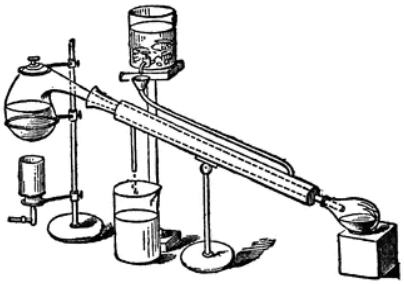
SOUTHWEST RETORT



SIXTY-SEVENTH YEAR **OCTOBER 2014**

Published for the advancement of
Chemists, Chemical Engineers
and Chemistry in this area

published by
The Dallas-Fort Worth Section, with the cooperation of five other local sections of the American Chemical Society in the Southwest Region.

Vol. 67(2) OCTOBER 2014

Editorial and Business Offices: ***Contact the Editor for subscription and advertisement information.***
Editor: Connie Hendrickson, 802 South Jefferson, Irving, TX 75060; 972-786-4249; retort@acsdfw.org

Copy Editor: Mike Vance, vance2276@gmail.com

Business Manager: Danny Dunn, 6717 Lahontan, Fort Worth, TX 76132; 817-361-0943; dannyldunn@sbcglobal.net

The Southwest Retort is published monthly, September through May, by the Dallas-Ft. Worth Section of the American Chemical Society, Inc., for the ACS Sections of the Southwest Region.

SWRM ALERT! Friday, October 17, is the DEADLINE FOR ABSTRACT SUBMISSIONS

TABLE OF CONTENTS

Contact the DFW Section

General: info@acsdfw.org
Education: ncw@acsdfw.org
Elections: candidates@acsdfw.org
Twitter: acsdfw

INDEX OF ADVERTISERS

EMPLOYMENT CLEARING HOUSE

Job applicants should send name, email, and phone, along with type of position and geographical area desired; employers may contact job applicants directly. If you have an opening, send your listing, including contact info for your company, to retort@acsdfw.org. Deadlines are the 7th of each month.

JENKEM TECHNOLOGY

The PEG and PEGylation Technology People

Job Title: Sales/Marketing Assistant

Name of Company: JenKem Technology USA Inc.

Nature of Business: Polyethylene Glycol (PEG) Polymers for Pharmaceutical and Biotech Applications

Job ID: JKUSA-20140801

Job Type: Full-time

Salary Range: Base salary $25,000.00 to $35,000.00; plus Sales Commission

Location: United States - Texas – Plano

Additional notes: Must be legally authorized to work in the United States. Local candidates preferred, no relocation benefits are provided for the position.

Job Functions: Sales and marketing for PEGylation products and services: provides quotations and information on product availability, and provides answers to technical questions to customers, by phone or email; processes orders, shipping, and payments; develops and maintains customer relationships; identifies and develops new customers and new markets for PEGylation products and services; and performs other tasks as assigned by the manager.

Job Requirements: Bachelor's degree or higher (Chemistry/Biology/Biochemistry or similar background REQUIRED); Excellent interpersonal and communication skills; Excellent reading, speaking, and writing skills in business English; Good arithmetic skills and attention to details required; Proficiency in the use of Microsoft Word, Excel, PowerPoint, and Outlook required; English/Chinese bilingual preferred; Ability to work independently required.

To Apply:
Interested candidates should submit a cover letter including salary expectations, and an updated resume at email: hr@jenkemusa.com. Please do not call, we will contact only select candidates.

hr@jenkemusa.com.

SERVICES

FIFTY YEARS AGO IN THE SOUTHWEST RETORT

The plenary speakers have been announced for this year's ACS Southwest Regional Meeting to be held Dec. 3-5 in Shreveport, LA. They are Mr. James P. Conkle from the USAR School of Aerospace Medicine, Dr. W. Albert Noyes, Jr. of the University of Texas, and Dr. W. O. Milligan of Texas Christian University. At present, 180 abstracts have been submitted.

The October ACS tour speakers are Mr. Harold Beuthen of Gulf R&D, Dr. Albert Noyes, Jr. of the University of Texas, and Dr. Ralph Shriner of Southern Methodist University.

Dr. C. Gordon Skinner of the University of Texas Clayton Biochemical Institute will leave to become Professor of Chemistry at North Texas State University (now UNT). Work has started at UT to air condition the Main Chemistry Building. It is hoped that installation will be complete by next summer.

The slate of candidates for the Dallas-Fort Worth ACS Section of offices is as follows:

Chairman, E. Marshall Meloun, Russell C. Walker; Treasurer, William H. Glaze, Robert Laux; Secretary, Donald S. Wiggins, William H. Watson; Director, Morton D. Prager, Ralph L. Shriner, Roscoe Libecap, John J. Banewicz.

The October speaker at the University of Arkansas ACS Section meeting will be Dr. J. Gordon Erdman of the Mellon Institute. Dr. E. A. Moelwyn-Hughes of Cambridge has arrived and initiated research on kinetics of isotope ion-molecule exchange reactions in solutions. Drs. E. S. Amis, A. W. Cordes, D. A. Johnson, Mr. B. C. Musgrave and R. N. Porton attended the ACS national meeting in Chicago.

Contributed by

E. Thomas Strom

A Very Abbreviated History of Regulating Food and Drug Safety by John E. Spessard, PhD

FOOD

Before Governmental Regulations

The first regulation of food safety was by religious groups. Animal sacrifices were a part of religious rites. The priest had to inspect the animal to see that it was in good health and free of illness and/or deformities. Only a portion of the animal was burned as a sacrifice. The remainder became the property of the priest(s). A large animal such as a bull provided a lot of meat. Before there was refrigeration, the meat had to be eaten quickly. That which the priests could not eat was sold. The religious sacrifice meat was recognized to be of good quality and probably better than the meat on the open market.

