

CELL THERAPY AND TISSUE ENGINEERING

A variety of diseases and injuries to tissues require restorative therapies. Since groups of cells form discrete and highly specialized tissues, it follows that cell-based therapies have the potential to be engineered to regenerate tissues not able to repair themselves. Initially empirically based, tissue engineering strategies are now being developed on the basis of new scientific principles that employ components of cell, molecular and developmental biology and embryology with aspects of biochemistry, materials science and mechanical and biomedical engineering. Currently, adult stem cells are being used in new therapies based on their capacity to secrete immuno-regulatory and trophic drugs that form the new field of Regenerative Medicine. These new scientific areas including Tissue Engineering and Cell-based Therapies bring together physicians, engineers and basic scientists with the goal of designing and developing new delivery modalities for a broad spectrum of clinical uses.

This course focuses on Cell-based Therapies and Tissue Engineering and the protocols for accomplishing these therapies. The afternoon laboratory session will center on the “how-to” of cell-based therapies as provided by visual insight into the complex, multi-step technologies of today and tomorrow and provide the basis for standardizing cell-based technologies between various laboratories throughout the world.

2017 SPONSORS



FACULTY

Eben Alsberg, PhD - Case Western Reserve University
Tracey Bonfield, PhD - Case Western Reserve University
Arnold Caplan, PhD - Case Western Reserve University
Diego Correa, MD, PhD - University of Miami
Stanton Gerson, PhD - Case Western Reserve University
Farshid Guilak, PhD - Washington University
Robert Guldberg, Ph.D. - Georgia Institute of Technology
Bruce Levine, PhD, - Washington University
Keith March, MD, PhD - Indiana University
Antonios Mikos, PhD - Rice University
Lola Reid, PhD - University of North Carolina at Chapel Hill
Bruno P  ault, PhD - University of California, Los Angeles
Jerry Silver, PhD - Case Western Reserve University
Rodrigo Somoza, PhD - Case Western Reserve University
Anthony Ting, PhD - Athersys, Inc.
Paul Tesar, PhD, - Case Western Reserve University

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17th ANNUAL CELL-BASED THERAPIES & TISSUE ENGINEERING May 22-24, 2018

The Skeletal Research Center and the Department of Biology of Case Western Reserve University will offer the 16th Annual short course entitled “Cell-Based Therapies and Tissue Engineering” on May 22 to May 24, 2018 in Cleveland, Ohio. This course, organized by Arnold I. Caplan, will involve morning lectures by eminent scholars and an afternoon laboratory and lectures on the “HOW TO” of adult stem cell cultures and cell-scaffold interactions. The course is intended for graduate students, post-graduate students and health science professionals who are interested in Tissue Engineering with emphasis on the principles and detailed protocols used or being modeled for direct clinical use. A syllabus from lectures and labs will be available to all registered participants.



Schedule Of Events CTTE 2018

TUESDAY, MAY 22, 2018

SESSION I: The Cells & Scaffolds of Tissue Engineering

9:30-9:40 a.m.: Course Introduction - *Arnold I. Caplan, Ph.D.*
9:40-10:40 a.m.: Biomaterials for Growth Factor and Stem Cell Delivery in Tissue Engineering. *Antonios Mikos, Ph.D. - Rice University*
10:40-11:40 a.m.: iPS Technology, Paul Tesar, PhD — *Case Western Reserve University*
11:45 a.m.-12:30 p.m.: Lunch
12:30-1:30 p.m.: Open Sponsor Lecture
1:30-2:30 p.m.: Engineering Cell-Based Therapies for Arthritis. *Farshid Guilak, Ph.D. - Washington University*
2:30-2:45 p.m.: Break
2:45-3:45 p.m.: Engineered Skeletal Regeneration. *Robert Guldberg, Ph.D. - Georgia Institute of Technology*
3:45-4:30 p.m.: MSCs: Cell-Based Therapies and Tissue Engineering. *Arnold I. Caplan, Ph.D. - Case Western Reserve University*
4:30-5:30 p.m.: KEYNOTE LECTURE: Engineering Cell-Based Therapies for Arthritis. *Bruce Levine, Ph.D. - Washington University*
5:30 p.m.: Dinner Reception, Hovorka Atrium

WEDNESDAY, MAY 23, 2018

SESSION II: MSCs are Cell-Based Therapies

8:30-9:30 a.m.: Mesenchymal Stem Cells (MSC) during Tumor Formation and Distant Dissemination. *Diego Correa, M.D., Ph.D. - University of Miami*
9:30-10:30 a.m.: Open Sponsor Lecture
10:30-10:45 a.m.: Break
10:45-11:45 a.m.: Nature or Nurture: Do MSCs Exist Outside Culture Flasks? *Bruno Péault, Ph.D. - University of California*
11:45 a.m.-12:15 p.m. Lunch
12:45 a.m.-1:45 p.m.: Adipose Stem Cells in Angiogenesis, Vasculogenesis and Multi-Organ Tissue Rescue. *Keith L. March, M.D., Ph.D. - Indiana University*
1:45-2:45p.m.: Open Sponsor Lecture
2:45-3:30 p.m.: Research MSC → Cartilage. *Rodrigo Somoza, Ph.D. - Case Western Reserve University*
3:30-3:45 p.m.: Break
3:45-4:45 p.m.: Marrow MSCs Isolation and Technology. *Rodrigo Somoza, Ph.D. - Case Western Reserve University*
4:45-6:00 p.m.: MSC Laboratory - *Rodrigo Somoza, Ph.D. - Case Western Reserve University.*
Sponsor Demonstrations

