

UF studies termite DNA to create safer pesticide methods

There are few pesticide containers that don't bear a skull and crossbones emblem, but University of Florida researchers are working on compounds that can eliminate pests without posing danger to humans and other creatures—simply by targeting the pests' DNA.

"The trend in insect control is to find methods that eliminate the problematic insect without affecting anything else in the environment," said Michael Scharf, an entomologist with the University of Florida's Institute of Food and Agricultural Sciences. "What could possibly be more specific than genes that are unique to the insect itself?"

In a paper published in the June issue of the journal *Insect Biochemistry and Molecular Biology*, Scharf, along with colleagues Xuguo Zhou, Faith Oi and graduate student Marsha Wheeler, describes the effects of a mixture that, when consumed by termites, causes them to be terminally deformed after molting.

The active agent in this "genetic pesticide" is RNA—small strips of genetic material that carry the DNA-encoded instructions to other cellular structures.

The UF research team analyzed part of the termite genome and selected a gene that is found only in that species and that would disrupt the insect's life cycle. They then crafted an RNA interference structure to silence the activity of the specific gene.

RNA interference techniques are commonly used at genetic research institutions across the nation. They are typically used to discover what a gene does in an organism by "silencing" it and seeing what happens.

Most modern pesticides are based on neurotoxin-like chemicals. Although these can be designed to affect some types of animals more than others, the process isn't perfect.

"All nervous systems are going to be at least a little bit alike, and the chances that you could hurt other creatures or cause damaging pollution are still a major concern," said John Reese, a Kansas State University entomology professor and expert on insect pest genetics. "But if you try to interfere with a gene of an insect, there's virtually no chance that you're going to affect a mammal and almost no chance



Termites exposed to UF's genetic pesticide become fatally deformed after molting.

that you'll even affect an insect that's a close relative to the target species."

UF's genetic pesticide will undergo years of testing and refinement before it will become marketable, Scharf said. Meanwhile, he and his team are working to identify more termite genes to target with the compounds.

"We're working with about ten at the moment," he said. "But that's out of hundreds of potential targets—all weak points that affect the termites, and nothing else."

By Stu Hutson

UF Voices

Program develops math and science teachers

Some people know from an early age that they want to be a teacher, while others make this discovery later in life. Aspiring teachers often are inspired by an exceptional teacher from their own school days or by a realization that they have a passion for learning and want to transfer this passion to others.



Dimple Malik Flesner

Teachers wear many hats. In addition to their role as facilitators of learning, teachers are evaluators, curriculum designers, classroom managers, disciplinarians, counselors, team collaborators and role models. While there is no single magic formula for a good teacher, the new UFTeach program allows students to give teaching a try. In this program, students major in a mathematics or science discipline while earning a specialized minor in education.

Highlights include:

- Early and intensive field experiences in real classrooms

- Deep-level understanding of mathematics and science content

- Deep-level understanding of methods to effectively teach mathematics and science

- Compact degree plans that allow most students to graduate in four years

- Strong collaboration between the College of Education and the College of Liberal Arts and Sciences

Florida and other states across the country have a shortage of highly qualified teachers of math and science in the middle school and high school grades. As a result, newly credentialed math and science teachers are sought by districts across Florida. UFTeach is designed to dramatically strengthen the recruitment and retention of middle and high school math and science teachers. We seek to bring UF's best and brightest into teaching.

For more information on the UFTeach education minor, please contact me at dimple@ufl.edu or visit our Web site, www.ufteach.org.

Dimple Malik Flesner
UFTeach Associate Director

Top Stories

Shands at UF celebrates 50th anniversary this month

Fifty years ago, the average cost of a daily hospital stay was \$26.81, rubber gloves were considered a luxury – and for operating rooms only – and 9-year-old Nancy Sue Smith became the first patient at Shands at the University of Florida — then called the UF Teaching Hospital.

Nancy Smith Bowman still remembers her first Shands at UF experience.

"The opening of the hospital was very special," Bowman said. "Important people were taking tours of the hospital. There were actually more doctors and nurses than patients at that early stage."

