The microbiology of personal care and cosmetic products

Election 2014: SIMB Board of Directors candidate bios
The biomanufacturing industry grows and changes rapidly from year to year. North Carolina State University’s Biomanufacturing Training and Education Center (BTEC) is committed to providing updated, cutting-edge short courses to workers who are grounded in the industry but may not be positioned to take advantage of new industry developments.

SIMB has partnered with BTEC. SIMB members from industry receive a 20% discount on course registration; SIMB members from academia receive a 50% discount on registration. To receive your discount, you must register through the SIMB website member login.

**Upcoming Courses:**

- **Process Architecture - Integrating the Process to Deliver Successful Facility Solutions**
  October 9-11

- **Microbial Contamination Control in Bioprocessing Operations**
  December 10-12

- **Introduction to Design of Experiments (DoE) for Bioprocess Analysis and Optimization**
  December 16-18

Members should visit the SIMB website for a list of upcoming workshops in 2013 or to download the BTEC 2013 brochure. BTEC is located in Raleigh, North Carolina and is within driving distance of many east coast locations or via the Raleigh-Durham International Airport.

www.simbhq.org/education/

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**Don’t forget**

- to sign up for SIMB’s E-Newsletter and to visit our blog!
- [www.simbhq.org/blog](http://www.simbhq.org/blog)

Check out SIMB’s online resources for current events and member news.
letter from the editor
196  Letter from the editor-in-chief

feature
197  The microbiology of personal care and cosmetic products

news
202  House Science Committee to reauthorize innovation legislation
203  EPA releases scientific review of water connectivity
203  Science Laureate Bill pulled from House schedule
204  Congress reopens federal government, delays action on fiscal issues
204  Small expectations for budget conference
205  Harnessing the power of big data in biological research
205  Short takes
206  World’s first advanced biofuels facility opens

members
207  2014 SIMB election for Board of Directors
214  Member birthdays

meetings
215  63rd SIMB Annual Meeting Review
220  2014 Annual Meeting: A student’s perspective
221  Call for award nominations
222  Recent Advances in Fermentation Technology (RAFT 10)
226  36th Symposium on Biotechnology for Fuels and Chemicals
230  SIMB 2015 Annual Meeting
231  Recent Advances in Microbial Control (RAMC)

book review
233  Twelve diseases and scientific writing

in every issue
194  Corporate members
194  Advertisers index
234  Calendar of events

Correction: The authors of the article “In memoriam: Dr. Gerhard J. Haas, Industrial Scientist and Biotechnologist (April 1, 1917 - May 1, 2013)” published in SIMB News September/October (volume 63, issue 5) are J.W. Bennett and G.R. Siragusa. Our apologies for Dr. Siragusa’s name being misspelled on page 176 of that issue.

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On the cover: Blue eye with makeup. Photo by Loredana Bejerita
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Advertisers Index
You want consistency and dependability in nutrients for your many fermentation processes. So choose fermentation nutrients you know and trust. The food and pharmaceutical industries have turned to ADM’s lines of Pharmamedia™, Proflo™, MediaPro™ and soy grits for decades. Our Pharmamedia and Proflo line of cottonseed nutrients offer a wide acceptance by a variety of microorganisms allowing for flexibility in application. MediaPro soy-derived nutrients and soy grits meet the diverse needs of the food and pharmaceutical industries. All products have stringent controls for consistent particle size and our specialized conditioning processes promote consistent nitrogen release levels. Contact ADM for your fermentation nutrient needs.
Letter from the editor-in-chief

Farewell to 2013!

As we approach the end of another year for SIMB News, I want to thank everyone for making the newsletter possible. Without Kristien Mortelmans, Debbie Chadick, Melanie Mormile, Maura Loughney, Paul Cino, Stephanie Groves, and Chris Lowe the newsletter wouldn’t exist. Thanks for all your efforts. A special message of thanks goes to Maura for her continuing support while taking care of her newborn! In 2014 Katie Devins will be taking over much of the newsletter production.

Production in 2014 will be changing. Based on comments from individual members, corporate members, and sponsors, the newsletter will be returning to a paper format for a trial period. Issues will be published and mailed quarterly to all members. This is a positive step for the newsletter. Watch your mailboxes for the new, improved SIMB News! In this transition, I’d like to thank the members of the Society, sponsors, and advertisers for your continuing support.

We thank the following contributors of feature articles and cover images in 2013:

January/February
Is open access finally on the ascendancy?
Colin Macilwain

Cover illustration with open access logo (orange lock excluding background colors). Designed by the Public Library of Science (PLoS).

March/April
The challenge of lignocellulosic bioenergy in a water-limited world
John S. King, Reinhart Ceulemans, Janine M. Albaugh, Sophie Y. Dillen, Jean-Christophe Domec, Regis Fichot, Milan Fischer, Zakiya Leggett, Eric Sucre, Mirek Trnka and Terenzio Zenone

Cover photo of waterdrop © by Amine M’Hammdi.

May/June
Tags, blogs, tweets: Social media as science tool?
Lesley Evans Ogden

2013 SIMB Board Election Results

Cover illustration icon for a created science app interspersed with established icons for Facebook, Pinterest, Digg, Twitter, Blogger, Share This, RSS feed, and Share This.

July/August
35th SBFC Meeting Summary
Steve Decker, Jim McMillan, Jonathan Mielzen, and Thomas Klasson

Cover photo of Portland, Oregon cityscape with Mount Hood. Image courtesy of Portland Convention and Visitors Bureau.

September/October
Fluorescent microscopy of live bacterial species: An introduction
Marlon S. Thomas and Mikhail Josephs

Cover photo of microscope lenses © istockphoto.com/davidf

November/December
The microbiology of personal care and cosmetic products
Phil A. Geis and John F. Krowka

Cover photo of blue eye with makeup by Loredana Bejerita.


As we return to the print version, we’d like to thank everyone for their comments which have been greatly appreciated. We’re still working to provide a newsletter that fits the needs of the Society. Let us know what needs to be improved, changed, and/or kept the same. As always members are encouraged to supply materials for publication. These can be reviews, feature articles, short articles, news articles, information on members, student perspectives – there are lots of options. Anything that would be of interest to the membership will be considered. As you can tell, content of the newsletter is very flexible and your input would be appreciated. Please feel free to contact me by email: eelder@lsua.edu.

Your ongoing support of SIMB News is much appreciated.

Elisabeth Elder
Editor-in-Chief
The microbiology of personal care and cosmetic products

By Phil A. Geis and John F. Krowka

Introduction
Personal care and cosmetic products encompass a diverse array of shampoos, hair colorants, lipsticks, creams, lotions, mascaras, and dental items that billions of consumers rely on to look and feel good. Microbiologists who work in the personal care and cosmetics industry perform the important function of ensuring the microbiological quality and safety of its products. Often referred to as personal care or cosmetic microbiologists, they are primarily concerned with the microbiological safety and effective preservation of products intended to “beautify and cleanse.” Their expertise also is critical in some categories of over-the-counter (OTC) products such as sunscreens, which protect from harmful UV radiation, and antibacterial hand-sanitizers, which are used for prevention of infectious diseases. (FDA 2011, 2012). Personal care and cosmetic microbiologists are involved in virtually every aspect of product development and production including product formulation, preservation, formula and manufacturing design, raw material and process water control, hygienic manufacturing practices, quality control, and package selection. The objective of these efforts, as summarized by the US Food and Drug Administration (FDA), is that “Cosmetics need not be sterile, however, they must not be contaminated with microorganisms that may be pathogenic, and the density
of non-pathogenic microorganisms should be low. In addition, cosmetics should remain in this condition when used by consumers” (FDA 1995).

Preservatives and preservation
Product preservation typically poses a multifaceted series of challenges for personal care and cosmetic microbiologists. Many formulations contain a variety of natural and synthetic ingredients whose compatibility with commonly-used preservatives such as parabens (methyl, ethyl, propyl, and butyl esters of parahydroxybenzoic acid), methyl and chloromethyl isothiazolinones, formaldehyde-donors, and organic acids (benzoic, sorbic and dehydroacetic) must be considered in product development (Steinberg 2012; Brown et al. 2012). Ultimate preservative selection is based on the intended use of the product, formula characteristics such as pH, water activity, compatibility with other ingredients, and even the region of the world intended for marketing. Combinations of preservatives are typically used to control the growth of a range of microorganisms that can be inadvertently introduced into the product in manufacturing and, more importantly, during use by consumers (Steinberg 2012; Brown et al. 2012). Preservative efficacy is confirmed in the formula context through the use of preservative challenge tests that follow rate of kill after direct inoculation of finished products and relevant raw materials with large numbers of selected indicator microorganisms (ISO 2012, Krowka and Bailey 2007 a, b, c, d).

Packaging can also influence susceptibility to contamination of personal care products (Brannan and Dille 1990). For example, a product in a pump applicator that does not permit back flow may need less preservation than a face cream in a wide-mouthed jar into which a user repeatedly places her fingers before application. Some types of product formulations may be resistant to growth of microorganisms due to inherently antimicrobial properties such as extreme pH, low water activity, alcohol concentration >20%, or other characteristics (ISO 2010).

Figure 1 dramatically illustrates the importance of adequate preservation of personal care products and cosmetics. Two containers of eye cream, one containing conventional preservatives...
and the other without preservatives, were each experimentally inoculated with mold spores (one million spores of *Aspergillus brasiliensis*) and incubated for 14 days. Without adequate preservation, proliferation of microbes, especially potential pathogenic microbes, in personal care and cosmetic products could establish significant risk for consumer safety as well as compromise of brand image and necessitate regulatory intervention.

**Regulatory compliance and monitoring**

Industry guidelines establish quantitative and qualitative microbial limits for cosmetics, including specification of microorganisms not permitted in cosmetics by regulatory agencies (Krowka and Bailey 2007e, f). These guidelines are based on historic reports of adverse events involving cosmetic products. FDA monitors the microbial content of both imported and domestic personal care products, and the rarity of microbial adverse event reports to the agency (FDA for Consumers 2013; FDA Enforcement Reports 2013) in recent decades confirms the microbiological safety of personal care products. The state of cosmetic microbiological quality in the European market is similar, as can be judged by recall reports published by the European Commission (Rapex 2013). Recalls of cosmetic products have been attributed to a wide variety of microorganisms (FDA Enforcement Reports 2013; Rapex 2013).

Specific culture-based methods for microbial enumeration and identification are time and labor intensive. They have been established and published by the Personal Care Products Council (Krowka and Bailey 2007e, f) and the International Standards organization (ISO 2006, 2007a). Chapter 23 of FDA’s Bacteriological Analytical Manual specifies similar methods for the testing of cosmetics (FDA 2001). Methods for testing personal care products regulated as OTC drugs (United States Pharmacopeia 2009a) or for demonstrating the efficacy of topical antimicrobial handwash products have been established (ASTM 2006). Rapid and automated microbiological methods such as ATP bioluminescence are available commercially and have been validated by individual companies to increase speed to market, ultimately reducing costs to consumers (Connolly et al. 1993; Rapid Microbiology 2013; United States Pharmacopeia 2009b).