The rapid expansion in Interstate Commerce made food safety a concern. In 1862 the new Department of Agriculture set up a laboratory that tested samples of food, soils, fertilizers and other agricultural products. However there was no regulatory or enforcement authority. The testing did publicize some of the outrages.

In 1906, Upton Sinclair, an avowed Socialist, published a very successful novel, ***The Jungle***. Sinclair wrote the novel to portray the miserable life of immigrants in an industrial society in large cities. In one chapter, Sinclair described the horrendous unsanitary conditions in a large meat packing plant. Sinclair had worked in a meat packing plant and investigations proved his portrayal to be accurate. There was a loud public outcry for Federal action. (Sinclair lamented, "I had aimed at the public's heart and by accident I hit it in the stomach.")

The furor resulted in the Food and Drug Act being passed in 1906. Before then, there were a variety of state acts. These acts originated in Colonial times and primarily set standards of weight and measure. There were also local bread inspection laws. A horrible example was a "fruit jam" consisting of water, glucose, grass seed, artificial flavor and artificial color.

Government Regulation

The Food and Drug Act was the beginning of the Food and Drug Administration (FDA). In 1907 the first 28 food and drug inspectors were hired. However food adulteration continued because judges could find no specific authority in the law for the FDA standards to be enforced.

In 1938, the Federal Food Drug and Cosmetic Act was passed. The act greatly expanded the FDA's responsibilities for testing and inspection of food and cosmetic products. The FDA budget expanded from $5 million in 1955 to $320 million in 1980 and the staff increased from 1,000 to 7,000. Ingredients of products had to be listed and weights and content were needed to be accurate. This information was required to be legible and on the label. The FDA's objective has continually been consumer protection. As such FDA has developed outstanding skills in analytical chemistry and product testing and inspection.

DRUGS AND MEDICATIONS
Before Regulation

I attended a family reunion at a State Park in Kentucky. While we were there, a man presented a reenactment of a Colonial era physician showing the medicines and instruments that he used. The reenactor told us that the practice of medicine changed little between the time of Galen (about 130-200 c.e.) and the onset of the American Civil War (1861).The changes were forced by the great number of wounded that required treatment. (My physician-relatives agreed with this.) Most medicines were created by hand in a local pharmacy.

In 1820, a union of pharmacists, physicians and colleges of pharmacy created the U.S. Pharmacopoeia (USP) which established standards of composition and purity for drugs. This effort was continuously expanded. Pharmacists created the National Formulary in 1888 which expanded the scope of setting drug standards. But these were voluntary standards.

In the early to mid-1800s, America had become the dumping ground for counterfeit, adulterated, diluted and spoiled drug materials. This culminated in the Mexican War. American troops in Mexico suffered from using spurious remedies for malaria. In 1848, government laboratories were created to test imported drugs. Support dwindled and the program gradually faded away. There is no connection between these laboratories and the FDA.

Patent medicines flourished. There were no standards. An opium containing syrup could be and was sold to quiet crying babies. These medicines could contain opium, cocaine, morphine and heroin. No indications of their contents were required. It was up to the buyer to look out for himself.

The patent medicine producers were a large source of advertising revenue. The courts frequently ruled that the government had no business policing what people ate, drank or used for medicine.

After Regulation

The 1906 act had no remedy for false therapeutic claims. In1912 Congress enacted an amendment outlawing such claims. But the Government had to prove that the manufacturer knew that the claims were fraudulent. If the manufacturer honestly believed his advertising, he escaped prosecution.

After a bitter five-year struggle, in 1938, the Federal Food, Drug and Cosmetic Act was passed. A factor was a drug that killed more than 100 people (mostly children). The solvent was toxic ethylene glycol. FDA authority was increased in that drug manufacturers had to provide scientific proof that new drugs were safe, cosmetics and therapeutic devices were regulated for the first time, proof of fraud was no longer required to establish false claims for drugs and specific authority was granted for factory inspections.

The new law and World War II greatly expanded FDA's workload. While there was a law requiring clearance of new drugs prior to marketing and the law prohibited poisonous substances in food, there was no requirement that food ingredients were safe. FDA could stop the use of known poisons but the necessary research efforts were beyond FDA's resources.
Continued on page 24

...And Another Thing…

by Denise L. Merkle, PhD

Punkin' Chunkin'

White glue does not prevent your Jack-o'-lantern from molding. (This must be true; I read it on the internet[1].) The same article revealed that dunkin' your punkin' in dilute bleach can make it microbe resistant, as can spritzing on a commercially available product called Pumpkin Fresh. Having been raised in a family that accepted the transitory nature of fruit, I can't say that I ever fretted over how fast a carved pumpkin would mold. (I once contemplated the overnight disappearance of a carefully whittled apple, however, the thoughts were more toward the identity of the entity that devoured everything but the candle inside than how to prevent the consumption of more vegetable votive holders.) Sodium hypochlorite or some other microbicide would probably protect subsequent works of ghostly talent from hungry creatures, but really, it's a Jack-o'-lantern, not a permanent art installation.

Why pumpkins? And when? Pumpkins and other squash are native to North America, so that answers the Why. When? Depending on which of the 3,280,000 links offered up by The Google takes your fancy, the practice is ancient—or not. Carved gourds have been around for approximately 10,000 years, and fruit-as-lanterns have been known for 700 years[2]. North American pumpkin stories appear in the mid-1800s[3], but it's likely there's some history there, as well.

