr. William D. Burr, *Senior Project Manager,* J. Calnan & Associates

Mr. Christopher S. Corsetti, *Manufacturing Plant Engineer,* Genzyme Corp

Mr. Greg Cybulski, *VP Sales,* Celeros, Incorporated

Mr. Sanjeev Daftardar, *Senior Chemical Engineer,* P&G

Mr. Robert DeCoste, Commissioning Agents

Ms. Elizabeth A. Durrigan, *Student,* Tufts University

Mr. Anthony F. Funicella, *Student,* Great Bay Community College

Mr. Shawn M. Gallant, *Project Manager,* Columbia Construction Company

Mr. Ross M. Glidden, *Student,* Great Bay Community College

Ms. Michelle E. Greaney, *Business Development & Marketing Director,* P&IDC

Mr. Brian K. Heskin, *Student,* Great Bay Community College

Mr. Johnson Hoey, *Snr. Pkg Engineer,* Forest Laboratories, Inc.

Mr. Fred K. Huang, *Student,* Tufts University

Mr. Patrick G. Jackson, *Senior Validation Specialist,* Parexel Inc

Ryan A. Kickhafer, *Student,* Great Bay Community College

Mr. Bobby Lerew, *Student,* Worcester State College

Colleen V. McCarthy, *Student,* Great Bay Community College

Ms. Christa A. Miller-Shelley, *Validation Engineer,* Commissioning Agents, Inc.

Samantha M. Murphy, *Student,* Great Bay Community College

Mr. Joshua J. Oliverio, *Student,* Great Bay Community College

Mr. Brian E. Paul, *Student,* Great Bay Community College

Mr. Joseph E. Provenzano, *Sr.Manager,* Genzyme Corp

Mrs. Jennafer N. Rose, *Business Development Executive,* The Hart Companies

Vatsala D. Sadasivan, *Process Development Engineer,* Shire HGT

Marc S. Savoie, *Business Dev Manager,* E & S Technology

Dr. Bret A. Shirley, *Sr. Director, Pharmaceutical & Process Development,* Stryker Biotech

Mr. Albert A. Sirois, *Student,* University of Rhode Island

Jonathan W. Stevens, *Student,* Great Bay Community College

Mr. Santosh M. Tharkude, *Quality Engineer,* Bristol Myers Squibb

Michael Tomaselli, *ME,* Filters, Water & Instrumentation, Inc.

Ananth Viswanathan, *Computer Systems Validation Engineer II,* Shire HGT

Mr. Richard J. Walsh, *Senior Project Manager,* Genzyme corp.

Tonya M. Yacoub, *Student,* Great Bay Community College

Mr. Flavio Zannin, *Engineering Manager,* New England Controls Inc

Chapter Manager: Amy Poole, CAMI - Tel: 1.781.647.4773 and E-mail: ispe@camihq.com