

Organized by the

Separation Science Program

Food Protein Research & Development Center

The Texas A&M University System

College Station, Texas 77843-2476 U.S.A.

In Cooperation with

National Center for Therapeutics Manufacturing

Texas A&M Engineering Experiment Station

The Texas A&M University System

College Station, Texas 77843-4482 U.S.A.

Fermentation and Separation for the Food & Drug

Industries:

Principle, Process, Recovery, and Product

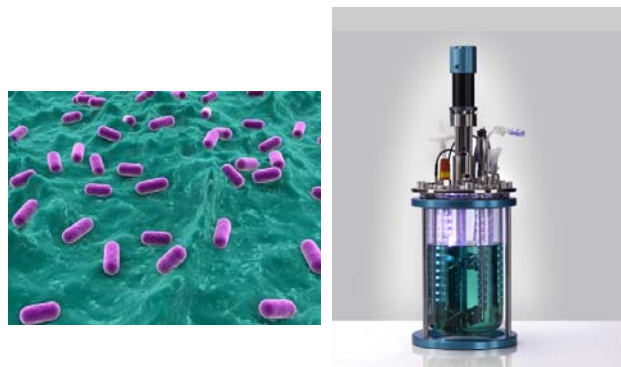
February 2-4, 2014

## Fermentation and Separation for the Food & Drug Industries

A Practical, "Hands-On"  
 Fermentation & Separation  
 Workshop



The Separation Sciences Program and leading industry experts deliver this hands-on workshop focusing on fermentation and separation processes for the food & drug industries



### Instructors:

**Daniel H. Bar**, Vice President/General Manager, Amerida, Division of Eurodia Industrie

**Sergio Capareda**, Associate Professor, Biological and Agricultural Engineering Department, Texas A&M University

**In Seong Choi**, Bio-Energy Research Center, Chonnam National University

**Donald F. Day**, Professor, Audubon Sugar Institute, Louisiana State University

**Arum Han**, Associate Professor, Director of NanoBio Systems Lab, Texas A&M University

**Osama O. Ibrahim**, Consultant Biotechnology, Bio Innovation

**Jiyoung Lee**, Marketing Manager, BioProcess, GE Healthcare

**Yongjae Lee**, Program Head, Separation Sciences Program, Food Protein R&D

Center, Texas A&M University

**Michael V. Pishko**, Professor, Biomedical Engineering, Texas A&M University; Director of the NCTM (National Center for Therapeutics Manufacturing)

**J. Stefan Rokem**, Associate Professor, Department of Microbiology and Molecular Genetics, Hebrew University—Hadassah Medical School

**Christiane Waldron**, Senior Engineering Manager, Kaneka North America LLC

**Jay Zwierzynski**, Sales Engineer, GEA Mechanical Equipment US, INC

### OBJECTIVES OF SHORT COURSE

- Provide practical training in the field of cell culture, bioreactor operation, bioprocess paradigm, and separation technology
- Increase understanding of the industrial food & drug fermentation biotechnology through simulation, sterilization technologies and clinical implications as well as related research being done across different countries, universities, and industries
- Review new technologies in the fermentation and separation biotechnology industries and scale-up bioreactor
- Establish network of academia and industry experts

### LOCATION AND FACILITIES

All lectures will be held at TIPS (Texas A&M Institute for Preclinical Studies) on the Texas A&M University Campus.

### ACCOMMODATIONS AND TRANSPORTATION

Reservations for lodging should be made directly by the attendee. A block of rooms has been reserved at the College Station Hilton and Conference Center for the short course participants at the special rate of \$109/night plus tax for single or double occupancy. Ask for the rate specifically and mention the group code "FERM". Hotel reservations must be received before January 12, 2014 in order to get the special rates. You can make your reservations by telephone, fax, or internet. Check in time is 4:00 pm. Shuttle service is provided from Easterwood Airport to and from the Hilton Hotel. Shuttle service can be arranged by calling the Hilton (979) 693-7500.

#### Hilton College Station & Conference Center

801 University Dr. East, College Station, Texas 77840, USA

Tel: 979-693-7500

Fax: 979-260-1931

<http://hiltoncs.com>

**Sunday, February 2, 2014**

5:00 PM **Registration**, CS Hilton Hotel Lobby  
Welcome and Announcements

**Monday, February 3, 2014**

7:50 AM Bus leaves hotel for TIPS, Texas A&M  
University Campus

8:15 AM **Introduction** – Welcome and Announcements– YongJae Lee, Program Head,  
Separations Science Program

8:30 AM **“The Growth and Metabolism of Micro-organisms used for Production of metabolites”** - J. Stefan Rokem

9:15 AM **“Organic Acids by Fermentation”** - J. Stefan Rokem

10:00 AM Refreshments and Group Photo

10:15 AM **“Microbial Physiology: Growth of Cells, Population and Nutrition”** - Osama Ibrahim

10:45 AM **“Microbial Fermentation: Enzymology, Metabolic Pathways and Fermentation Aspects”** - Osama Ibrahim

11:15 AM **“Preventing Contamination in Large-Scale Bio-Fermentation Processes”** - Christiane Waldron