While it's interesting to think that carved turnips were meant to simulate Will-o'-the-Wisps, that eerie swamp-gas emanation from bogs and marshes, it's also fun to think of all the excitement the humble pumpkin experiences. A knife, a design, and a candle make the pumpkin a flickering lantern on a Halloween porch. A hankering after a Guinness world record led to the massing of more than 30,000 decorated pumkins—twice.

No doubt, passive pumpkins enjoy their place in the autumn world, but for the real thrill, adrenaline-junkies go Chunkin'...no measly porch flickering for these gourds. A trebuchet and a wide-open field are their delight (until they land). Punkin' Chunkin' is a momentous activity for humans, too. Scholarships are raised, science is taught, and happiness and defeat are imparted by the flights of *Cucurbita pepo*[4]. 'What is the point of all this?' you ask. Happiness is a Chunked Punkin'. That's all. Now go eat some of that candy.

[1] http://www.wikihow.com/Keep-Halloween-Pumpkins-from-Molding

[2] http://en.wikipedia.org/wiki/Jack-o'-lantern

[3] http://parade.condenast.com/216566/parade/how-did-pumpkins-become-a-scary-halloween-staple/

[4] http://punkinchunkin.com, http://www.sciencechannel.com/tv-shows/punkin-chunkin

DFW Section October Meeting
October 27th, 2014, 6-9pm

Werner Schulz Award Presentation and Lecture honoring Mrs. Karen Compton, Plano East HS

Following dinner, Mrs. Compton will present a lecture entitled

The Impact of a Teacher

Mrs. Karen Compton earned her BS in Chemistry from Southern Methodist University in 1998 and completed her MS in Chemistry at the University of Colorado at Boulder in 2001. There she defended her thesis *Synthesis and Properties of Phosphine Quinones.* Karen has participated in the Associated Chemistry Teachers of Texas (ACT2) for a total of ten years. She currently serves the organization as its president. She has been active in the Science Teacher Association of Texas (STAT) since 2004. With 11 years of teaching experience, Mrs. Compton is currently the AP/IB Chemistry teacher at Plano East Senior High School. She also serves as a Master Teacher for the STARS Program at UT Southwestern Medical Center in Dallas. Karen provides AP Chemistry Saturday study sessions for National Math and Science Initiative. Mrs. Compton shows incredible dedication as she provides tutoring sessions each morning prior to her 8 am classes. In support of her excellent teaching abilities, her students compete yearly in the ACS Chemistry Olympiad where each year, at least one of her students has advanced to the National Competition.

Details: Plano East Senior High School, 3000 Los Rios Blvd, Plano, TX
Social Hour: 6:00 - 7:00 pm
Dinner: 7:00 - 8:00 pm
Lecture: 8:00 - 9:00 pm

Menu: BBQ Buffet from Red, Hot & Blue to include: Pulled Pork, Chopped Brisket, Smoked Turkey, Baked BBQ Beans, Garlic Mashed Potatoes, Coleslaw, Sourdough Rolls, and Apple Cobbler for dessert, with options: Sweet Tea, Unsweetened Tea, and Lemonade.

RSVP online: (***http://bit.ly/1qy7LeK***) **Deadline: Friday, October 17, 2014 at 5:00 pm**
After you RSVP, an invoice will be emailed to you to allow you to pay online with your credit card. NOTE: You must RSVP even if you plan to pay at the door.
COST: $20 per person in advance -- Payment by credit card will be available online in advance, but only cash or check will be accepted at the door. Payment at the door is $22.
The first 20 students who RSVP will receive a discounted ticket price of $10 online ($12 at the door).

Shana Marie Santos, ACS-DFW Chair-elect

NATIONAL CHEMISTRY WEEK 2014

It is time to start thinking about National Chemistry Week 2014! For the past 3 years, DFW Chemistry organizations have come together to serve the DFW community through a collaborative effort at the Fort Worth Museum of Science and History (FWMSH). Last year we reached over 5,750 museum visitors and had over 130 volunteers from universities. We were supported by the addition of three amazing high-school groups! We would love to continue on with this tradition but need YOU!

The theme set by the ACS is **Sweet Side of Chemistry**. It is important to note that the museum is hosting the **Myth Busters** exhibit during NCW as well. I have met with Cathy, Anne and Rebecca at the FWMSH, and we think it would be appropriate to incorporate both themes into our work! How fun, right!? We are excited to get started for this year's event and I hope that you all can plan on participating again. **www.SignUpGenius.com/go/409044BA5A92CA75-national**

Impoortant Dates:

National Chemistry Week 2014:

October 21-25 at the Fort Worth Museum of Science and History-
Tuesday, October 21, 10 am-2 pm

Tuesday, October 21, 6 pm-8 pm
NEW Museum Night. The museum is hosting two local schools (~1200 visitors expected) for a private night at the museum featuring our volunteers.*

Wednesday, October 22, 10 am-2 pm
Thursday, October 23, 1:30-4 pm:
Home School Afternoon
Friday, October 24, 10 am-2pm
Saturday, October 25, 10 am-4 pm

ACS Site for NCW 2014:
http://www.acs.org/content/acs/en/education/outreach/ncw.html


Dr. Kayla Green, TCU

We hope to see you there!

Kayla N. Green, Ph.D.

