New campus advising center expands student services, options

By Sharita Forrest
Assistant Editor

T he General Curriculum Center, an award-winning advising center in the College of Liberal Arts and Sciences, is being expanded and repositioned as a campus-level unit to better meet the needs of under-graduate students across campus.

Since the late 1960s, the center’s mission has been to help students who may be undecided about their academic objectives, who are in transition between colleges or majors, or who just want to explore some of the nearly 200 majors and 100 minors available at Illinois make informed decisions so they can progress toward graduation in a timely manner.

Now known as the Division of General Studies, the unit has relocated from a house on Fifth Street to the Illini Union Bookstore Building at 807 S. Wright St. The division is a unit in the Campus Center for Advising and Academic Services, reporting directly to the Office of the Provost.

“We have always served a campus-wide population,” Parrott said. “We think that being more centrally positioned will give these students more options.”

Beginning with the fall 2008 semester, the Division of General Studies will begin directly admitt-ing and enrolling students who elect to start their academic careers as “undeclared.”

Based upon the center’s past enrollment trends, its 12 academic-advisors expect to serve about 3,500 to 3,600 – approximately 12 percent – of the undergraduate stu-dents who have registered for fall 2007 classes. About half of those students will be continuing students from the spring semester, with the other half “undeclared” freshmen who have selected the curriculum explicitly or who have accepted it as their second choice when their preferred major – usually engineering or business – couldn’t accommodate them. Another 250 students, who will be more closely linked to the center’s academic advisers and See STUDENTS, Page 2.

Although the general curriculum was in LAS, about two-thirds of the incoming freshmen that elected it were really interested in the general curriculum from another LAS college, Parrott said.

“We have always served a campus-wide population,” Parrott said. “We think that being more centrally positioned will give these students more options.”

History in the making

Advising, is its director.

The division director is positioned to give these students more options.

“We have always served a campus-wide population,” Parrott said. “We think that being more centrally positioned will give these students more options.”

UI expert: Bully-prevention options for schools too narrow and untested

By Craig Chamberlain
News Bureau Staff Writer

In the battle against drugs in the 1980s and ‘90s, schools overwhelmingly embraced the DARE program before research came to seriously question its effectiveness.

Now schools looking for anti-bully programs risk for schools too narrow and untested.

Espelage will discuss these and other concerns in two presentations Aug. 19 at the annual meeting of the American Psychological Association, in San Fran-cisco.

The Olweus program grew out of research first done in Norway more than two decades ago, and that is a key part of the problem, Espelage said. “Even our home-grown schools are not at least as effective as the Olweus Prevention Program, “is being presented as a model, as being ef-fective in decreasing bullying, and it has not been rigor-ously evaluated with U.S. samples,” she said.

Even programs with published research support-ing them, however, such as Second Step and Bully Busters, often show less-than-positive results in urban schools or with key minority populations, Espelage said. Many of these programs also do not address the growing problem of bullying online, she said.

Her concern is that many schools are spending scarce resources on programs that may not work, while little or no federal money is being spent to de-velop programs that do. She’s also concerned that schools may be signing up for programs billed as “one-size-fits-all” that don’t consider their specific needs, limitations or budget.

Dorothy Espelage

photo by L. Brian Stauffer

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Dorothy Espelage

photo by L. Brian Stauffer
Laser spectrometer measures heat flow through molecules

By James E. Kloppe!

Global warming isn’t the only heat scientists are feeling. Another area where heat flow is becoming crucial is the field of molecular electronics, where long-chain molecules attached to tiny electrodes are used to transport and switch electrons.

“How electrons flow through molecular wires has been studied, but less attention has been paid to the heat that molecules conduct,” said Dana Dlott, a physical chemist at the UI. “One of the problems has been the lack of a measurement technique that could operate over short distances, short time intervals and large temperature bursts.”

As reported in the Aug. 10 issue of the journal Science, Dlott, engineering professor David Cahill and colleagues at the UI have now developed an ultrafast thermal measurement technique capable of exploring heat transport in extended molecules fastened at one end to a metal surface.

“The ability to selectively probe the atomic groups that terminate the chains allows us to investigate the transport of heat through the chain molecules themselves,” Dlott said.

To study heat flow through long-chain hydrocarbon molecules anchored to a gold substrate, the researchers used an ultrafast spectrometer technique with picosecond time resolution (a picosecond is 1 million-millionth of a second).