**Role of the personal care and cosmetic microbiologist**

Personal care and cosmetic microbiologists play an important role in the development, monitoring, and implementation of Good Manufacturing Practices for Cosmetics (ISO 2007b). Efficient cleaning and sanitization procedures, as well as environmental monitoring of manufacturing facilities and equipment, are essential to the microbiological quality and safety of finished products (Krowka and Bailey 2007g, h). Microbes found in manufacturing systems are typically more resistant to biocides than laboratory reference strains of microorganisms (Ferrarase et al. 2003). In elements such as purified water systems and poorly-designed equipment, biofilm matrices readily develop (Kulakov et al. 2002). Control of such biofilms is critical, as these typically harbor Gram-negative bacteria such as *Burkholderia cepacia*, which are highly adaptable and can develop resistance to preservatives, negating this central element of microbiological control (Lessie et al. 1996; Anderson et al. 1990; LeChevallier et al. 1990).

Recent studies have greatly increased knowledge of the diverse array of microorganisms that inhabit the skin and other areas to which cosmetics and toiletries may be applied (Kong and Segre 2012; NIH 2013). Few studies on the interaction of cosmetics with normal skin microorganisms have been done, and this subject provides fertile ground for personal care and cosmetic applications as well as disease prevention (Dobos 2013). Some diseases may be transferred from hand to mouth, and personal care microbiologists are involved in evaluating the efficacy of hand cleansing products in killing microorganisms. Figure 2 illustrates colonies of *Shigella flexneri* from a study evaluating the effectiveness of topical antimicrobial hand cleansing products (Boyce et al. 2012).

Personal care and cosmetic microbiology is similar in some areas, including microbial enumeration and identification, to food and pharmaceutical microbiology. Its practitioners apply specialized knowledge and science to achieve an outstanding record of quality—yet for the most part without the dedicated academic programs and large bodies of published data enjoyed by food and drug microbiologists.

Due to the unique technologies and practices of the personal care and cosmetic industry, companies have traditionally conducted internal training of new microbiologists who have gained additional insight through practical experience. However, some specialized graduate programs or concentrations in personal care and cosmetic science and business are available.
Other schools may incorporate personal care and cosmetic microbiology into existing courses. For example, at Hamline University in St. Paul, MN, undergraduate students participated in a laboratory exercise that taught concepts of microbiology and scientific process through an everyday activity—personal care and cosmetic use. The students’ goals were to develop a hypothesis regarding microbial contamination in cosmetics, learn techniques to culture and differentiate microorganisms from cosmetics, and propose best practices in product use based on their findings (Burleson and Martinez-Vaz 2011). Studies of this type demonstrate how the highly specialized field of cosmetic microbiology presents challenging opportunities for microbiologists and other scientists. Excellent publications are available for those who wish to learn more about personal care and cosmetic microbiology (Geis 2006; Orth 2010).

**Acknowledgments**
The authors wish to thank the members of the Personal Care Products Council Microbiology Committee for their contributions to this manuscript.

**About the authors**
Phil A. Geis (philageis@aol.com) is the founder of Geis Microbiological Services in Florida where he also is an instructor at the Microbiology and Cell Science Department of the University of Florida and an editor for the journal International Biodeterioration and Biodegradation. He received his bachelor’s and doctoral degrees in microbiology from the University of Texas. Through almost three decades with P&G microbiology, he managed preservative and disinfectant development and studies of household and skin microbial ecologies and hygienic manufacturing. He was the first recipient of P&G’s namesake award, the Dr. Philip Geis Microbiology Quality Award. His research interests are in the areas of contamination and biodegradation of products and materials.

John Krowka (krowkaj@personal-carecouncil.org) is a senior microbiologist at the Personal Care Products Council, a trade group in Washington whose efforts focus on product safety, quality and innovation in the global cosmetic and personal care industry. John received his B.Sc from the University of Vermont, a M.Sc. from the University of Missouri, and a PhD in immunology from the University of Alberta (Canada). He has previously worked as a consultant in biotechnology, immunology, and microbiology and taught microbiology in West Virginia. His research interests include preservation and topical antimicrobial products.

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After months of behind the scenes work, the House Science, Space, and Technology Committee is publically moving forward with its effort to reauthorize a broad science innovation and education law, the America COMPETES Act. The draft legislation, however, has not yet been made public and was not shared with Democrats on the Committee.

The Energy Subcommittee held a hearing in late October to consider the provisions that would affect the Department of Energy Office of Science. The Enabling Innovation for Science, Technology, and Energy in America Act, or EINSTEIN America Act as the bill is now called, would increase funding for basic energy science by 1.7 percent above current levels within two years.

Representative Eric Swalwell (D-CA), the top Democrat on the Energy Subcommittee, said at the hearing that the bill may look like an increase for the Office of Science, but funding would be cut once inflation is accounted for.

Ranking Member Eddie Bernice Johnson (D-TX) expressed concerns that the legislation would shift funds away from climate research within the Office of Science. The bill would direct the Department of Energy to prioritize work on biological systems and genomics sciences instead. All three witnesses who testified at the hearing also opposed the language in the majority’s bill to deemphasize climate research.

"The 'EINSTEIN America Act' prioritizes science activities within the department," said Chairman Lamar Smith (R-TX). "This ensures that American taxpayer dollars are better utilized and enables labs to do more with less."

Chairman Smith also said that the bill is a “discussion draft” and a starting point for future discussions. Representative Johnson stated: “there is common ground” between Smith’s draft bill and the competing bill she is sponsoring.

The America COMPETES Act was enacted six years ago and authorized increased funding for the Department of Energy Office of Science, as well as the National Science Foundation and the laboratories of the National Institute of Standards and Technology. New funding levels were set in 2010, but that legislation passed the House without the broad bipartisan support of the original law.

The House Science Committee is soon expected to consider policies related to the National Science Foundation. The Senate Commerce Committee is scheduled to hold its first hearing this week.

EPA releases scientific review of water connectivity

The Environmental Protection Agency (EPA) has issued a report that synthesizes more than one thousand scientific studies about the connections among water bodies. The report is a step towards a new rule to clarify what water resources are subject to the Clean Water Act. The decades old law protects the nation’s waterways from pollution.

The report will "serve as a basis" for the new rulemaking, according to the EPA, but only after it is reviewed by the agency's Scientific Advisory Board and the public has the opportunity to comment on it.

The new rule would clarify confusion created by two rulings by the Supreme Court in 2001 and 2006. In those cases, the Court redefined what water bodies are subject to the Clean Water Act. Previously, federal regulators included waters that ultimately connected to “navigable waters,” which are subject to the law.


Science Laureate Bill pulled from House schedule

On 10 September, House leaders abruptly pulled a bill to create the position of Science Laureate of the United States, despite bipartisan support. The House of Representatives was scheduled to vote on H.R. 1891 under suspension of the rules, which would have limited debate and prevented amendments to the measure.

News reports indicate that the American Conservative Union and Competitive Enterprise Institute expressed concern that the bill would not be debated on the House floor. In a letter to Republican Representatives, the American Conservative Union stated: “Although the bill seems innocuous, it will provide the opportunity for President Obama to make an appointment of someone (or more than one person) who will share his view that science should serve political ends on such issues as climate change and regulation of greenhouse gases.”

An aide to the House Science, Space, and Technology Committee said that Chairman Lamar Smith (R-TX), a co-sponsor of the legislation, is "working to address members’ concerns.” The bill could be considered in committee this fall.

Lawmakers reached an eleventh hour deal to avert a credit default on 16 October 2013. The agreement hashed out by Senate Majority Leader Harry Reid (D-NV) and Senator Minority Leader Mitch McConnell (R-KY) reopened federal agencies after a 16-day shutdown and allowed the Treasury Department to borrow money and avoid a default that experts say would have disrupted the global economy.

The short-term deal funds the federal government at the fiscal year (FY) 2013 funding level of $986 billion through mid-January. This is higher than the spending cap of $967 billion for FY 2014 authorized by the Budget Control Act of 2011. The deal does not do away with budget sequestration, as some lawmakers had hoped, which means that funding for scientific research, environmental conservation, defense, and other government programs will continue to be constrained.

The legislation passed the Senate with the bipartisan support of 81 Senators. In the House, the entirety of the Democratic caucus—save for two members who were sick—was joined by 87 Republicans to pass the measure. Despite the insistence of some GOP lawmakers, the deal does not undo or delay the Affordable Care Act (also known as Obamacare), but it does require stricter efforts to verify the income of individuals who apply for health insurance subsidies.

Federal employees who were furloughed during the shutdown will be given back pay. Surprisingly, the law also provides for a one percent pay increase in January for all employees. Congress could still block the first cost-of-living increase for federal workers in four years, however.

The law requires Congress to form a budget conference committee so that the two chambers can work out differences regarding spending. Among the likely sticking points will be the overall funding level for discretionary spending, defense and non-defense programs whose budgets are determined annually by Congress. Democrats will push for a replacement to the across-the-board cuts from sequestration and the inclusion of new revenue. Republicans will likely focus on maintaining the lower overall spending level of $967 billion and changing entitlement programs.

Two years ago, Congress formed a ‘super committee’ to address the budget deficit. The failure of that committee to reach an agreement triggered the start of budget sequestration the following year. Despite the reopening of the government and the short-term increase of the nation’s debt limit, the U.S. economy was negatively impacted by the government shutdown. According to rating agency Standard & Poor’s, the shutdown cost $24 billion and reduced gross domestic product (GDP) growth. Although many experts expect some recovery of lost economic input in the coming weeks, business investment and consumer spending could continue to be depressed because of the potential for another showdown when the deal expires in a few months.

Small expectations for budget conference

A new round of congressional budget talks began on 30 October, but both political parties are downplaying hopes for a broad budget deal. Many lawmakers and political insiders expect a small-scale plan from the budget committee formed by the deal to re-open the federal government after a 16-day shutdown. The group of 29 members of Congress has until 13 December to negotiate a deal.

Several members of the conference committee have expressed a desire to find a replacement for the automatic spending cuts known as budget sequestration. In federal fiscal year 2014, the sequester will reduce federal spending by about $20 billion from current levels.

“A deal that redid the sequester for a short period of time is something we could talk about,” said Representative Chris Van Hollen (D-Maryland), who serves as ranking member of the House Budget Committee. House Budget Committee Chairman Paul Ryan (R-Wisconsin) has also suggested that he would like to replace budget sequestration.

One issue for the negotiators, as in past budget talks, will be how to decrease the deficit. Republicans have insisted on balancing the budget by cutting spending, not through raising new revenues. Meanwhile, Democrats largely oppose changes to costly entitlement programs, such as Social Security.
Harnessing the power of big data in biological research

In the Washington Watch column in the September 2013 issue of the AIBS journal BioScience, Eve McCulloch explores the potential benefits of and challenges for the big data revolution.

