ISOTOPICS

The Cleveland Section of the American Chemical Society

Volume 92 Issue 6 September 2016

On Deck:

10/19/2016

T.B.A.

Cleveland ACS Officers

Chair:
David Orosz
Notre Dame College
(216) 373-5322
dorosz@ndc.edu

Chair-Elect:
Lisa Ponton
Baldwin Wallace University
(440) 826-2314
lponton@bw.edu

Treasurer:
John Moran
Notre Dame College
(216) 373-6380
jmoran@ndc.edu

Secretary:
Drew A. Meyer
Case Western Reserve U.
dam135@case.edu

Isotopics

Interim Editor:
Geneviève Sauvé
Case Western Reserve U.
(216) 368-3665
genevieve.sauve@case.edu

Cleveland Section Web Site:
http://www.csuohio.edu/sciences/dept/cleveland_acs/

September Meeting Notice

Joint Meeting with Akron Section
Wednesday, September 21, 2016
Yellowtail
4054 Medina Rd., Akron, OH 44333

4:30 pm	Executive Committee Meeting
5:30 pm	Social Hour
6:30 pm	Dinner
7:15 pm	Presentation

Tissue Engineering

Professor William J. Landis, Ph.D, G. Stafford Whitby Chair in Polymer Science

Abstract: In the past 20 years since its inception, the field of tissue engineering has developed into an extremely large and exciting research arena supporting a wide spectrum of basic science studies and medical applications for treating patients with a variety of difficult health problems. Tissue engineering is interdisciplinary in its scope and combines in part fundamental principles from chemistry, biology, physics, mathematics, and biomaterials engineering. It is now a multi-million dollar undertaking in public universities, governmental institutions, and private colleges and industries worldwide, having a major overarching goal -- designing parts of the human body that can be used to augment, repair or replace tissues that are missing, damaged or otherwise impaired. At the moment, tissue engineering has developed models of aorta, bladder, skin, breast, muscle, and a host of other tissues and organs, illustrating that the field has great potential in plastic and reconstructive surgery, internal medicine, cardiology, and many additional clinical specialties. The work in my own laboratory group has involved bone and cartilage among tissue-engineered constructs and the presentation here will demonstrate some results of our advances in fabricating fingers and ears. Further, selected examples of related bone and cartilage investigations reported by other groups and the recent development of 3D printing for tissue engineering will be given. The tissue engineering field continues as a strong and novel paradigm in medicine and health.

DINNER RESERVATIONS REQUIRED:

Reservations can be made to Walter Salamant, w_salamant@yahoo.com by Noon, Wednesday, September 14. The cost is $25 for professionals and $10 for students.

Speaker's Biographical Sketch:

Dr. William Landis teaches and conducts research to understand the growth and development of the skeleton and teeth of humans and other vertebrates. He holds a BS degree in Physics from the University of Massachusetts, Amherst, MA, and MS and PhD degrees in Biology and Biophysics, respectively, from the Massachusetts Institute of Technology, Cambridge, MA. After taking his doctorate, Dr. Landis began a post-doctoral fellowship at the Children's Hospital and the Harvard Medical School, Boston, and there was promoted ultimately to the rank of Associate Professor of Anatomy and Cellular Biology. In 1998, he moved to the Northeast Ohio Medical University (formerly the Northeastern Ohio Universities Colleges of Medicine and Pharmacy) in Rootstown, where he was Professor and Chair of the Department of Biochemistry and Molecular Pathology. In May, 2010, he relocated his laboratory to the University of Akron where he holds an endowed professorship as the G. Stafford Whitby Chair in Polymer Science. He is a member of Phi Beta Kappa, Sigma Xi, and Alpha Omega Alpha (national medical honor society); was a Fulbright Scholar for study at the Weizmann Institute, Rehovot, Israel; has won a Kappa Delta Award for outstanding research from the American Academy of Orthopaedic Surgery and a number of additional national and international prizes; was elected a Fellow of the Microscopy Society of America; and is a current editorial board member of three scientific journals. His research into various aspects of bone and cartilage molecular biology, structure and function; tissue engineering of bone and cartilage; and the effects of mechanical forces on mineralized tissues has been supported for many years by funding from the National Institutes of Health, the National Aeronautics and Space Administration, and other federal, state and local agencies. Dr. Landis has published over 150 peer-reviewed papers and book chapters and has edited five books in the broad field of biomineralization.

Announcement: National Chemistry Week GAK Day

The Cleveland Section will be holding its annual GAK (**G**rand **A**ssembly of **K**its) Day on Saturday, Sept. 10, starting at 8:30 in room W318 of the Dolan Science Center at John Carroll.

On GAK Day volunteers meet to count out, label and distribute materials and then put together the kits to be used during NCW in October. You are cordially invited to join your colleagues for a few hours of convivial exercises, lots of snacks and our famous pizza lunch. Guaranteed to be finished long before OSU takes on the Golden Hurricane, so come and join us!

For more information, please contact Bob Fowler at jrfowler@cox.net.

From ACS Discoveries: Portable test rapidly detects Zika in saliva for $2

Analytical Chemistry

Anxiety over the Zika virus is growing. To better diagnose and track the disease, scientists are now reporting in ACS' journal *Analytical Chemistry* a new $2 test that in the lab can accurately detect low levels of the virus in saliva.

The World Health Organization (WHO) recently announced that there was no need to postpone or move the Olympics due to Zika's presence, but concern over the virus' spread and its link to serious birth defects is far from allayed. Public health experts debate whether WHO made the right call. But while the discussion continues, scientists are working on new tools to help manage the outbreak. Current gold-standard tests to detect the virus require expensive lab equipment and trained personnel. Low-cost diagnostic methods have been reported but can't detect low levels of the disease or don't distinguish between Zika and similar viruses such as dengue. Changchun Liu and colleagues wanted to design a rapid, low-cost, and more reliable point-of-care detection test.

To ensure their system would be highly selective for Zika without confusing it with similar viruses, the researchers looked for and found a stretch of genetic code that is nearly identical for 19 different strains of the Zika virus infecting people in the Americas but not in other pathogens. Then, with materials costing $2 per test, they developed a diagnostic system, which only requires the addition of water to operate. If the Zika-specific genetic sequence is in a saliva sample, a dye within the system will turn blue within 40 minutes. The test even works if low levels of the sequence are present.

The authors acknowledge funding from the National Institutes of Health and the Penn Center for AIDS Research.