12:00 PM Lunch

1:30 PM **“Three Generations of Production of Fermentation. How to Make It Profitable”**- J. Stefan Rokem

2:10 PM **“Medium Formulation for Industrial Fermentations”** - J. Stefan Rokem

2:50 PM **“Microfluidic Bioreactor Array for High-Throughput Screening”** - Arum Han

3:30 PM Refreshments

3:45 PM **“Immobilized Cell Reactor: Advantages and Disadvantages”** - Donald F. Day

4:45 PM **“Use of Continuous Centrifuges in the Industrial Fermentation Process”** - Jay Zwierzynski

**Tuesday, February 4, 2014**

7:50 AM Bus leaves hotel for TIPS, Texas A&M  
University Campus

8:10 AM **“Fermentation Basics for Biofuel Production”**- Sergio Capareda

8:40 AM **“Bio-Fuel Economic and Development: Bio-Ethanol”**- Osama Ibrahim

9:10 AM **“Bio-Fuel Economic and Development: Bio-Diesel, Bio-Gas, and Bio-Hydrogen”**- Osama Ibrahim

9:40 AM Refreshments

9:50 AM **“New Process of Citrus Peel and Fruit Waste Biorefinery”** - In Seong Choi

10:20 AM **“Effective Processes for Downstream Purification”** - Daniel H. Bar

10:50 AM **“Upstream Trend & Single-Use Reactor Design for Microbial Fermentation”** - Jiyoung Lee

12:00 PM **Graduation Lunch @ Texas A&M**  
Rudder Tower - University Club

1:30 PM **Bus leaves for NCTM**

1:45 PM **“Single-Use Technologies for Aseptic Fermentation”** - Michael V. Pishko

2:30 PM **“Design of Experiments for Fermentation Operations”** - Michael V. Pishko

3:15 PM Refreshments

3:30 PM **“Lab: Aseptic Fermentation for the Production of Biologics”**

**You Will Receive the Following:**

- Group Photo
- Course e-Manual
- List of Speakers, and Attendees
- Certificates of Completion

Register on the Web: <http://foodprotein.tamu.edu/separations>**REGISTRATION**

The registration fee for the short course includes daily lunch, graduation lunch, refreshments at breaks, local transportation, a short course e-manual, and certificate of completion. **Registration fee is \$895 if paid in full by January 17, 2014. After this date, registration fee is \$995.** A black & white paper manual/binder is available for an additional \$150 fee.

There is a 10% discount if three or more individuals from the same organization register for the short course. Academic discounts may be applicable if space is available.

Make checks payable to **TEES (Texas A&M Engineering Experiment Station) and mail to TEES Fiscal Office, 3124 TAMU, College Station, TX 77843-3124.** Or you may pay the fee by credit card (American Express, Visa, or Master Card) online. **Registration fees are not refundable**, but substitute personnel may be sent by the same firm.

Mail the registration form and a copy of your check to **Cyndi Casanova**, Short Course Coordinator (See address on registration application form). Space is limited; therefore, applications will be accepted on a first-come, first-serve basis.

**For more information contact:**

<b>Cyndi Casanova</b> Short Course Coordinator Food Protein R&D Center Phone: (979) 845-2741 Fax: (979) 845-2744 Email: <a href="mailto:shortcourse@tamu.edu">shortcourse@tamu.edu</a>	<b>Dr. YongJae Lee</b> Head, Separation Sciences Program Food Protein R&D Center Phone: (979) 845-2758 Fax: (979) 845-2744 Email: <a href="mailto:yongjaelee@tees.tamus.edu">yongjaelee@tees.tamus.edu</a>
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**Upcoming Short Courses**

For details, visit <http://foodprotein.tamu.edu/separations>

24th Annual Practical Membrane / Filtration  
April 27– May 1, 2014

5th Annual Functional Beverages  
August 24-26, 2014

10th Annual WATER Issues & Technologies  
October 12-15, 2014

**Short Course on  
Fermentation and Separation for the Food &  
Drug Industries**

February 2-4, 2014  
Texas A&M University  
(Please Type or Print Neatly)

Name \_\_\_\_\_

Job Title \_\_\_\_\_

Company \_\_\_\_\_

Mailing Address \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

Name for Nametag \_\_\_\_\_

Contact in case of emergency \_\_\_\_\_

Special diet requirements \_\_\_\_\_

Method of Payment (mark one)

- Check Payable to TEES  
 If paying with credit card please include type of card  
 Visa  
 American Express  
 MasterCard

Credit Card # \_\_\_\_\_ Exp. date \_\_\_\_\_

Name on Credit Card \_\_\_\_\_ Total Amount \_\_\_\_\_

Verification Code on back of Card \_\_\_\_\_

Billing Address \_\_\_\_\_

Signature \_\_\_\_\_

Texas A&M University  
Food Protein R&D Center

**Return this application to:**

Cyndi Casanova,  
Short Course Coordinator

The Texas A&M University– Riverside Campus  
2476 TAMU  
College Station, TX 77843

Phone: 979. 845. 2741  
Fax: 979-845-2744  
E-mail: [shortcourse@tamu.edu](mailto:shortcourse@tamu.edu)