Faculty Sponsor, Student Affiliates of the ACS

Assistant Professor, Chemistry

TCU, Ft. Worth, TX

SOUTHWEST REGIONAL MEETING 2014

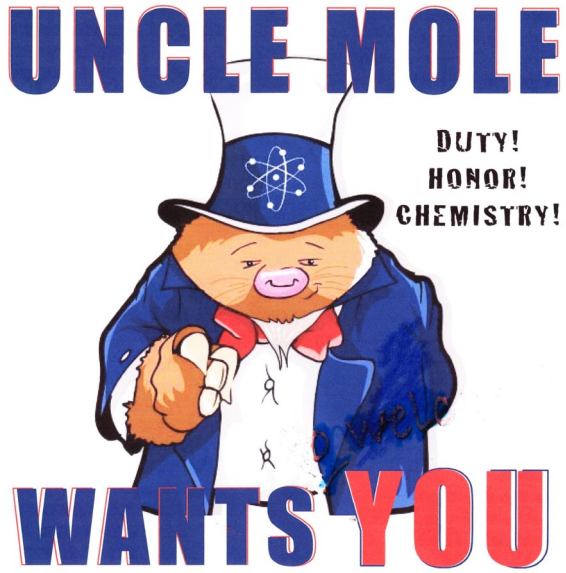
Fort Worth, TX | November 19-22, 2014

CONTACTS

Kirby Drake, General Chair: kirby.drake@kk-llp.com
Danny Dunn, Program Chair: dannyldunn@sbcglobal.net
Martha Gilchrist, Treasurer: Martha.Gilchrist@tccd.edu
Denise Merkle, Exhibits Chair: dmerkle@sciconsult.com
General SWRM mailbox: swrm@acsdfw.org

Information and registration at

SWRM2014.org



To volunteer for the 2014 Southwest Regional ACS Meeting! SWRM 2014 will be held at the Fort Worth Renaissance Worthington Hotel, November 19-22, 2014.

SWRM2014.org

Undergraduate? Grad student? Postdoc? Considering a career change? SWRM 2014 has career development opportunities!

The Southwest Regional Meeting (November 19-22, 2014) in Fort Worth presents a great opportunity for undergraduates, grad students, postdocs, and those considering career changes to get intense career-related programming at an unbelievable value. Sign up today to experience some or all of the following:

Preparing for Life After Graduate School (PfLAGS) Workshop: This is a 2-day career development workshop designed to teach graduate students and postdocs about career options and how to prepare for them. The course will cover topics including careers in academia and industry, finding a postdoctoral position, intellectual property and patents, nontraditional careers, interviews and mock interviews, and new technologies in job searching. *Sessions: This workshop is being offered as a series of sessions on Thursday, Nov. 20 from 1-5:15pm and Friday, Nov. 21 from 8am to 12 noon, and 1-5pm.* ACS Career Consultants will be available by appointment to conduct Resume/CV reviews on Friday and Saturday. For more information contact Beatriz Rios-McKee, beatrizmckee@me.com

Finding Your Pathway Workshop: You can learn about the four main career pathways available to chemical professionals: higher education, industry, government, and entrepreneurial careers and why each one may or may not be the right choice for you. In addition to learning about careers available in each pathway, you'll also learn about the job market and hiring trends. The workshop allows time for you to inventory your own values, interests, background, strengths and weaknesses, so that you can select which career pathway you'd like to explore in detail. *Thursday, Nov. 20, 8am to noon.*

Undergraduate programming also will include career paths. This session will include presentations from professionals working in different areas including food chemistry, forensics, and patent law. *Morning session, Friday, Nov. 21.*

Other social and networking events will be available where students and professionals alike can interact and learn more about careers and opportunities. These events include dine-around options on the evenings of Wednesday, Nov. 19, and Friday, Nov. 21, the gala reception sponsored by Klemchuk Kubasta LLP on the evening of Thursday, Nov. 20, and the women chemists luncheon on Thursday, Nov. 20.

Early registration ends on November 1, 2014, so sign up today via online registration at **https://www.xpressreg.net/eReg/RegDemoE-Reg.asp?rc=&aban=&p1=** or download a registration form at **www.swrm2014.org**.

NOW SOLICITING for SWRM 2014 Sustainability Symposium Presentations for Climate Science, Water Purification, and General Sessions

The DFW/ACS Section has received a mini-grant from the National ACS to support a Sustainability Symposium for the 2014 Southwest Regional Meeting (SWRM), November 19-22. Submission of abstracts is sought for ORAL PRESENTATIONS, for each of three sub-sessions: *Climate Science With and Beyond the ACS Toolkit*, organized by Bob Landolt (**rlandolt@txwes.edu**); *New Processes for Water Purification*, organized by Connie Hendrickson (**ch@arkonconsultants.com**) and *General Topics in Chemical Sustainability*, organized by Landolt and Hendrickson. The specific time/date for the symposium components will be announced as soon as possible.

Supported by Climate Science Challenge Grants, the DFW and other ACS Local Sections have conducted a variety of activities in 2013-14 designed to provide insights to Climate Change issues through use of an online ***Toolkit*** (**http://www.acs.org/content/acs/en/climatescience/about.html**). Abstracts are sought describing use of the toolkit and other approaches to understanding climate issues, with emphasis on resources readily available and suitable for chemists and other scientists as well as a more general public.

Perhaps the most crucial short and long term Sustainability issue relates to availability of suitable water resources, both for communities and agriculture. Abstracts are sought focusing on effective procedures to provide Recycling/Reuse of quantities of water of sufficient purity for a broad range of applications as well as improving the efficiency of use of aquatic resources.

Abstracts suitable for a General Session on sustainability topics of concern and interest to chemists are also solicited. At least one presentation employing a panel discussion is anticipated, and interest in participating in such a discussion may be explored with session organizers. The procedure for abstract submission to Sustainability Sessions may be found under the ***Program*** link at **www.swrm2014.org**.

C&E News Editor to Provide Keynote for Sustainability Symposium at SWRM 2014

The keynote address by **Rudy M. Baum** will focus on Climate Change.