First, the flash from a femtosecond laser (a femtosecond is 1,000th of a picosecond) heated the substrate to about 800 degrees Celsius in one picosecond. This heat flowed quickly into the base of the hydrocarbon molecules and through the chains.

When heat reached the methyl groups at the ends of the chains, which were originally lined up in order, they began to shake and twist. An extremely sensitive form of coherent vibrational spectroscopy was used to detect this heat flow.

The researchers’ study showed how the familiar concepts of heat transport do not apply at the level of individual molecules.

“One cool finding, for example, is that heating the molecule to 800 degrees Celsius doesn’t destroy it.” Because the molecule stays hot for only a billionth of a second, it doesn’t have time to evaporate, burn up or chemically react,” said Cahill, a Willard Professor of Materials Science and Engineering.

Another surprising finding is that heat moves ballistically—that is, at a constant velocity—through the molecule. Each time two more carbon atoms were added to the chains, the heat took a little longer, about one-quar-

ter of a picosecond, to reach the end.

“Heat usually travels at different velocities as it diffuses through its surroundings,” said Cahill, who also is a researcher at the Frederick Seitz Materials Science Laboratory and at the Coordinated Science Laboratory, both on the Illinois campus. “We found the leading edge of the heat burst traveled ballistically along the hydrocarbon chains at a velocity of 1 kilometer per second.”

The researchers also determined the overall rate of heat flow in the molecule. They calculated a thermal conductance of 50 picowatts per degree Celsius.

“This is a new way of measuring temperature within a molecule,” Dlott said. “It’s the first step toward making a more precise thermometer with very high spatial resolution.”

“With Dlott and Cahill, co-authors of the paper are postdoctoral research associates Zhaohua Wang, Alexandre Lagutchev and Nak-Hyun Seong, and graduate students Jeffrey A. Carter and Yee Kan Koh.

“The work was funded by the U.S. Department of Energy, the National Science Foundation and the Air Force Office of Scientific Research.”

“BULLYING, CONTINUED FROM PAGE 1

new academic services. Anecdotal evidence that schools are getting is that this is the general education requirements for almost all honor students. “The message that schools are getting is that this is the program to use… It’s already assumed to be effective and so they don’t tend to ques-

tion,” says the center director.

“The biggest concern of mine is that there’s just no room for other programs that are out there that are extremely promising, that have public data, that have come out and said their program worked here and it didn’t work there, it worked with this kid and didn’t work with this kid. The situation just doesn’t really reflect good prevention science,” Espelage said.

At least 33 states have anti-bullying laws in place, with at least 10 others considering similar legislation, Espelage said. As a re-

sult, the demand for effective bully preven-

tion programs will only increase, she said. Rather than steering toward a single rec-

ommendation, however, the U.S. should be

any major on campus. Students may remain undeclared until they have completed 50 academic hours, at which time they must transfer to another curriculum or college.

“The advising we do is very development-

al,” said Chris Armstrong, an adviser in the center for more than three years. “We legiti-

mately see that idea is it’s okay to explore, and that students can create skills that are highly

sought after by employers and can be used anywhere while they stay on track for gradu-

ation.”

Over the past five years, the center’s staff members and programs have won six nation-

al honors, including the 2006 Outstanding Institutional Advising Program Award from the National Academic Advising Associa-

tion in recognition of the institutional ad-

visory services the center provides through its satellite locations in the Undergraduate Li-

brary and in residence halls. Adviser Adva Steiner was recently selected an “Outstand-

ing New Advisor” for 2007 by the National Academic Advisors Association.

“The signal strength of our program is that the students know their advisors before they ever set foot on campus,” Parrott said. “We contact our freshmen before orientation.”

The center will host a grand opening cele-

bration early in the fall semester.

Inside Illinois

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Inside Illinois is an employee publication of the Urbana-Champaign campus of the University of Illinois. It is published on the first and third Thursday of each month by the News Bureau of the campus Office of Public Affairs, administered by the associate chancellor for public affairs. Distribution is by campus mail.

News is solicited from all areas of the campus and should be sent to the editor at least 30 days before publication. Entries for the calendar are due 15 days before publication. All items may be sent to insidelll@uiuc.edu. The campus mail address is Inside Illinois, 616 E. Green St., Suite D, Champaign, IL 61820. The fax number is 244-0616.

