

**AOCS Biotechnology Division
Newsletter
September 2010**

**Biotechnology Division
Executive Steering Committee**

The following were inducted at the AOCS Annual Meeting & Expo in Phoenix as members of the Division's Executive Steering Committee:

Chairperson:

Ramesh Patel
SLRP Associates LLC, USA
Email: rameshpatelphd@yahoo.com
Phone: +1 908-725-5738

Vice Chairperson:

Dan Solaiman
US Department of Agriculture, USA
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Secretary-Treasurer

Randy Weselake
University of Alberta, Canada
Email: randall.weselake@ualberta.ca
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The Executive Steering Committee has appointed the following individuals to serve the Division in specific areas, as indicated:

Newsletter Editor:

Doug Hayes
University of Tennessee, USA

Executive Steering Committee

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Ramesh Patel
rameshpatelphd@yahoo.com
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*Division Awards; AOCS/JOCS Liaison (from USA); AOCS
Biotechnology Division Liaison/6th ISBB Liaison:*

Ching T. Hou
US Department of Agriculture, USA
Email: Ching.Hou@ars.usda.gov
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JOCS/AOCS Liaison (from Japan):

Takahashi Koretaro
Hokkaido University, Japan
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General Division Membership Development:

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102nd AOCS Annual Meeting & Expo: Call for Papers

The 2011 AOCS Annual Meeting & Expo, May 1-4, 2011, in Cincinnati, Ohio, has many sessions of interest to Biotechnology Division members. The deadline for submitting titles and abstracts for oral and poster presentations, online at the AOCS Annual Meeting [webpage](#), is **October 1**. Abstracts can be modified on-line up to January 7, 2011. Sessions sponsored or co-sponsored by the Biotechnology Division include:

- Biocatalysis
- Plant Lipidomics (in collaboration with the Analytical Division)
- Oil-based Biofuels
- Functional Lipids (in collaboration with the Health and Nutrition Division)
- Bio-based Materials: Surfactants, Polymers, and Enzymes in Green Cleaning (in collaboration with the Surfactants & Detergents Division)
- Plant Lipid Biotechnology
- General Biotechnology

- Biotechnology Posters

Also of interest: Structured Lipids and Phospholipids
(Phospholipids Division)

During the 2011 Annual Meeting, the Biotechnology Division will sponsor two awards:

- Biotechnology Division Lifetime Award
(nominations due **November 1, 2010**; *note: the presentation of this award is contingent upon available sponsorship*)
- Biotechnology Division Student Award
(submissions due **October 15, 2010**)

Further details are available at the [Biotechnology Division website](#).

6th International Symposium on Biocatalysis and Biotechnology (ISBB) and 3rd AOCS Asian Section Meeting

The 6th ISBB Symposium will be held in Seoul, Korea, November 17-19, 2010. The AOCS Asian Section meeting will include not only Biotechnology Division science area but all AOCS Division science areas as well. Those who are interested in attending should contact the local organizer, Dr. Suk Hoo Yoon (shyoon@kfri.re.kr) or the Division's liaison, Ching T. Hou (ching.hou@ars.usda.gov), or visit the ISBB [website](#).

World Congress on Oleo Science and 29th ISF Congress

This meeting, co-sponsored by AOCS, the Japan Oil Chemists' Society (JOCS), the Korean Oil Chemists' Society (KOCS), and the International Society for Fat Research (ISF), and the International Symposium on Biocatalysis and Biotechnology (ISBB) will take place in Tokyo, October 10-13, 2011. Further information can be obtained at the Congress [website](#). Biotechnology Division members who would like further information about this

meeting should contact Ching Hou. Topics for the technical program have been listed; the receipts of abstracts and titles has not yet been initiated.

