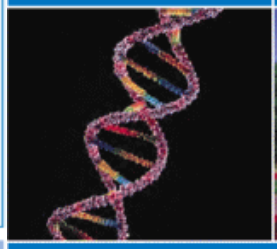
Boston Area Chapter
ENGINEERING PHARMACEUTICAL INNOVATION

www.ispeboston.org



NEWSLETTER

May 2010, Volume XX, No. 3

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President's Message: Spring is Finally Here!

Hello ISPE Boston Area Chapter Members,

I am writing this President's Message after having just returned from INTERPHEX. I have been going to INTERPHEX for 12 years now and I always enjoy meeting the vendors, seeing the new equipment and services and meeting up with old friends I only get a chance to see once a year. Walking the aisles, I was reminded how lucky we are to have our own great Product Show close to home at Gillette Stadium. That way, Members who cannot get to NYC have a chance to meet vendors and see the many new products and services they have to offer our industry.

And speaking of the Product Show, I am very pleased to announce our Keynote Speaker for this year's show will be Dr. Sylvie Grégoire, President of Shire, Human Genetic Therapies. Dr. Grégoire has over 20 years of pharmaceutical and biotechnology experience and the Board of Directors is delighted that she has accepted our invitation to speak at the event in October.

Since our last newsletter, the Chapter has continued to offer programs and activities to help you network and learn. After an 8-year hiatus, we brought back the bus to INTERPHEX. I was on the bus on Tuesday with 30 other Members and non-members and I got great feedback and thanks for reviving this valuable service; a second bus left Wednesday with another 30 attendees. Based on the high turnout and positive feedback, you can be sure we will bring the bus back next year.

I want to thank all of you who responded to our recent Member Survey. We got a 20 percent response rate from our membership - excellent for surveys of this type. The feedback was thoughtful and offered many creative ideas for the Chapter to consider. I am compiling the results and should have more information to share in the next newsletter. I want to congratulate respondent LeeAnne Pearson of Genzyme who won the $200 American Express gift card.

I also want to thank everyone who participated in the Bio-Ball event on March 27th. Marita King has written an overview of the event which you can find in this newsletter. I am on the Bio-Ball planning committee so I am personally thrilled that ISPE was a sponsor of this event and was able to be part of an effort that raised $85,000 for the Special Olympics - a new record for this event.

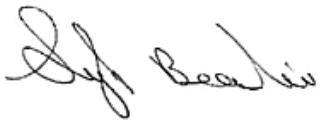
As always, we welcome your suggestions for educational programs and other events so please contact me or CAMI, our admin group, with any thoughts you may have. If you want to be more involved in the Chapter, there are many ways - short or long term - you can help. Writing an article for the newsletter or becoming a Committee Member are just two of our many volunteer opportunities. And speaking of Committees, did you know we have seven to choose from:

- Education Program Committee
- Member Services Committee
- Social Committee
- Communication Committee
- Student Affairs Committee
- Product Show Committee
- Young Professionals Committee

The Board of Directors and Committee Members are all working tirelessly to help bring you programs and events that help you in your career endeavors. I hope we are meeting your needs. From the Member Survey results, it appears that we are but we are always striving to improve the Chapter's offerings. Your involvement and new ideas can help these efforts. So join a Committee, help us reach our goals and have some fun too!

Have a wonderful Spring and I hope to you see at the next Chapter event.

Sincerely,



Sylvia Beaulieu
President, ISPE Boston Area Chapter

Upcoming Chapter Events: Mark Your Calendar

Thursday, June 10, 2010
Career Development Series: Event #3
Career Exploration and Power Networking

This program is designed for all professionals, new to or experienced in the biopharmaceutical industry, who want to explore career options and alternatives with seasoned industry professionals.

Approximately eight leaders / mentors in their respective areas of expertise will serve on our panel. After an introduction by each, we will break out into individual 'round tables' where participants will rotate through 15 minute sessions at each table. There will be approximately six sessions in the evening.

You will hear about how the panelists get into the industry or their area, the critical success factors, as well as learn how to network and conduct informational interviews. This will provide you with ideas for your own career exploration, what transferrable skills you might already have or may still need to acquire, what kind of questions to ask and what sort of people to contact. These sessions will quickly expose you to a variety of areas of interest in a short period of time, speed dating style!

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

Wednesday, June 16, 2010
Spring Social and Volunteer Appreciation Night
Improv Magic at the Hard Rock Cafe

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

Hard Rock Cafe, Boston, Massachusetts

Click Here to Register!

Thursday, June 24, 2010
Tour and Dinner/Presentation at Millipore, Bedford, MA

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

Monday, August 18, 2010
Become a Sponsor of the 8th Annual Golf Tournament

Sign up today! Most sponsorships include a foursome; don't get locked out of this year's tournament.

Click Here for a Sponsorship Flyer!

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

"Vaporized Hydrogen Peroxide (VHP) Decontamination" Draws a Crowd in Cambridge

by David S. Allen, Allen Consulting, LLC with photos by Brian Hagopian, Mar Cor Purification

On Tuesday, February 23rd the Boston Area Chapter presented an educational program at the Royal Sonesta Hotel in Cambridge. Our presenters were Peter Harris, Director of Operations for B & V Testing and Larry Zanko, Project Manager with Steris Corporation. Each brought a career's worth of expertise to the evening's topic. Peter and the decontamination specialists at B & V Testing have executed hundreds of gaseous space decontaminations at life science facilities ranging from small pilot plants to full aseptic production and fill/finish facilities and have been using Vaporized Hydrogen Peroxide (VHP) technology since 2005. As a Project Manager for Steris, Larry collaborates with customers in the pharmaceutical and research industries to engineer application-specific solutions. His technical expertise includes extensive knowledge of multiple-effect water stills, pure steam generators, steam sterilizers, COP washing systems, and VHP generators.

After a brief introduction by David Allen, the evening's event manager from the Educational Program Committee, Peter took us through the history of VHP sterilization, a typical VHP process, effectiveness and equipment compatibility data, and two application case studies.

Educational Program Committee Member & Meeting Manager David Allen (left) with speakers Peter Harris (center) and Larry Zanko (right).

He explained that VHP sterilization was introduced in 1991 by the American Sterilizer Company for use in isolators where it is still the most popular method of sterilization. Since that time, the use of VHP has expanded to include room decontamination for both new facilities and remediation. It is also used in aseptic process environments and for product sterilization.

Peter next walked us through a typical VHP decontamination cycle with the phases being dehumidification, conditioning, decontamination and aeration. We learned that one of the appealing attributes of VHP is that when the process is finished, all that is left is water and oxygen. There are no toxic residues. He then went on

to explain the extensive testing that has proven the efficacy of VHP against bacteria, viruses, molds and yeasts. There are prescriptive doses for contaminants and various ways to confirm the dosage that has been delivered including electronic sensors and chemical test strips.

Peter concluded by explaining the steps in planning and carrying out a VHP decontamination project and told us the stories of two actual decontamination procedures. The first case was the emergency sterilization of a 240,000 square foot pharmaceutical manufacturing facility to remedy a contamination. The space included bioreactor rooms and the VHP was injected directly into 65 rooms and the air handling systems. The second case was an 84,000 cubic foot pilot production facility with 28 rooms that were sterilized as a routine preventive measure during a facility shut down.

After a short break, Larry took the stage and described the different types of equipment available for VHP applications: modular and portable. He explained that for facilities of less than 10,000 cubic feet that do not require routine sterilization, portable equipment is typically used. Portable equipment requires the use of fans to ventilate the room after decontamination. For spaces up to 80,000 cubic feet, fixed modular equipment can be installed. This is particularly valuable for rooms that require frequent, routine decontamination and for rooms that are isolated and could be compromised by bringing portable equipment into the space. Modular systems are typically integrated with the HVAC system.

Larry then went on to describe several aspects of modular installations. Since VHP passes through HEPA filters and sterilizes them, they need not be removed for decontamination. He also told us about the two cycles, single-pass and recirculating. In single-pass systems, the decontamination phase occurs while the HVAC system is shut down; in a recirculating system, the HVAC system continues to circulate air. In both cases, the HVAC is used to exhaust the air during the aeration phase. In concluding, Larry summarized the benefits of VHP compared to other sterilization techniques that can leave toxic residues.

The presentations were followed by a flurry of questions from the audience, the answers to which helped to further round out the presentations. A final thank you to Larry and Peter for their excellent technical presentations and to Claire Fritz of Steris whose behind-the-scenes efforts helped to organize the joint presentation between Steris and B&V.

Boston Area Chapter Scores with Bio-Ball Sponsorship

by Marita King, MARITeK, Inc., with photos by joebrownphotos.com

Bio-Ball team members and volunteers filled the gym to overflowing.

It was a cold and sunny morning on Saturday, March 27th, as volunteers arrived in the early hours at a Cambridge gymnasium to prepare for the arrival of Special Olympics Massachusetts athletes and their biotech industry teammates for the sixth annual Bio-Ball basketball tournament. Much of the set-up had already been done the previous evening by another team of volunteers, which left the morning focused on breakfast preparation, final set-up and organizing the basketball courts for the various skills challenges and play.

Boston Area Chapter members were a part of this effort, which pulled together one of the most successful Bio-Ball tournaments to date. The Chapter Board of Directors approved a first-ever financial contribution in support of Bio-Ball, while Chapter members had the opportunity to participate as players and volunteers and experience this fundraising event first-hand. As the CEO Free Throw sponsor, Chapter recognition was front and center following the Opening Ceremonies. Chapter President Sylvia Beaulieu, who was also on the Bio-Ball organizing committee, congratulated each free throw participant and handed out a small gift on behalf of

the Chapter - a whistle with an ISPE lanyard. Whistles were also presented to all Chapter Member volunteers at the event as appreciation for their participation.

Chapter President Sylvia Beaulieu with industry leaders who participated in the ISPE-sponsored CEO Free Throw event, a tournament favorite.

Following the CEO Free Throw event, and inspirational words from one of the Special Olympics Massachusetts Hall of Fame athletes, the tournament was officially underway. At last the teams were sent off to play and put forth their own version of March Madness. Participating industry teams included AMAG Pharmaceuticals, Archemix, Cubist Pharmaceuticals, Genzyme, Momenta Pharmaceuticals, Novartis Institute for Biomedical Research, PAREXEL International, Pfizer, Sepracor, Shire and Vertex Pharmaceuticals.

The event raised almost $85,000 for the Special Olympics Massachusetts, which is nearly half of their operating budget. Sponsorships came from other service and supplier organizations that work with the biopharma industry as well as donations from participating teams and individuals. The Shire team, headed by Team Captain and Chapter Board member Kevin Lynch was edged out by AMAG for top team fundraising honors. Sean Brown of Lantheus, a Chapter member, was credited as the top individual fundraiser.

The one-day tournament raised over $85,000 for the Massachusetts Special Olympics!

For those keeping score, Genzyme came out on top in tournament play (and won the CEO Free Throw by a wide margin), but everyone was a winner - particularly the Special Olympics athletes

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with their hard work and determination - and all who participated and experienced their spirit, joy, and enthusiasm.

A Perfectly (Long) Day - Chapter Ski Outing Tackles Sunday River

by Jim Grunwald, SciTech Builders, LLC with photos by Chris Opolski, Alexion Pharmaceuticals

March 5th found the attendees at the Chapter's Annual Ski Outing making the long trek to Sunday River in Newry, Maine. Between the chartered bus and those that drove to the event, over 50 Chapter Members and guests joined in. And how lucky they were! Everyone was treated to the best ski conditions of the winter - and perhaps the last 10 years - with every trail, marked or unmarked, full of great snow.

Event veterans joined with first-timers to celebrate the 10th anniversary of this Chapter favorite.

It was truly a rare day, with perfect bluebird conditions, temps in the high 20s and nary a breath of wind. Those with an adventurous streak were treated to powder stashes in the trees that one can usually only experience in a Warren Miller movie or perhaps hanging around the bar when the stories begin to fly. Despite the additional travel time associated with the trek to Maine, everyone was very stoked by the experience.

Sunday River provided the best ski conditions of the winter and picture-perfect weather for the 10th Annual Ski Outing.