The complete article is now online at http://www.aibs.org/washington-watch/washington_watch_2013_09.html. The following is an excerpt from the article:

A data revolution is changing the face of science. Scientists are confronting research challenges that require the analysis of large amounts of information on topics ranging from global climate patterns to genetic blueprints. These big data challenges are often summarized in four words: volume, variety, velocity, and veracity. Managing these four parameters could unlock revolutionary new applications, tap the potential of crowdsourcing, and produce a new way of doing science.

Scientists struggle to capture, curate, share, analyze, and visualize continuously generated data. In March 2012, the White House announced the Big Data Research and Development Initiative, committing more than $200 million to accelerate scientific discovery, strengthen national security, and transform education. Six federal departments and agencies are participating in the initiative. In addition, the Obama administration released the Open Data Policy, promising to make information generated by the federal government—including health care data (e.g., the Health Data Initiative)—more accessible to innovators, researchers, and the public.

Short takes

- The National Oceanic and Atmospheric Administration has released data collected in the wake of the Deepwater Horizon oil spill in the Gulf of Mexico. According to the agency, the information was collected in 2010 to "support oil removal activities and assess the presence of dispersants." Access the data at http://www.nodc.noaa.gov/deepwaterhorizon/specialcollections.html.
- The National Science Board has released a data and trends tool to track the state of science education in the U.S. The tool addresses all levels of education, including the job market for graduates. The tool is available online at http://www.nsf.gov/nsb/sei/ed-Tool/index.html.
- The National Academy of Sciences is surveying scientists about how they create, preserve, manage, and share their data. Faculty, researchers, lecturers, postdocs, and graduate students are encouraged to take the survey at http://tinyurl.com/DataONEScientistsSurvey.
- The United Nations has formed a new Scientific Advisory Board that will provide advice to "advance sustainable development and eradicate poverty." The 26 board members are experts in the physical, environmental, and social sciences; engineering; technology; health; and economics.
- The Environmental Protection Agency has released its draft Climate Change Adaptation Implementation Plans for public review and comment. The documents include plans for the agency’s research programs. Learn more at http://epa.gov/climate-change/impacts-adaptation/fed-programs/EPA-impl-plans.html.
World’s first advanced biofuels facility opens
Beta Renewables to produce 75 million liters of cellulosic ethanol annually from agricultural waste

Beta Renewables, a global leader in cellulosic biofuels and part of the Mossi Ghisolfi Group, and Novozymes, the world’s largest producer of industrial enzymes, today marked the official opening in Northern Italy of the world’s largest advanced biofuels facility. Situated in fields outside the city of Crescentino, it is the first plant in the world to be designed and built to produce bioethanol from agricultural residues and energy crops at commercial scale using enzymatic conversion.

“The advanced biofuels market presents transformational economic, environmental and social opportunities, and with the opening, we pave the way for a green revolution in the chemical sector,” says Beta Renewables’ Chairman and CEO, Guido Ghisolfi. “We will continue to commercially expand Beta Renewables’ core technology throughout the world, and we are very confident at this stage given the demand we see around the globe.”

“The opening today presents a leap forward and is truly the beginning of a new era for advanced biofuels,” says Peder Holk Nielsen, CEO of Novozymes. “Here, at this plant, enabled by Novozymes’ enzymatic technology, we will turn agricultural waste into millions of liters of low-emission green fuel, proving that cellulosic ethanol is no longer a distant dream. It is here, it is happening, and it is ready for large-scale commercialization.”

The two companies formed a strategic partnership in October 2012, making Novozymes the preferred enzyme supplier for Beta Renewables’ current and future cellulosic biofuel projects.

The plant uses wheat straw, rice straw and arundo donax, a high-yielding energy crop grown on marginal land. Lignin, a polymer extracted from biomass during the ethanol production process, is used at an attached power plant, which generates enough power to meet the facility’s energy needs, with any excess green electricity sold to the local grid. At the inauguration, Guido Ghisolfi and Peder Holk Nielsen were joined on the ground for the celebrations by Italy’s Minister for Economic Development, Flavio Zanonato, and representatives from the European Commission, as well as more than 500 global stakeholders.

Stable policy conditions required
With the technology ready at commercial scale, it will be vital to create stable and conducive policy conditions worldwide, to harvest better the vast opportunities in cellulosic ethanol and advanced biofuels.

“Policy makers now need to send clear signals to encourage the necessary investments in advanced biofuels,” says Peder Holk Nielsen. “Stable and predictable blending mandates, incentives for the collection of agricultural residues, and investment support for the first large-scale plants will help move the world substantially in terms of reducing greenhouse gasses, stimulating economies, and providing energy security. Continued reliance on fossil fuels is not viable.”

A recent study by Bloomberg New Energy Finance concludes that transforming agricultural residues into advanced biofuels could create millions of jobs worldwide, economic growth, reduction of greenhouse gas emissions, and energy security by 2030. Government support is, however, vital to accelerate the deployment of next-generation biorefineries.

Cost-competitive technology ready
Beta Renewables’ PROESA™ engineering and production technology alongside Novozymes’ Cellic® enzymes represent the most cost-competitive advanced biofuels platform in existence today. More than $200 million has been invested in research and development of the technology used to produce cellulosic ethanol at the Crescentino facility, since 2011.

“Investors interested in cellulosic ethanol often ask when the technology will be ready at commercial scale,” says Guido Ghisolfi. “PROESA enables customers to produce advanced biofuel at a cost-competitive price relative to conventional biofuels – at large-scale and today. Our complete offering makes cellulosic biofuel projects bankable and replicable. With the world’s first commercial plant up and running here in northern Italy, I very much look forward to an exciting journey of establishing an entirely new, and very promising, industry.”

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2014 Board Election

About the 2014 election process

The first step in the election process is the identification of the Nominations Committee (NC) of at least three SIMB members. The committee members are approved by the Board and serve only for the current year. Committee members cannot be reappointed within a three-year period. The NC proposes a slate of candidates (at least two candidates for each position) with input from the membership at large. The candidates must be Society members with a demonstrated interest and involvement in SIMB. Upon the acceptance of the nomination, the NC informs the candidates of the duties and responsibilities required by each position. In addition to the NC, candidates can be identified via Article 5, Section 4 in the SIMB Constitution using a petition process. The final slate of candidates is due to the president by the first board meeting during the annual meeting. Candidates must submit a biography and photograph by October 15 for publication in SIMB News and for posting on the website for the online voting process.

After voting ends, the Election Committee (consisting of a minimum of two SIMB members) receives the tallies from online voting, as well as any paper ballots, and delivers the results to the president and secretary.

The election process and ballots are available for inspection for at least 30 days following the annual meeting. Ballots and records are destroyed six months after the election (unless otherwise directed by the Board) and final tabulations of the votes are preserved.
Candidate for President-elect - Scott Baker

Scott Baker is a scientist at the Pacific Northwest National Laboratory (PNNL) in Richland, Washington. At PNNL, Dr. Baker serves as the Science Theme Lead for Biology at the Environmental Molecular Science Laboratory (EMSL), a DOE National User Facility at PNNL. His research has been primarily focused on using genetic, genomic and proteomic strategies to understand important problems in fungal biology. Before joining PNNL in 2003, Dr. Baker studied epithelial cell adhesion in mammalian cell and tissue culture at Northwestern University, where he received his PhD in 1996. His postdoctoral studies included cell adhesion in a genetic system, i.e., the fruitfly, *Drosophila melanogaster* at the University of Arizona. Dr. Baker’s experience also includes work at the Torrey Mesa Research Institute (TMRI)/Syngenta, where he was a member of a team that took a genomics-based approach to the study of fungal plant pathogens. When TMRI was sold to Diversa, a biotech company, he continued to work on fungal genomics, but with an industrial emphasis.

Dr. Baker has been a member of SIM since 2004. Most recently he was a Director on the SIMB Board of Directors and served on the SIMB Awards Committee. Prior to that, he was involved in SIMB Annual Meetings, organizing sessions and serving on the Program Committee. In addition, Dr. Baker is currently the Chair of the IUMS Mycology Division and serves on the IUMS Executive Board.

SIMB

SIMB has played an important role in my scientific career and I have gained tremendous experience organizing Annual Meeting sessions and serving on the SIMB Board of Directors. The life of a scientist and the missions of professional societies are changing in an age where social media and scientific publishing are rapidly evolving. The challenge moving forward for SIMB is to maintain and grow our membership while continuing to provide opportunities to our all of our members. SIMB should continue to grow its presence online as well as provide opportunities for networking through the conferences that we organize. It is also exceedingly important that SIMB stay at the cutting edge of science, making sure that our publications, social media and conferences offer quality platforms for microbiology and biotechnology research, from “classical” genetics to synthetic biology. I am grateful for the opportunities that the Society has provided for my professional development and I look forward to helping others grow their careers through their membership in SIMB.
Candidate for President-elect - Debbie Chadick

Debbie Chadick has been an active member of the SIMB for 37 years. She was co-chair of a Food Safety Special Conference and prepared a display commemorating the 50th anniversary of the Society. As the current chairperson of the Election and Archives Committees, Debbie continues to prepare archival presentations at annual meetings. She is also an assistant editor with the SIMB News and has authored several features which highlighted various historical aspects of SIMB. Ms. Chadick was one of the founding organizers of the Women’s Symposium and assisted with the second symposium for the 2013 annual meeting.

Ms. Chadick retired after 31 years as an applied industrial microbiologist with Altria, Inc. She was responsible for all aspects of tobacco microbiome as it related to product and process control. Other research involved the successful optimization of a naturally occurring biotransformation for the remediation of a waste stream. Ms. Chadick introduced the use of shelf-life and preservative efficacy studies to evaluate new preservatives and to establish quality assurance and control protocols including the use of bio-luminescence as a quick monitoring tool for contamination. Ms. Chadick was also selected by Altria to participate in several task forces to establish a corporate-wide quality control system.

SIMB

I heard a comment during this year’s annual meeting that microbiology is experiencing a “new renaissance.” Industrial microbiologists are needed more than ever to do translational research that addresses challenges in the production of energy, biopharmaceuticals, natural products, sustainable agriculture, biocatalysis, fermentations and bioremediation. Technological advancements have provided new and much needed tools for microbial based research and industrial applications. The microbiologists using those tools are the foundation of SIMB strengths and can lead the society into the future. SIMB is in a favorable position to provide a home for the growing ranks of microbiologists. I want to foster a society that provides a home for both students and career microbiologists thereby, not only increasing our membership, but sustaining our society in the future. I will also encourage the members to become more involved in SIMB and expand our global presence by collaborating with like-minded societies. I will strengthen those associations by working with the SIMB Board of Directors, staff, and members to assure our Society conferences, workshops, publications, newsletters and other outreach activities continue to provide the venue for applied microbiologists at all points in their career.