Abstracts on sustainability topics of concern and interest to chemists continue to be solicited for sessions on *Climate Science With and Beyond the ACS Toolkit, New Processes for Water Purification,* and *General Topics in Chemical Sustainability.*

At least one presentation employing a panel discussion is anticipated, and interest in participating in such a discussion may be explored with session organizers. The procedure for abstract submission to Sustainability Sessions may be found under the 'Program' link at: **http://www.swrm2014.org/.**

SWRM QUICK REFERENCE CARD

November 19-22 at the Worthington Hotel, Fort Worth, TX

Abstracts Deadline October 17: Submit via PACS (www.abstracts.acs.org)

Hotel Reservation Deadline to Get Preferred Room Rate: October 28
Look for Hotel Reservation link on www.swrm2014.org or go to ACSMARRIOT or cut and paste into your browswer
http://www.marriott.com/meeting-event-hotels/group-corporate-travel/groupCorp.mi?resLinkData=ACS%20SW%20Regional%20Meeting%5Edfwdt%60acsacsa%60164.00%60USD%60false%6011/18/14%6011/22/14%6010/28/14&app=resvlink&stop_mobi=yes

Exhibitor Application Deadline: November 1
Email questions/completed applications to swrm@acsdfw.org

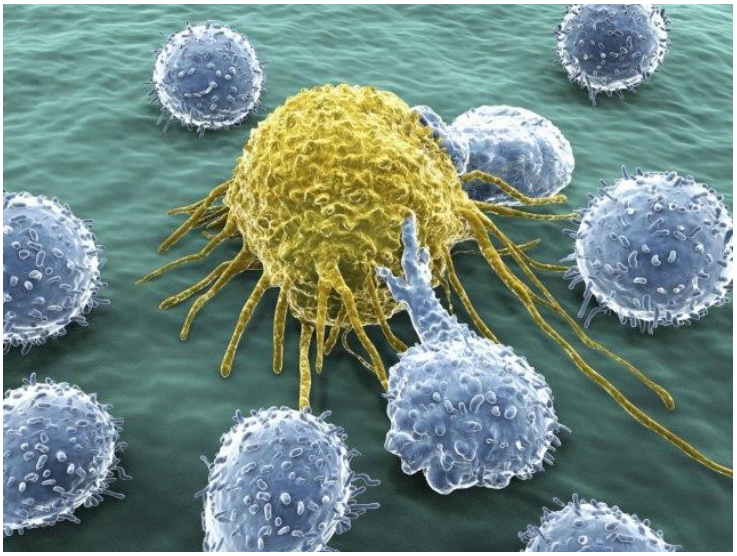
SWRM2014.org

From the ACS Press Room

‘Stealth’ nanoparticles could improve cancer vaccines

Nanogel-Based Immunologically Stealth Vaccine Targets Macrophages in the Medulla of Lymph Node and Induces Potent Antitumor Immunity
ACS Nano

Cancer vaccines have recently emerged as a promising approach for killing tumor cells before they spread. But so far, most clinical candidates haven’t worked that well. Now, scientists have developed a new way to deliver vaccines that successfully stifled tumor growth when tested in laboratory mice. And the key, they report in the journal ACS Nano, is in the vaccine’s unique stealthy nanoparticles.



Hiroshi Shiku, Naozumi Harada and colleagues explain that most cancer vaccine candidates are designed to flag down immune cells, called macrophages and dendritic cells, that signal “killer” T cells to attack tumors. The problem is that approaches based on targeting these generally circulating immune cells have not been very successful. But recent research has suggested that a subset of macrophages only found deep inside lymph nodes could play a major role in slowing cancer. But how could one get a vaccine to these special immune cells without first being gobbled up by the macrophages and dendritic cells circulating in the body? Shiku’s team wanted to see if stealthy nanoparticles they had developed and clinically tested in patients might hold the answer.

The researchers injected the nanoparticles into mice. They found that the particles, which have no electric charge or surface molecules that would attract the attention of circulating immune cells, were able to enter the mice’s lymph nodes. But once inside the lymph nodes’ core, the special kind of macrophage engulfed the particles. When molecules for signaling killer T cells were put inside the nanoparticles, they hindered tumor growth far better than existing vaccines.

The authors acknowledge funding from a Grant-in-Aid for Scientific Research (KAKENHI) and the Exploratory Research for Advanced Technology (ERATO).

From the ACS Press Room

Deconstruction of avant-garde cuisine could lead to even more fanciful dishes

From Material Science to Avant-Garde Cuisine. The Art of Shaping Liquids into Spheres.
The Journal of Physical Chemistry B

One of the most iconic forms of avant-garde cuisine, also known as molecular gastronomy, involves the presentation of flavorful, edible liquids — like cocktails or olive oil — packaged into spheres. Now a team of scientists, in collaboration with world-renowned chef Ferran Adriá, is getting to the bottom of what makes these delectable morsels possible. Their findings appear in ACS' The Journal of Physical Chemistry B.

Christophe Chipot, Wensheng Cai and colleagues explain that the technique of "spherification" was invented 70 years ago but was popularized in avant-garde cuisine more recently by Adriá. The process of making the spheres involves packaging juice or other liquid ingredients in envelopes of calcium alginate, a gelatinous substance made mostly out of molecules extracted from brown seaweed. Although spherification has become a prominent technique in molecular gastronomy, no one had investigated the formation and stability of the alginates at the atomic level. Chipot's team wanted to change that.

The researchers used classical molecular dynamics techniques to probe how alginate spheres form. Among other discoveries, they found that alginate chains spontaneously wrap like a net around liquid droplets and that calcium ions were key. They concluded that studies such as these, which bridge the gap between material science and avant-garde cuisine, could help chefs and food scientists rationally design the next generation of innovative cooking techniques.