Many people commented on the many newcomers at the event, which was celebrating its 10th year. This was in addition to many veterans who have attended every year since the first. We also had in attendance a half-dozen members of the Chapter's very successful Young Professionals group, along with a very diverse group of ISPE Members and their guests.

Special thanks to Chapter Member and Event Manager Gene Dennen and to Chris Opolski, Chapter Board of

Directors & Social Programs Director, for another great Ski Outing. This year they got the weather just right! And remember to mark your calendars for the first Friday in March 2011, when the Chapter heads north again!

Biotech and Pharmaceutical Manufacturing Sustainability – New Efficiencies and Cost Savings

by Lee J. Ward, Rockwell Automation with photos by Jay Zaino, GxP Automation

On March 18th, an unusually bright and sunny spring evening welcomed attendees to the Royal Sonesta in Cambridge for another excellent Boston Area Chapter Educational Program. Our speaker, David March of Rockwell Automation, opened by launching a spirited and energetic fusillade, suggesting that the "cumulative brainpower surrounding us in Cambridge" may well have had this "old chestnut" and currently overused term "sustainability" on their collective minds from time to time. He went on to cite some profoundly disturbing facts and figures regarding the enormous waste typically associated with the manufacture of pharmaceuticals including a recent audit that reported that pharmaceutical manufacturing is the "least efficient of all chemical process industries." Judging by the nods of many in the audience, the attendees seemed to agree.

The calculation is a simple ratio: Kg Waste/Kg Product. According to David, it is not uncommon for a pharmaceutical product to see a ratio of 200:1 up to 800:1. Biopharma is even worse, with ratios of up to 10,000:1. He went on to say that this is not yet part of mainstream understanding within the industry; however, the quest for higher productivity and cost management is beginning to expose this "dirty secret." In other words, the landscape is changing. A number of European countries have already implemented "carbon taxing," one of a number of "green" initiatives aimed at controlling waste and emissions and generally favoring clean manufacturing practices. "Do we here in the US need to be concerned?" he asked, then answered his own question with a resounding "yes" and went on to explain why.

There is an indirect financial impact that will be realized once a US manufactured pharmaceutical product is exported, as an example, to France. In addition to the usual "landed" cost of goods in the form of duty, a "carbon tax" on imported goods will be applied. Now it becomes clear why we need to be concerned. In order to remain competitive, we need to take steps to reduce the "carbon footprint" associated with the manufacture of pharmaceutical products so that those taxes can be minimized.

How do we do that? One contributor to the carbon footprint is solvents. David loves talking about solvents (as was immediately evident) - in fact, solvent recovery is his specialty. He spends many days during the course of the year talking to companies that use a lot of solvent, including traditional pharmaceutical manufacturers.

Solvents are carbon-based. They are also expensive and tough to deal with once they have been used. Let's look at manufacturing costs again. You have the cost of the product ingredients, the cost of the process materials and the cost of manufacturing time. Solvents come under the cost of process materials. This is a double hit since first you have to buy them and then you have to dispose of them safely and cleanly. And solvents can be highly toxic. As an example, toluene escaping through a leak in a piping system once decimated the population of Bhopal, India. As you can imagine, a substance as dangerous and toxic as that will be very expensive to dispose of properly.

One answer to the disposal question could be, "Let's burn it to make heat and power." After all, solvents generally burn really well. Furthermore, using solvents for this purpose is seen as a green solution since they burn relatively cleanly and have a high calorific value. So that makes it a good solution, right? Not so fast. While the combustion of spent solvent (ie. solvent waste) to make steam that can provide heat and power may be a good use of process waste, it might not be the best answer. While you are disposing of the liquid solvent, the combustion process itself will be contributing to carbon emissions that require monitoring and scrubbing.

Look at it from yet another angle, that of the accountant. Environmentally responsible process people look at the good they are doing by producing energy through the "no-cost" disposal of spent solvent. Yet the accountant will happily tell you the ROI calculation is flawed since it overlooks the original cost of the fuel. You might argue that the fuel is free (since it is reutilized waste) but it is not. You see, solvent is expensive when you first purchase it. If you have a method of recovering a large percentage of that solvent once it is used in the process and then you burn the recovered solvent, you have just used a very expensive fuel, one far more expensive than oil or natural gas. In any case, this use of recovered solvent, now common, may cease in the future when emissions-based carbon taxing will be applied.

A much better answer is not to burn the solvent but to recycle it. Fractional distillation can be employed for this purpose. If, as in most biopharma processes, solvents are employed for the chemical stripping of elements, there is likely to be a voluminous amount used. This solvent tends to be used once, then burned or discarded. Today's modern methods of fractional distillation enable upwards of 92 percent of the virgin solvent to be reclaimed, then reused in the manufacturing process, over and over again. So don't burn it, recycle it, and use natural gas to produce steam - its more cost effective that way.

But wait. There are further efficiencies to be had in the quest for sustainable solutions. Ever heard of "pinch" analysis? While fractional distillation is an answer to recycling solvent, it is an inefficient process. Well, normally. David explained that by using pinch technology we can reduce the cost of running a distillation system by making use of available efficiencies. In basic terms, we harvest the differential between hot and cold processes within the distillation system and recover heat or cold. David illustrated the concept using a series of graphs which had attendees scribbling away at their note pads. For me it signaled that we in the

industry have so much more to explore in terms improving manufacturing efficiency and minimizing environmental impact.

Thanks go to our speaker for an exceptionally well-organized and lucid introduction to a complex topic; and to Meeting Manager and Educational Program Committee Chair Dave Novak for an information-packed and enjoyable evening.

AstraZeneca Hosts Labs21 Training Session in Waltham

by Chris Leary, KlingStubbins

By their nature, laboratory buildings with once-through ventilation air, high plug and process loads, and 24x7 operating hours leave a large environmental footprint. Even with increased demands to reduce operating costs and environmental impacts, laboratory designers, owners, builders and operators are challenged to find innovative new ideas, case studies of best practices and benchmark building performance data to inform new buildings and renovations.

Laboratories for the 21st Century, or Labs21, a program co-sponsored by the Environmental Protection Agency (EPA) and the Department of Energy (DOE), is dedicated to the pursuit of sustainable, high performance and low-energy laboratories that will minimize overall environmental impacts, protect occupant safety, optimize whole building efficiency on a life-cycle basis, establish goals, track performance and share results for continuous improvement.

On April 6th the ISPE Boston Area Chapter, in partnership with the Boston R&D Network of the International Facilities Management Association (IFMA), National Grid and the University of Massachusetts, held a Labs21 "Introduction to High-Performance, Low-energy Design" Training Session. Topics covered included Planning and Programming High-Performance Laboratories, Energy Efficient Lab HVAC, Lighting and Daylighting, and Optimizing Ventilation Rates. Just over 100 attendees, including laboratory owners, facilities and design & engineering professionals, and builders participated in this day-long event.

AstraZeneca graciously hosted the event at their recently expanded and LEED Gold Certified R&D campus in Waltham, a facility that demonstrates many of the design and operational practices recommended by Labs21 including minimal impact on surrounding natural ecosystems, energy and water conservation, sustainable construction materials, and a safe healthy indoor work environment. Additional information about Labs21 can be found at http://www.labs21century.gov/.

MIT Professional Institute Co-Sponsors "Bridging the Gap between Laboratory Research and Industrial Applications"

by Paul L. Smock, ISPE Boston Area Chapter Past President, with photos by Chris Opolski, Alexion Pharmaceuticals

On Tuesday, April 8, the Boston Area Chapter presented an educational program at the Cambridge Hyatt Regency. The venue was the Charles River room, high atop the hotel with a spectacular view of the Charles River and the Boston skyline. We were also treated to some really excellent hors d'oeuvres while networking prior to an outstanding program that began with Joyce Chiu of the Membership Services Committee outlining the benefits of ISPE membership. She was followed by Chapter Past President Doyle Johnson, who introduced the program and speakers.

Our first speaker was Professor Bernhardt L. Trout, Professor of Chemical Engineering at MIT and Director of the Novartis-MIT Center for Continuous Manufacturing and Co-Chair of the Singapore-MIT Alliance Program on Chemical and Pharmaceutical Engineering. His talk was centered on his group's research on modeling protein degradation processes to develop rational approaches to stabilization. Aggregation, oxidation, deamidization and hydrolysis were all presented as degradation pathways, but the bulk of the presentation was focused on aggregation and the application of molecular level quality by design (QbD) to counter this process for antibody stabilization.

Dr. Trout's group has used modeling techniques followed by application of a tool to assess spatial-aggregation-propensity (SAP) to identify both highly hydrophobic and highly hydrophilic regions of the antibody molecule, recognizing that the interactions of these regions is one of the major causes of aggregation. In addition, the SAP tool can predict both protein binding regions, and can be used to rank prospective molecule variants in terms of their potential for development as stable products. Lastly, he presented some experimental data demonstrating how well the actual results fit the predictions, and argued that this approach should be used from early product/process development forward to develop a mechanistic understanding and allow for the rational design of stable products.

Our next speaker was Dr. Anirban Chatterjee, Scientist at Fraunhofer Center for Manufacturing Innovation (CMI). At CMI, teams of engineers and scientists work closely with clients and partners to design, manufacture, test and optimize prototype devices and instruments in the areas of mechanical, biotech/biomedical, photonics, and alternative energy. His talk was focused on some work done in partnership with Boston University on the design and development of medical devices, biomedical instruments and research tools. He highlighted porous polymer monolith, invented by Dr. Catherine Klapperich at BU, and its

application in lab-on-a-chip diagnostics and automated sample preparation. In the case of the lab-on-a-chip application, he showed us how that had been integrated into an instrument system comprised of three major systems - fluidics, thermal, and optical - and went on to demonstrate how that instrument had been put into service as a high throughput nucleic acid sample preparation tool. Dr Chatterjee concluded his talk with three other examples of innovative work around automated tissue homogenization, bacteria concentration and purification, and automated myocite cell isolation.

For those in attendance, these talks did indeed demonstrate the bridges being built between research labs and industrial applications in the life sciences. Many thanks to Dr. Trout and Dr. Chatterjee for taking time out of their busy schedules to enlighten and inspire us; to our co-sponsor, the MIT Professional Institute; and to Educational Program Committee Chair Dave Novak and the EPC for organizing this event.

Young Professionals Spring into Action

by Rob DeCoste, Commissioning Agents, Inc.

The Young Professionals are involved in the planning of various upcoming social and educational events including a softball game, harbor cruise and educational sessions. The next educational event will be held at Genzyme in Cambridge. The keynote speaker will be Niall Johnson, ISPE Boston Area Chapter Past President, on the topic of project management. The second speaker will be Angela Lewandowski from Massachusetts Biologic Laboratories who will cover chromatographic separation of therapeutic proteins.

The Young Professionals are also planting seeds for new Student Chapters to be formed this spring and for the fall 2010 semester. Most recently YPI members visited Worcester Polytechnic Institute. Regarding that visit, YP member Josh Strauss of Commissioning Agents Inc. reported the following:

"On April 15, 2010 we visited Worcester Polytechnic Institute and had a great turn out of students seeking advice about the pharmaceutical industry and especially getting their first job. Some services that the students asked for...included establishing a resume bank for members, mock interviews with industry professionals and setting up educational events where students can network. At our final meeting this spring, we expect an even greater turn out as word spreads about ISPE and expect to have a new student Chapter functioning by fall."

The Young Professionals group continues to grow. We have big plans for the remainder of 2010 and are aiming to double our membership and continue to organize both educational and entertaining events of special interest to our target group: young professionals and those new to the life sciences industry. Be sure to check the Chapter's Events Calendar on the web at www.ispeboston.org/events for further updates on future activities.

Spotlight Interview with Sean Brown, Lantheus Medical Imaging

Spotlight Interviews are a regular Newsletter feature, allowing members to share their industry experiences and perspectives and a few more personal details with their peers.

Spotlight Interview with Sean Brown, Lantheus Medical Imaging

- Where did you grow up, go to school (college/grad school)? What do you like to do for fun when not at work?