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On the Job: Kevin Knapp

By Diana Yates

New Illinois Staff Writer

Is it, or are you a less than ideal partner? For psychologists studying how people manage romantic relationships, it’s not an easy question to answer. What if one of the partners is deeply afraid of intimacy? Could he be acting in ways that undermine the relationship? Or is her partner contributing to the problem?

A new study appearing in Personality and Social Psychology Bulletin, researchers at the UI explored these issues by looking at the choices people make in simulated online dating relationships. By analyzing the choices of the romantically ‘patient,’ the study clarifies how each participant’s outlook influences his or her choices and satisfaction with the romance.

The online site tracked participants through a series of scenarios about a relationship with a fictional partner. Each scenario ended with two options, from which the participant chose his or her response.

“The interesting thing is that all the participants were reacting to the same scenario,” said psychology graduate student Amandi Vicary, a co-author on the study with psychology professor R. Chris Fraley. “And yet the pattern of their responses was quite different.”

Vicary and Fraley modeled their study on a classic horror/romance fiction series, “Choose Your Own Adventure,” which allowed the reader to select from multiple options at critical points in the story. The choice directed the reader to a new scenario.

This approach appealed to the researchers because earlier studies of individual behavior in relationships asked participants to make choices based solely on descriptions of past events. The simulated nature of the new study was more like an actual relationship, Vicary said, in that it involved ongoing interactions with the same partner.

The online study began with an assessment of participant attachment styles. A series of questions about how much the person confides in others, or trusts a current or former romantic partner allowed the researchers to profile the participant’s level of security or insecurity, anxiety, or intimacy-avoidance in romantic relationships. Fraley is a creator of this Experience in Close Relationships-Revised (ECR-R) inventory, a tool for measuring participants’ attachment styles.

After completing the ECR-R inventory and reading in-behavior, participants answered a series of 20 relationship questions. Each question described an event in the relationship and gave the participant an opportunity to select one of two options for responding to the event. One of the options enhanced the relationship; the other undermined it.

The study included three experiments, each involving a different group of participants. In the first, all participants read the same story and selected from the same options at the end of each scenario. In the second, a participant interacted with either a supportive or unsupportive partner throughout the scenario. In both experiments, the participants’ choices had no influence on the behavior of their partners or on the scenarios.

In the third experiment, however, their choices did influence the simulated partners’ responses. If the participant made a relationship-enhancing choice, he or she received a positive verbal response from the simulated partner and then moved to a new scenario involving a supportive version of that partner. Making a negative choice elicited rejection response from the partner and a new scenario in which the partner behaved in an unsupportive way.

The researchers found that a participant’s attachment style (that is, secure or insecure, anxious or intimacy-avoidant) was a good predictor of the pattern of his or her choices.

“People who are highly insecure are more likely to interpret their partners’ actions in the influence of the simulated partner’s response,” Vicary said. The more secure individuals more often chose the positive or relationship-enhancing options.

As they progressed through the list of scenarios, most of the participants increased the rate at which they made positive choices. The anxious or avoidant participants increased their relationship-enhancing choices more gradually than their peers, however. This was true even in the third experiment when their choices elicited immediate feedback in the form of a positive or negative response from the partner.

“It is interesting that even when highly insecure individuals experience responses as a direct function of their actions, they are still relatively slow to adopt beneficial relationship choices,” the authors wrote. “It is possible that insecure individuals simply do not realize the detrimental impact that their actions have on their relationships.”

Not surprisingly, participants who interacted with supportive partners were quicker to make positive choices and tended to be more satisfied with the interaction. The researchers also found that the nature of the influence each participant made determined his or her satisfaction with the simulated relationship: The more positive choices the participant made, the more satisfied he or she was with the simulated partner and the relationship at the end of the experiment.

“This finding is noteworthy because it demonstrates that one’s own internal dynamics affect relationship satisfaction independently of the behavior of one’s partner,” the authors wrote. •

Simulated relationships offer insight into real ones

Interview by Sharita Forrest, Assistant Editor

A student in a job market.

Academic Human Resources • Suite 420, 807 S. Wright St., MC-320 • 333-6747
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Information about staff employment online at www.pso.uiuc.edu. Paper employment applications or paper civil service exam requests are no longer accepted by SHR. To complete an online employment application and to submit an exam request, visit the online Employment Center: https://hrnet.uihr.uillinois.edu/panda-cf/application/index.cfm

Job market

Aug. 16, 2007

Inside Illinois

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Joseph Smith, a retired UI administrator, was honored by the Episcopal Seminary of the Southwest on the occasion of his retirement from the seminary board after nine years of service. Smith was an active member of the board’s faculty and education committee. Smith, who began his career at the UI in 1964, was a professor of English and held various administrative appointments, retiring as professor emeritus and director of academic affirmative action in 1994.