Don’t forget to sign up for our new E-Newsletter and to visit our blog!
www.simhq.org/blog
Candidate for Treasurer - Neal Connors

Dr. Neal Connors is currently the owner/president of Phoenix BioConsulting, LLC – a company providing consulting services to the industrial microbiology and biotechnology sectors – and a member of the Drew University, Research Institute for Scientists Emeriti (RISE). He has been a member of SIMB since his graduate school days and has been active in the society for the past several years. He has served as president (2011-2012), director (2006-2009), program chair for the 2006 Annual Meeting and Exhibition, and program chair for the 2003 Recent Advances in Fermentation Technology meeting (RAFT V). He is currently serving on the editorial boards for the Journal of Industrial Microbiology and Biotechnology and Enzyme and Microbial Technology.

Neal received his BS in Biology from Norwich University in 1984 and his PhD in Microbiology from Ohio State University in 1991. From 1991 to 2008, he was in the Bioprocess R&D department of Merck & Co., Inc. rising to the level of senior investigator. His bioprocess development experience reflects many of SIMB’s core areas: fermentation and strain improvement for the production of anti-bacterial and anti-fungal natural products (e.g., Cancidas®), monoclonal antibody production using mammalian cell culture and recombinant yeast expression systems, whole-cell biocatalysis for the production of chiral intermediates, and fermentation of pathogenic bacteria for polysaccharide vaccine development. He is a contributing author on numerous peer-reviewed papers, book chapters, patents and conference abstracts.

While the society is run by scientists for scientists, it is first and foremost a business and its finances must be managed like any other business. As a small business owner himself, Neal appreciates the revenue stream, expense, and cash flow issues the society faces. Continuing to provide value to meeting attendees and members while controlling costs is a key to the society’s success. In addition to being the steward of SIMB’s finances, the Treasurer must also be a productive member of the board and Neal’s previous six years of experience on the board will allow him to continue helping the society navigate the challenges of the future.
2014 Board Election

Candidate for Treasurer - Jan Westpheling

After receiving her undergraduate degree in Microbiology from Purdue University, Dr. Westpheling worked as a research technician at Eli Lilly and Company for two years, with Steve Queener and Dick Baltz. She was a graduate student with David Hopwood at the John Innes Institute in Norwich, England where she received her Ph.D. in Genetics. After a brief postdoc with Julian Davies (on his way to Biogen) she did postdoctoral work with Richard Losick at Harvard. She is currently a Professor of Genetics at the University of Georgia and runs an active research program funded by the Department of Energy. Her research interests focus on the development of genetic methods for the manipulation of hyperthermophilic anaerobic bacteria that produce biofuels and bioproducts from lignocellulosic biomass. Recent work from her lab reports the direct conversion of biomass to ethanol by the anaerobic hyperthermophile, Caldocellulosiruptor. Jan has maintained an active interest and participation in both industrial and academic research and has been involved in SIMB activities for many years. She has been a speaker, workshop participant, and session organizer for both the SIMB Annual Meeting and the Symposium on Biotechnology for Fuels and Chemicals. She currently serves on the Executive Committee for the Fuels and Chemicals Meeting. She also serves on a number of Industrial Scientific Advisory Boards, reviews for prominent journals, and serves on national and international committees for science. Her service to SIMB includes a term as a Member of the Board of Directors, Chair of the Publicity Committee, Chair of the Education Committee and she is the current Society Treasurer.

During her three-year term as Treasurer the Society has gone from a substantial deficit to a profit with projections to increase revenues without increasing membership fees. She seeks a second/final term to continue to work towards a stable financial buffer for SIMB with a view to using reserves to facilitate new initiatives for new meetings, expansion of the scientific mission of SIMB and to reach out to the greater scientific community to keep SIMB science relevant and at the cutting edge of Industrial Microbiology. Examples of this include expanded sessions on synthetic biology and genomics at existing meetings, and a new SIMB meeting on Natural Product Antibiotics that will be held in January, 2015.
Laura Jarboe received her B.S. in Chemical Engineering from the University of Kentucky and PhD in Chemical and Bio-molecular Engineering from University of California, Los Angeles. After working as a postdoctoral researcher at the University of Florida’s Center for Renewable Fuels and Chemicals she joined Iowa State University’s Chemical and Biological Engineering department in 2008. She is affiliated with ISU’s graduate programs in Microbiology; Bioinformatics and Computational Biology; and Toxicology.

Jarboe’s research focuses on Metabolic Engineering for microbial robustness, particularly in regards to biocatalyst inhibition by the product or by “dirty” biomass-derived sugars. Her approach to engineering robustness relies on a fundamental understanding of the mechanism of inhibition, typically identified through omics and phenotypic analysis, as well as reverse engineering of evolved strains. In work with the NSF Engineering Research Center for Biorenewable Chemicals, we are addressing tolerance of short-chain carboxylic acids. Another project focuses on biocatalyst inhibition by contaminants in “dirty” sugars produced by thermochemical processing of biomass. Two other projects include production of omega-3-fatty acids by marine bacteria (an industrial collaboration) and identifying mechanisms of bacterial attachment to environmental particles.

Jarboe has shown a dedication to education by mentoring more than 50 undergraduate researchers, teaching a graduate-level Metabolic Engineering course and introducing biological concepts to core undergraduate Chemical Engineering courses. She has performed outreach activities and hosted K12 researchers and teachers in her lab, hosted a “Metabolic Engineering” webinar for K14 teachers and interacted with Iowa's Community College Biology instructors to design biotechnology-related course modules.


Laura is honored to have been selected as a candidate for a Director position. Since first attending an SIMB meeting in 2007, this Society has proven to be an excellent venue for the exchange of ideas, particularly between industry and academic participants. The frequent opportunities for interactions between SIMB members and the encouragement of participation by young researchers are particularly appealing. If elected to the SIMB Board of Directors, Laura plans to encourage increased visibility for both the Society and the associated JIMB publication; increased member participation within SIMB and JIMB; increased awareness of collaborations that have arisen from SIMB activities; and promoting discussion of outreach opportunities for future scientists.
Candidate for Director - Steve Van Dien

Dr. Van Dien is an expert in the areas of metabolic engineering, industrial microbiology, systems biology, and microbial fermentation. As Director of Technology Development at Genomatica he leads the company's efforts at engineering microbes for the production of industrial chemicals from renewable resources. He received his BS in Chemical Engineering at Rice University in 1991, and a doctorate in Chemical Engineering from U.C. Berkeley under the direction of Professor Jay Keasling. After postdoctoral positions with Victor de Lorenzo in Madrid, Spain and Mary Lidstrom at the University of Washington, he was recruited by Ajinomoto Co. (Kawasaki, Japan). He joined Genomatica as a Senior Research Scientist in 2003, where he focused on the integration of metabolic models with experimental data, and led the company's efforts in the bioprocessing sector. As Director, he then led a team to develop a process for the production of 1,4-butanediol (BDO) from sugars, a process which received the ACS/EPA Presidential Green Chemistry Award in 2011 and the Kirkpatrick Chemical Engineering Achievement Award in 2013. In addition, he is co-author of over 25 journal articles covering both experimental and theoretical aspects of microbiology and metabolic engineering, and inventor on five issued US patents in the areas of specific chemical production strains and processes. He has been an active member of SIMB since 2004, and a frequent speaker at the Annual Meeting, RAFT, and SBFC. He has chaired sessions at the Annual Meeting and RAFT the past several years, served as Program Chair for the 2012 Annual Meeting, and is currently on the program committee in Metabolic Engineering.

SIMB

I would be honored to serve as a member of the SIMB board, and am eager to contribute to the Society and the industry. I feel I can make distinctive contributions in the following areas:

• Further bolstering our content: To me, this is the core of our reason for being. I'd like to work with the board and our members to develop better ways to reach out and get the leaders in our field to share their work – through our journal, at meetings, and via educational programs.

• Finding specific ways to boost mid-career scientists: This is something I feel personally and keenly connected to. How can we best help solid performers expand their horizons and capabilities, and also take an active role in SIMB?

• Introducing more ‘commercializability’ thinking into our meetings: We do and share great science at our meetings. But I know that many, like myself, want to better understand what it takes to turn their innovations into reality. My experiences at Genomatica provide valuable lessons here, and could translate into additional important lines of discussion at our meetings.

• Attracting new, young members: I’d like to help us ratchet up our educational programs on timely and relevant skills, as well as provide career training and networking opportunities.

As an active member of SIMB I have extracted immense career and scientific value through both technical presentations and personal interactions. I have learned about new technologies, found inspiration and collaborators, and made new friends. I have been an exhibitor, poster presenter, oral presenter, session chair, and member of the program committee. In 2011, I was invited to serve as program chair for the 2012 Annual Meeting. Working with the Board and SIMB staff, I realized just how much goes on ‘behind the scenes’ to keep the Society, and particularly the meetings, running smoothly. This experience helped fuel my current passion to expand my role with SIMB.

I look forward to even greater contributions to the Society as Director.
Emeritus membership

Retiring members of SIMB who have been members for at least 20 years can apply for emeritus membership in the Society. Emeritus members can choose to receive *SIMB News* at no charge for the year or both *SIMB News* and *JIMB* for just $35 per year.

Requests for emeritus status are reviewed by the board of directors at spring, summer and fall board meetings.

To check your join date, please contact SIMB at 703.691.3357 ext. 23 or membership@simhq.org.

Local Section Contact

**New England**
Sanjay Jain
sanjayjain@novobios.com

**SIMB wishes the following members a Happy Birthday!**

**November Birthdays**
Zachary Baer
Susan Bagley
Emily Balskus
Dana Becker
Ranjit Bhagobaty
David Blum
Jonathan Chin
Michael Dalto
Alberto de Araujo
Milind Deshpande
Alessandra Eustaquio
Shannon Ewanick
Gwanghoon Gil
David Glassner
Adam Grossman
Mohanakrishna Gunda
Karen Hollertz
C. George Hollis
Seth Jorgensen
Leonard Katz
Unmi Kim
Dhrubojyoti Laskar
Man Kit Lau
Galit Meshulam-Simon
Duen-Gang Mou
Neethi Nagarajan
Shawn Nelson
Lisbeth Olsson
Ramesh Patel
Stephen Picataggio
James Powell
Zenghui Qiu
Yinbo Qu
Kristine Rose Ramos
Frank Robb
Luca Rossoni
Daniel Roush
Kirsty Salmon
Jennifer Sheets
Jian Shi
Leonard Stewart
Robert Strobel
Heather Trajano
Jacob Vick
Wendell Yoiselle
Kyungseok Yang
Nathan Yang

**December Birthdays**
Kaustav Aikat
Carol Baker
Ed Buurman
Walton Byrnes
Xianpeng Cai
Yat-Chen Chou
Paul Cino
Tim Davies
Robert Donofrio
Steven Evans
Noel Fong
Sangeeta Ganguly-Mink
Christopher Gowen
Markus Herrgard
Jane Herrick
Jason Hickman
Donald Hitzman
Tatsuo Hoshino
Tae Hoon Kim
James Lalonde
Hee Jin Lee
Paul Lever
Long-Liu Lin
Ines Loaces
Biniam Maru

Peter McCarthy
Rena Mizrahi
Jonathan Moore
Jesse Morin
Nhuan Nghiem
James O’Donnell
Hyunjun Park
Janeth Pifer
Stuart Shapiro
Daniel Slanac
Holly Smith
James Smith
Bertil Stromberg
Judy Su
Fubao Sun
Susan Urbance
George Watson
Joseph Webb
Thomas West
Johan Westman
Brent Wood
Maureen Wright
This year’s theme, “Evolution of Microbial Biotechnology throughout the Ages”, was strongly represented throughout all sessions and events. In particular, topics discussed at this year’s annual meeting covered the gamut of Industrial Microbiology and Biotechnology areas; from beer and wine fermentation, the oldest microbial technology known to man, to green and black technologies, the latest trend in biotechnology.