I grew up in Shrewsbury, Mass. and attended Southeastern Mass University (SMU), later renamed the University of Massachusetts - Dartmouth, earning a Bachelors of Science in Engineering. I attended the University of Warwick in Coventry, England, as part of an International Management Development Program, earning my Process Business Management Certification. As part of my development, I gained exposure to other cultures and took on an international assignment relocating my family to Södertälje, Sweden to support the scale-up and tech-transfer of a new product to the United States. Although the endeavor was cut short due to a merger, I learned a great deal about EU regulations, the R&D process, and the Swedish culture, and to this day I maintain contact with friends from Sweden. As part of the Warwick program our advisors encouraged networking with our peers from other geographic sites which provided a tremendous opportunity to further develop these relationships and evaluate other manufacturing operations throughout Europe.

The most enjoyable times my wife Tammy and I have are spending time at the beach in Newport and watching our three children participate in organized sports. Tammy and I are active volunteers and I coach the kids, Connor (age 14), Trevor (age 12), and Taylor Marie (10), in baseball, basketball, and soccer, while Tammy has the hard job of coordinating all the logistics to make sure our busy schedules are in order.

The Lantheus Global Facilities & Engineering leadership team celebrating success at a Red Sox game atop the Green Monster. Pictured are (left to right) Suzanne Pelletier, Chris Brown, Sean Brown, Jack Wentz, and Rick Tetreault.

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

As the Director of Global Facilities & Engineering at Lantheus Medical Imaging, the organization is responsible for engineering and maintenance services for a fully integrated business on a 209-acre, multi-building campus with a just-in-time manufacturing process. The most challenging aspect of my job - and the thing that motivates me - is the integration of all the business units on a single site to bring a product from discovery to commercialization, the real-time nature of our manufacturing process and working with the highly skilled technical teams that support the business. The most rewarding part of my job is knowing that our products are used in patients on a daily basis to provide images to physicians for patients that urgently require medical treatment. It is always important to remember that the products we make will be used in patients within days, so that everything - from receipt of the order, manufacture of the product and delivery to the patient - is a critical step in the supply chain. Everyone in our organization contributes to our corporate missions: "To be the leading provider of innovative medical imaging solutions to improve human life."

- How did you get to where you are today?

The management of a Global Facilities & Engineering organization has always been a focus of my development plan and throughout my career I have always taken assignments which provide exposure to support achieving that goal. Interestingly, the current role is a result of Bristol Myers-Squibb's expansion into the biotech industry at the Devens site. I was working at a parenteral plant in Westboro and recognized the need to diversify my experience and I interviewed at BMS. During the interview process I was introduced to Bill Dawes, VP of Manufacturing & Supply Chain, who encouraged me to tour the Billerica facility and discuss their manufacturing process. I was intrigued to learn more about a company that manufactured a just-in-time product, held no raw material inventory, operated without facility shutdowns utilizing complex operating strategies, and had been operating in the same location for more than five decades!

- Where do you see yourself in 5-10 years?

The primary focus I have for the short term is to create a Global Facilities & Engineering organization that is nimble and that leverages key partners to support both our domestic and international operations. The industry is at a tipping point and our emerging pipeline products will dramatically reshape the operating model and landscape of our business. As an organization, our goal is to provide sustainable facility designs, incorporate reliability at the center of our asset maintenance program, develop a succession plan that supports the business needs, and continue to provide the best service at the lowest cost. Throughout my career I have always enjoyed working in hi-tech manufacturing sectors and I have had great success leading large technical organizations. My long term career goal is to capitalize on the diverse technical leadership skills I possess to expand the global manufacturing presence of an organization (Lantheus) by utilizing my operational experience.

- Why did you decide to join ISPE?

I participated in numerous ISPE events beginning in the late 1980s when the original vendor shows where held at the Radisson on Memorial Drive. I worked in the Chemical Process Industry supporting the Biopharm sector and was always interested in innovative technology that could transfer to our business. I was involved in the first application of orbital welding technology for the food & dairy industry, which ultimately became the standard for high purity piping welding technology. At that point I was hooked. If I wanted to locate innovative new technology, network with a cross section of industry experts, or simply learn more about the emerging local biotech community, then ISPE was the venue. I have been an active member of ISPE for almost 15 years and throughout my career I have promoted the benefits of participating in a global community that

provides access to emerging technology, cutting edge training, and a formal network to stay connected with colleagues throughout a rapidly changing industry.

- What changes have occurred in your field during the course of your career?

The greatest challenge our organization faces is the variability in the supply chain due to the short shelf life of our API. A great example of that is the recent volcanic eruption in Iceland that created logistical challenges and required immediate contingency planning. The Lantheus corporate values are imbedded in our culture, and as a result the entrepreneurial spirit plays a big role in how flexible and dedicated our co-workers are. Throughout the past year a number of situations have presented challenges to our manufacturing operations and our people always rise to the occasion. The transition into a nimble entrepreneurial culture is a major benefit of the recent acquisition of the business by Avista Capital Partners. Since the acquisition and launch of a free-standing company renamed Lantheus Medical Imaging, the company has begun to embark on a growth strategy to position the business for long-term success.

- What is your biggest challenge in your current position?

The greatest challenge our organization faces on a daily basis is securing raw materials that have shelf lives that are measured in hours, not in weeks or months. In addition to the challenges required to operate a Just-in-Time manufacturing process, the medical isotope community is currently challenged by limited suppliers. That, coupled with a fragile supply chain, creates shortages in the market place. The Global Facilities & Engineering organization is synonymous with a Formula 1 Racing Team, there are very specific technical resources required to support the operations that require choreographed scheduling of activities to ensure execution of our business strategy to realize success. The execution of these events occurs on a daily basis for production support and on a longer time table for execution of our capital plan to deliver facility improvements coordinated with short intervals of availability coordinated with planned manufacturing shutdowns. To add additional complexity to our execution strategy our domestic operations require operational redundancy to address scenarios, like utility interruptions, to ensure daily product delivery.

The other major challenge our organization faces is the international expansion of our radiopharmacy business throughout Canada, Puerto Rico, and Australia. The Site Engineering group has developed master service agreements with A+E firms and GCs to support the construction activities and standardized on critical equipment to reduce the total project lifecycle while realizing operational benefits

- What ISPE activities have you participated in?

The ISPE has an excellent local presence with the Boston Area Chapter which received the Chapter of the Year award at the Annual Meeting. I have had the pleasure of working with the current President, Sylvia Beaulieu, on a number of Chapter events which included the first Boston Area Chapter CEO Dinner in which Lantheus's President Don Kiepert presented to a large audience at a dinner meeting on our business strategy and the cultural evolution we have embarked on. Additionally the opportunity to participate in fun fund raising events like Bio-Ball was a great team building event for our extended leadership team to get off site, help the Special Olympics and give back to the community. The opportunity to participate in these types of events is great because it allows our friends and families to participate and have a direct impact on someone's day and life and I really enjoyed the experience. I always attend the Chapter's Product Show because of the diverse product offerings, valuable technical seminars, and great networking opportunity; it is often the only time I will run into colleagues during the year and it provides an opportunity to catch up. The Annual Meeting is also an important event to attend because the industry is facing numerous challenges related to Health Care Reform, emerging regulatory trends with a focus on harmonization, and continued corporate consolidation which is causing the rationalization of global assets and move toward lower cost sourcing strategies. The ISPE provides relevant topics with experts from academia, industry, and regulatory agencies to address these topics and in a less formal setting create meaningful dialogue that can be applied to these aforementioned issues.

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

The work life balance challenge is always demanding and requires prioritization of key tasks regardless of the situation. This requires that everyone make personal sacrifices and we may miss key events with our family; however my wife Tammy has always been very supportive and as the children have gotten a little older they understand the situation. That being said, I do my best to plan ahead and our organization is very family oriented, so the expectation is we honor our family commitments as long as the work gets done. In order to make this work you need excellent communication, dedicated people, and a strong work ethic which may require some late nights and weekends, but everyone balances the priorities to ensure the work gets done and the goals are achieved.

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

The best advice I can give a recent graduate actually applies to their own career plans. I would encourage current college students to apply for internships in the discipline they are studying. Even if the role is not a direct fit, learning the basics within the biotech community and understanding cGMPs will position a student to differentiate their skills and develop relationships with influential people that can aid them in the job search after graduation.

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Location: Genzyme Corporation, Framingham, MA (Near the intersection of the Mass Pike and Rte 9.)

Schedule: Study Courses Start on Wednesday, May 26th and will run from 6:00 pm to 9:00 pm. The sessions will then be held on 6/2, 6/9, 6/16, 6/23, 6/30, 9/8, 9/15, 9/22 and 9/29. These dates will lead up to, and help prepare for, an October exam.

Registration: This CPIP Study Course and the ISPE Study Sessions are free, just contact the office at 781-647-4773 or ISPE@camihq.com to register.

Group Leaders: Allan MacDonald, CPIP and Doyle Johnson

Contact Amy Poole, Chapter Manager, at the ISPE Boston office at 781-647-4773 if you have any questions. To learn more about the CPIP program visit the ISPE website at http://www.ispe-pcc.org/index.cfm.

Tech Talk: Why and How Leaders Change: Rome Wasn't Built in a Day & Neither are New Leadership Competencies

by Joseph J. Maressa, Fitzgerald, Stevens & Ford, Inc. / OI Partners

Leaders create change. They achieve results through their leadership behaviors and strong relationship skills. They are supportive and energetic. They make change possible. But even leaders need to turn their focus inward to explore and initiate change within themselves. In this article, I will explore the reasons why and how leaders change and the most effective approaches for doing so.

In the world of work, the following are the most common catalysts for change:

- Results you desire are not being achieved. You are not personally satisfied with them nor are those to whom you are accountable.
- It is challenging to get buy-in and commitment to your goals. You feel a strain or superficiality in your relationship with peers, direct reports, the Board or investors. You often find yourself suppressing conflict; or when you express disagreement, you find it is damaging to the relationship and your credibility.
- You come to the realization you need to grow your leadership skills to gain greater responsibility and to move up in your career. You recognize your lack of formal or recent leadership development. This is common when a person is promoted because of their functional or technical expertise.
- A performance review or 360° assessment indicates you are capable of achieving and contributing more by improving your leadership skills.
- Getting fired. Albeit too late, you realize your lack of development of some serious leadership behaviors. You are determined not to let it happen again and want to "fix" the problem.

How Leaders Change

How does a leader change and develop leadership behaviors? I firmly believe we are all created to grow, achieve and contribute throughout our entire lifetime. It is within our capability to improve our leadership behaviors. Yet improvement rarely happens overnight. Change takes time. But there are effective approaches to improving leadership skills. These consist of getting a current assessment, identifying gaps, developing a strategy and action plan and, finally, implementing the plan.

Self-awareness is the start. The Greek philosophers were right when they said "know thyself." Volumes of books have been written with methods and systems on how to improve. There is no silver bullet; there is no one way that works best for everyone. However, there *are* fundamentals to the change process. Change takes time but also motivation, determination, humility, sharing, understanding and the assistance of others. And it begins with a willingness to recognize our "blind spots" and confront our issues.

Sooner or later in a person's career, they get feedback about a blind spot - that is, a negative behavior they are unaware of. Often, a leadership behavior that has worked well for years no longer works because the individual is in a new situation. This may be due to a promotion or company reorganization, for instance, with

new challenges and a different staff. For example, leaders often get feedback that they are not tough enough, that they don't "hold people's feet to the fire." Conversely, leaders can be seen as too direct, insensitive, dictatorial and only interested in their own goals and no one else's.

Do either of these sound familiar to you? Behaviors such as these hurt a leader's relationships and ability to deliver results. Feedback, which is critical to improvement, is often tough to accept. Often, people are shocked to discover their blind spots. It may be that they have never been given the feedback before; or they may have received but not "heard" it because the behavior did not negatively impact their overall effectiveness at the time. The individual described in Case 1 was completely unaware of how his behavior was perceived by others. His initial reaction was one of denial.

Specific, detailed, actionable feedback is key to recognizing blind spots and correcting the behaviors that interfere with a leader's effectiveness. What is it about the way you interact with people, including tone of voice and non-verbal cues, that has a negative effect upon others? You need specific examples in order to understand and begin to know what and how to change. It is then important to pick one or two behaviors to work on; specifically, those that will have the greatest impact on your effectiveness, your challenges and your organization's goals.

