

Ten years after graduation: The risk-takers who took a chance on a brand-new medical school

'm sure that the founders of the FSU College of Medicine could not have dreamed that we would be celebrating the 10th anniversary of our inaugural class so soon. Well, that time is here and we are excited to host many of the members of the Class of 2005 at our annual alumni reunion in April. We can never forget what this class did for us. They took a chance on a new medical school (the first to open in the U.S. in more than 20 years) with a new distributed model of education that some said would never succeed, and forged the initial path of success for us.



- While they had the legacy of the PIMS program to fall back on, they were the first to experience their second-year curriculum here at our main campus. It was all new.
- They endured several moves on campus, from trailers near Duxbury Hall to renovated classrooms in the old Florida High. They toured the beautiful new building that is now our permanent home at the corner of Stadium Drive and Call Street, but they never had a chance to call it home. Yet, they persevered through it all.
- In their third year, they ventured out to the Pensacola, Orlando and Tallahassee campuses and physician offices and set the standard for our community-based model.
- They brought laptops and PDAs with them and changed the way medicine is practiced in these offices, highlighting the electronic library resources so essential to our success.
- They opened their Match Day envelopes in private, so different from the public Match Day celebrations that we now have, because they were just not sure how it would turn out.
- They proved the value of our model with many of them returning to Florida, to local practices, while providing the next generation of providers and faculty for the FSU College of Medicine.

We hope you enjoy reading about where they are now in this issue of FSU MED.

On a sadder note, I'm sure by now you have heard that we lost dear and devoted friend Charlotte Maguire in December after a short illness. Dr. Maguire was determined to the very end to be in control and died peacefully in her home with friends and family nearby. While she insisted that we not "make a fuss" about her after her passing, we hoped she wouldn't mind an informal ice cream social in her honor as a celebration of her life and contributions. We did that in January, raising a Fudgsicle in her memory. We will never forget her smile and constant support.

Enjoy this issue of FSU MED and the stories of our amazing graduates and students. As the flowers take bloom and we proceed through another busy season of the Match and graduation, I wish you all a happy spring.

e. C. C

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#### TO MAKE A GIFT

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on the cover

Full of curiosity – and spirit – the Class of 2005 was all smiles on the day of the White Coat Ceremony. Faith and determination also played a key role in the success they are enjoying today.



Mark Bauer/PLAID Design Editor



#### HEADLINES

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#### Up close and personal with diabetes Growing up with diabetes sometimes felt like it needed to

Growing up with diabetes sometimes felt like it needed to be kept secret for Martin Wood. Now he's opening new channels of communication about the disease with a firstof-its-kind research publication at Florida State.

#### FEATURES Ten years down the road By Ron Hartung

Surrounded by uncertainty when the FSU College of Medicine opened its doors in 2001, the Class of 2005 is now a thriving collection of first-rate physicians.

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A neuroscientist examines the push for medical marijuana



#### s c i e n c e

# Biotech's greatest hits

iotechnology-based drugs have been used for the prevention and treatment of human and animal diseases for more than 20 years. Pharmaceutical Sciences recently celebrated

its contributions to the clinical success



of biotech drugs by publishing a special issue highlighting many of the most significant articles it has shared on the topic

Longo



it has shared on the topic. Included in "Two Decades of Publishing Excellence in Biotechnology" is a paper produced by College of Medicine Professor Michael Blaber and graduate students Xue Xia and Liam Longo. Xia

(biomedical sciences)

XIa

and Longo (molecular biophysics), both of whom graduated with a Ph.D. in December, performed work for the study in the Blaber Lab.

Blaber said the article was chosen based on the significance of the potential contribution the research presents in the development of biotech drugs.

"Our study will help the pharmaceutical industry in their effective design of second-generation protein pharmaceuticals having significantly improved functional properties," Blaber said.

#### From deadly to survivable

eveloping disease rea the molec

eveloping a drug to treat a disease requires understanding the molecular mechanisms behind it. That has been Branko

Stefanovic's pursuit ever since he began studying fibrosis 20 years ago.

After discovering the key players in the process, the Department of Biomedical Sciences researcher sought a way to interfere with that process. Five years ago he found an interaction between two molecules that drives the progression of fibrosis – a good target for possible drugs. Now he is screening for drugs to prevent the untreatable disease.

