

STARS NOTES

SCIENCE TEACHER ACCESS TO RESOURCES AT SOUTHWESTERN

SOUTHWESTERN

THE UNIVERSITY OF TEXAS
SOUTHWESTERN MEDICAL CENTER
AT DALLAS

STARS Notes
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SPOTLIGHT on UT Southwestern's STARS Volunteer: Dennis Bellotto

"The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires." ~William A. Ward~

What type of interest would be sparked in a student that could actually count how many hairs fruit flies have on their eyes and see exactly where the receptors for antibodies are located on a cell membrane? In the nearly 10 years that Dennis Bellotto, with some help from George Lawton and a few of his other colleagues, have been volunteering with STARS, hundreds of students from across the metroplex and a few from out of state have been able to experience a glimpse of the contributions that Dennis has made to the cutting-edge research taking place at UT Southwestern. Dennis is a Senior Research Associate in the Pathology Department and works with numerous researchers to document at magnification an array of specimens using the scanning electron microscope and the transmission electron microscope.

As you can imagine, time is very valuable to people that work in the research and medical field, and often times it is difficult to present information at a level that is understandable and fun for students. Within a matter of minutes of talking with Dennis, I understood why teachers and students are so impressed with and continually request Electron Microscopy as a topic. He is someone that sees the potential in every student and with enthusiasm and compassion inspires growth of knowledge. He is a "great teacher."

Dennis is one of those rare individuals who are always looking for and taking advantage of the "teachable moment." A typical tour of his lab begins with a short discussion about the scanning and transmission electron microscopes, which show surface detail using differing methods, and a few stories about how they are currently



Here's Dennis analyzing a specimen on the electron microscope.

being used in research, such as, kidney biopsies, finding the adherence properties of bacteria, lung biopsies to see how one lung compensates for the loss of the other, nerve stents that guide growth of nerve cells and then degrade in the body, looking at the morphology of different species, and even how they are now able to slice thin enough to be able to view stem cells under a transmission electron microscope. He explains and shows the slide preparation steps and then not only looks at a specimen but also discusses the anatomy and uses of what they are seeing on the screen. Relating everything he does to something that the students may have experienced or know about is the most important component to Dennis' presentations because he truly believes that the students he visits with "are the people that could be doing this (working in the medical and research field) in the future," and that truly epitomizes the spirit in which STARS continues to serve teachers and students.

STARS tours are scheduled on a first come, first serve basis, and there is a limit to the number of tours that we can schedule during the year. Please call early to reserve a spot. To schedule a tour, please call Pat Bleigh at 214-648-9505 or patricia.bleigh@utsouthwestern.edu.



What do you see? Answer at bottom of page.

Answer to photograph: Fire Ant in Jail

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O'Donnell Foundation's Generosity Brings Public Forum on Bioterrorism To Teachers and Students Across the Metroplex

"To be prepared against surprise is to be trained. To be prepared for surprise is to be educated." ~ James Carse, author ~

Preparing students for the future, with all its uncertainties, is the primary objective of education. In the wake of the September 11 attack and amid reports from various cities of anthrax exposures, Americans of all ages have become students, forced by circumstance to educate themselves about terrorism and bioterrorism.

On October 23, 2001, The Southwestern Medical Foundation hosted a Public Forum on Bioterrorism that featured four outstanding presentations by UT Southwestern experts in the field. The presentations included: *A History of Bioterrorism*, by Dr. Robert Haley, Chief of Epidemiology; *Psychology of the Terrorist*, by Dr. Jaye Crowder, Assistant Professor of Psychiatry; *Recognition and Response to a Bioterrorist Attack*, by Dr. Kathleen Delaney, Professor of Emergency Medicine; and *Innovative Research Approaches to Prepare for Bioterrorism*, by Dr. Stephen Johnston, Director of the Center for Biomedical Inventions.

Thanks to the generosity of the O'Donnell Foundation and its commitment to education, every middle-and high-school teacher in Dallas, Tarrant, Collin, and Denton counties who is listed in the STARS database received a video of this public forum. The video can serve as a starting point for classroom discussion and instruction on bioterrorism.

If you have not yet received your video, or if you teach in districts outside the aforementioned counties and would like a copy, please contact STARS.