Case 1 - Moving a Research Organization to a Product Sales Organization

The Challenge: As his organization grew, the president of a company was becoming increasingly frustrated that his leadership team was not making the shift from a research organization to a more production- and sales-oriented focus. He found that silos were beginning to form, resulting in competition among groups. Although he had successfully taken the company through key phases, including an intensive research organization buildup, establishment of a breakthrough technology platform and small scale production, growth into its next phase was hampered by his leadership style.

The Solution: Through a 360º leadership assessment plus other instruments, he realized that he was a significant part of the problem. He was seen as dictatorial and unsympathetic. The assessment results convinced him that he had serious blind spots. Coaching focused on helping him make the needed changes.

The Results: A 360º progress assessment one year later indicated he had made substantial improvements in managing disagreements, giving feedback and taking an active interest in developing his people. His strengthened relationships played a key role in his ability to shift the company from a research organization to a production- and sales-focused one.

As a leader begins to work on changing behavior, the reality sinks in that change is indeed very hard work. They often feel that nothing is changing. They become frustrated, particularly if they are trying to change a negative behavior. It feels like the behavior is ten times worse as they attempt to change it. They feel inept and begin to doubt that they can change. This is because they are now fully aware of the problem and its negative consequences. They need to give themselves a break and recognize that there will be setbacks along the way. They need to understand that this is a critical stage which I call the "try and try again stage," similar to learning to ride a bike by falling off and trying again and again.

Case 2 describes such an individual. He quickly accepted the feedback he received and plunged into the hard work needed to change his behavior but became frustrated because his expectations for progress were initially unrealistic. Changing behaviors developed over a lifetime can be a slow process; however, this is no excuse for putting growth on the back burner.

There is "no learning in the comfort zone nor comfort in the learning zone." Leaders attempting to change ingrained behaviors need to push themselves out of their comfort zone and get continued support and feedback from those they have enlisted to help them make the change possible.

Case 2 - Managing Venture Capital and Board Relationships

The Challenge: A technology company's president and CEO had taken the company from research to pilot production. His relationships with board members and investors were rocky. In order to gain the next round of funding, he needed to improve them significantly and quickly.

The Solution: Through one-on-one interviews with his entire staff and investors, leadership and other assessments, he came to realize the specific changes he needed to make. The interviews and assessments showed that he needed to show more confidence, push back on board members more and build more personal relationships. He also saw clearly how specific non-verbal behaviors were seen as negatively judgmental of others and came to understand the situations which would trigger these behaviors. He improved his ability to face and manage conflict, specifically in high stakes situations where there were strong differences of opinion and emotions ran high.

The Result: He built stronger relationships, managed board conflict better and received a new round of investment that enabled him to take the company to the next phase of growth.

Can any leader have all the leadership strengths they desire? No, the key is to fully utilize current strengths and develop those needing growth. In some cases, there may be neither the time nor the ability to develop all the leadership strengths and knowledge required. A very practical solution can be building or using team strengths to compensate for leadership limitations. Another practical solution, as illustrated in Case 3, is to change the individual's responsibilities or restructure to align their strengths with the organization's needs.

Case 3 - Aligning Strengths with Business Needs

The Challenge: A highly valued scientist and technical manager was promoted to director and became a member of the executive staff. He was not participating in strategic discussions, even though his boss felt he had the knowledge to competently do so. He was also seen as so respectful and caring of others that it interfered with his ability to achieve performance objectives

The Solution: The organization gave him an opportunity to develop his leadership capabilities. Assessments showed he was highly introverted and that he had difficulty holding people accountable. Persuasion was a critical behavior that he also needed to build. Interestingly, he felt that his scientific credibility had suffered during the five years he had spent as a manager and that this negatively affected his ability to use persuasion effectively, particularly with his direct reports. His boss did not see this as an issue.

Both he and his boss filled out a "role expectations questionnaire" that indicated which leadership behaviors were critical to success in his new role. Results showed that the scientist placed a higher value on asking others for their opinions than on his own independent decision making. In contrast, his boss felt the scientist should rely on his own expertise in order to shorten the decision-making process.

The Results: Through coaching the scientist was able to improve his leadership behaviors and made major progress in meeting project deadlines. He also gained a greater sense of confidence and learned to constructively challenge his boss in making product research portfolio decisions. However, he soon came to the conclusion that his improvement curve was insufficient. Through a series of discussions he was promoted to the individual contributor position of Distinguished Scientist. The leadership development process was successful in that it led the scientist to a position that was a perfect fit for his strengths and helped the organization meet its short and long term research strategy development needs.

The goal is for a leader to become the best they can be. In the case of changing an ineffective behavior, the change process involves four major steps, as indicated below.

Step	*Awareness Level*	*Performance Level*
1	Unconscious	Incompetent (your blind spot)
2	Conscious	Incompetent (developmental opportunity and challenges)
3	Conscious	Competent (mastery)
4	Unconscious	Competent (effortless mastery)

In Step 1, behaviors that need to be changed are identified. In Step 2, as we work on changing these behaviors, we look back at an interaction and still see the ineffective behavior. As we progress through this stage, we actually begin to catch ourselves exhibiting the very behavior we vowed to change. In the final phase of Step 2, we begin to recognize problematic situations in advance and prepare for them, preparing to apply the new behaviors we have learned. In other words, we adopt the right frame of mind and anticipate using the new behavior before we get into the situation. In Step 3, we are conscious of using the new behavior. Finally in Step 4, the new behavior is so ingrained we are not even aware we are using it effectively.

A key to gaining the confidence to try a new behavior is to first practice with a trusted colleague or coach. Then plan to use the new behavior in a specific upcoming situation and debrief afterwards. What were the results and what do you need to improve the next time you encounter a similar situation?

As you change your leadership behavior, it can be unsettling for others you interact with. They are often concerned about how you will judge their leadership capabilities and how it will impact your mutual working relationship. Indeed, you may begin to see them in a new light. Be assured that in time they will become comfortable with your new behavior and see it as authentic. Furthermore, many leaders need to improve the leadership capability of the people who report to them. By actively working to strengthen their own leadership skills, they will be setting an example that will inspire their direct reports to do the same.

In my career as a leadership coach, I have seen this process (self-assessment, develop action plans, practice, fail and try again) work successfully to enhance growth in leadership skills and behaviors. These changes

often enrich both the personal and professional lives of those leaders who have committed to change. The work is not easy but it is worth it.

The enemy of becoming a great leader is being a good leader. The enemy of becoming a great company is being a good company. Great companies are made up of great leaders. A great leader believes we are never finished, that we never "fully arrive." To live is to change. To have changed often is to truly live. As my father and his family, who truly showed great leadership by immigrating to this great country, would say, "Buon Viaggio e Buona Fortuna!" I wish you a good journey and good fortune!

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Joe Maressa is currently vice president at Fitzgerald, Stevens & Ford, Inc. / OI Partners, a global talent management firm. During his 30-year career, Joe has held a variety of corporate positions ranging from traditional human resource business partner to training manager and internal organizational development consultant. As an external consultant, his focus has been on team building, leadership assessment and one-on-one executive coaching. Joe can be reached at jmaressa@fsandf.com.

Industry News In Brief

by Patti Charek, RF Walsh Collaborative Partners

Meck KGaA to Buy Millipore for $6 Billion; Thermo Fisher Outbid

Merck KGaA has agreed to buy Millipore Corporation, a supplier of drug development equipment for biotechnology companies, for about $6 billion in cash, beating a rival offer from Thermo Fisher Scientific. Merck will pay $107 a share, the Darmstadt, Germany, company said. The offer is 13 percent more than Millipore's closing price on February 26, and 50 percent higher than the closing price on February 19, the last day of trading before Bloomberg News reported Millipore got a takeover bid. Billerica-based Millipore put itself up for sale after getting an unsolicited takeover bid worth less than $95 a share from Thermo Fisher of Waltham.

Merck, the world's largest maker of liquid crystals used to make flat-panel televisions, will get about 35 percent of its revenue from chemicals after the Millipore acquisition, up from about 25 percent currently. Merck will also gain Millipore's expertise in testing and manufacturing biotechnology drugs, said Deutsche Bank analyst Ross Muken. "The angle for Merck is access to high-growth biologics," Muken said. Millipore allows Merck, seller of the cancer drug Erbitux outside the US, an opportunity to expand into biotechnology "without the pipeline risk," said Muken.

"This is a combination with an excellent strategic fit, which will allow us to cover the entire value chain for our pharma and biopharma customers, offering integrated solutions beyond chemicals," said Dr. Karl-Ludwig Kley, chairman of the executive board of Merck, in a joint statement with Millipore. Millipore is well positioned in the market for researching and producing biotechnology drugs, the companies said. Merck will also gain Millipore's comprehensive range of products, technologies, and services used by drug companies and universities to improve laboratory productivity and manufacturing, the companies said.

"Millipore can offer a full work flow for a biotech customer," Deutsche Bank's Muken said. "They probably have the widest array of products for that biomanufacturing market of any other player out there." In the joint statement, Millipore chief executive Martin Madaus said "Today's announcement, which is the outcome of a thorough strategic review process, is a validation of the tremendous value of the Millipore brand and a testament to the value this transformation has created for all of our stakeholders." Last year, Millipore generated sales of $1.7 billion, with around 6,000 employees in more than 30 countries, the companies said. (Source: Zachary R. Mider and Angela Cullen, Bloomberg News, 1 March 2010)

Merck KGaA Moving US Base to Billerica; Millipore Deal May Add Jobs in Massachusetts

The chairman of German drug and chemical giant Merck KGaA said that he plans to move the headquarters of the company's US chemicals business, which sells lab materials, life sciences tools, and pigments, to Billerica from outside Philadelphia. That division will be named EMD Millipore once Merck has completed its $6 billion acquisition of Millipore in the coming months, Merck chairman Karl-Ludwig Kley said during an interview at the Globe. But he would not specify how many new jobs could be created in Billerica.

Kley said the company determined over the past decade that it needed to build up its presence on this side of the Atlantic. The Millipore deal marks its second big US acquisition, both of which were in Massachusetts. (In 2006, Merck paid $13 billion to buy Swiss-based drug maker Serono AG, which has its US headquarters in Rockland.) "We have a US strategy but I have to admit we have no Massachusetts strategy," he said. "That everything we do turns out to be in Massachusetts is good luck for us and for Massachusetts. I think it has, of course, to do with the fact that Massachusetts is an extremely attractive state to do business for research or innovative companies."

Governor Deval Patrick, who met with Kley, hailed Merck's move as a vote of confidence in the state's efforts to expand its life sciences sector. Patrick said Kley did not seek state government assistance and promised to bring some European operations under the umbrella of the Billerica unit. "They're great jobs, they're coming in," Patrick said. "We need them now, I was quite clear with him about that. We want any and all life sciences companies that want to set up operations here. This is affirmation and confirmation that we are the life sciences hub."

Merck KGaA was established in 1668 and calls itself the world's oldest pharmaceutical and chemical company. It is not connected to US-based Merck & Company and until recently has not been well-known in the United States. With its agreement to purchase Millipore, the company will emerge as a significant employer in eastern Massachusetts and southern New Hampshire.

Merck spokesman Walter Huber confirmed that "global responsibility" for some overseas operations will be coming to Massachusetts, but did not say how many, if any, jobs might be created. Merck currently sells its own line of life sciences tools in Europe, Asia, and Latin America.

Since its acquisition of Serono in 2006, Merck has boosted Serono's Massachusetts employment from 500 to 850 jobs and moved its US biopharmaceutical headquarters to Rockland, naming that division EMD Serono Inc. Merck has to do business in the United States under the name EMD - which stands for "Emanuel Merck, Darmstadt," the initials of a company executive and the German city where it is based - because America's Merck owns exclusive rights to the name here.