Since the opening in October 1958, Shands at UF has changed vastly. Inside the hospital and the ever-growing masses of buildings that make up the tiny town of the UF Health Science Center, medical breakthroughs that have changed the history of medicine have been discovered. People's lives have been saved because of the hospital's cutting-edge technology and many firsts have branded Shands as a nationally recognized name among doctors and patients alike.

Within the walls of the hospital, UF physicians performed the state's first open-heart surgery, kidney transplant, total hip replacement, cochlear implant, double-lung transplant and the Southeast's first bone-marrow transplant.



Nancy Smith Bowman, Gainesville resident, recently posed with Shand's new Aquilion ONE 320-detector row CT scanner.



Nancy Sue Smith was the UF Teaching Hospital's first patient in 1958.

"The College of Medicine has a creative and extraordinary faculty," said Jodi Mansfield, Shands HealthCare senior vice president and chief operating officer.

Mansfield, who has been with Shands HealthCare for 29 years, has seen a lot of the changes at Shands at UF and been there for many of the awards the hospital has received.

Most recently, Shands at UF earned top-50 rankings in 11 specialties in U.S. News & World Report's 2008 edition of America's Best Hospitals. Additionally, Shands HealthCare won the 2008 Governor's Sterling Award – the state's top honor for performance excellence.

Shands at UF and the UF Health Science Center's accomplishments in the past 50 years will be celebrated throughout October.

A gala, open to the public, and a luncheon for Shands at UF employees are two

events included in the celebration. Banners are speckled throughout the atrium of the hospital and special public service announcements are being aired to thank the community for 50 years of support.

In the same year that 9-year-old Nancy Sue Smith walked past the massive glass front of the UF Teaching Hospital and became the first patient, UF also admitted its first African American student, NASA was founded, Lego toy bricks were first introduced and the peace symbol was created.

"Occasionally, friends and family will see that picture of me sitting on the edge of the bed with Dr. Smith, the head of pediatrics, and they'll let me know," Bowman said. "It's a treat to be remembered in this way and I'm very proud to be associated with Shands at UF and the UF Health Science Center."

By Claibourne Smith

Happenings

Listings in this section are a sampling of events at the University of Florida, compiled from entries listed in the full calendar that appears on the Web at calendar.ufl.edu. To submit an event online, visit <http://calendar.ufl.edu/submit/>.

Oct. 21
Harn Museum of Art presents "RISK Cinema at the Harn Museum of Art." Harn Museum of Art, 7:30 p.m. Admission free and open to the public. Call 352-392-9826 for more information.

Oct. 22
Career Resource Center presents "Graduate and Professional School Information Day (GAP)." Reitz Student



Union Grand Ballroom, 10 a.m. – 2 p.m. Free and closed to the public. Call 352-273-2322 for more information.

UFPA presents Inbal Pinto Dance Company – Shaker. Phillips Center, 7:30 p.m. Ticket prices: \$20-35. Open to the public. Call 352-392-ARTS (2787) for ticket information.

Seen & Heard

'Dinner for Two' receives acclaim

Professor Tony Mata's production of "Cena para dos/Dinner for Two" recently received four HOLA Awards from the Hispanic Organization of Latin Actors. Mata accepted the awards at a New York ceremony in September.

The four awards include Outstanding Achievement in a Dramatic Production, Outstanding Performance by a Female Actor, Outstanding Performance by a Featured Female Actor and Outstanding Performance by a Featured Male Actor.

Directed by Mata, "Dinner for Two" was presented in both English and Spanish at the Puerto Rican Traveling Theatre.

Mitra named MSI Young Scholar

Debanjan Mitra, associate professor of the Warrington College of Business Administration, has been selected as a 2009 Marketing Science Institute (MSI) Young Scholar.

The biennial MSI Young Scholar Pro-



Tony Mata

gram brings together researchers in the field of marketing whose work suggests they are potential leaders of the "next generation."

The award is open to individuals who have distinguished themselves as future leaders of thought, and have received their doctorate during the previous four to seven years.

Student Affairs presents annual awards

Several awards were recently presented by the Division of Student Affairs. The annual awards include the John M. "Jack" Kinzer Award for Outstanding Service to the University of Florida, which was presented to Brandon White. White is a third-year finance major from Panama City.