The meeting was opened with a keynote speech from Dr. Dennis Fenton from Fenton and Associates. His talk, titled “The Evolving Role of Applied Microbiology in the Biotechnology Industry”, brought the audiences back to the early age of Amgen and through the rapid learning curve the company experienced when applying microbial technologies to the pharmaceutical industry. Likewise, Dr. Fenton’s career in Amgen also evolved from a fermentation and recovery scientist to EVP of Operations. Now retired, Dr. Fenton remains involved in biotechnology, through positions on the board of several public companies as well as actively follows the latest trends in applied microbiology.

The 2013 SIMB Industry Award was presented to Amgen. Dr. Jim Thomas, leader of Amgen’s large molecule Process and Product Development organization, presented the Industry Award lecture on Monday afternoon. Dr. Tom Kelleher, Director of Process Development-Material Science Group, accepted the plaque on behalf of Amgen during the Tuesday evening banquet.

Subsequently, sessions continued to resonate the central theme of the perpetual development of Microbial Biotechnology, by offering a wide range of topics such as Bioremediation, Biocatalysis Modeling and Computational Design, Metabolic Engineering in Biofuels and Biochemicals, Fermentation of Non-Conventional Yeasts and Bacteria, Synthetic Biology Tools and Applications, and many more. In addition to that, there were a number of topics that represented San Diego’s own microbial biotechnology community, such as Beer and Wine Fermentation session which highlighted the wineries and microbreweries community throughout the greater San Diego area, a series of Natural Products sessions and roundtables demonstrating a strong natural product research theme lead by researchers at the Scripps Institute of Oceanography, and Algae-based topics with San Diegan academic and industrial
algal experts amongst the presenters.

Of particular note were a couple of special topics, namely the Intellectual Property and Women in Industrial Microbiology and Biotechnology roundtables. As part of the Intellectual Property session, recent changes to the US patent law from “first to invent” to “first to file”, a component of the America Invents Act, were discussed and their implication was extensively reviewed by the expert panel assembled. Meanwhile, the Women in Industrial Microbiology and Biotechnology session featured a panel of women in early and mid-career positions, from academic and industries in the US and Ireland, to share their experiences with the audience. This session, followed on from last year’s highly successful women session, was designed to provide support and mentorship for younger women as they develop their career in the fields of industrial microbiology and biotechnology. An outcome of this year’s session is the formulation of a forum whereby acolytes and mentors can communicate freely, share experience and learn from each other.

Nevertheless, the highlight of the meeting was arguably the Banquet speech by Dr. Doug Cameron from First Green Partners. His talk titled “Industrial Micro: Opportunities in Green and Black” combined an impromptu exhibition of tasteful green and black themed art works with the content of his talk to captivate the audience. Green black technologies are technologies to convert renewable carbon, such as non-food biomass and carbon dioxide to fuels and chemicals, and the applications of test clean or green technologies within the conventional energy process. While it has its own set of challenges, the technology is predicted to be at the forefront of the next wave of disruptive technology in the renewable chemicals and energy field.

Thursday’s well-attended Charles Thom lecture was presented by William Bent ley, University of Maryland College Park. Dr. Bentley’s talk discussed “A systems biotechnological interrogation of quorum sensing: Opportunities for altering the microbiome.”

Last but certainly not least, the Wednesday afternoon outing to the Birch Aquarium in La Jolla tore the conference participants away from scientific discovery for a while to enjoy a breathtaking and panoramic view of a perfect sunset over La Jolla beach, some up-close and personal time with the underwater life found in the waters of the La Jolla Marine National Park and some SoCal hospitality. In summary, this year’s annual meeting was really an experience equally for the mind and the soul. No wonder biotechnology scientists around the world always look forward to the SIMB annual meeting with anticipation.

Congratulations to the award winners acknowledged at the Annual Meeting:

**Charles Thom Award**: Bill Bentley, University of Maryland, College Park

**Charles Porter Award**: Betty Elder, Louisiana State University-Alexandria

**SIMG Fellow**: Sir David Hopwood, John Innes Centre

**Waksman Teaching Award**: Susan Bagley, Michigan Technological University

**Young Investigator Award**: Yasuo Yoshikuni, Bio Architecture Lab

**Corporate Industry Award for Discovery, Innovation, and Development**: Amgen

**Carol D. Litchfield Best Student Oral Presentation**: Emily M. Trentacoste, Scripps Institution of Oceanography

  Engineering microalgae for production systems: Metabolic manipulation without GMO classification

**Carol D. Litchfield Best Student Poster Presentations**:

**Biocatalysis**: Luca Rossoni, University of Nottingham

  Solving problems with product toxicity in bioproduction of styrene

**Environmental**: Kelley A. Gallagher, Universiyt of California, San Diego,

  The role of secondary metabolism in extracellular electron transfer by a microaerophilic marine *Streptomyces* strain

**Fermentation**: Hasan B. Coban, Penn State University

  Production of phytase by microbial submerged fermentation and optimization of process conditions

**Metabolic Engineering**: Dawn Ericksen, Univ. of Illinois-Urbana-Champaign

  Directed evolution of a cellobiose utilization pathway in *Saccharomyces cerevisiae* through simultaneous engineering of multiple proteins

**Natural Products**: Michelle Schorn, Scripps Institution of Oceanography, La Jolla, CA

  Next generation sequencing allows first insights into the biosynthetic pathways of epoxyketone proteasome inhibitors
Photo recap

63rd SIMB Annual Meeting

Website: www.simbhq.org/annual

Note: The Industry Award Lecture presented by Jim Thomas, Amgen and the Thom Award Lecture presented by Bill Bentley, Univ. of Maryland are not pictured.

President Tom Jeffries with Keynote Speaker Dennis Fenton

Tom Jeffries with Annual Meeting Program Chair Helia Radianingtyas

Bottom left: Poster session. Bottom right: President-Elect Leonard Katz, incoming President-Elect Tim Davies, and Treasurer Jan Westpheling at reception
From top to bottom:
SIMB President Tom Jeffries with:
Porter Award winner Elisabeth Elder
Waksman Award winner Susan Bagley
Young Investigator Award winner Yasuo Yoshikuni
Tom Kelleher accepts the Industry Award plaque on behalf of Amgen.

Resident-elect Leonard Katz presents the SIMB presidential gavel to Tom Jeffries during the banquet.

Doug Cameron delivers the banquet speech.

Bottom left: BP Biofuels at the SIMB Job Fair. Bottom right: SIMB Past President Tom Jeffries welcomes Leonard Katz as he is installed as President at the Annual Business Meeting.
2014 Annual Meeting: A student’s perspective

By Stephanie Groves

During this year's SIMB News meeting, we came up with the idea that it would be great to get a student attendee’s perspective/review of the SIMB Annual Meeting. I was given the task of tracking one down to interview. I lucked out and ended up sitting with a student at the annual banquet who graciously agreed to participate. Hasan Bugra Coban, a doctoral student at Pennsylvania State University in the Department of Agricultural and Biological Engineering, attended the meeting to participate in the student poster presentation. His poster, “Production of phytase by microbial submerge fermentation and optimization of process conditions” took home the award for Best Student Poster Award–Fermentation and Cell Culture at this year’s meeting in San Diego, CA. This was his first SIMB meeting and he chose to attend and present due to SIMB's size and core areas of interest, specifically fermentation and bioprocessing. He actually found out about the meeting and the opportunities for students to present via an internet search. Hasan felt the meeting’s organizational style worked well. The vast array of sessions offered and topics covered were also a plus. One criticism he had as a student was that he would have liked to have seen more companies participating in the job fair. All in all Hasan expressed that his experience at the meeting was a positive one.

I appreciated Hasan taking the time to answer my questions and participate in this article. It is good to see that student attendees are making the most out of their meeting experience; they are both attending and, in some cases, presenting at poster and oral sessions. They are taking part in the vendor exhibits and receptions. In addition they are participating in the special programs such as the job fair and the student mentoring lunch, that SIMB offers with students in mind. It is great that SIMB is able to, and takes the time to, offer discounted rates for student attendees along with special sessions and events. I think our programming really encourages students to attend and hopefully join the society as members.

If there are any student members of SIMB who are interested in sharing either their meeting experience or experience as a student member, please feel free to contact me (slgjeaso@gmail.com) with your story.
Call for award nominations for 2014

The Society has honored a number of members and others over the years at the annual meeting. Nominations are taken from members in March of each year and the awardees are chosen at the Spring Board of Directors meeting.

Deadline for submission of nominations is February 28, 2014.

The Society has expanded the Best Student Poster Presentation Award to five (5) awards (in biocatalysis, environmental microbiology, fermentation and cell culture, metabolic engineering, and natural products). There is an abstract submission deadline of February 15, 2014, for student oral and poster presentations.

**Charles Thom Award**
This award is given to recognize individuals who have made one or more outstanding research contributions in industrial microbiology and/or biotechnology. These contributions should be of exceptional merit, reflecting an independence of thought and originality that adds appreciably to scientific knowledge. Activities such as journal editing, organizing and chairing conferences, and serving scientific societies in official capacities also may be considered when judging research contributions. However, the most important factor in selecting nominees for this Award is research accomplishments.

**Deadline: February 28, 2014**

**Charles Porter Award**
This award recognizes those member(s) who have an outstanding record of sustained service to the Society for a period of seven or more years in various capacities such as a Society officer, chair of a standing or presidential committee, SIMB News editor-in-chief, JIMB editor-in-chief, Developments editor-in-chief, program chair, or other service to the Society acceptable to the committee and board; and have been an active member of SIMB for 10 or more years.

**Deadline: February 28, 2014**

**Waksman Outstanding Teaching Award**
Noble Laureate Dr. Selman Waksman was an outstanding teacher of microbiology at Rutgers University, who maintained very cordial and effective relations with industry throughout his career as an academic scientist. The recipient shall have been an active full time professor at a recognized institution of higher education for a minimum of 10 years or has attained emeritus status. He/she shall have an active involvement in research in his/her teaching field while carrying a teaching load, and involvement in or contributing to research that leads to advances in his/her career of industrial or applied microbiology or biotechnology. The nomination must be supported by letters from three former undergraduate or graduate students or postdoctoral fellows who have careers of their own in microbiology or biotechnology.