The authors acknowledge funding from the National Natural Science Foundation of China, the Natural Science Foundation of Tianjin, China and the Cai Yuanpei program of the Ministère des Affaires Étrangères et du Développement International.

Editors note:

How to make caviar from carrot juice and sodium alginate:

http://www.instructables.com/id/Carrot-Caviar/

Around the Area

UTA

Munuve Mwania, a final year PhD (Physical Chemistry) student at was recently awarded the prestigious DAAD RISE Professional Fellowship, to attend a three-month Industrial Internship at Evonik Industries AG, in Hamburg, Germany May 2014 to September 2014.

The DAAD RISE (Research in Science and Engineering) Professional program is funded by the Deutscher Akademischer Austausch Dienst (or German Academic Exchange Service). The fellowship offers an excellent opportunity for graduate students in North America to participate in 3-6 month professional internships with leading German chemical companies.

Brad Pierce and **Frank Foss** have both received tenure and have been promoted to the rank of Associate Professor. Dr. Pierce is a bioinorganic chemist, while Dr. Foss is a bioorganic/medicinal chemist.

Brad Pierce received his B.S. Chem degree from the Cal State University at Chico in 1996. He worked two years in San Francisco for Matrix Pharmaceuticals. He then entered graduate school at Carnegie Mellon University. He worked for Mike Hendrich in the area of inorganic EPR chemistry, receiving his Ph.D. in 2003. He then received an NIH postdoctoral fellowship, which he spent at the University of Wisconsin, working in biochemistry with Brian Fox. He joined the faculty of UT-Arlington in 2008.

Brad currently carries out research on mechanisms of metalloenzyme function and regulation. A recent NSF grant supports work on "Mechanistic and Spectroscopic Investigation of Sulfur-Oxidizing Non-Heme Iron Enzymes." His group consists of five graduate students and eight undergraduate students.

Frank Foss received his undergraduate chemistry degree from the University of Richmond in 1999. He then entered graduate school at the University of Virginia. His mentor was Tim Macdonald, and Frank's thesis dealt with the synthesis of phospholipids mimics. He then had a post-doctoral position with Ronald Breslow at Columbia, where he did research on molecular electronics and artificial enzymes.

Frank's research involves investigation of bacterial enzyme function and bioinspired organocatalysis. He also has an International NSF grant with co-investigator Krishnan Rajeshwar of UT-Arlington. His

current group consists of three graduate students and five undergraduate students.

Dr. **Jennifer Rhinehart** has joined the UTA faulty as a lecturer in biochemistry and freshman chemistry. She has an undergraduate degree in chemistry from Whitworth University in Spokane, WA. She received her Ph.D. from the University of Rochester, working with Bill Jones in inorganic catalysis. She had a two-year post-doctoral appointment with Brian Long of the University of Tennessee, working in polymer chemistry on olefin catalysis. Her hobbies include co-educational sports and baking. Her husband Justin works for Abbott Labs.

Drs. **Subhrangsu Mandal** and **Krishnan Rajeshwar** are being honored by the NRI Welfare Society of India. In October Dr. Mandal will receive the Mahatma Gandhi Pravasi Sammar Award at an NRI Welfare Society Conference in London. In January Dr. Rajeshwar will receive the Hind Rattan Award at a conference in India.

Mandal

Rajeshwar

Dr. **Kevin Schug** attended the International Symposium on Chromatography in Salzburg, Austria, three weeks ago, where he presented a paper titled “Analysis of Fixed Gases by Gas Chromatography---Vacuum Ultraviolet Spectroscopy.”

TEXAS TECH

Prof. R. **Graham Cooks**, Henry B. Hass Distinguished Professor of Analytical Chemistry at Purdue University, will be the guest speaker at the "Sandy" Dasgupta Endowed Lecture Series on Oct 28-29. A public lecture entitled "Chemical Analysis on Site: Mass Spectrometers in Operating Rooms, at Crime Scenes, in Grocery Stores, along Factory Floors and on your Front Lawn" will be given on Tuesday, Oct 28, in Chemistry Room 049 at 7 PM on the Texas Tech campus. A scientific lecture entitled "Chemical and Materials Synthesis with the Mass Spectrometer" will be given in the Agriculture Education building, Room 102, on Wednesday, Oct 29, at Noon. The ACS community and the public are invited to attend either or both lectures.

Graham Cooks is a pioneer in the conception and implementation of the mass spectrometry methods of MS/MS and of desorption ionization. He has built mass spectrometers of various types, most recently miniature ion trap mass spectrometers, and applied them to problems of trace chemical detection. Some inventions and concepts to which Graham Cooks has contributed are ion soft landing, neutral loss scans, matrix based ionization, multiple reaction monitoring (MRM), hybrid mass spectrometers, handheld mass spectrometers, the kinetic method of thermochemical determination, tissue imaging and MS/MS for mixture

analysis.
Cooks is a past President of the American Society for Mass Spectrometry and the International Mass Spectrometry Society and a Life Member of the British Mass Spectrometry Society as well as the Japanese, Indian and Chinese societies. Several inventions have been commercialized and four companies launched from his lab. He has published over a thousand papers, has an h-index of 83 and has served as major professor to 125 Ph.D. students.

University of Arkansas

On the Go

Joshua Sakon presented *Clostridial collagen-binders that target remodeling Collagen* at the 22nd Annual Meeting of the South Central Branch of the American Society for Microbiology in Fayetteville, AR, Sept. 11-13, 2014. Other authors of the work are Dawn Weir, Jes Sanders, Kate Janowska, Ryan Bauer, and Leena Philominathan. Also presented at the same meeting was *Metabolic flux analysis to describe fed batch production of therapeutics*, authored by Robert Beitle and Joshua Sakon.