Check out these Web pages:
UT Southwestern Medical Center at Dallas experts lead forum to offer facts about bioterrorism
(http://irweb.swmed.edu/newspub/newsdetl.asp?story_id=351)

For a copy of the handout distributed at the public forum, visit http://www.swmed.edu/home_pages/news/handout.htm.

STARS Programs for Spring 2002

STARS Basic Science Symposia consist of a series of lectures given by scientists and physicians currently doing research at UT Southwestern Medical Center and affiliated institutions. Included in the line-up of symposia topics for the spring are *Stem Cell Research*, *Women In Science & Medicine*, *Botany & Herbal Medicine*, *Nervous System*, and *Endocrinology*.

We are pleased to bring you two Special Symposia this spring. *Women In Science & Medicine*, will be held on January 26, 2002, in collaboration with UT Southwestern's WISMAC (Women In Science & Medicine Advisory Committee). The speakers will be women from an array of areas including scientific research, medicine, and graduate studies. We ask that you bring a female student with you to this event AND register both your names, so we know how many people to expect for ordering food and preparing handouts. *Botany & Herbal Medicine*, which is rescheduled from January 14, 2002 to its new date on February 4, 2002, is a joint event with the Dallas Museum of Natural History (DMNH) and the Botanical Research Institute of Texas (BRIT). This Mini-Symposium will be held at the DMNH at Fair

Spring Calendar of Events

January 14 Monday 5:30 – 8:00 p.m.
Mini-Symposium: Topic Changed to Stem Cell Research
Richardson Lecture Hall, D1.502

January 26 Saturday 9:00 a.m. – 3:00 p.m.
Special Symposium: Women In Science & Medicine. Joint event with WISMAC (Women In Science & Medicine Advisory Committee)
Please invite a female student to attend with you AND register both your names so we know how many people to expect for ordering food and preparing handouts. Richardson Lecture Hall, D1.502

February 2 Saturday 9:00 a.m. – 3:00 p.m.
Teacher Inservice: Biomechanics
Meeting Room D1.200 Limited Enrollment. Please Register Early.

February 4 Monday 5:30 – 8:00 p.m.
Rescheduled Mini-Symposium: Botany & Herbal Medicine
Joint event with the Dallas Museum of Natural History (DMNH) and the Botanical Research Institute of Texas (BRIT)
NOTICE OF NEW LOCATION: Dallas Museum of Natural History at Fair Park. This event will NOT be held at The UT Southwestern Campus. Limited Enrollment. Please Register Early.

March 4 Monday 5:30 – 8:00 p.m.
Mini-Symposium: Nervous System Richardson Lecture Hall, D1.502

April 6 Saturday 9:00 a.m. – 3:00 p.m.
Basic Science Symposium: Endocrinology
Richardson Lecture Hall, D1.502

Other Important Dates To Remember

January 25 Friday
Deadline to submit requests for Science Fair Judges

February 22 Friday
Extended Application Deadline for the Summer Research Program.
Applications Available Now.

Please note that the application deadline has been extended from the date listed on the calendar due to Mini-CAST being held on Saturday, February 9, 2002, at Birdville High School.

June 3 Monday Summer Research Program Begins

July 29 Monday Summer Research Program Ends

All events are held on the UT Southwestern South Campus except otherwise noted. For directions, call the STARS office or visit the STARS webpage at www.utsouthwestern.edu/stars/welcome.html.

Park, and the speaker, a member of the BRIT staff, will be presenting current research topics. There is limited enrollment for this event, so please register early.

On Saturday, February 2, 2002, STARS will be field testing a brand new Inservice, *Biomechanics*, developed by the American Physiological Society. It is geared for 9-10th graders and advanced middle school students, and covers aspects of the three lever systems, how they apply to the human body, and their importance in movement.

All STARS activities and events are offered free of charge to teachers in the state of Texas. Basic Science Symposia and Inservice sessions are a great way for teachers to keep in touch with current research in the biomedical sciences, to learn new classroom activities, and to obtain professional development credit at the same time. If you wish to attend any event, please pre-register by calling 214-648-9505 or visiting our online registration page at www.utsouthwestern.edu/stars/registration.html.

Fall STARS Events

Mini-Symposium: Sleep – September 10, 2001



Yi Liu, Ph.D. explains the basic points of his research on circadian clocks.