The Mort Wolfson Faculty Service Award was presented to Carl Barfield, undergraduate coordinator and professor in the department of Entomology and Nematology, and the Art Sandeen Outstanding New Professional Award was given to Thomas Germain and Jeannie Starobin.



Debanjan Mitra

Germain is the residence director for the Diamond-Tanglewood areas in Graduate and Family Housing and Starobin is associate director of Administrative Services.

Air Force cadets receive national awards

Air Force ROTC Cadet Tyler Holley has been named the Southeast region winner of the Air Force Association's W. Randolph Lovelace Memorial Award, recognizing him as the No. 1 cadet in the region for academic year 2007-08. Holley was the sole recipient of the award and was chosen from nearly 1,500 peers. The Lovelace Award is based on academics, athletics and military performance, including teamwork and leadership.

Air Force ROTC Cadet Benjamin Oatley has been named the recipient of the Air Force Association First Command Educational Foundation Award for 2007-08. This scholarship award is presented to cadets who show the highest levels of academic excellence and leadership and are committed to a course of study in science, technology, engineering or math. Oatley was selected from more than 100 nominations. The award includes a \$5,000 scholarship from the First Command Educational Foundation.

Note This

Homecoming offers fun activities for all

Gator Gallop, a two-mile run immediately preceding the Homecoming Parade, will begin at 11:30 a.m. on Oct. 24 at Percy Beard Track. Gator fans of all ages are invited to walk, roll or run as they follow the parade route down University Avenue. Proceeds will go to the University Athletic Association and awards will be given to both the overall male and female winners of the race. The cost of entry is \$15. Registration on the day of the event will begin at 9:15 a.m. and only cash will be accepted.

The Homecoming Parade will occur between noon and 3 p.m. on Oct. 24 along University Avenue, between Gale Lemerand Drive and Main Street. Now in its 85th year, the UF Homecoming Parade is the largest student-run parade in the nation.

The Homecoming Alumni Barbecue will be held during the two and a half hours prior to kick-off on Oct. 25 at the O'Connell Center. The barbecue includes a variety of tailgate food including a vegetarian option and kid-friendly meals. This year will include a children's arts and crafts section, photo opportunities with Albert and Alberta and appearances by the Florida Dazzlers. Tickets are \$10 and can be purchased through the University Box Office by calling 352-392-1653.

NPR's story project comes to town

StoryCorps, a national oral history initiative to document the unique stories of Americans, will arrive in Gainesville on Oct. 23. The StoryCorps mobile StoryBooth will be parked at the University of Florida Cultural Plaza from Oct. 23 to Oct. 30, and at the Alachua County Headquarters Library in downtown Gainesville from Oct. 31 to Nov. 15.

If interested in telling a story about your life, reservations may be scheduled by calling 1-800-850-4406.

StoryCorps is an independent nonprofit project in partnership with National Public Radio and the American Folklife Center (AFC) at the Library of Congress. For more information or to listen to stories from across the nation, visit www.StoryCorps.net.



Oct. 30
UFPA presents Young Concert Artist: Robert Beliniae, Guitar. Baughman Center, 7:30 p.m. Ticket price: \$15. General admission and open to the public. Call 352-392-ARTS (2787) for ticket information.

Nov. 2 – 3
UFPA presents Capitol Steps. Phillips Center, 4 p.m. on Nov. 2, 7:30 p.m. on Nov. 3. Ticket prices: \$25-50. Open to the public. Call 352-392-ARTS (2787) for ticket information.

Oct. 28
VEE Corporation presents Sesame Street Live. O'Connell Center, 10:30 a.m. and 7 p.m. Admission fee and open to the public. Call 352-392-5500 for more information.

Oct. 25
Harn Museum of Art presents "Family Day: Every Day Art." Harn Museum of Art, 1 – 4 p.m. Free and open to the public. Call 352-392-9826 for more information.

Oct. 27
Florida Museum of Natural History presents "Bodily Functions (grades K-5)." Florida Museum of Natural History, 8:30 a.m. – 4:30 p.m. Pre-registration is required. Admission fee and open to the public. Call 352-846-2000 for more information.