Janice Bahr, a professor of physiology in the department of animal sciences, is the first recipient of the Trainee Mentor Award give by the society for the Study of Reproduction, an international scientific society. The award was presented recently at the society’s annual meeting in San Antonio. The award was established by trainees who are graduate students and postdoctoral fellows to recognize outstanding mentorship. “Dr. Bahr has been committed to mentoring young scientists, providing leadership to the community, and support to those she has come in contact with throughout her career,” the selection committee noted. “Through her efforts and actions she has positively impacted many students in the field of reproduction and enhanced their personal and professional lives.”

Schuyler S. Korban, a professor of molecular genetics and biotechnology, received the 2007 Outstanding International Horticulturist Award from the American Society for Horticultural Science. The award was presented in July at the society’s meetings for Horticultural Science. The award was presented recently at the society’s meetings for Horticultural Science. The award was presented in July at the society’s meetings for Horticultural Science. The award was presented recently at the society’s annual meeting in San Antonio.

John F. Hartwig, the Kenneth L. Rinehart Endowed Chair of Chemistry, will receive the 2008 Paul N. Nylander Award from the Organic Reactions Catalysis Society. Hartwig will give Nylander Award presentation at the society’s spring conference in Richmond, Va.

Paul Hergenrother, a professor of chemistry, will receive the 2008 Eli Lilly Award in Biological Chemistry. The award will be presented at the national meeting of the American Chemical Society in Philadelphia in August 2008. The award recognizes Hergenrother’s “application of chemical principles to the study of cellular processes in developing promising new approaches to arresting cancer and to treating bacterial diseases.”

Lillian Hoddeson has been named the first Thomas Siebel Chair in the History of Science at the UI. Hoddeson, a professor of history at Illinois since 1989, as well as a research physicist, an affiliate of the Beckman Institute, and a Campus Honors Program professor, holds a doctorate in physics. She has had “a long and distinguished career as a historian of science with commitments to rigorous academic research and to the translation of that work into more popular forms and forums,” said Antoinette Burton, the chair of the history department. “Lillian is internationally known and well respected not only among historians of science but also among physicists, a rare accomplishment in the field,” Burton said. “Her global reputation has been linked to advancing knowledge of biological function through the concerted application of numerous biophysical methods. Sligar will be honored at the society’s annual meeting in Long Beach, Calif., in February.”

Kenneth F. Bradley, 84, died July 30 at Inboden Creek Gardens Assisted Living Center in Decatur. Bradley retired from Facilities and Services (formerly the Division of Operation and Maintenance) as a pipefitter in 1993 after 26 years of service. Harold Hugh Draper, 83, died July 20 in Melbourne, Fla. Draper was a UI faculty member for 21 years, retiring in 1975. He was a professor of nutritional chemistry in the department of animal sciences (1954-1974), and a founder and chairman of the graduate faculty members of the Nutritional Sciences (1965-1975). Memorial: to student scholarships, preservation of nature or organizations that advance global quality of life. Arnold L. Miller, 77, died Aug. 8 at Castle Foundation Hospital, Urbana. Miller was adjunct professor of clinical psychology for the Graduate College from 1982 to 2002. Memorial: to student scholarships, preservation of nature or organizations that advance global quality of life.
Big Ten Network debuts this month with sports and more

By ShaNita Forrest
Assistant Editor
By Sharita Forrest

The Fighting Illini football team’s home game with Western Illinois on Sept. 8 will be among the first collegiate games that will be aired by the Big Ten Network, the national cable/satellite programming service dedicated to coverage of sporting events for the UI and the 10 other universities in the Big Ten Conference.

The Chicago-based network, a joint venture between the Big Ten Conference institutions and Fox Cable Networks, will launch Aug. 30. The network will air six of the Big Ten teams’ season openers on Sept. 1, and more than 35 collegiate football games over the course of the season, including the Illini’s Nov. 3 game with Minnesota.