**Deadline: February 28, 2014**

**Fellowship Status**
Fellowship status is awarded in recognition of distinction in the Society and constitutes a special grade of membership, acknowledging a sustained record of significant research and/or service contributions to the profession of applied microbiology. Any member of the Society at any time may nominate a member for consideration of Fellowship status. The nomination is submitted in writing to the chair of the Awards and Honors Committee and must be supported by two cosponsors, at least one of whom is also a member of the Society.

**Deadline: February 28, 2014**

**SIMB Industry Award**
The SIMB Corporate Award recognizes: “Discovery, Innovation, and Development in Industrial Microbiology and Biotechnology” and, within that framework, recognizes talent, creativity and innovation, and corporate leadership, over time, that have resulted in successful products that impact our world providing benefit to society.

Any active full or emeritus SIMB member can, with the concurrence of two other members, submit a candidate for consideration (to be pre-qualified) by the Committee.

**Deadline: November 1, 2013**

**Young Investigator Award**
The nominee must be a member of SIMB and 35 years of age or younger at the time of nomination. He/She must have made a significant research contribution in industrial microbiology or biotechnology which indicates promise of a professional career of merit. The winner receives a certificate and funding to support the cost of attending the annual meeting.

**Deadline: February 28, 2014**

**Best Student Oral Presentation Award**
Attention academic advisors! Encourage your students to enter the Best Student Oral Presentation Contest. The student will indicate, during online abstract submission, whether he/she would like to be considered for oral presentation at the Student Oral Presentations Session. The oral presentations will be selected based on the submitted abstracts by the convener(s) of the oral presentation session and judged by the Awards and Honors Committee at the annual meeting. The winner receives a certificate and $500 to help cover travel to the meeting.

**Deadline: February 15, 2014**

**Best Student Poster Presentation Awards**
Attention academic advisors! Encourage your students to enter the poster presentation contest. The student will indicate, during online abstract submission, whether he/she would like to be considered for poster presentation awards and in what core area. Five Best Poster Presentation Awards will be given, one in each of the Society’s core areas (Biocatalysis, Environmental Microbiology, Fermentation and Cell Culture, Metabolic Engineering, and Natural Products). Posters will be judged on-site by the Awards and Honors Committee at the annual meeting. Each winner receives a certificate and $500 to help cover travel to the meeting.

**Deadline: February 15, 2014**
Recent Advances in Fermentation Technology (RAFT 10)
November 3 - 6, 2013
Marriott Marco Island
Marco Island, FL

Web site: www.simbhq.org/raft

Contact SIMB
Sponsorship  
chris.lowe@simbhq.org

Exhibits  
chris.lowe@simbhq.org

Advertising  
suzi.eller@simbhq.org

Registration
Online registration is OPEN
Register online or download our registration form and email, mail, or fax the form to the SIMB office. Monday, October 18, 2013 is the last day to register. Registration forms WILL NOT be accepted after this date.

Cancellations: Cancellation requests for refunds must be submitted in writing to registrar@simbhq.org before 5 pm eastern daylight savings time, September 30, 2013. Refunds will be issued, less a $75.00 USD administrative fee. No refunds will be issued after September 30, 2013.

Sponsorship
Provide visibility to your organization and promote your brand. There are a variety of sponsorship benefit packages and opportunities for organizations of all sizes. Enhance your exposure and position your company as a leader in the industry with sponsorship. For information, contact Chris Lowe (chris.lowe@simbhq.org).

Exhibits
Prices: $1,100 SIMB corporate member, $1,400 noncorporate member
Includes one 2’ x 6’ draped table, 2 chairs, company sign.

Setup: Sunday, November 3
Show dates: November 3-5

Contact Chris Lowe (chris.lowe@simbhq.org) for more information.
RAFT 10 Program

Sunday, November 3
10:00 am  Keynote
11:30 am  Lunch
1:00 pm  Session 1: Advances in microbial expression
  Conveners: M. DeLisa (Cornell University) and G. Barnard (Lilly and Co.)
5:00 pm  Welcome Reception

Monday, November 4
7:00 am  Breakfast
8:00 am  Session 2: Advancements in the tools for adoption of
  Quality by Design: DoE and PAT
  Conveners: J. McCool (Lonza) and R. Dominguez (Green Biologics)
11:30 am  Lunch
2:30 pm  Session 3: Building for the future – Educating
  fermentation scientists
  Convener: T. Davies (Green Biologics)
5:00 pm  Poster Session/reception
  Conveners: A. Mohagheghi (NREL) and C. Dellomonaco (USA DuPont)

Tuesday, November 5
7:00 am  Breakfast
8:00 am  Session 4: Novel process and reactor design
  Conveners: D. Laidlaw (Kuhner) and M.C. Flickinger (North Carolina
  State University)
11:30 am  Lunch
2:30 pm  Session 5: From lab to market: Overcoming challenges to
  commercialization of bioprocesses
  Convener: S. VanDien (Genomatica)
5:00 pm  Reception and dinner

Wednesday, November 6
7:00 am  Breakfast
8:00 am  Session 6: Process excellence and high quality
  manufacturing
  Conveners: T. Rau (Lilly and Co.) and S. Stooks (Novozymes)

Conclusion

2013 Exhibitors
Applied Instrument Technologies
Applikon Biotechnology, Inc.
ATR, Inc.
Bio Springer
Bioengineering, Inc.
Bioexpression and Fermentation
Facility, UGA
Bio-Technical Resources
Blue Sens gas sensor GmbH
Broadley-James Corporation
BugLab LLC
Charter Medical, Ltd.
Chemglass Life Sciences
DCI-Biolafitte
Eppendorf
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Global BioIngredients, Inc.
Hamilton Company
Hiden Analytical, Inc.
Kuhner Shaker, Inc.
m2p-labs, Inc.
Marcor Development Corporation
Metabolon, Inc.
Mettler Toledo
NuTek BioScience
optek-Danulat
Pall Life Sciences
Phage Consultants
Roquette America, Inc.
Sensient BioPharma
Solabia Group
TAP Biosystems

Venue
Marriott Marco Island
400 S. Collier Blvd
Marco Island, FL 34145

Room rate: $209 including guest room internet.

The Marriott Marco Island Resort Golf Club and Spa allows you to kick off your shoes and explore paradise, now celebrating the completion of a $225 million renovation and redesign. This one-of-a-kind, acclaimed resort was recently voted onto the Conde Nast Traveler Readers’ Choice Top 100 list of large resorts on the U.S. mainland and onto the list of top 20 Florida Golf Resorts.

Nestled on three miles of pristine Southwest Florida beaches, the Marco Island Marriott is infused with Balinese beauty and offers on its property several renowned restaurants, championship golf, a world-class spa and a wide range of activities and amenities as well as upscale shops for men and women, a spectacular free-form pool with views of the Florida Gulf, and redesigned and redecorated guest rooms.

For more information, visit www.marcoislandmarriott.com/.
Dr. Robert D. Schwartz
Abbott Laboratories (retired)
Title: "The more things change, the more they stay the same…or do they?"

Dr. Robert D. Schwartz recently retired as a Senior Development Scientist in Fermentation Development at Abbott Laboratories, North Chicago, IL.

Bob received his BS in biology from Brooklyn College (1964), MS in microbiology from Long Island University (1967) and PhD. in microbial genetics from the Waksman Institute of Microbiology, Rutgers University (1969).


Bob is a member of SIMB, ASM, AAAS, BIOT division of ACS and Sigma Xi. A member of SIMB since 1973, his service includes: President (1991-1992); Director (1983-1986); Editorial Board member (1985-1996), Senior Editor (1996-2010) and Editor-in-Chief (2010-present) JIMB. Bob received the SIMB Charles Porter Award in 1989 and was elected SIMB Fellow in 1994. Bob has also been a member of the Advisory Board (1989-1993) and Associate Editor (1993-present) of Enzyme and Microb. Technol., and served on the Editorial Board of Appl. Environ. Microbiol. (1980-1985).
ANNOUNCING A NEW MEETING ON NATURAL PRODUCTS

“Natural Product Discovery and Development in the Post Genomic Era"

Location: Westin GasLamp Quarter, San Diego, CA

Dates: January 11-14, 2015
(Sunday evening through Wednesday)

Program Chairs: Richard Baltz, CognoGen; Leonard Katz, SynBERC, Univ. of California-Berkeley

Program: 6 general sessions, 2 poster sessions, special keynote and banquet talks, numerous networking opportunities.

Organizing committee and general topics available soon.

Co-sponsored by SIMB, Korean Society for Microbiology and Biotechnology (KMB) and Society for Actinomycetes Japan (SAJ)
Welcome
The call for papers for the Thirty-Sixth Symposium on Biotechnology for Fuels and Chemicals (36th SBFC) has opened and the conference organizers invite you to submit abstracts for oral and poster presentations. The deadline for abstract submissions is November 17, 2013.

Interest in producing greater amounts and a wider array of bio-based fuels and chemicals products from non-traditional renewable feedstocks such as algal and terrestrial biomass continues to surge, driven by higher prices for traditional commodity feedstocks such as petroleum and sugar coupled with increasing recognition of the threat rising atmospheric greenhouse gas levels pose to global climate stability. The number of scientific journals covering the renewable fuels and chemicals field has expanded significantly over the past decade and public and private investment in research and development and commercialization of bio-based technologies continues to accelerate. Biotechnologies offer solutions that can help society move towards a more sustainable fuels and chemicals resource base. There is also increasing interest in and ability to couple biotechnologies with traditional thermo-chemical and chemical conversion technologies. This year’s Symposium will provide an exceptional forum for practitioners and experts from companies, universities, and governments around the world to learn about, discuss, and exchange information on the latest progress and breakthroughs being made in the dynamic and growing field of bio-based fuels and chemicals research, development, and deployment.

This year’s 36th Symposium will be held April 28 – May 1, 2014 in Clearwater Beach, Florida, hosted by Oak Ridge National Laboratory. The venue will be the same excellent and popular Hilton beach hotel location as we enjoyed for the 32nd SBFC.

The meeting format for the 36th SBFC will be similar to the 35th SBFC format, with 7 talks per oral session (rather than the historical 6) and a free afternoon midway through meeting to provide an extended period for meeting and networking with professional colleagues. We listened to input gathered through post meeting surveys and this format reflects the preference of the vast majority of past attendees. A total of 18 oral presentation sessions, 2 evening poster sessions as well as 2 special topics sessions will be convened over three and a half days, with technical topics spanning feedstocks, biocatalysts and conversion sciences to separations, process development, biorefinery commercialization, and economic and sustainability assessment. The program is designed to provide ample opportunities for those attending to engage in informal discussions and exchanges with their international colleagues.