Publications

Jayanthi S., B. Koppolu, S. Smith, R. Jalah, J. Bear, M. Rosati, G.N. Pavalakis, B.K. Felber, D.A. Zaharoff, T.K.S. Kumar. *Efficient production and purification of recombinant human interleukin-12 overexpressed in mammalian cells without affinity tag.* **Protein Expression and Purification,** 102, 76-84 (2014).

Jayanthi, S., K.M. Kathir, D. Rajalingam, A. Daily, R. Thurman, L. Rutherford, P.D. Adams, I. Prudovsky, T.K.S. Kumar. *Copper binding affinity of the C2B domain of synaptotagmin-1 and its potential role in the non-classical secretion of Acidic Fibroblast Growth Factor.* Biochim. Biophys. Acta.,doi:10.1016/ j.bbapap.2014.09.008.

Koppolu, B.R., S. Smith, S. Ravindranathan, S. Jayanthi, T.K.S. Kumar, D. Zaharoff. (2014) Controlling chitosan-based encapsulation for protein and vaccine delivery. Biomaterials, 35, 4382-4389.

Beckford, S, J. Cai, J. Chen, M. Zou. Use of Au Nanoparticle-Filled PTFE Films to Produce Low-Friction and Low-Wear Surface Coatings. Tribology Lett. 2014, in press.

Theresa H. Nguyen, Scott A. Morris, Nan Zheng. Intermolecular [3+2] Annulation of Cyclopropylanilines with Alkynes, Enynes, and Diynes via Visible Light Photocatalysis. Adv. Synt. Catal. 2014, 356, 2831-37.

Recognition

Japanese Patent Office issued Patent No. 5520811, entitled **Delivery of Therapeutic Agents by a Collagen Binding Protein**, to The Board of Trustees of the University of Arkansas (U.S.), by Joshua Sakon.

TWU UNIVERSITY
Department of Chemistry and Biochemistry
P.O. Box 425859, Denton, TX 76204-5859

Fall 2014 Seminar Series

September 26
Dr. Smith T Powell
Berea College (Retired)
"Lives of stars and the evolution of the elements"

October 3
Dr. William E. Acree
University of North Texas
"TBD"

October 10
Dr. Susan Pedigo
University of Mississippi
"TBD"

October 17
Dr. Kayunta Johnson-Winters
University of Texas at Arlington
"TBD"

October 24
Dr. John J. Correia
University of Mississippi
"Hydrodynamic, Thermodynamic and Structural Characterization of Elastin-Like Peptides"

November 14
Dr. Matthew Auton
Mayo Clinic Division of Hematology Research
"TBD"

December 5
Dr. Joseph P. Emerson
Mississippi State University"
"TBD"

All seminars will be presented in 251 Ann Stuart Science Complex (ASSC) at 12:00 PM

From the ACS Press Room

A novel method for portable detection of potent drugs known as 'bath salts'

Forensic Electrochemistry Applied to the Sensing of New Psychoactive Substances: Electroanalytical Sensing of Synthetic Cathinones and Analytical Validation in the Quantification of Seized Street Samples
Analytical Chemistry

Despite being outlawed in 2012 in the U.S., the synthetic drugs known as "bath salts" — which really aren't meant for your daily bath — are still readily available in some retail shops, on the Internet and on the streets. To help law enforcement, scientists are developing a novel method that could be the basis for the first portable, on-site testing device for identifying the drugs. They report their advance in the ACS journal ***Analytical Chemistry***.

Craig E. Banks, in collaboration with Oliver Sutcliffe, notes that the high-inducing substances in bath salts, which are synthetic cathinones that also go by "plant food," "glass cleaner" and a number of other innocuous-sounding names, are derived from a stimulant in a plant called khat. The plant is found on the Arabian peninsula and East Africa. The drugs' effects are similar to those of amphetamines. Users reportedly feel an initial sense of euphoria, but this is followed by unpredictable and potentially dangerous effects, including seizures and hallucinations. Since bath salts first appeared in Europe and the U.S. more than four years ago, alarming reports emerged of users becoming violent. Tens of thousands of emergency room visits and several deaths have been attributed to the substances. Scientists have been working successfully on different techniques to identify the synthetic drugs, but the methods aren't portable. One group turned to an electrochemical approach, which can be adapted for in-the-field use, but their technique involved toxic mercury as the electrode. Banks' team wanted to find a better, safer way to perform bath salts "fingerprinting."

Using more environmentally friendly, mercury-free electrodes, the researchers developed a low-cost, disposable and rapid platform that could someday be used in a handheld sensor for detecting bath salts. They validated their technique using samples that were obtained from Internet vendors. The accuracy of their results matched that of established methods.

FIVE QUESTIONS FOR…

In honor of next month's 2014 Southwest Regional Meeting, hosted by the DFW local section of the ACS, this month's 5 Questions will feature SWRM 2014.

By General Chair Kirby Drake
kirby.drake@kk-llp.com.