In addition to extensive sports coverage, the network also plans to air original programming in academics, the arts and sciences, and campus activities at the Big Ten institutions and Fox Cable Networks, which will launch Aug. 30. The network will air six of the Big Ten teams’ season openers on Sept. 1, and more than 35 collegiate football games over the course of the season, including the Illini’s Nov. 3 game with Minnesota.

As of July 25, BTN had secured distribution commitments from more than 100 local cable operators throughout the Midwest, in addition to DirecTV and AT&T.

The Fighting Illini football team will kick off its regular season with a game at Missouri on Sept. 1, which will be broadcast on ESPN2.

Fans can find out which cable and satellite TV carriers offer the Big Ten Network by visiting the BTN’s Web site, www.bigtennetwork.com.

Researchers create quantum analog of Ulam’s conjecture

By James E. Kloeppel
News Bureau Staff Writer

Like navigating spacecraft through the solar system by means of gravity and small propulsive bursts, researchers can guide atoms, molecules and chemical reactions by utilizing the forces that bind nuclei and electrons into molecules (analogous to gravity) and by using light for propulsion. But, knowing the minimal amount of light required, and how that amount changes with the complexity of the molecule, has been a problem.

Now, by creating a quantum mechanical analog of Ulam’s conjecture, researchers at the UI and the University of California have expanded the flexibility and controllability of quantum mechanical systems.

Using photons, we can harness chaotic motion to control chemical reactions and to move quantum objects, such as nanoclusters, molecules and buckyballs,” said Martin Gruebele, a William H. and Janet Lycan Professor of Chemistry, and the director of the Center for Biophysics and Computational Biology at Illinois.

Gruebele and co-author Peter Wolynes, a professor of chemistry and biochemistry at the University of California, describe their work in a paper accepted for publication in Physical Review Letters and posted on the journal’s Web site.

Given sufficient time, classical chaotic motion will spontaneously connect two points in phase space with arbitrary precision. In 1956, American mathematician Stanislaw Ulam conjectured that owing to this phase space-filling aspect of chaotic trajectories, a minimal series of energy expenditure would suffice to transfer a body from one point to another much more rapidly than by spontaneous motion.

Ulam’s conjecture is now routinely used to steer spacecraft around the solar system with minimal energy expenditure.

“The idea is that a complex system like our solar system has lots of planets, moons, and asteroids that can fling spacecraft gravitationally anywhere you want,” said Gruebele, who is also a professor of physics and biophysics, and a researcher at the Beckman Institute. “Rather than powering a rocket on a brute force, direct route, you can shoot your spacecraft near some moon, and let the moon do most of the work.”

Using photons as an energy source, electrons within molecules can move in much the same way a spacecraft in the solar system. But, there is a hitch: Quantum mechanics, not Newtonian dynamics, must be used to describe the motions. In quantum mechanics, the system is described by a wave function, or quantum state.

In their quantum mechanical analog of Ulam’s conjecture, Gruebele and Wolynes show there are limits on how efficiently an external force can nudge a system from a given initial state to a target state. They use the concept of a “state space” to describe all the possible quantum states of the system.

“We can calculate where this initial state will most likely go, and we can calculate where the target state will most likely come from,” Gruebele said. “We can then identify places in state space where the two are closest to one another.”

Those locations are where energy is most efficiently applied to perform the desired quantum transformation from initial state to target state.

The researchers’ equations also tell them how many photons are needed, and set fundamental limits on the time required.

“We can wait for the best possible moment to use the least amount of energy,” Gruebele said. “What we have is a fast and accurate method for computing the most efficient way of steering a quantum system between two specified states.”

The work was funded by the National Science Foundation.


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... Much of this information is drawn from the online Campus Calendars on the UI Web site at www.uiuc.edu/resources/campuscalendars.html. Other calendar entries should be sent 15 days before the desired publication date to insider@uiuc.edu. More information is available from Marty Yeakel at 333-1085.

... much as they have, and some of the comments may have to do with that. The book is more than just a guidebook for a tour of the campus, but it is also a travelogue, a love letter to the city of Urbana-Champaign, and a celebration of the University of Illinois at Urbana-Champaign, a place that I have come to love deeply.

... the campus, which is located in the center of the city of Urbana-Champaign, is a place where students, faculty, and staff come together to learn, to think, to create, and to inspire each other. The University of Illinois at Urbana-Champaign is a place where people from all over the world come to study, to teach, and to work, and where they are welcomed and valued for their unique perspectives and experiences.