"Fibrosis is one of the most common conditions," said Stefanovic. "It's basically excessive scarring of internal organs. It can affect any internal organ, but by far the most common is liver fibrosis."

Liver fibrosis can be caused by the hepatitis B or C virus or alcohol abuse, but the most common cause is nonalcoholic fatty liver disease associated with obesity.

"This is a big problem worldwide," said Stefanovic. "Obese people usually have accumulation of fat in the liver. This causes subclinical inflammation of the liver, and then fibrosis starts as a secondary reaction." The prognosis is bleak.

"You can reduce body weight, you can stop drinking alcohol, you can treat the hepatitis virus, but there is nothing that can directly affect fibrosis," Stefanovic said. "For people who are in the progression phase of the disease, the liver is going to fail."

While uncovering all the molecular mechanisms behind fibrosis, Stefanovic found one interaction that, if stopped, would disrupt fibrosis progression. He began working on a procedure to screen for inhibitors of that interaction. He knew it was an ideal drug target. He also knew the pharmaceutical industry usually screens up to 500,000 compounds until it finds one suitable for testing. Using his lab, Stefanovic screened 50,000 and discovered an inhibitor with great potential. He patented it and began using it in animal studies, where it prevented the progression of existing fibrosis.

With no drug like it currently available for humans, drug development organizations became interested in Stefanovic's work. The compound needed to be refined to a lower toxicity and higher potency before being submitted for clinical trials, so it needed to undergo more screenings.

Stefanovic turned to the not-for-profit Sanford-Burnham Medical Research Institute, which screens for drugs that can treat untreatable human disorders and receives applications from all major Florida universities and institutions. It accepted Stefanovic's proposal and is now conducting additional screenings of 320,000 compounds.

"If you have a drug to give fibrosis patients to prevent liver failure, it will postpone it not for five years, but for 20 years," said Stefanovic. "Then patients can have a more normal lifespan, and revert this deadly process into a survivable condition."



Branko Stefanovic with former Ph.D. student Dillon Fritz.



Kimberly Driscoll

#### Safe at school

 very parent wants their child to be safe at school. For parents of children with diabetes, the desire takes on additional meaning.
To meet that expectation many states require that only trained medical personnel, such as the school nurse, provide care for children with diabetes. The policy was designed with good intentions, no doubt.

But the reality is that the school nurse is not always available, especially for activities that take place after school or away from campus. The result is states with the best of intentions may, in fact, be endangering the health of children with Type 1 diabetes by limiting the ability of non-medical school personnel to provide them with assistance.

Some of the most respected pediatric diabetes specialists in the country completed a study to better understand the issue. Do such policies help, or hinder, the effort to keep children with Type 1 diabetes safe at school?

Kimberly Driscoll, assistant professor of behavioral sciences and social sciences at the College of Medicine, is lead author for the study, published in *Pediatric Diabetes*. Driscoll designed the study and the survey instruments, coordinated with participating medical centers for the collection of data, analyzed the information and prepared presentations for sharing the results with the international medical community.

In addition to the FSU College of Medicine, participating institutions included the University of Pittsburgh Diabetes Institute, the Barbara Davis Center for Childhood Diabetes at the University of Colorado School of Medicine, the Texas Diabetes Institute at the University of Texas Health Science Center at San Antonio, and the Joslin Diabetes Center at Harvard University.

The authors measured parent perceptions between those in states where policies limit who can help provide care for children with Type 1 medical personnel? It just doesn't make sense.

"If we want children to be able to manage their diabetes effectively, they must be able to do that in the school environment with available help – if needed – especially because during the school year they spend at least 33 percent of each weekday at school."

The findings strongly suggest that training a variety of school personnel to provide routine and emergency diabetes care is likely to ensure



diabetes and those in states allowing trained, non-medical personnel to assist. Some examples of non-medical personnel include teachers, coaches, cafeteria workers, bus drivers and school staff.

"This study was the first step in demonstrating that parents living in states that allow non-medical personnel to deliver diabetes care believe that their children are just as safe as those in states who limit care to only medically trained personnel," Driscoll said.

"If parents believe their children are being safely cared for by non-medical personnel, then why do some states continue to uphold legislation that prevents diabetes care by nonthe maximum safety of children at school. Already, the study has been influential in guiding policy decisions.