Theme: Cowboys, Culture, Chemistry

Dates: November 19-22, 2014

Location:
Renaissance Worthington Hotel in Fort Worth, TX

Special Programming:
Grad School Fair on Friday, 11/21/2014 from 5.30p-7.30p, after the Undergraduate Poster Session & Ice Cream Social

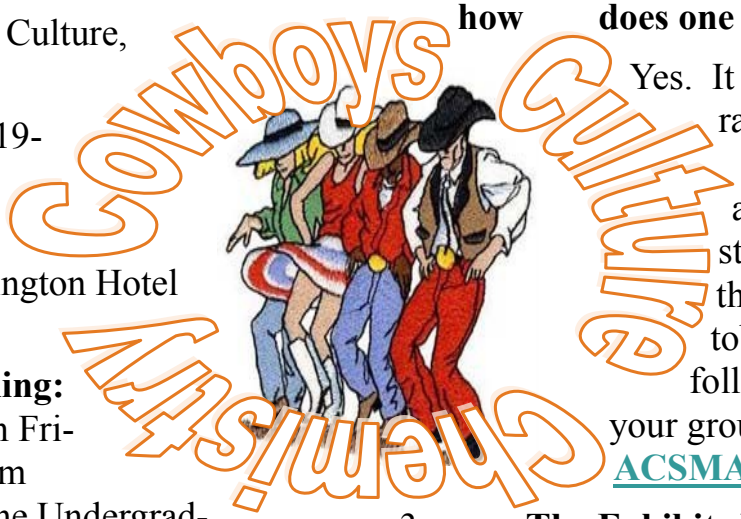
EXPO info: Thursday and Friday, 11/20-21from 9am-5pm with Exhibitor Reception on 11/19 at 5 pm

Contact: www.swrm2014.org for Abstract Submission, Exhibitor and Sponsor Applications, Registration and All Meeting Info

1. **How many Symposia are expected in the Technical Program? Are sessions still being accepted?**

More than 25 different symposia covering a wide range of topics are expected in the Technical Program. Abstract submissions are currently open until October 17, 2014, for the symposia identified in PACS (the ACS's meeting management system); however, if you still want to organize a session, please contact Kirby Drake, General Chair of SWRM 2014.

2. **The Renaissance Worthington Hotel has a great room rate available for SWRM 2014 participants. Are rooms still available for attendees, and if so, how does one reserve rooms?**



Yes. It is a fantastic room rate and includes wireless internet access. You can still book rooms at this rate through October 28 using the following link: Book your group rate: ACSMARRIOT

3. **The Exhibits Hall will be the site of a lot of activity. Poster sessions and the EXPO will be held there, in addition to some of the coffee breaks. How many Exhibitors are signed up?**

As of press time, there are ~30 exhibitors from many areas of chemistry and science, including the 18 schools signed up for the Graduate School Fair. EXPO signup has been extended and now closes on November 1st - the list may expand!

4. **Fort Worth, TX, is an interesting city. What opportunities will be available for attendees to enjoy SWRM 2014 beyond the Technical Programming and the Exhibits Hall?**

Among the social highlights of SWRM

2014 will be a gala reception on Thursday evening (11/20) sponsored by intellectual property law firm Klemchuk Kubasta LLP. At this event, you can mingle with fellow attendees and enjoy a taste of the West. Also on Thursday, plan to attend the women chemists luncheon. A new social event called the Networking Dine Around will be held on Wednesday (11/19) and Friday (11/21) evenings. For this event, attendees can sign up to join other attendees at local restaurants, network with one another, and experience all that Fort Worth has to offer. Additionally, the Fort Worth Convention Bureau will be on site at the meeting if you are looking for other things to do in the DFW area during your free time.

5. **What is the main goal for SWRM 2014?**

The main goal is to provide programming and networking opportunities for attendees regardless whether you are in academia, industry, a nontraditional chemistry job, or even if you're in transition.

Thank you, SWRM 2014, for participating in '5Q'! See you in November!

To sign up to be interviewed for 5Q, contact: retort@acsdfw.org.

Continued from page 8

The thalidomide tragedy in Europe spurred on the Drug Amendments of 1962. It was now recognized that a drug is effective only if it is safe and the manufacturer had to provide proof of effectiveness before marketing. Since 1962, literally thousands of drugs have been taken off the market because they lacked evidence of safety and/or effectiveness. [For more information on this topic, click on the link Thalidomide.]

The Infant Formula Act of 1980 required minimum amounts of essential nutrients in commercial baby food. FDA has also become responsible for implementing radiation safety standards, from radioactivity to microwaves.

FDA has current responsibility for monitoring the testing of new drugs prior to marketing. An estimated cost of bringing a new drug to market is $800 million. This restricts the development of new drugs to large corporations. Still, mistakes have been made. Is perfection attainable? Is there a point of diminishing returns? Minuses of the long development program are (1) the cost of the drug soars and (2) the public is deprived of the drug for some period of time. I have questions but not answers.

From the editor

The DFW Section has two great events coming up in October. National Chemistry Week (October 21-25) will be celebrated at the Fort Worth Museum of Science and History. On October 27, the Section will honor Ms Karen Compton, the 2014 winner of the Schulz Award.

And after that: SWRM 2014! You may have noticed that this month's issue is loaded with SWRM stuff. **The DEADLINE for abstract submission is this coming Friday, October 17**. It's the place to be in November; see you there.

SOUTHWEST REGIONAL MEETING 2014

Fort Worth, TX | November 19-22, 2014

I find it especially interesting that abstracts tend to come in within a few days of the deadline date, if not right on it. When I was a postdoc at Hopkins, everyone in the biophysics and biology departments would prepare FASEB abstracts on the very last day (that was when we had to TYPE them) and then someone would be elected to drive like a crazy person over to Bethesda and turn them in. You would think that now, with electronic submissions (and no typing and white-out) that would not be the case any longer. However, as program chair for Denise Merkle, the general chair for SWRM 2004, we found that the last-minute submissions were still the rule. I expect that is true for SWRM 2014 also. I have assured Bob Landolt that is the case for our joint symposia, although it might just be because he is such a grouch, dulcet tones or not..

Sorry, I gotta cut this short...I need to submit my abstract!

.

Best regards,
Connie

PS My favorite ACS press room article this month is the deconstruction of haute cuisine. Several years ago, I had a lab tech who liked to find odd chemistry-related stuff on the internet; we would then try it out in lab. That is how I know about the carrot caviar; we had it for lunch.