... the university is committed to excellence in teaching, research, and public service, and to the development of a diverse and inclusive community. The University of Illinois at Urbana-Champaign is a place where students are encouraged to pursue their passions and to develop their full potential, and where they are supported in their academic and personal journeys.

... the university is also a place where the arts and culture are celebrated, and where people come together to enjoy and to share in the beauty and joy of the arts. The university has a rich tradition of arts and culture, and it is a place where people of all ages and backgrounds come together to enjoy music, dance, theater, art, and other forms of creative expression.

... the university is also a place where people come together to solve some of the world’s most pressing problems, and to make the world a better place. The university has a rich tradition of research, and it is a place where people come together to explore new ideas, to discover new knowledge, and to work towards a brighter future for all.

... the university is also a place where people come together to celebrate and to renew their connections to the past. The university has a rich history, and it is a place where people come together to celebrate the achievements of the past, and to learn from the lessons of the past.

... the university is also a place where people come together to share their experiences and to learn from each other. The university has a rich tradition of diversity and inclusion, and it is a place where people come together to learn from each other, to appreciate each other’s differences, and to work towards a more just and inclusive society.

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Gene that spurs development of the epididymis discovered

By Diana Yates
News Bureau Staff Writer

Human sperm cells travel up to 6 meters in their transit from testes to penis, and most of that journey occurs in the epididymis, a tightly coiled tube that primes the cells for their ultimate task: fertilization. In a paper released in June in the Proceedings of the National Academy of Sciences, researchers at the UI report that they have discovered a gene – and related mechanism – essential to the embryonic development of the epididymis.

The findings are the result of a serendipitous discovery, said professor of veterinary biosciences Humphrey Hung-Chang Yao. His graduate student, Jessica Tomaszewski, was examining the testes of mouse embryos when she noticed something odd: In one specimen the normally convoluted coil of the epididymis was instead a stunted, straight tube.

The lack of coiling had serious implications for the fertility of the mouse, Yao said.

“If you take sperm directly from the testis and put it into the female reproductive tract, it won’t swim. It won’t be able to fertilize the egg,” he said. Going through the epididymis changes the biochemical properties of the sperm and helps it develop the energy-generating machinery that allows it to swim. “So without this structure, under normal circumstances a cell cannot be fertile.”

The researchers first thought that the abnormality was due to a lack of the male hormone, testosterone. Decades of research had shown that the development and maintenance of male reproductive structures depend on an increase in testosterone levels that begins in the latter half of the life of an embryo.

But all the normal indicators of adequate testosterone levels (its production and other physiological characteristics) were present in the mutant embryos. Tomaszewski looked at younger mouse embryos from the same parents, to see how early in their development the abnormality appeared. She found the earliest evidence of a lack of proper coiling in the epididymis between days 15.5 and 17.5. (Mouse gestation is about 19 days.)

Before it is formed in the embryo, the epididymis is part of a structure called the Wolffian duct. When the male mouse embryo is about 13 days old, the Wolffian duct begins to grow and differentiate into the plumbing system connecting testes and vas deferens. This normally occurs in males shortly after testosterone levels begin to rise. But in the embryos Tomaszewski had found, the epididymis did not follow the standard path, even though testosterone production was normal.

From his earlier work, Yao knew that the gene for one component of a growth factor, inhibin beta A, is highly expressed in the part of the Wolffian duct that eventually becomes the epididymis. He also knew that expression of this gene increases in response to a rise in testosterone. Inhibin beta A forms part of a protein, activin, that spurs a cascade of activity in certain cells.

But all the normal indicators of adequate inhibin beta A levels were also present in the mutant embryos, suggesting that inhibin beta A was spurring activity in the cells that form the walls of epididymal tube.

Further study showed that a lack of inhibin beta A led to stasis in these cells. Without it, the cells divided too slowly to adequately lengthen the tube.

This research adds to the evidence that while testosterone is the master switch that triggers the development of male reproductive structures, it doesn’t work alone, Yao said. Other studies had shown that testosterone works with other “regionally specific” factors to spur the development of structures such as the prostate gland or seminal vesicles. Inhibin beta A is in the first such factors shown to contribute to epididymal coiling, he said.

“The identification of inhibin beta A as an important for understanding the basic biology of male sexual development,” Yao said. “But it also provides new insight into male infertility.”

Graduate students Avenel Joseph and Denise Archambeault contributed to this study. The work was supported in part by the National Institutes of Health.