After Driscoll presented the findings at the American Diabetes Association (ADA) annual meeting in Chicago in 2013, three states passed model safe-at-school legislation.

"I can only imagine what this peer-reviewed publication – *Pediatric Diabetes* – will mean as a public health policy changer," said Pediatric Endocrinologist Larry Deeb, past president of the ADA and a College of Medicine faculty member who participated in the study.

"For years to come, the 'Driscoll' paper will be quoted."

#### science

# Diabetes gets personal

The Autism Institute will screen 9,000 children for autism in North Florida with support from a new grant.

very kid who watched Saturdaymorning cartoons during the Reagan era also got a "Just Say 'No' to Drugs" indoctrination. Message:

If you see people with hypodermic needles, stay away — they're drug dealers or users.

Picture little Martin Wood, who'd been diagnosed with diabetes at age 2. He needed to inject himself with insulin every day just to stay alive. But that's not an easy concept to explain to your fellow grade-schoolers. In their eyes, if he was using a needle, he was a druggie.

So he kept his medical condition a secret.

Today, the secret's out. Way out. He has "DIABETIC" tattooed in color on his right forearm. He also wears his insulin pump on the outside of his pants pocket, never inside.

Wood, director of the college's Charlotte Edwards Maguire Medical Library, has become a tireless advocate for those who have and those who study diabetes. And this spring, with the backing of the library staff and the College of Medicine administration, he's taking his advocacy to a new level.

He'll be launching the first edition of the electronic, interdisciplinary, peer-reviewed, open-access publication called *The PLAID Journal* (www.theplaidjournal.com ).

"PLAID" stands for "People Living with And Inspired by Diabetes." Last November, on World Diabetes Day, Wood put out the call for research submissions and peer reviewers.

"We're reaching out beyond Florida State," he

said. "We're looking for folks working with diabetes every day and those living with diabetes every day.

"A huge online collection of people blog about diabetes, share on forums and speak in public about it. I'm one of them," said Wood, who writes the blog Diabetically Speaking. "We've been searching for a journal that would have this kind of information and back it up with research. I've talked to many professionals doing the research, but they have nowhere to publish it. Or their work is published where people who need to read it can't. The subscription could be \$3,000 a year.

"That's why making *The PLAID Journal* open-access is so incredibly important. We want people to email the link to each other, share it on social networks, put it everywhere."

*PLAID's* editorial board includes, among others, Students With Diabetes founder Nicole Johnson, who has a doctorate in public health and was Miss America, along with former American Diabetes Association President Larry Deeb, who teaches FSU med students.

Readers will find not only the latest medical breakthroughs but also such practical information as how to travel with diabetes, how to talk about diabetes with others, and how health insurance policies affect diabetes decisions.

"What we want," Wood said, "is for the patient to be able to say, 'Doc, I found this in *PLAID*,' and for the doctor to respond, 'Great, let's talk about it."

Wood is spreading the word

about diabetes and PLAID





# tay Stanyard

#### Big year for Autism Institute



fter 30-plus years as an autism investigator, Amy Wetherby shows no signs of slowing down. In fact, the past year has

been one of her most productive.

Wetherby, director of the College of Medicine's Autism Institute, was principal author of a groundbreaking November *Pediatrics* paper. Citing a seven-year study, she reported that children diagnosed with autism at 18 months who underwent home intervention conducted by their parents fared better than with intervention conducted by doctors in their offices.

That's a big step toward making early intervention more available and affordable for all families, including those in rural and disadvantaged communities.

Last summer, Wetherby and her fellow researchers secured a \$10.4 million grant from the National Institutes of Health to recruit black churches and federally funded nutrition programs in identifying young children who may show signs of autism.

That's important because children in underserved communities typically are diagnosed with autism at least a year later than other children. Early detection and intervention are crucial. The older the child, the less pliable the brain, and the less effective the interventions.

Wetherby also continues to create tools — such as www.AutismNavigator. com, and an app displaying 16 gestures that toddlers typically master by 16 months — to help physicians and parents learn the outward signs of autism and how to minimize its harmful effects.

"We've come up with a treatment model that can teach parents to teach their child during everyday activities such as playtime and chores, and we've been able to document that the children improved their developmental level, social communication skills and autism symptoms," Wetherby said. "Then we teach them how to take the child to a playground, grocery store or restaurant and use these strategies.