Fats and Oils Technology Delegation Visits China

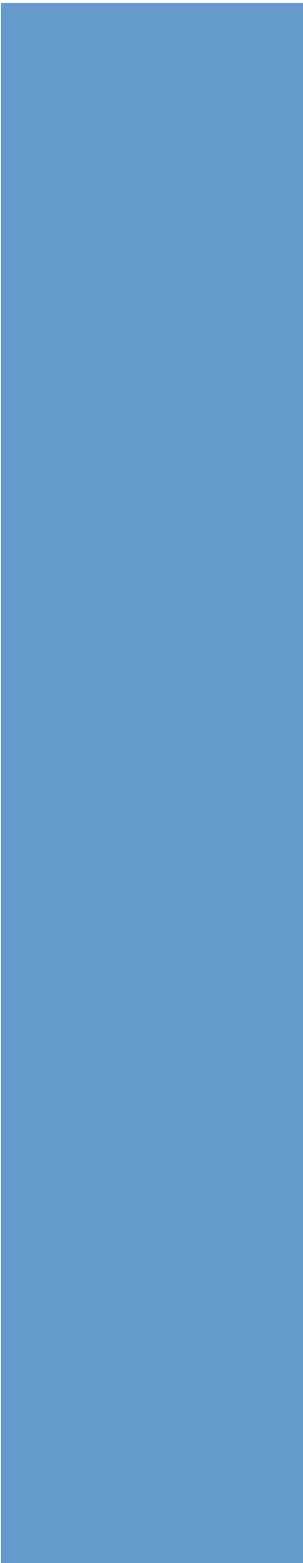
by Douglas Hayes and Casimir Akoh

In early September 2010, a delegation of scientists and engineers with expertise in fats and oils technology visited three cities in China--Beijing, Xi'an, and Shanghai--in order to foster increased collaboration and information exchange with Chinese fats and oils technical experts.

The delegation leader was Dr. Casimir Akoh, Distinguished Professor of Food Science and Technology at the University of Georgia, USA, and Past President of AOCS. Dr. Akoh is an active member and former officer of the Biotechnology Division. The trip was organized by People to People, a prestigious organization founded by US President Dwight D. Eisenhower, whose mission is to enable the cultural exchange of students, professionals, and scientists with their counterparts in other countries. The 11-member delegation included several active AOCS members, including Biotechnology Division members Dr. Douglas Hayes (Professor, Biosystems Engineering, University of Tennessee, USA) and Dr. Xuebing Xu (Professor, Aarhus University, Denmark), and included scientists from four countries: Brazil, Denmark, Switzerland, and the USA.

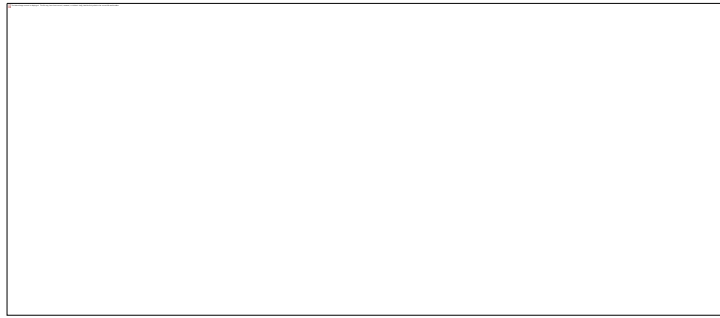
Highlights of interest to Biotechnology Division members include:

- The strong interest by the China Oils and Fats Society for increased collaboration with AOCS. A possible collaboration discussed would be hosting a joint meeting relating to a specific topic, such as "Specialty Oils." The Society publishes a [journal](#) of the same name (ISSN: 1003-7969), with titles and abstracts printed in English.
- Visitation of the Wilmar Research and Development Center. Wilmar, the largest fats and oils producer in China, accounts for approximately 10% of the global oleochemical market. Of interest



to the Biotechnology Division, research work ongoing at the center includes development of low-*trans* oils, enzymatic synthesis of structured lipids and other oleochemical materials, and fermentation-based food products such as dairy products and vitamins. These areas are important to the future direction of Wilmar R&D. The product R&D director, Dr. Yuan Rong Jiang, regularly attends the AOCS Annual Meeting.