THURSDAY, MAY 24, 2018

SESSION III: Biologics and Stem Cells

9:00-10:00 a.m.: Milieu Sensitive Mesenchymal Stem Cells: Innovations in Treating Pulmonary Diseases. *Tracey Bonfield, Ph.D. - Case Western Reserve University*
10:00-11:00 a.m.: Making Fat Harder: The Role of Integrins. *Stanton Gerson, M.D. - Case Western Reserve University*
11:00 a.m.-12:00 p.m.: Liver Organoid and Stem Cells. *Lola Reid, Ph.D. - University of North Carolina at Chapel Hill*
12:00-1:00 p.m.: Lunch
12:45-1:15 p.m.: Open Sponsor Lecture
1:00-2:00 p.m.: Cell Therapy Clinical Trials. *Anthony Ting, Ph.D. - Athersys, Inc.*
2:00-3:00 p.m.: Combinatorial Strategies Using Peripheral Nerve Tissue Scaffolds for Functional Regeneration Across Lesions in the Spinal Cord. *Jerry Silver, Ph.D. - Case Western Reserve University*
3:00-3:15 p.m.: Break
3:15-4:15 p.m.: Spatiotemporally Controlled Signal Presentation Strategies to Regulate Cell Behavior for Tissue Engineering. *Eben Alsberg, Ph.D. - Case Western Reserve University*
4:15-4:30 p.m.: Course Summation. *Arnold I. Caplan, Ph.D. - Case Western Reserve University*

—Meeting Adjourned—



ACCOMMODATIONS

The preferred local hotels offer special room rates and are conveniently located on the Case campus:

Courtyard by Marriott University Circle
2021 Cornell Road; Cleveland, Ohio 44106

216-791-5678 ☎ 800-228-9290

[Courtyard Marriott at University Circle](#)



Glidden House Inn
1901 Ford Drive; Cleveland, OH 44106

216-231-8900 ☎ 866-812-4537

[Glidden House at University Circle](#)

Registrants are responsible for their own arrangements. Contact the hotel directly and ask for the CWRU discounted rate when making your reservation. On campus **Summer Conference Housing** is also available and provides a convenient and low-cost alternative to hotels: <https://students.case.edu/housing/housing/conference/>

COURSE FEES

All fees include: access to all lectures, lecture handouts, labs, all coffee breaks, lunches and the dinner reception.

Standard Fee: \$995

Early Registration Fee (by April 14): \$695

For members of the Endorsing Societies: \$795.

For graduate students and post-doctoral fellows \$495.

WHO SHOULD ATTEND

Cell-Based Therapies and Tissue Engineering is designed for graduate students, postgraduate students and health science professionals who are interested in tissue engineering and stem cells.

REGISTRATION

Online registration is available at <http://cwru.edu/cttecourse>. You may also register by completing the attached registration form and returning it by mail, fax, or e-mail. If you prefer you can also register by phone.

Fax: 216-368-4077 **Phone:** 216-368-3562

Email: tammie.lee@case.edu

Checks should be made payable to *Case Western Reserve University/CTTE18* and mailed to:

Tammie Lee
Biology Department SRC
Case Western Reserve University
10900 Euclid Avenue
Cleveland, OH 44106-7080

Course Website: <http://cwru.edu/cttecourse>

Skeletal Research Center Website: <http://www.case.edu/artsci/biol/skeletal/>

REGISTRATION FORM

Name/Degree_____

Title_____

Company/University_____

Address_____

City_____

State_____ Zip_____

Phone_____

Fax_____

E-mail_____

Check appropriate box:

☐ Select a t-shirt size: ☐Sm ☐Med ☐Lrg ☐XLrg ☐XXLrg

☐ I am a member of an endorsing society: _____

☐ I am a graduate student.

☐ Special registration code: _____

☐ Check enclosed: Amount _____

☐ Select your credit card: ☐Discover ☐Master Card ☐Visa

Card Number_____

Expiration Date_____ 3 Digit CVV2 Code _____
(on reverse side of card)

Card Holder's Name_____

Billing Address_____

*Amount_____

Card Holder's

Signature_____

REFUND POLICY: All refund requests must be made in writing. Full refunds will be given for cancellations received by May 4, 2018. Cancellations received May 4, 2018 through May 14, 2018 will be subject to a \$200 cancellation fee. No refunds will be given after May 14, 2018.