Millipore has more than 6,000 workers worldwide, including 1,676 in this region: 585 in Billerica, 403 in Bedford, 159 in Danvers, 56 in Burlington, and 473 in Jaffrey, NH. The company sells a range of filtration systems and other life sciences equipment to biotechnology, pharmaceutical, and academic research laboratories. Kley said Merck is likely to transfer an unspecified number of jobs to Billerica from Gibbstown, NJ, outside Philadelphia. That site has about 300 employees. But he said it was also possible the company could consolidate some operations, and eliminate jobs, though it has yet to be determined how many and where. Merck has said it wants to retain Millipore's senior management team, but its executives are still discussing whether Martin D. Madaus, Millipore's German-born chief executive, will remain with EMD Millipore. (Source: Robert Weisman, Boston Globe, 4 March, 2010)

Alzheimer's Drug Setback for Pfizer

Pfizer said that a promising Alzheimer's drug failed to work in a pivotal study, marking a setback for the giant drug maker's efforts to revive its pipeline. Pfizer and partner, San Francisco-based Medivation Inc., said the experimental drug, Dimebon, failed to meet its primary and secondary goals - improving thinking ability and overall daily function over six months in patients with mild-to-moderate Alzheimer's disease. The multinational trial of 598 patients showed no significant benefit from the medication when compared with a placebo.

Medivation chief executive, David Hung, told investors in a conference call that the trial results were unexpected and "a major disappointment," saying the company would "re-evaluate the entire program." Medivation also has a prostate-cancer therapy in late-stage development. As for Pfizer, the company has been trying to shore up its pipeline as patents are set to expire soon on its cholesterol drug Lipitor and other top-selling medicines. Pfizer officials had touted Dimebon's prospects as an example of how they were reinvigorating the company's drug research and development. Speaking to analysts in February, executives highlighted Dimebon among 133 compounds in Pfizer's pipeline.

Skeptics in neuroscience research and on Wall Street had raised doubts about the Alzheimer's potential for Dimebon, which originally was a common-cold medicine in Russia. No one could fully explain how an antihistamine might also slow the progression of the memory-robbing brain disease, despite indications from clinical trials conducted in Russia that it did.

Briggs Morrison, who oversees the late-stage development of Alzheimer's drugs and others at Pfizer, said the company was "disappointed" with the Phase 3 study results but wanted to review the findings before deciding whether to scrap further studies of Dimebon. There are currently four ongoing Dimebon trials, including one 12-month trial of mild-to-moderate Alzheimer's patients and a trial for Huntington's disease. Dr. Morrison noted that Pfizer has nine Alzheimer's compounds in various stages of development, including partial rights to another promising one called bapineuzumab that is in Phase 3. "The history of our business is that all of these things are not going to hit," he said, but the company was trying various approaches to increase the chances of finding one or more that do. (Source: Jonathan D. Rockoff and Shirley S. Wang, The Wall Street Journal, 4 March 2010)

Abbott Labs to Buy Facet for $450 Million

Abbott Laboratories, maker of the arthritis drug Humira, agreed to buy Facet Biotech Corp. for $27 a share in cash, for a net $450 million, adding experimental medicines in cancer and immunology. The price is a 67 percent premium over Facet's March 9 closing share value in Nasdaq trading. Boards of both companies have approved the accord, which is expected to close in the second quarter, the companies said in a statement.

Facet, based in Redwood City, California, turned down an unsolicited takeover bid from partner Biogen Idec last year, saying the company's $17.50-a-share offer was "inadequate." Biogen Idec pulled its takeover offer for Facet, valued at $420 million, on December 17 after Facet shareholders failed to tender the majority of their shares.

Abbott Park, Illinois-based Abbott's bid amounts to $722 million before subtracting Facet's $272 million in projected cash and marketable securities, the companies said. "It's a good deal because Abbott gets half the worldwide rights to a potential blockbuster drug in the immunotherapy market," Michael King, an analyst with Merriman Curhan Ford & Co., said, referring to the experimental multiple sclerosis medicine daclizumab which the company is developing with Biogen. "It's a perfect fit," he added. Facet has five experimental products led by daclizumab; the company also is working on three cancer medicines and a therapy for immunologic diseases. (Source: Bloomberg News, 10 March, 2010)

Genzyme Facing FDA Fines - Allston Plant to get Increased Oversight

Federal regulators are preparing to fine Genzyme and step up supervision of the company's Allston drug manufacturing plant after a string of quality problems at the facility.

The Cambridge biotechnology giant said that the FDA notified it that the agency plans to take "enforcement action" against the company. It marks the first time Genzyme has faced an FDA fine in its 29-year history and comes four months after the company said some of the drugs processed at the plant were contaminated by bits of steel, rubber, and fiber.

Last June, Genzyme temporarily suspended much of its Allston operations after it detected a virus in the plant and was forced to launch a massive decontamination effort. Genzyme still has not definitively traced the source of the infection, which crippled production for months and caused shortages of some key products. The Allston plant manufactures or packages drugs designed to treat rare genetic disorders, including Cerezyme for Gaucher's disease, Fabrazyme for Fabry disease, and Myozyme for Pompe disease. Genzyme's treatments for such diseases, which cost as much as $300K a year for each patient, account for about one-third of the company's $4.5 billion in annual revenue.

Company executives said they do not expect the FDA action to affect shipments of the three key drugs manufactured or handled in Allston - Cerezyme, Fabrazyme, and Myozyme. Nor do they expect the FDA's action to affect other Genzyme plants or the approval process for Lumizyme, a version of Myozyme that is produced in larger batches.

But executives were uncertain how regulatory action might affect shipments of Thyrogen, a drug used to treat thyroid cancer that is packaged at the Allston plant. Analysts noted that the FDA has questioned the medical need for the drug, which generates $175 million in revenue a year, meaning it might order Genzyme to halt shipments until it can resolve the FDA's concerns.

Genzyme, already battling increased competition, faces uncertainty about regulatory approval for some new products, and must deal with pressures applied by Carl Icahn. Icahn, a billionaire activist investor who controls about 2 percent of Genzyme's stock, has said he will nominate himself and three others to Genzyme's board. He could potentially push Genzyme to be broken up or to make other major changes to try to boost the share price. (Source: Todd Wallack, Boston Globe, 25 March 2010)

Takeda Pharmaceutical Deal May Help AMAG Boost Sales of Anemia Drug

AMAG Pharmaceuticals has struck a deal to expand global marketing of its best-selling drug. The Lexington-based company reported that it has licensed its iron deficiency anemia drug to the Japanese drug giant Takeda Pharmaceutical Co. The deal includes $60 million in initial fees. The deal gives Takeda an exclusive license to all therapeutic uses of AMAG's drug ferumoxytol (Feraheme) in Europe, former Soviet states, Asia Pacific countries (excluding China, Japan, and Taiwan), Canada, and Turkey. AMAG, which received FDA approval last June to market the drug as a treatment for iron deficiency anemia in adults with chronic kidney disease, will continue to control rights to the drug and handle sales of the product in the United States.

For AMAG, this deal provides cash to seek additional approvals for ferumoxytol as well as an organization to sell its lead product in the next big potential market for the drug, Europe. The company plans to file an application with the European Medicines Agency in mid-2010 for permission to market the drug in European Union countries for patients with chronic kidney disease. Takeda has agreed to pay AMAG $220 million in milestone fees for meeting certain development goals, as well as double-digit royalties.

Last year, AMAG took in $15.8 million in revenue from sales of ferumoxytol. The iron-replacement drug is given to patients intravenously. About $500 million worth of injected iron-replacement drugs are sold annually, according to analysts at Robert W. Baird. (Source: Xconomy.com, 5 April, 2010)

Cubist to Stop Development of Heart Surgery Drug

Cubist Pharmaceuticals has said it will stop developing a drug intended to reduce bleeding during heart surgery, months after it halted enrolling patients in studies because of safety concerns. In December, the company stopped enrolling patients in a study of CB-500,929, or ecallantide, because of deaths among patients. At the time, the company said a data monitoring board wants to assess the difference between patients on the drug and those who were on an alternative treatment. Overall, the rate of deaths in the studies was consistent with expected outcomes and the causes of death were typical for a group of patients who were at a high risk for bleeding during cardiac surgery, Cubist had said. Cubist also plans to end its deal with Dyax Corp. on the drug. Dyax discovered and licensed to Cubist. The drug was intended for use in surgeries where a patient's heart is stopped, and blood is kept flowing with a cardiopulmonary bypass machine. (Source: Associated Press, 1 April, 2010)

Roche Looks to New Disease Areas

Swiss drug giant Roche Holding AG recently laid out its strategy for growth, telling investors it can continue a long winning streak by strengthening its already dominant position in cancer drugs and by expanding into new disease areas, such as diabetes and schizophrenia. Roche has long been one of the industry's best performers, but sales of some of its top cancer drugs have shown some signs of slowing as they mature, and recent attempts to extend the blockbuster drug Avastin to new types of cancer have been mixed.

Roche needs new products to keep growing, and is investing more than nearly any other drug maker in the

search. The company's R&D spending of about 10 billion Swiss francs last year represented about 20 percent of its sales - a high mark in an industry that typically invests about 15 percent of sales.

At an investor briefing in New York, the company tried to convince analysts that this investment will pay off. It pledged to secure new uses for Avastin and fellow cancer drugs Herceptin and Rituxan, and to roll out new cancer medications that can potentially replace these blockbuster drugs when they lose patent protection. In a departure from its traditional focus on cancer, Roche also outlined plans to crack a number of new therapy areas - including some, such as schizophrenia and HDL, or "good" cholesterol, which other drug companies have backed away from because they found them unpromising.

The company said it hopes to launch a number of new drugs in the next few years, including taspoglutide for diabetes and dalcetrapib for raising "good" HDL cholesterol. Taspoglutide has performed well in five large clinical trials, the results of which will be presented at the American Diabetes Association annual conference in June, Roche said. Analysts consider dalcetrapib a high-risk drug, in part because Pfizer Inc. had to scrap development of a similar drug in 2006 due to safety concerns. Roche officials expressed confidence in dalcetrapib, saying it doesn't appear to have the same safety issues, but acknowledged that it is risky project. Roche is still enrolling patients in a large clinical trial of the drug.

The company said it hopes to file its breast-cancer drug Trastuzumab-DM1, or T-DM1, for regulatory approval by the end of the year. The drug is an improved version of the company's Herceptin, which had sales of nearly $5 billion last year. Herceptin will lose patent protection in some parts of the world in the middle of this decade and Roche is hoping T-DM1 can eventually replace it. (Source: Jeanne Whalen, The Wall Street Journal, 19 March 2010)

ArQule Buoyed by Promising Lung Cancer Trial Results

Shares of ArQule Inc. more than doubled in value before paring some of that gain after the biotechnology company reported promising results from a trial of one of its drug candidates as a treatment for lung cancer. ArQule said a group of patients treated with its drug candidate ARQ-197 and the cancer drug Tarceva lived longer without their disease progressing than patients who were treated with only Tarceva. The results came from a midstage clinical trial of ARQ-197.

The Woburn, Mass., company said patients treated with its drug and Tarceva lived for 16.1 weeks before their disease began to progress again, or they died. That compared to 9.7 weeks for the Tarceva group. In patients with nonsquamous tumors, survival almost doubled to 18.9 weeks from 9.7 weeks. ArQule said the results were statistically significant "when adjusting for imbalances in the distribution of key prognostic factors." The study involved 167 subjects, and ArQule said complete data will be presented at a medical conference later this year. (Source: Associated Press, 1 April 2010)

Teva to Become Leading Generic Pharma in Europe with Acquisition of Ratiopharm

Teva Pharmaceutical Industries Ltd. announced that it has entered into a definitive agreement to acquire Ratiopharm, Germany's second largest generics producer and the sixth largest generic drug company worldwide, for an enterprise value of 3.625 billion euro. The transaction is subject to certain conditions including relevant regulatory approvals. On a pro forma basis, the combined company would have had 2009 revenues of $16.2 billion. Teva expects to complete the transaction by year-end 2010.

The acquisition will position Teva as the leading generic pharmaceutical company in Europe, increasing its European business from sales of $3.3 billion in 2009 to joint pro forma sales of $5.2 billion. Ratiopharm's robust portfolio includes 500 molecules in over 10,000 presentation forms covering all major therapeutic areas marketed in 26 countries. Ratiopharm also has valuable know-how in biosimilars, consisting of a number of products in advanced stages of development and a well-established sales and marketing team. Ratiopharm reported worldwide 2009 revenues of 1.6 billion euro. The combined entity will have 40,000 employees worldwide, of which 18,000 will be based in Europe.