Steven Brown, Conference Chair
Thomas Klasson, Conference Chair
Steve Decker, Conference Co-Chair
Jim McMillan, Conference Co-Chair
Session Topics

Feedstock I – Plant Genetics and Recalcitrance
Research aimed at producing improved plant cultivars is underway worldwide with the goal of developing biomass sources with improved cell wall structure, growth and composition characteristics beneficial to bioconversion. This session will highlight research on breeding to improve plant yield, advances in domestication of promising biomass species, in planta expression of enzymes, fundamental understanding of biophysical origin of biomass recalcitrance, developments in crops with reduced recalcitrance for better processing characteristics, and advances in plant systems biology research.

Feedstock II – Biomass Physicochemical Analysis
Physicochemical properties of biomass often dictate its suitability as a feedstock for biological or thermal conversion. Improved methods for characterization, such as physical or composition analysis, and how this translates to biomass “quality” will be discussed. Advances in rapid analysis technologies for high throughput analysis and screening will be part of this session.

Feedstock III – Biomass Supply, Integrated Biorefineries, and Sustainability
Existing and newly developed plant biomass types will be favored that can be produced and delivered to integrated biorefineries at the lowest possible cost. Biomass production also has to be environmentally sustainable. This session will discuss studies and demonstrations of advances in biomass production technology, improved agronomic practices, harvesting technologies and sustainability issues such as land and water use, economics, and supply chain logistics critical to dramatically reducing biomass feedstock cost. Progress on life-cycle analysis and related energy efficiency and sustainability analyses and their validation for integrated biorefinery applications will also be part of this session.

Pretreatment and Fractionation Technology I, II and III
Lignocellulosic biomass is difficult to economically disassemble at high yield due to the presence of highly modified structural carbohydrates and aromatic (lignin) polymers. These sessions will discuss recent developments and scale-up in mechanical, chemical, and biochemical pretreatment and fractionation processes – both existing and new approaches (e.g., ionic liquids). Improved measurement and control of pretreatment and fractionation processes will also be described. The three sessions on this topic will be broadly differentiated by the type of deconstruction process chemistry being discussed.

Enzyme Science and Technology I – Assays and Biochemical Characterization
Enzyme expression and function requires advanced tools such as sophisticated enzyme assays and characterization techniques. New and improved assay methods and techniques for characterizing biomass depolymerizing and debranching enzymes will be included in this session. Progress in understanding and applying oxidative enzymes, expansins, swollenins, and other types of cell wall disrupting enzymes to improve plant cell wall deconstruction and in understanding and improving enzyme synergy in biomass hydrolysis will also be included.

Enzyme Science and Technology II – Modeling and Structure/Function Relationships
Advanced knowledge obtained by modeling enzyme structure and function is being used to guide metabolic engineering and rational selection of targets for site-directed changes to improve enzyme performance. The development and verification of such models are crucial to these efforts. This session will highlight case studies advancing molecular-level modeling and structure-function studies to increase understanding of enzyme functionality and catalytic mechanisms.

Enzyme Science and Technology III – Enzyme Discovery and Engineering
Naturally occurring enzymes can be powerful tools for bioprocessing but often their characteristics must be improved to their use to be economically viable. Papers in this session will describe novel newly discovered enzymes as well as advances being made in enzyme engineering to improve enzyme activity, thermostability, substrate range, or tolerance to other process conditions. Improvements in enzymatic lignin deconstruction and progress in reducing the cost of enzymes for biomass refining applications will also be part of this session.

Microbial Science and Technology I, II Yeast and Fungi
Yeast and fungi are powerful biocatalysts, however an ideal microorganism capable of complete and rapid conversion of multiple or mixed substrates does not yet exist. This session will emphasize recent progress in improving yeast and fungi to overcome fundamental limitations to rapid conversion of biomass-derived (renewable) carbon sources. Research topics within scope include new microbial strain discovery and testing, advances in genetic and pathway engineering for microbial strain evolution, as well as evaluation of natural or constructed consortia for bioconversion. There will be two sessions on yeast and fungi.
Microbial Science and Technology III – Bacteria
Application of newly developed bacteria for ethanol and other fuels and chemicals production will be presented in this session. Research topics to be highlighted include new bacterial strain discovery and testing, advances using genetic and pathway engineering for strain evolution, as well as studies of natural or constructed bacterial consortia for improved conversion processes.

Microbial Science and Technology IV – Algae
Algal cultures are increasingly becoming a microbial platform recognized to have high potential for production of lipids, chemicals and fuels using both photosynthetic and heterotrophic approaches. This session will focus on discovery and characterization of new algae strains and progress to improve growth, product formation and harvesting efficiencies. It will also cover innovations in the use of open and closed production systems and improvements in understanding and demonstrating the practicality and economic viability of such systems.

Bioprocessing, Reactor Design, and Separations Technology I, II
Economically viable bioprocesses require definitive substrate characterization, effective material handling and robust conversion technologies in combination with efficient downstream or in situ product separation and recovery. Papers in this session will describe advances in the development, testing and demonstration of bioconversion processes spanning early to late stages of process development and integration. Topics to be emphasized include biocatalyst recycle, integrated production and recovery, overcoming material handling bottleneck and advances in hybrid thermochemical/biological (or biological/thermochemical) conversion process development. There will be two sessions covering these topics.

Advanced Biofuels, Chemicals, and Co-Products I, II
Chemicals and advanced biofuels (such as bio-based gasoline, diesel, jet fuel, higher alcohols, fatty acids, biogas, etc.) can be produced from biomass-derived sugars, synthesis gases, or other sustainable carbon sources. This session will highlight advances in biological and combined thermochemical-biological (or biological-thermochemical) production routes. Production of bio-based intermediates suitable as feedstocks for petroleum refineries as well as the development of new products from lignin or other potential biorefining side streams will also be described. There will be two sessions covering these topics.

Biofuels and Bioproducts Commercialization, Economics and Sustainability
Advanced biofuels technologies are starting to emerge from laboratories around the world to enter the commercial marketplace. This session will emphasize recent progress in pilot and larger scale biorefinery integration and demonstration to further commercialization of advanced biofuels and bioproducts technologies. It will also describe associated techno-economic evaluations and life cycle and other sustainability assessments of envisioned full scale commercial biorefining processes. Papers are also sought to discuss progress in understanding issues related to large-scale delivery and use of biofuels, including distribution and delivery logistics and engine manufacturer acceptance criteria.

ST1: Synthetic Biology (by invitation only)
New synthetic biology tools can be used to create and improve novel biological systems and the advance of high-speed low-cost sequencing and gene fabrication technologies is leading to increased activity in this field. This session will highlight advances in using this new approach for biocatalyst design and the development of novel biological systems. Invited speakers will present in this session.

ST2: Bioenergy Science Center Update (by invitation only)
During the last four years, bioenergy research centers and institutes have made tremendous progress in developing and applying new fundamental knowledge to improve technologies for producing biomass-derived fuels and chemicals. Invited speakers from the three United States Department of Energy-funded Bioenergy Research Centers and well as from other US and international bioenergy research institutes will describe their respective research goals and recent progress.

Poster Sessions I, II
Two poster sessions will be held the first two evenings of the symposium, with approximately half of the posters presented (with presenter on hand) each evening. The posters themselves will remain on display throughout the meeting.
**Dates and Deadlines**

**November 17, 2013**  
Abstract submission deadline

**January 6, 2014**  
Registration and housing open

**February 1, 2014**  
Submission deadline for award nominations

**Awards**

Nominations are now being accepted for the 2014 Charles D. Scott and Raphael Katzen Awards, as well as the new Bioeconomy Leadership Award. Nominations submitted will be reviewed by the SBFC Awards Committee and winners will be announced on the website. Awards will be presented at the annual banquet, Thursday evening, May 1. Read more about the awards and download nomination forms at: http://www.simbhq.org/sbfc.

**Hotel and travel**

Hilton Clearwater Beach  
400 Mandalay Ave.  
Clearwater Beach FL 33767  
Rate: $179

Housing opens January 6, 2014.  
Spanning 10 acres along the Gulf of Mexico’s shimmering coastline, we invite you to the Hilton Clearwater Beach. Rely on this three-diamond Clearwater Beach hotel and enjoy enchanting accommodations overlooking one of the world’s most brilliant white-sand beaches. Hotel amenities include:
- iBahn wireless Internet, in all rooms and meeting areas – complimentary for SBFC attendees
- Overlooking the Gulf of Mexico, next to Pier 60 and across from the marina
- Within walking distance to Clearwater Beach’s best restaurants and activities
- Only 20 minutes from St. Petersburg / Clearwater International Airport (PIE)
- Just a half hour from Tampa International Airport (TIA), providing flexibility with flights
- 416 modern guest rooms and suites, most with balconies
- Full service restaurant and lobby bar
- Beachside pool complex, including a Jacuzzi
- Onsite water sports activities, including parasailing, wave running, and kayaking
- Kids’ Club, supervised kids program
- On-property cardiovascular exercise room, ideal for a quick workout
- Access to our full-service health club, Eagle Fitness, one block north of hotel
- 24-hour business center, with printing, faxing, and computer
- Hilton HHonors, frequent guest program

**Sponsorship**

We have assembled an impressive technical program that includes 18 oral presentation sessions, 2 poster sessions as well as multiple special topics.

Provide visibility to your organization, promote your brand, and gain access to the over 800 attendees. There are a variety of sponsorship benefit packages and opportunities for organizations of all sizes. Enhance your exposure and position your company as a leader in the industry with sponsorship. Download the Sponsorship Form to get started!

For more information, contact Chris Lowe (chris.lowe@simbhq.org).

**Exhibits**

For information, contact Chris Lowe (chris.lowe@simbhq.org).

**Advertising**

Advertising is available in the meeting program. For information on rates, contact Katie Devins (Katie.devins@simbhq.org).

**Job Fair**

The 2014 SIMB Job Fair will be held during the annual meeting. Details forthcoming.

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**Interested in advertising with SIMB?**

SIMB offers several opportunities to advertise in both SIMB News and meeting programs. For information, please visit:


Questions? Contact Katie Devins (Katie.devins@simbhq.org).
2014 SIMB Annual Meeting
July 20-24, 2014 (Sunday-Thursday)
Hyatt Regency St. Louis
St. Louis, MO, USA

Web site: www.simbhq.org/annual

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Leader

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member

Jeffrey Kim
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jeff@radiantgenomics.com
new member

Call for abstracts
Abstract link: http://sim.confex.com/sim/2014/cfp.cgi

Venue
Hyatt Regency St. Louis at the Arch
315 Chestnut St.
St. Louis, MO 63102
314-665-1234

Housing
Housing link: https://resweb.passkey.com/go/SIMT2014
Rate: $139 plus tax, includes guest room internet
Housing will open at the end of February.
3rd Recent Advances In Microbial Control (RAMC)
November 9-12, 2014
Marriott Union Square
San Francisco, CA

Web site: www.simbhq.org/ramc

Contact SIMB
Sponsorship
chris.lowe@simbhq.org

Advertising
katie.devins@simbhq.org

Organizing Committee
Joanne Carilli-Stevenson, Lonza
George Pierce, Georgia State University
Jana Rajan, Dow Microbial Control
Debbie Yaver, Novozymes

Format
Sunday morning-Wednesday noon.
The third RAMC will feature plenary talks, six sessions of invited talks, one poster session and numerous networking opportunities.