- Visitation of the Academy of State Administration of Grain in Beijing. The academy carries out numerous research projects for the Chinese government in the areas of cereal chemistry, and fats and oils process and product development. The latter area includes projects on enzymatic degumming, enzymatic synthesis of structured lipids, aqueous enzyme extraction, and products from oilseed peptides.
- Another visit was to the Beijing University of Chemical Technology, College of Life Science and Technology. There are opportunities for faculty and student exchanges with other universities. College faculty are active in research relating to bioenergy, enzymatic processing of oleochemicals, separation science, and fermentation.
- The delegation learned that obesity is on the rise in China. Due to its high oil consumption relative to Western countries, Chinese scientists are very interested in developing specialty oils and low-calorie foods. Recent interest in oleochemical research have also focused upon genetically-modified oils, utilization of by-products, decreased usage of solvent extraction for recovery of oils, and increased utilization of oleochemical co-products.
- The delegation also experienced several cultural endeavors that will bring memories of a lifetime, such as scaling the Great Wall, viewing the Terra Cotta Warriors, strolling through Tianamen Square and the Forbidden City, ogling the Shanghai skyline at night, and overindulging on local delicacies at restaurants.



People to People Lipid Delegation to China visits the Wilmar Research and Development Center in Shanghai. Biotechnology Division members Akoh (front row, fifth from left), Hayes (back row, third from right), and Xu (not included in photo) were among the delegates.

“A New Biology for the 21st Century”

by Douglas Hayes

Recently, the National Research Council, USA, or NRC, completed a very important study, summarized in a detailed [document](#) available available free of charge. The assessment outlined in this document will be very influential in the future funding portfolio of several US agencies that fund biotechnology-related research, including the US Department of Agriculture (its extramural funding program is now referred to as the National Institute of Food and Agriculture, or NIFA), National Institutes of Health (NIH), National Science Foundation (NSF), US Department of Energy (DOE), US Environmental Protection Agency (EPA), and others.

The goal of the assessment was to “examine the current state of biological research in the United States and recommend how best to capitalize on recent technological and scientific advances that have allowed biologists to integrate biological research findings, collect and interpret vastly increased amounts of data, and predict the behavior of complex biological systems.”

The NRC recommends that the advances in biology (e.g., mapping the human genome, rapid sequencing of oligonucleotides, computational biology, metabolic engineering, improved techniques for *in situ* probing of

biomolecules at the nanoscale in real time, proteomics and other “omics”) be directed to solve several “Grand Challenges” facing the 21st century world:

1. Generating food plants to adapt and grow sustainably in changing environments
2. Understanding and sustaining ecosystem function and biodiversity in the face of rapid change
3. Expanding sustainable alternatives to fossil fuels
4. Understanding, monitoring, treating, and improving individuals’ health (“personalized medicine”)

The achievement of these goals cannot occur by the lone biological scientist, but will require interdisciplinary endeavors by teams of biological scientists, engineers, computational experts, material scientists, ecologists, etc., according to the NCR. This integrated approach for biological research is referred to as the “New Biology.”

Of note, the 21st century biological scientist or engineer will need to be educated and trained according to new paradigms, to be able to thrive in an increasingly interdisciplinary research environment.

For those involved with extramurally funded research, this document is a “must read.”

Do You Have Any News Items?

Please send me your ideas, stories, photos, etc. for the next Division newsletter; my email address is dhayes1@utk.edu

Improvements to the Division Web Page

If you haven't already done so, be sure to check the improvements we've made to the [Division web page](#). Did you know, for example, that you can now:

- View the current Division membership list;
- Join a listserv (choose by interest area, geographic

area, or by common interest area; you can join as many as you like, but you *must* be an AOCS member to join)

- Read past Division newsletters

And don't forget to explore the [AOCS Lipid Library](#). You'll find a wide variety of useful and continually updated information dealing with all aspects of lipid science, with contributions from leading researchers.

Calling All Authors (and Editors)

The Books and Special Publications Committee (BSPC) needs your help in developing new book projects for AOCS Press. The world has changed, and the old ways of developing book projects no longer provide a sufficient number of projects to keep AOCS Press productive and competitive in the scientific publishing field. Please send topics that you believe to be of interest to the members of your Division, and the scientific community generally, and that you think would make a viable publication, to [Jodey Schonfeld](#). It would be helpful if you also suggest possible editors and/or authors.