Following the acquisition, Teva will improve its market position in Germany, the world's second largest generic drug market valued at approximately $8.8 billion (including sales to hospitals and OTC), to become the number two player in this market. The combined entity will have a strong European footprint, holding the leading market position in 10 European markets, including key markets such as the UK, Hungary, Italy, Spain, Portugal and the Netherlands as well as a top three ranking in 17 countries, including Germany, Poland, France and the Czech Republic. In addition, the transaction will nearly double Teva's sales in Canada. (Source: Teva website, 18 March, 2010)

Avila Therapeutics Partners with the Leukemia & Lymphoma Society to Accelerate Drug Development

The Leukemia & Lymphoma Society (LLS) and Avila Therapeutics announced they have established a collaboration to support development of one of Avila's lead product candidates, AVL-292, for treatment of adults with B cell cancers. Through the partnership, LLS will provide up to $3.2 million to support Avila's clinical development of AVL-292. Avila anticipates the drug entering clinical trials in 2010.

B cells are an important component of the body's immune system. B cells can become cancerous, leading to diseases such as non-Hodgkin lymphoma. Approximately 85 percent of non-Hodgkin lymphomas originate from B cells. AVL-292 is a targeted covalent drug designed to bind specifically to the protein target Bruton's Tyrosine Kinase (Btk). Btk plays a critical role in B cell development and activation, and it is believed the

inhibition of Btk will provide benefits in treating B cell cancers.

Taking an active role in accelerating development of novel therapies for patients, LLS has committed substantial, multi-year funding to support this collaboration as part of its Therapy Acceleration Program (TAP). TAP is LLS's bold initiative designed to advance therapies with high prospects of providing near-term benefit to patients suffering from blood cancers. By partnering directly with biotechnology companies, LLS is taking a results-oriented approach to more quickly identify potential breakthrough therapies and advance them along the FDA drug approval pathway.

"We are very honored that The Leukemia & Lymphoma Society recognizes the potential of AVL-292 and is making this substantial investment with Avila, which will significantly enhance the drug's development," said Katrine Bosley, Avila's chief executive officer. "In pursuing their mission, LLS is combining scientific advancement with connecting to doctors and patients - that 'translational thinking' helps companies like Avila cross the bridge from research into development much more effectively for people battling blood cancers." (Source: Leukemia & Lymphona Website, 29 March, 2010)

Sepracor Moves Forward With New Leadership

The $2.6 billion move for Dainippon Sumitomo Pharma (DSP) to purchase Marlborough-based Sepracor seemed like a great deal for the Japanese pharmaceutical giant. DSP achieved its goal of expanding into the US market and did so by purchasing a company, Sepracor, with an already strong product line, anchored by insomnia drug Lunesta, plus a capable commercialization process for developing and marketing new drugs. But Mark Iwicki, the new president and COO at Sepracor, said the acquisition has been a good deal for Sepracor, too. "Sepracor was a very good smaller to mid-sized company," Iwicki said. "Now we have the backing of a very substantial organization that I think really adds some security to the Sepracor pipeline." DSP and Sepracor, Iwicki said, will now pursue their mutual long-term goals of developing new specialty drug therapies and expanding those new products along with their existing ones to broader international markets, such as Europe.

The past few months have seen quite a bit of transition at Sepracor. In September DSP announced the acquisition of Sepracor. Then in February DSP announced it would merge its US subsidiary, DSP America of Fort Lee, NJ, into Sepracor. The new company will operate under the Sepracor name beginning April 1.

Personnel moves have resulted from the merger as well. Former Sepracor President and CEO Adrian Adams left the company to become CEO at Inspire Pharmaceuticals in North Carolina. Iwicki, who was previously executive vice president and chief commerical officer, has taken over as president and COO. Saburo Hamanaka, a former special advisor to DSP CEO Masayo Tada, will become chairman and CEO of Sepracor and will be based in Marlborough. Iwicki said he doesn't expect any substantial changes to the number of employees at Sepracor or its Marlborough headquarters because of the corporate changes.

Sepracor officials are, however, gradually moving toward a corporate goal of expanding into specialty, niche drug therapy markets as opposed to treatments for more common disorders. The larger fields, Iwicki said, have become crowded with pressures from managed care organizations and the government to restrict use and lower costs. Iwicki said two important Sepracor drugs being reviewed by the FDA embrace this trend.

One, Lurasidone, is a drug to treat schizophrenia. It has completed phase III clinical trials and is awaiting FDA approval. DSP America had mostly been developing the drug, but if approved by the FDA, Sepracor would aid in commercializing the product. Sepracor has also been working on Stedesa, which treats seizures caused by epilepsy. That product is also being reviewed by the FDA. Sepracor's continued growth will be in offering these types of products in niche markets that are untapped, Iwicki said. The company has a prioritization process to evaluate unmet needs in therapy areas and steer research and development investments there. Iwicki said Sepracor is exploring therapies for pain and other specialty disorders as well.

Iwicki said he's also excited about the mutual goal of both Sepracor and DSP to explore international marketing opportunities. With the DSP acquisition, Sepracor will have additional resources to not only continue the company's research, development and commercialization processes, but also to expand international footprints along with DSP. (Source: Brandon Butler, Metroest495 Biz, 9 March, 2010)

State Support for Biotech Misses Target

For a researcher who is just starting out, getting funding is somewhat of a Catch-22, said Jeffrey Bailey, an associate professor with Worcester-based UMass Medical. To get major grant money, researchers need preliminary data showing their work has merit. But to get the initial data, the researcher needs money.

Bailey and dozens of other researchers around Massachusetts have been able to take advantage of the Massachusetts Life Sciences Center's new investigator program, which provides grants to startup researchers that need cash. It helps researchers like Bailey get their projects off the ground and lay the ground work for grant funding from a national institution. "It's definitely helped," Bailey said about the two-year, $100,000 Life Sciences Center grant he received in June 2009. He used the money to hire lab workers to study malaria and Lou Gehrig's disease.

The new investigator program is one of a handful run through the Waltham-based Life Sciences Center. It's part of the state's 2008 commitment of a $1 billion investment in life sciences over 10 years. Funding for the center, however, hasn't quite lived up to original expectations. And with budget issues continuing at the state this year, future funding for the Life Sciences Center isn't looking to get back on its original track any time soon.

Kofi Jones, a spokesperson for the state's executive office of housing and economic development, said Gov. Deval Patrick "remains dedicated to supporting innovation" throughout Massachusetts. But, she said, the economic climate has changed since the program was announced in 2008. "Given the current economic realities, it may take longer than 10 years to reach the $1 billion dollar mark," she said.

Many programs at the state have been subject to budget cuts, and the Life Sciences Center is no exception. For example, the Life Sciences Investment Fund, which the new investigator grant program is a part of, was originally supposed to receive $250 million over the 10 years, or $25 million per year. In the first year of the program, the Center got $15 million to dole out in grants. This year the budget was cut to $10 million. Next year, Patrick's budget calls for level-funding the program at $10 million. Similarly, the tax incentive programs that the center gives out were originally slated to be $25 million a year for 10 years. The Center hit those targets last year and this year, but Gov. Deval Patrick's budget proposal for next year calls for the center to release no more than $20 million in incentives.

"We are certainly sensitive to the budget challenges the state is facing," said Angus McQuilken, vice president for communication for the Life Sciences Center. "Critical health and human services as well as many others are being cut across the state. Nobody is going to be held harmless from the impact." But, the issue is simple, McQuilken said: The less money available for the Life Sciences Center, the less grants and funding will be available to companies in one of the state's fastest growing sectors. "There is an opportunity cost to not making these investments," McQuilken said. "And in a down economy is exactly when these investments need to be made."

Even with less money going to the Life Sciences Center than was originally conceived, those in the life sciences industry are still happy to be receiving state support. "We all have to be rational," said Kevin O'Sullivan, president of the biotech development group Massachusetts Biomedical Initiatives or MBI. Showing the state has a commitment to the industry is the important thing, O'Sullivan said. For outsiders looking at Massachusetts, it shows that the state government is behind the industry and fostering its growth, he said.

Plus, O'Sullivan credits the Life Sciences Center with using the money to leverage private investments. Through matching grant programs, which make Life Sciences Center money contingent on other funding sources, the organization has been able to leverage about $700 million in investments that are projected to create 6,400 jobs.

That sentiment resonates from organizations that have received funding from the center. At Worcester Polytechnic Institute, for example, officials hope to construct the next phase of Gateway Park in the coming years thanks to a $6.6 million investment from the Life Sciences Center this year. The money is being used to leverage the remaining costs of the $30 million project from private investors. "The next phase of Gateway Park would not be happening if it wasn't for the Life Sciences Center's support," said Jeffrey Solomon, executive vice president and CFO at WPI. (Source: Brandon Butler, Worcester Business Journal, 29 March, 2010)

Thermo Fisher and Lilly Announce Expanded Clinical Trial Materials Relationship

Thermo Fisher Scientific and Eli Lilly have announced that they have expanded their clinical trial materials supply chain relationship. As part of a new five-year agreement, the Fisher Clinical Services business of Thermo Fisher will take over responsibility for Lilly's in-house clinical trial materials manufacturing, packaging and labeling operations on-site at the Lilly Technology Center North in Indianapolis. This transition is expected to be completed in the summer of 2010.

Additionally, by the end of 2010, Fisher Clinical Services will handle the distribution of clinical trial materials for Lilly throughout North America. The agreement includes Fisher Clinical Services' purchase of Lilly's clinical trial manufacturing and packaging equipment. This relationship was expanded to support Lilly's new operating model, which is designed to speed the delivery of innovative medicines to patients while helping Lilly to reduce some of its fixed costs. Lilly employees impacted by this expanded agreement and qualified individuals in the Indianapolis community will have the opportunity to apply for roles with Fisher Clinical Services.

According to Marc N. Casper, president and chief executive officer of Thermo Fisher Scientific, "This agreement offers both companies many opportunities for process improvement and technological innovation, all with the purpose of assuring that patients around the world receive their clinical trial medicines and supplies quickly and efficiently."

"Lilly and Fisher Clinical Services have a two-decade history of working well together and we believe this expanded agreement is the best way to ensure that high quality clinical trial material is getting to clinical trial sites around the world as efficiently as possible, while also leveraging our FIPNet (fully integrated pharmaceutical network) strategy of collaboration in those areas that are not considered strategic or core for Lilly to own," said Ralph Lipp, PhD, vice president pharmaceutical sciences research and development for Lilly. "Transitioning work like the manufacturing, packaging and labeling of clinical trial materials to Fisher Clinical Services helps us also reach Lilly's corporate goals of reducing the costs of drug development and speeding innovative medicines to patients." (Source: Eli Lilly Website, 26 March, 2010)

CombinatoRx Achieves $40 Million Milestone as FDA Approves Exalgo

Cambridge-based CombinatoRx recently announced that the FDA has approved the New Drug Application (NDA) for Exalgo (hydromorphone HCl) extended-release tablets, for the management of moderate to severe pain in patients requiring continuous, around-the-clock opioid analgesia for an extended period of time.

CombinatoRx will receive a $40 million milestone payment from Covidien based on Exalgo approval and is eligible to receive tiered royalties on Exalgo net sales.

"Our considerable product development expertise played a key role in facilitating this successful NDA submission, with the goal of providing much needed relief to those who suffer from chronic pain," commented Mark H.N. Corrigan, MD, President and CEO of CombinatoRx. "We will continue to apply our strong development capabilities to the many promising drug candidates in our pipeline going forward."

The US rights to Exalgo tablets were acquired from Neuromed by Mallinckrodt, a Covidien company, in June, 2009. Neuromed acquired the US marketing rights to Exalgo tablets from ALZA Corporation in April 2007 and was responsible for clinical development and regulatory filings. Covidien is responsible for all commercialization activities for Exalgo in the US, including marketing, sales and all post-approval FDA regulatory filings and will now own the intellectual property for the product. ALZA is responsible for manufacturing, packaging and supply of the product. CombinatoRx and Neuromed merged on December 21, 2009. (Source: CombinatoRx Website, 2 March, 2010)

Regulatory & Legislative Highlights

by Deepen Joshi, Sepracor

ACT Drug Gets FDA Orphan Status

Advanced Cell Technology of Worcester said the FDA has granted orphan drug status to the company's treatment for Stargardt's Macular Dystrophy (SMD). Orphan drug status is a designation for products aimed at treating rare diseases and conditions and gives companies access to tax credits, grant funding for clinical trials, an accelerated FDA approval process and market exclusivity for as many as seven years. SMD is a degenerative disease of the retina. ACT's SMD treatment is derived from human embryonic stem cells. (Source: Matthew L. Brown, 2 March 2010, Worcester Business Journal)

FDA Announces New Safety Plan for Drugs for Chemotherapy-Related Anemia

The FDA has approved a risk management program to inform healthcare providers and their patients about the risks of a class of drugs called Erythropoiesis-Stimulating Agents (ESAs). For patients with cancer, the program is also designed to help ensure the appropriate administration of these drugs, which they receive to treat anemia that can occur as a result of chemotherapy.