The new event season began with the Mini-Symposium on Sleep on Monday, September 10, 2001. Yi Liu, Ph.D., Assistant Professor of Physiology, began the evening with a talk entitled, *Molecular Mechanisms of Circadian Clocks*. The presentation focused on some basic concepts of circadian rhythm and how it related to Dr. Liu's research. Bob Rose of Frisco High School said, "Dr. Liu was excellent. He took a complicated subject and made it easy to comprehend." Bob Hoffmann, Ph.D., Adjunct Assistant Professor of Psychiatry, then spoke on *Studying Sleep With Computers In Psychiatric Patients*. Sherry Stewart of Navarro College commented, "Dr. Hoffman has a really great sense of humor and was very interesting and informative." He gave an excellent talk that included information about the Sleep Lab and how depression relates to sleep.

Teacher Inservice: Genetics – September 22, 2001
– Repeat of inservice done on April 28, 2001



Norma Hopkins and Kathy Bryan participate in the Genome Gallery activity.

The Genetics Teacher Inservice on Saturday, September 22, 2001, was a repeat of the Inservice presented on April 28, 2001. It centered around the Human Genome Project and the UT Southwestern Medical Center Mini-Medical School on Genetics. STARS extends our thanks to the Human Genome Management Information System at the Oak Ridge National Laboratory (<http://www.ornl.gov/hgmis>) for their assistance in obtaining information and materials and to Golder Wilson, M.D., Ph.D., Professor of Pediatrics at UT Southwestern Medical Center and Course Director of the Mini-Medical School on Genetics, for allowing the use of his Genome Gallery and packet of materials. Fred Grinnell, Ph.D., Professor of Cell Biology, presented a session on *Genetics and Human Research Ethics*. His lecture themes were encountering human research ethics, genetic-ethics revolution – the "new" medicine, and an update on gene therapy. Also, he briefly covered the Ethics Program's Interactive Case Study for students that can be viewed and commented on at http://www.swmed.edu/home_pages/ethics. The next speaker, Kathleen Wilson, M.D., Clinical Assistant Professor of Pathology, spoke on *Cytogenetics and Patient Diagnostics*. Her talk focused on her research area of cytogenetics

and the techniques involved in evaluating specimens. The Genome Gallery was the next session for the day. For this activity, teachers walked through a life-size representation of the human genome and then researched in the UT Southwestern Library a particular disease found on the chromosome they were assigned. Linda Robinson, Genetic Counselor for the Simmons Comprehensive Cancer Center, concluded the Inservice with a presentation on *Assessing Familial Risks for Cancer & Genetic Testing for Cancer Predisposition*. She gave an incredibly well presented and informative talk about all aspects of her work as a genetic counselor and how it relates to current research. Catherine Carlson at Parkhill commented that the inservice was "very stimulating with informative presentations and real material I can use Monday morning in my classes."

Basic Science Symposium : Substance Abuse – October 13, 2001



Dennis Dalton, M.D. takes a moment to answer questions after his presentation at the Symposium on Substance Abuse.

Our first all day symposium of the year was on the topic of Substance Abuse. The day started with a general look at *What Is Addiction?* by Patty Chandler, M.D., Assistant Professor of Family Practice & Community Medicine. Her talk centered around the general definitions of addictive diseases and their consequences. The second speaker was Bryon Adinoff, M.D., Professor of Psychiatry, and the focus of his talk was *Effects of Drugs on the Brain*. John Talmadge, M.D., Associate Professor of Psychiatry, began our afternoon with a closer look at *Common Drugs of Choice for Teens*, including their consequences, treatment, and prevention. Our final speaker was Dennis Dalton, M.D., a psychiatrist in private practice who specializes in chemical dependency in medical professionals. He gave an excellent talk on *Recovery and Addiction* that balanced relevant facts with personal experiences. "This program once again provided me with a blend of background information, practical application, and meaningful material to present to my students from firsthand, practicing professionals," commented Israel Solon of Greenhill School.

Mini-Symposium: Stem Cell Research & Micro-Array Analysis – November 12, 2001



Ralph Shohet, MD, illustrates some of the more entertaining aspects in the realm of genetic research by incorporating a movie clip into his presentation.