Deadlines
February 1, 2014: Abstract site open for oral and poster sessions
May 1, 2014: Registration and housing opens
September 1, 2014: Poster abstracts due
September 15, 2014: All speaker abstracts due

Guest Speakers
Banquet speaker
Dr. Charles Bamforth, University of California-Davis

Plenary speaker
Mr. Mark Henning, President, Dow Microbial Control
Additional plenary speakers to be announced.

Venue
San Francisco Marriott Union Square
400 Sutter St. (corner of Sutter and Powell)
San Francisco, CA

Room Rate: $200 plus tax, single/double including guest room internet when booking through the SIMB block

Cancellation of registration
Cancellation requests for refunds must be submitted in writing to registrar@simbhq.org before 5 pm eastern daylight savings time, September 30, 2013. Refunds will be issued, less a $75.00 USD administrative fee. No refunds will be issued after September 30, 2013.

Sponsorship
Provide visibility to your organization and promote your brand. There are a variety of sponsorship benefit packages and opportunities for organizations of all sizes. Enhance your exposure and position your company as a leader in the industry with sponsorship. For information, contact Chris Lowe (chris.lowe@simbhq.org).

Setup: Sunday, November 3
Show dates: November 3-5

Contact Chris Lowe (chris.lowe@simbhq.org) for more information.
RAMC PRELIMINARY SESSION TOPICS

Controlling Environmental Microbial Threats of Waters, Surfaces, and Air Spaces
Convener: Jon Calomiris, Sotiria Science

Microbial control is essential to restrict environmental microbial species from causing disease or degrading system quality at various sites, including water systems, industrial processes, and building interiors. In addition to addressing innate resistance of microbial species to antimicrobial compounds, effective control strategies must confront survival-enhancing mechanisms such as microbial associations with complex surfaces, biofilms, and particulates. This session focuses on approaches for controlling problematic environmental microorganisms that encounter waters, surfaces, or air spaces of recreational beaches, cooling towers, hospital facilities, building interiors, and spacecraft. In addition, the session addresses challenges to regulation of processes employed for environmental microbial control.

Beneficial microbes for antimicrobial control
Convener: Debbie Yaver, Novozymes and Jonathan Leder, Novozymes Biologicals

New approaches and solutions for both detection of microorganisms and control of microorganisms are needed in the arsenal for industrial and agricultural applications. In this session you will hear advances in using microorganisms and bacteriophage for microbial control in both industrial and agricultural settings.

Microbial Control Challenges in Industrial Water
Convener: Lonza
Microbial Issues Associated with Energy Production and Storage Dow/Lonza

Rapid techniques for assessing microbial control - validation and application
Convener: Rob Donofrio, NSF International

Food Microbial Safety
Convener: George Pierce, Georgia State University
Book Reviews

By Stephanie Groves

**Title:** Twelve Diseases That Changed Our World  
**Author:** Irwin W. Sherman, The Scripps Research Institute  
**Publisher:** ASM Press  
**Publication Date:** Sept. 2007  
**ISBN:** 978-1-55581-466-3  
**Format:** E-Book

I read *Twelve Diseases That Changed Our World* as an ASM Press Ebook. This book reads almost like a guide book through diseases that had a significant impact on the world. While I myself was surprised by some of the diseases that made the list, I won’t spoil them here, they were an all-encompassing range of ailments. I can see debates rising over what should/shouldn’t have been included. I found the book to be a fascinating and informative read. Each chapter took one of the “12” and explained the disease’s history (e.g., origin, mode or transmission, treatment). I enjoyed this book as a leisurely read and can see it being that for any one interested in the health or history. At its short length, 278 pages, it can be also considered a quick read. The book would also make a great text for any seminar/discussion course dealing with how humans respond to epidemics or a similar subject matter. As a stand-alone, this book provides a general overview and a great starting point to any further research into these diseases’ and their histories.

**Title:** Scientific Writing and Communication: Papers, Proposals, and Presentations (1st Edition)  
**Author:** Angelika H. Hofmann  
**Publisher:** Oxford University Press  
**Publication Date:** Dec 2010  
**ISBN:** 978-0195390056  
**Format:** Hard copy

*Scientific Writing and Communication: Papers, Proposals, and Presentations* is a textbook designed to provide scientists with the basic principles of scientific writing and communication and their applications. In the preface of this text the author makes numerous claims that this is a “Comprehensive “one-stop” reference guide for scientific writing and communication for researchers in various scientific fields.” The book does not fall short of providing this. It serves as a self-guided handbook and reference that gives even the most experienced scientist the tools to be a better their scientific writer. This text covers everything from the basics of style and composition to the more advanced manuscript and grant preparation. In addition to being a great reference guide this text would serve early graduate and English as a second language students as a valuable resource. It would be a great course book for an introduction to scientific writing class for graduate students and advance undergraduates. The first part of the text deals with how to write correctly and effectively while the second part deals with specialty writing cases (i.e. manuscript preparation, grant writing, posters and presentations, etc...). Some key highlights of the text are that there is a special section dealing with plagiarism, numerous problem sets that allows the user to test their understanding of the material or an instructor to provide their student with numerous exercises, and a whole chapter dedicated to preparing effective figures and tables. Overall, I give this book a positive review because it achieved what it set out to do be, and “easy to use” reference manual.
### SIMB Meetings

For further information on SIMB meetings, contact: SIMB, 3929 Old Lee Highway, Suite 92A, Fairfax, VA 22030-2421; T: 703-691-3357; F: 703-691-7991; E: meetings@simhq.org; W: www.simbhq.org.

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<th>Date</th>
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<td>November 3-6, 2013</td>
<td>RAFT 10</td>
<td>Marriott Marco Island</td>
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<td>Marco Island, FL</td>
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<td>April 28-May 1, 2014</td>
<td>36th Symposium on Biotechnology for Fuels and Chemicals</td>
<td>Hilton Clearwater Beach</td>
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<td>July 20-24, 2014</td>
<td>SIMB Annual Meeting and Exhibition</td>
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<td>April 27-30, 2015</td>
<td>37th Symposium on Biotechnology for Fuels and Chemicals</td>
<td>Sheraton San Diego</td>
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<td>August 2-6, 2015</td>
<td>SIMB Annual Meeting and Exhibition</td>
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<td>July 31-August 4, 2016</td>
<td>SIMB Annual Meeting and Exhibition</td>
<td>Sheraton New Orleans</td>
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### Non-SIMB Meetings

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<td>January 15, 2014</td>
<td>SfAM Winter Meeting</td>
<td>London, UK</td>
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<tr>
<td>January 23, 2014</td>
<td>Exploiting bacteriophages for bioscience, biotechnology and medicine</td>
<td>London, UK</td>
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<td>March 10-11, 2014</td>
<td>Advances in Biodetection and Biosensors</td>
<td>Berlin, Germany</td>
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<td>March 10-11, 2014</td>
<td>Advances in Microarray Technology</td>
<td>Berlin, Germany</td>
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<tr>
<td>March 31-April 3, 2014</td>
<td>MiCom 2014: 4th International Student Conference on Microbial Communication</td>
<td>Jena, Germany</td>
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<td><a href="http://www.micom-conference.de">www.micom-conference.de</a></td>
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<tr>
<td>April 14-17, 2014</td>
<td>SGM Annual Conference</td>
<td>Liverpool, UK</td>
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<td><a href="http://www.sgm.ac.uk/en/events/conferences/index.cfm/annual-conference-2014">www.sgm.ac.uk/en/events/conferences/index.cfm/annual-conference-2014</a></td>
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<tr>
<td>May 17-20, 2014</td>
<td>114th General Meeting of the American Society for Microbiology</td>
<td>Boston, Massachusetts</td>
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<td><a href="http://www.asm.org/index.php/asm2014">www.asm.org/index.php/asm2014</a></td>
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Workshops and Short Courses

NOTE: SIMB has partnered with North Carolina State University’s Biomanufacturing Training and Education Center (BTEC) to offer discounted professional short courses to SIMB members.

• SIMB members from industry receive a 20% discount on course registration.
• SIMB members from academia receive a 50% discount on registration.

To receive your discount, you must register for BTEC short courses through the SIMB website member login.

| Varies | BioBrainz Life Sciences – Courses in Bioinformatics and Biotechnology | Visit web site for details on courses offered: www.biobrainz.com/ |
| Varies | NSF International | Visit web site for details on courses offered: www.nsf.org/cphe/ |
| Varies | ASM - Teleconferences and Webinars | Visit web site for locations and details on courses offered: www.asmaudio.org/ |
| Varies | Penn State – Food Microbiology Short Courses | Visit web site for details on courses offered: http://foodscience.psu.edu/workshops/food-microbiology |
| Varies | Rutgers University – Food Safety Courses | Visit web site for details on courses offered: www.cpe.rutgers.edu/programs/food_science_food_safety.html |
| Varies | Silliker Laboratories | Call for details and a list of courses offered: 800-829-7879 or 708-957-7878 |

Anyone wishing to publicize a meeting or have it included in the calendar is asked to send the information to: SIMB, 3929 Old Lee Hwy, Suite 92A Fairfax, VA 22030-2421; E: meetings@simhq.org. All entries will be listed on a space-available basis.

Do you judge Science Fairs?
SIMB offers science fair certificates

Most Science Fairs have a section on microbiology and/or molecular biology, and many SIMB members assist local schools by judging in those categories. The SIMB Board of Directors authorized the Education Committee to provide certificates to be presented to students in Science Fairs.

The criteria for receipt of a certificate are that an SIMB Member must be judging in the fair. Certificates will be available to the first, second, and third place winners if there are a sufficient number of entries. Email to the Education Committee the names, addresses of the schools, and judges’ names and addresses, and we will send the certificates already filled out for presentation. This will give the judges a second opportunity to interact with the students and encourage more interest in microbiology.

CONTACT
Michael Flickinger (mcflicki@ncsu.edu)
Corporate Member Benefits

• Three levels available

• Complimentary membership for corporate representative(s)

• Discounts on exhibit space, advertising, and mailing lists

• Company logo, description, and link to corporate member web site

• Free announcements of contracts awarded, new products, and personnel changes in SIMB News

• Recognition in every issue of SIMB News, JIMB, and on SIMB web site

www.simbhq.org
SIMB has launched an improved career center.

With the career center, job seekers can search for jobs, post their resumes and set up automated alerts, notifying them when new jobs become available.

Employers can now post a job opening instantly, and are able to search through resumes to find qualified employees.