In April 2008, FDA required Amgen Inc. to establish this risk management program based on studies that found that ESAs caused tumors to grow faster and resulted in earlier deaths in some cancer patients. Amgen's risk management program, referred to as a REMS or Risk Evaluation and Mitigation Strategy, requires health care professionals to provide their patients receiving an ESA with a Medication Guide that contains information for patients on how to safely use a drug. Amgen is also required to oversee and monitor health care professionals and hospitals that use ESAs for patients with cancer to ensure that these caregivers are fully compliant with all aspects of the overall risk management program.

ESAs are approved for the treatment of anemia that may occur as a result of kidney failure, from certain kinds of chemotherapy, from the drug AZT, which can be used for the treatment of HIV infection, and for the treatment of anemia among certain patients undergoing surgery. Procrit, Epogen and Aranesp are ESAs manufactured by Thousand Oaks, California-based Amgen. (Source: 16 February, 2010, FDA Website)

FDA Announces New Safety Controls for Long-Acting Beta Agonists (LABAs) Used to Treat Asthma

The FDA has announced that drugs in the class of long-acting beta agonists (LABAs) should never be used alone in the treatment of asthma in children or adults. Manufacturers will be required to include this warning in the product labels of these drugs, along with taking other steps to reduce the overall use of these medications. These new requirements are based on FDA analyses of clinical trials showing that use of these long-acting medicines is associated with an increased risk of severe worsening of asthma symptoms, leading to hospitalization in both children and adults and death in some patients with asthma.

The FDA will be requiring the manufacturers of LABAs to conduct additional studies to further evaluate the safety of LABAs when used in combination with inhaled corticosteroids. The FDA will seek input on the design of these studies at a public advisory committee meeting in March 2010. In addition to these actions, FDA will work with public and private partners under the agency's ongoing Safe Use Initiative to study LABA prescribing practices. the LABAs Advair and Serevent are marketed by GlaxoSmithKline; Foradil is marketed by Novartis AG; and Symbicort is marketed by AstraZeneca. (Source: 18 February, 2010, FDA Website)

FDA Cancer Drug Approval Rate Highlighted in JNCI

The FDA's Office of Oncology Drug Products approved more than 50 new indications for the use of oncology and hematology drugs and biologics between July 2005, when the office began reviewing marketing applications, and the end of 2007, according to a new agency study. During this time period, the office reviewed 60 applications from companies seeking approval to treat people with 30 different types of cancer, including breast, lung, colon, kidney, head and neck and several forms of blood cancer.

The Office of Oncology Drug Products, part of the Center for Drug Evaluation and Research (CDER), took action on 58 of the applications, approving 53 new cancer indications. Five applications were not approved, and two applications were withdrawn before any regulatory action was taken. These approved applications

included indications for 18 new drugs that had not been previously approved and 35 additional indications for already approved drugs.

The accelerated approval process allows for earlier approval of drugs to treat serious diseases with an unmet medical need and is based on a surrogate endpoint, a laboratory measurement or physical sign that is used in clinical trials as an indirect measurement of clinical benefit. Under an accelerated approval, the FDA approves the drug on the condition that the drug manufacturer conducts further studies to evaluate the drug's actual clinical benefit. Priority reviews are conducted within six months, whereas other reviews are usually reviewed in 10 months. (Source: 18 February, 2010, FDA Website)

FDA Approves Genentech's Rituxan for Chronic Lymphocytic Leukemia

The FDA has approved Rituxan (rituximab) to treat certain patients with chronic lymphocytic leukemia (CLL), a slowly progressing blood and bone marrow cancer. Rituxan is an anti-cancer, monoclonal antibody intended for patients with CLL who are beginning chemotherapy for the first time and for those who have not responded to other cancer drugs for CLL. Rituxan is administered with two other chemotherapy drugs, fludarabine and cyclophosphamide, and binds to the surface of cancer cells, making it easier for the patient's immune system to attack the cancer cell as if it were a foreign pathogen.

Rituxan carries a Boxed Warning for infusion reactions, which can occur during infusion or within 24 hours afterwards. Other Boxed Warnings for Rituxan include rashes and sores in the skin and mouth; progressive multifocal leukoencephalopathy (PML), a brain infection that is generally fatal; and tumor lysis syndrome, which results from the death of a large number of tumor cells in a short period of time. When the tumor cells are killed by the drug, they release toxins into the bloodstream that can cause acute kidney injury and increase the levels of potassium and phosphate in the blood. (Source: 18 February, 2010, FDA Website)

FDA and Serious Adverse Events Consortium Complete Third Data Release

The FDA and the International Serious Adverse Event Consortium (SAEC) recently announced the third release of data on the genetic basis of drug-induced liver injury (DILI) and serious skin reactions (SSRs). The data focus on the genetics associated with DILI and SSR and may help researchers to better predict an individual's risk of developing these serious complications.

Drug induced liver injury occurs in a small subset of patients and is often associated with a drug that is an unpredictable liver toxin, and may be the cause of acute liver failure in some patients. Although the exact mechanism behind drug-induced liver injury is unknown, research suggests that a person's genes contribute to their likelihood of developing this injury.

Drug-induced SSRs, such as Stevens-Johnson, present as allergic-like skin reactions (blistering and peeling of the skin) and are considered serious enough to discontinue treatment with the medication. These reactions can be fatal if the signs and symptoms are not quickly recognized.

Researchers who enter into a data use agreement can obtain free access to the data to generate custom data inquiries and obtain immediate results on the genetic basis of adverse drug events. (Source: 19 February, 2010, FDA Website)

NIH and FDA Announce Initiative to Fast-track Innovations to the Public

The FDA and the National Institutes of Health have unveiled an initiative designed to accelerate the process from scientific breakthrough to the availability of new, innovative medical therapies for patients. The initiative involves two interrelated scientific disciplines: translational science, the shaping of basic scientific discoveries into treatments; and regulatory science, the development and use of new tools, standards and approaches to more efficiently develop products and to more effectively evaluate product safety, efficacy and quality.

As part of the effort, the agencies will establish a Joint NIH-FDA Leadership Council to spearhead collaborative work on important public health issues. The Joint Leadership Council will work together to help ensure that regulatory considerations form an integral component of biomedical research planning, and that the latest science is integrated into the regulatory review process. The effort will rely on the NIH's vast experience supporting and facilitating new discoveries in the laboratory and clinic and the FDA's more than 100 years of experience and knowledge in the regulation and approval of drugs, biologics and medical devices. (Source: 24 February, 2010, FDA Website)

FDA Approves Pneumococcal Disease Vaccine with Broader Protection

The FDA has approved Prevnar 13, a pneumococcal 13-valent conjugate vaccine for infants and young children ages 6 weeks through 5 years. Prevnar 13 will be the successor to Prevnar, the pneumococcal 7-valent conjugate vaccine licensed by the FDA in 2000 to prevent invasive pneumococcal disease (IPD) and otitis media. The new vaccine extends the protection to six additional types of the disease causing bacteria.

Prevnar 13 is approved for the prevention of invasive disease caused by 13 different serotypes of the bacterium Streptococcus pneumoniae. It also is approved for the prevention of otitis media caused by the seven serotypes shared with Prevnar. The bacterium can cause infections of the blood, middle ear, and the covering of the brain and spinal cord, as well as pneumonia.

Post marketing studies will include continued monitoring for reduction in IPD and otitis media, as well as continued evaluation of safety. The vaccine is administered in a four-dose schedule given at 2, 4, 6 and 12-15 months of age and is available in single-dose, pre-filled syringes.

Prevnar 13 is manufactured by Wyeth Pharmaceuticals, a wholly owned subsidiary of Pfizer Inc. (Source: 24 February, 2010, FDA Website)

FDA Approves First Generic Tamsulosin to Treat Enlarged Prostate Gland

The FDA has approved the first generic version of Flomax Capsules to treat benign prostatic hyperplasia (BPH), a condition in which an enlarged prostate gland causes problems with urination. BPH is common among older men. According to the National Institutes of Health, it rarely causes symptoms before age 40, but more than half of men in their 60s and as many as 90 percent of men older than 70 have BPH symptoms.

The prescribing information and safety warnings for the generic version of tamsulosin are the same as those for Flomax Capsules. Generic tamsulosin capsules are manufactured by IMPAX Laboratories of Hayward, California. (Source: 2 March, 2010, FDA Website)

FDA Announces New Boxed Warning on Plavix

The FDA has added a boxed warning to the anti-blood clotting drug Plavix (clopidogrel), alerting patients and health care professionals that the drug can be less effective in people who cannot metabolize the drug to convert it to its active form.

Plavix reduces the risk of heart attack, unstable angina, stroke, and cardiovascular death in patients with cardiovascular disease by making platelets less likely to form blood clots. Plavix does not have its anti-platelet effects until it is metabolized into its active form by the liver enzyme, CYP2C19.

People who have reduced functioning of their CYP2C19 liver enzyme cannot effectively convert Plavix to its active form. As a result, Plavix may be less effective in altering platelet activity in those people. These "poor metabolizers" may not receive the full benefit of Plavix treatment and may remain at risk for heart attack, stroke, and cardiovascular death. Plavix is made under a Bristol-Myers Squibb-Sanofi Pharmaceuticals partnership. (Source: 12 March, 2010, FDA Website)

FDA Approves Drug to Treat Condition That Causes Elevated Ammonia Levels

The FDA has approved Carbaglu (carglumic acid) Tablets to treat a condition that results in too much ammonia in the blood. The condition, N-acetylglutamate synthase or NAGS deficiency, is an extremely rare, genetic disorder that can be present in babies soon after birth. NAGS deficiency and the resulting elevated levels of ammonia (hyperammonemia) can be fatal if it is not detected and treated rapidly. DNA testing can confirm the diagnosis of NAGS.

Carbaglu should only be administered by a physician experienced in treating metabolic disorders. The recommended initial dose of Carbaglu is 100 to 250 mg/kg/day for treatment of acute hyperammonemia. Use of other ammonia-lowering therapies with Carbaglu during episodes of acute hyperammonemia is recommended. Dosing should be adjusted based on a patient's ammonia levels and symptoms. (Source: 18 March, 2010, FDA Website)

FDA Warns about Increased Risk of Muscle Injury with C***holesterol-Lowering*** Zocor

The FDA has warned patients and healthcare providers about the potential for increased risk of muscle injury from the cholesterol-lowering medication Zocor (simvastatin) 80 mg. Although muscle injury (called myopathy) is a known side effect with all statins, today's warning highlights the greater risk of developing muscle injury, including rhabdomyolysis, for patients when they are prescribed and use higher doses of this drug. Rhabdomyolysis is the most serious form of myopathy and can lead to severe kidney damage, kidney failure, and sometimes death.

Simvastatin is sold as a single-ingredient generic medication and as the brand-name Zocor. It also is sold in combination with ezetimibe as Vytorin, and in combination with niacin as Simcor.

FDA's review of new information on the risk of muscle injury is derived from clinical trials, observational studies, adverse event reports, and prescription use data. The agency also is reviewing data from the SEARCH (Study of the Effectiveness of Additional Reductions in Cholesterol and Homocysteine) trial, which evaluated major cardiovascular events, such as heart attack, revascularization and cardiovascular death, in patients taking 80 mg compared to 20 mg of simvastatin. SEARCH also included data on muscle injury in patients taking simvastatin. FDA is committed to informing the public about its ongoing safety review of drugs and will update the public as soon as the review of simvastatin is complete. (Source: 19 March, 2010, FDA Website)

Components of Extraneous Virus Detected in GlaxoSmithKline's Rotarix Vaccine

FDA is recommending that healthcare practitioners temporarily suspend use of the Rotarix vaccine for rotavirus immunization in the United States while the agency learns more about components of an extraneous virus detected in the vaccine. There is no evidence at this time that this finding poses a safety risk.