Stem Cell Research & Micro-Array Analysis had close to 150 participants, which makes this our largest Mini-Symposium to date. *Stem Cells, Natural Killer Cells, and Friend Virus Leukemia* was the first topic of the evening that was given by Michael Bennett, M.D., Professor of Pathology. The talk was a brief

look at Dr. Bennett's current research techniques and findings. Ralph Shohet, M.D., Assistant Professor of Internal Medicine, gave a presentation on *Micro-Array Analysis of the Mouse Heart*. Christi Watson of Dan F. Long Middle School said, "Dr. Shohet's presentation was wonderful. He brought a complicated topic down to an understandable level without discounting the scientific facts."

Because of the extreme amount of interest in this topic, we've decided to present a closer look at the basics, applications, and ethical considerations of Stem Cell Research. It will be held on January 14, 2002, 5:30 - 8pm., replacing the original topic for that day. Please see our Spring Calendar of Events in this newsletter for more information on the rescheduled Botany & Herbal Medicine Mini-Symposium.

Teacher Inservice: Cell-ibration – December 1, 2001

Thirty-seven teachers participated in a new Inservice session that was part of a field test for a unit currently in development by the American Physiological Society. The all day event included hearing background information on the cell membrane, completing each of the unit's activities and missions, and collaborating on ideas for the classroom and for improvements in the Cell-ibration unit. Rachel Jones from Life Charter School commented, "I got lots of great ideas for labs, and it was good to brush up on my membrane biology." For a copy of this unit designed for middle school students, contact STARS. Also, the American Physiological Society (<http://www.the-aps.org>) has a great website with a plethora of educational material. Check it out.



Tricia Gent, Jean Armitage, and Rachel Robb work together to answer questions for the first lab activity at the Cell-ibration Inservice.

To learn more about these and other topics covered and to download many of the presentations from Symposia and Inservices, please visit the STARS website.

Summer Stock 2001 Available

A compilation of the classroom activities developed by the participants in the 2001 STARS Summer Research Program for Teachers is now available free of charge. The activities range in level of applicability from middle school science to Advanced Placement biology in areas of molecular biology, genetics, and anatomy and physiology. Some of the titles include *Brain Gain – Dendrite Dreams or Reality*, *Much Ado About Chromosomes*, *Living On The Fringe*, and *Brain Pathology – What Went Wrong?* You may download these and other activities from the STARS homepage at <http://www.utsouthwestern.edu/stars/resources/stock01/stock.html>. If you are unable to download a copy, you may obtain a free copy of *Summer Stock 2001* by contacting the STARS office at 214-648-9505 or 1-800-81-STARS.

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PROGRAMS

SYMPOSIA

Basic Science Symposia
Mini-Symposia

TOURS

UT Southwestern Allied Health Sciences School
UT Southwestern Medical Center
Parkland Health and Hospital System of Dallas
Children's Medical Center of Dallas

OUTREACH

Bureau of Science Fair Judges
Distance Learning Initiative
Research Assistance
Science Ambassadors
Student Mentoring

SUMMER RESEARCH

Summer Research Program for Teachers
Summer Research Program for Students

INSERVICE SESSIONS

Cell-ibration
Biomechanics
Kidney Under Pressure
Genetics
Biotechnology
Exercise Physiology
Gel Electrophoresis
Human Physiology in Space
Muscle Physiology
Suturing Techniques

Summer Research Program Applications Now Available

Applications for the 2002 Summer Research Program For Teachers are available. They were mailed out this month to nearly 3000 secondary science teachers in Texas. Teachers selected for this program will spend 8 weeks working in a research laboratory under the guidance of a mentor on the UT Southwestern faculty. This program provides teachers with a great opportunity to get a first-hand look at the "cutting edge" of biomedical research. In addition to their laboratory duties, participants will produce a scientific poster that is based on their research project and develop a hands-on activity for use in their classroom. Overall, this program has demonstrated a very positive effect on teachers by increasing their knowledge base and giving them a better perspective on "real" science in action. Along with this incredible opportunity to help bring new ideas into the classroom and rekindle your interest in science, you will receive a \$4000 stipend, and \$500 for classroom supplies for participation in the program. If you are interested in the Summer Research Program but did not receive an application, please call the STARS office at 214-648-9505.

Application Deadline is 4 p.m. on Friday, February 22, 2002.

Please note that the application deadline has been extended from the date on the calendar due to Mini-CAST being held on Saturday, February 9, 2002 at Birdville High School.

Photos of SRP participants are posted on the STARS webpage at

<http://www.utsouthwestern.edu/stars/programs/srp.html>

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