The agency recently became aware that an independent US academic research team, using a novel technique, has found DNA from porcine circovirus 1 (PCV1) in Rotarix. PCV1 is not known to cause illness in humans or other animals. In addition, Rotarix has been studied extensively, before and after approval, and found to have an excellent safety record.

Rotarix and RotaTeq are given by mouth to young infants to prevent rotavirus disease, which can cause severe diarrhea and dehydration and is estimated to be responsible for the deaths of more than 500,000

infants around the world each year, primarily in low- and middle-income countries. Before the introduction of a rotavirus vaccine, rotavirus resulted in more than 50,000 hospitalizations and several dozen deaths in the United States each year. FDA licensed RotaTeq in 2006 and Rotarix in 2008. Most children vaccinated in the United States received RotaTeq.

FDA will provide updates to patients, providers, and the general public as more information becomes available. The agency will also continue to communicate with the World Health Organization and counterpart regulatory agencies in other countries. (Source: 22 March, 2010, FDA Website)

FDA Approves New Use of Xifaxan for Patients with Liver Disease

The FDA has approved the use of Xifaxan for reduction in the risk of the recurrence of overt hepatic encephalopathy (HE) in patients with advanced liver disease. This is a new use for Xifaxan (rifaximin), a drug that has been approved for the treatment of traveler's diarrhea. Hepatic encephalopathy is a worsening of brain function that can occur in patients whose liver can no longer remove toxins from the blood. Increased levels of ammonia in the blood are thought to play a role in the development of HE, and Xifaxan works by reducing these levels.

Xifaxan was not studied in patients with the most severe forms of liver disease. Since most patients were also taking lactulose (a synthetic sugar which helps prevent absorption of ammonia from the intestine) during the trial, the efficacy of Xifaxan as a stand-alone treatment for HE could not be assessed.

Xifaxan received a priority review under FDA's new drug application process and was granted orphan designation status. Xifaxan is manufactured by Salix Pharmaceuticals of Morrisville, North Carolina. (Source: 24 March, 2010, FDA Website)

FDA Requires Device Manufacturers to Include Information on Pediatric Populations

The FDA has announced that it will begin implementing a requirement that device manufacturers provide readily available information in certain premarket applications on pediatric patients who suffer from the disease or condition that the device is intended to treat, diagnose, or cure, even if the device is intended for adult use.

Very few devices are developed or assessed specifically for use in pediatric patients, those 21 or younger at the time of treatment or diagnosis. This effort will provide a better understanding of which devices developed for use in adults should be assessed or modified for use in pediatric populations. The requirements, contained in the Food and Drug Administration Amendments Act of 2007, will also improve the agency's ability to track the number of approved devices for which there is a pediatric subpopulation who could benefit and the number of approved devices labeled for use in pediatric patients.

Under the 2007 legislation, manufacturers must provide certain pediatric information, if readily available, with each premarket approval application or supplement, humanitarian device exemption request, or product development protocol. Manufacturers now must include a description of any pediatric subpopulations that suffer from the disease or condition that the device is intended to treat, diagnose, or cure. Manufacturers also must include the number of affected pediatric patients. If the manufacturer does not submit such information, the FDA may not approve the application until the required information is provided. (Source: 31 March, 2010, FDA Website)

FDA Approves Pancreatic Enzyme Product, J & J's Pancreaze

The FDA has approved Pancreaze Delayed Release Capsules, a pancreatic enzyme product (PEP). It is the third such product to receive FDA approval. Pancreatic enzyme products improve food digestion in patients whose bodies do not produce enough pancreatic enzymes. This includes people who have conditions such as cystic fibrosis, chronic pancreatitis, pancreatic tumors, or removal of all or a part of the pancreas.

Approval of Pancreaze increases the supply of FDA-approved PEPs for the estimated 200,000 or more patients in the United States who need these products. Approved pancreatic enzyme products meet FDA standards for safety, efficacy, and product quality. Unapproved versions of pancreatic enzyme products have been available for many years. In October 2007, FDA established a date of April 28, 2010 for the makers of unapproved pancreatic enzyme products to stop manufacturing and distributing unapproved products. Supplies of approved PEPs are expected to meet demand.

Currently, the FDA is working with approved PEPs manufacturers, patient advocacy groups, and health care professional organizations to make the public aware of the availability of pancreatic enzyme products. Patients with questions about their current PEP or making a switch to a different pancreatic enzyme product should consult with their healthcare provider. (Source: 12 April, 2010, FDA Website)

Medical Device Manufacturer Guidant Pleads Guilty for Not Reporting Defibrillator Safety Problems to FDA

Guidant Will Pay Criminal Penalty of More Than $296 Million

Guidant LLC recently pleaded guilty to criminal violations of the Federal Food, Drug and Cosmetic Act, the Justice Department has announced. The medical device manufacturer's admission of criminal wrongdoing is the result of a four-year investigation into Guidant's handling of short-circuiting failures of three models of its implantable cardioverter defibrillators.

Implantable cardioverter defibrillators are lifesaving devices used to detect and treat abnormal heart rhythms

that can result in sudden cardiac death, one of the leading causes of mortality in the United States. The devices, once surgically implanted, constantly monitor the electrical activity in a patient's heart for deadly electrical rhythms and deliver an electrical shock to the heart in an effort to return the heartbeat to normal. If they fail to operate properly when needed, a person can die within minutes. (Source: 5 April, 2010, FDA Website)

FDA Approves Shire HGT Therapy to Treat Gaucher Disease

The FDA has approved velaglucerase alfa for injection (VPRIV) to treat children and adults with a form of the rare genetic disorder Gaucher disease. VPRIV provides long-term enzyme replacement therapy for Type 1 Gaucher disease, the most common form of the genetic disorder. It is an alternative to Genzyme's Cerezyme (imiglucerase), another enzyme replacement therapy currently in short supply. (Source: 26 February, 2010, FDA Website)

FDA and European Medicines Agency Agree to Accept a Single Orphan Drug Designation Annual Report

The FDA and the European Medicines Agency (EMA) have announced a more streamlined process to help regulators better identify and share information throughout the development process of orphan drug and biologic products, which are developed specifically to treat rare medical conditions. Both agencies have agreed to accept the submission of a single annual report from sponsors of orphan drug and biologic products designated by both the United States and the European Union.

Currently, if an orphan product were granted designation on the exact same day in both the United States and European Union, sponsors would have to submit separate reports to their respective regulatory agencies. The use of one annual report will also benefit sponsors by eliminating the duplication of effort and by simplifying the process that meets the annual reporting requirements of both the United States and the European Union for orphan designated products.

The optional new process for submission will not introduce any additional regulatory requirements. Each regulatory body will conduct their own review and assessment of the annual report to assure the information meets all the legal and scientific requirements of each agency. The FDA and EMA will exchange the annual reports electronically through a secure portal. Starting Feb. 28, 2010 - World Rare Disease Day - sponsors may send the single Orphan Drug Designation Annual Report to both agencies. If they choose to do so, a sponsor may submit the report on their normal annual reporting date. (Source: 26 February, 2010, FDA Website)

New Members

Mr. Ademola Adelakun, *Marketing/Sales Coord,* Exemplar Pharmaceutical

Mr. Dana Alexander, *Director,* Genzyme

Marc Amiet, *President,* Dr. Schleuniger Pharmatron, Inc.

Mr. Donald M. Ayers, Jr., *Manager, Manufacturing,* Biogen Idec

Dennis Berrios, *Maintenance Manager,* Genzyme

Ms. Pooja Bhargava, *Student,* Tufts University

Mr. Richard E. Bogart, *Database Manager,* Albany Molecular Research, Inc.

John Boudreau, *President,* M.J. Daly LLC

Robert P. Bruno, *Principal,* RP Bruno and Associates

Mr. Matthew A. Chardavoyne, Associate, *Business Developmetn Manager,* Robert W. Sullivan, Inc.

Mr. Richard Devolve, *Director,* ARC Advisory Group

Laurie Di Chiara, *Engineer IV,* CRC Consulting, LLC

Mr. Patrick A. Diette, *Computer Sys Validation Engineer,* Genzyme Corp.

Mr. Lee S. Donohue, *HVAC Engineer,* Genzyme Corp

Mr. Fatemeh Gandomi, *Graduate Assistant,* Northeastern University

Mr. Eben Goodman, *Director of IT,* Concordant Rater Systems

Mr. James H. Grace, *VP of Engineering,* AZTEC TECHNOLOGIES INC

Juergen Hahn, *US Business Manager,* Levitronix

Mr. Antonio Hernandez-Cardoso, *Senior Scientific Liaison,* United States Pharmacopeial Convention Inc

Mr. Ernest N. Jenness, *Product Manager,* Millipore Corporation

Dr. Erika E. Johnston, *Scientific Associate Director,* Genzyme

Mr. Gary Lerner, *President,* Brand Sure

Mr. Anthony M. Maletta, *Global Product Manager,* Millipore Corporation

Mr. Patrick T. McGrath, *Engineering Manager,* Genzyme

Jeffrey S. Pirro, *Student,* University Of New Hampshire

Mr. David V. Saxner, *Student,* Worcester Polytechnic Institute

Mr. Soham G. Shah, *Student,* New Jersey Institute of Technology

Ms. Yukiko Teshima, *Director,* Teshima International Corporation

Mr. Seth Thompson, *Manager,* Millennium

Mr. Charles Weston, *Validation Specialist,* Lantheus Medical Imaging

David M. Wilson, *Associate Director, Project Management,* Genzyme

Ms. Susan E. Youens

Member Anniversaries

20+ Years of Membership

Mr. David C. Hardy

Mr. Thomas W. Moss, Applied Process Solutions, Inc

Mr. Hank Moes

Mr. Stephen R. Higham, PE, Genzyme Corp

Ms. Sandra Illich, Wyeth BioTech

Mr. Armen J. Nahabedian, Pfizer

Mr. Jonathan F. Stenbuck, Stenbuck Enterprises

Mr. Michael A. Boenitz, DUSA Pharmaceuticals Inc

Dr. Richard V. Levy, PDA

Mr. Donald M. Haiges, PE, WSP-Flack+Kurtz

Mr. Randolph A. Cotter, Sr., Cotter Brothers Corporation

Mr. Cesar B. Daou, PE, Daou Engineers Inc

Mr. Thomas R. Jerome

Mr. Robert W. Juffras, MS, Stryker Biotech

Mr. Frank J. Manning, VNE Corp

Mr. Alexander E. Smith, Jr., Parsons

Ms. Greta W. Davis, Lantheus Medical Imaging

Mr. John H. Evers, Lantheus Medical Imaging

15 Year Anniversary

Mr. Richard M. Delorme, Emerson Process Mgmt/Rosemount

Mr. Michael J. Denault, Denault Associates

Mr. Christian P. Dunlap, Siemens Energy & Automation

Mr. Doyle R. Johnson, Genzyme Corporation

Mr. Peter J. Sbrollini, Fab-Tech Incorporated

Mr. Paul L. Smock

10 Year Anniversary

Mr. Richard E. Avery, Avery Consulting Associates Inc

Mr. James A. Carmichael, Alexion Pharmaceuticals

Mr. Robert L. Casella, Casella Sales & Marketing Inc

Frank J. Donas, Bristol-Myers Squibb

Mr. John Kirchner, Advanstar Communications Inc.

Mr. John W. Murphy, Dolphin 8 Corp

Ms. Patricia W. Nugent, Shire HGT

Mr. Pasquale J. Perfetto, Pfizer

Mr. Mark A. Sitcoske, High Purity New England Inc

Ms. Lauren F. Sylvestre, Avecia Biotechnology

5 Year Anniversary

Mr. Joseph P. DeWolfe, Genzyme

Mr. Charles G. Taylor, Jr., Amgen Inc

Pranav S. Patel, Bryant University

Mr. Christopher A. Thomasson, Harvard Business School

Mr. Jeffrey Cummiskey, Millennium Pharmaceuticals, Inc

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