"We've tested a model that any federally or state-funded early intervention system should be able to offer to all families of toddlers with autism. It's efficient in terms of professional time, so all states should be able to afford this. And it should be free to families."

The scale of Wetherby's projects can be breathtaking. The NIH grant, for example, involves screening 36,000 children in four states over five years. The idea is to change lives. But for those who want a dollars-andcents justification, Wetherby has a ready reply.

"We'll screen 9,000 children in North Florida alone," she said. "Based on estimates, we should be helping to identify roughly 411 children who have autism. If we can identify those children within 18 months and get them into good early intervention, at least 90 percent should be ready for regular kindergarten. That's going to save \$10,000 a year for each child for 12 years of school. And it would increase their likelihood of going to college, junior college, trade school and getting a job. So that could save 1 or 2 million dollars over the life of each child.

"For the four states, we're bringing in \$10 million, split four ways. It helps FSU thrive, it pays my staff's salary and it helps provide better, earlier services to the local families in our studies. But more important, the research findings are going to help children all over the world."



#### Working together to unmask 'Enzyme X'

f he hadn't met Greg Dudley one day at a commercialization roundtable on campus, Raed Rizkallah might still be scratching his head over the actions of a mystery enzyme that he and his colleagues encountered three years ago.

Rizkallah is a researcher in the College of Medicine's Department of Biomedical Sciences. Dudley is down the road in the Department of Chemistry and Biochemistry. Their paths don't often cross. But they crossed just enough. Now they're among the co-authors of a paper recently published in Oncotarget, a specialized journal that features cancer-related research.

Three years ago, working in the lab of Senior Associate Dean Myra Hurt, Rizkallah discovered that a single mechanism was modifying a remarkable 800 or so proteins simultaneously during cell division — but he couldn't tell what was responsible for this mechanism. Now he's identified it as TOPK, an enzyme that belongs to the family of protein "kinases," which orchestrate much of the networking and signaling in cells.

"This is a very promising target for cancer treatment," said Hurt, also a co-author. "Some of the new generation of cancer drugs are kinase inhibitors."

Rizkallah calls proteins the workhorses in cells: "Some continuously interact with the DNA, but not during that stage where cells are dividing. Something makes them back off — an enzyme or enzymes. The shutting down of gene expression during cell division has been known for a long time, but people haven't fully understood all its underlying mechanisms."

So it was a challenge to learn the identity of the enzyme that could modify such a large family of proteins at the same time. Rizkallah used a fishing analogy to describe his work.

"We had the fish: Enzyme X," he said. "We had the bait" — a molecule that the Hurt lab had found to attract the enzyme. "But it wasn't on a hook, so we couldn't pull out Enzyme X to examine and identify it."

The hook is what Dudley contributed by making a chemical modification. That provided Rizkallah with a list of purified complexes — one of which would turn out to be Enzyme X. But which one?

This time, Rizkallah needed the cutting-edge help of the mass spectrometer in the College of Medicine's Translational Science Lab, which analyzed exactly what was in the purified complexes. Then Rizkallah went down a list of 40 to 50 candidates, comparing each one with what he knew about Enzyme X. Finally, he concluded that Enzyme X must be the enzyme known as TOPK. Others had detected it at high levels in many types of cancer, but he was the first to identify its functional significance to dividing cells.

Now he's following up on how TOPK is activated and how it's regulated in cancer cells. Dudley was pleased to help solve the mystery: "Intercollege collaboration adds value to both programs." S

# Genomics center to accelerate university research

cientists have come a long way since creating the first map of the human genome in 2003. Technological advances have accelerated DNA sequencing of the human genome – a process that once took a decade or more to complete – to the point that it can be done in a matter of days, even while yielding more information.

At Florida State, researchers are sequencing and mapping genomes for everything from fruit flies to humans, producing information that has led to numerous discoveries about the molecular basis of disease and sex differences, to give two examples.

With advances in the technology, however, come problems.

"It's just the middle part—getting a large sequence file into something intelligible. Most people don't have that skill set," said Michelle Arbeitman, associate professor of biomedical sciences at the College of Medicine.

Help is on the way in the form of a new Center for Genomics and Personalized Medicine at Florida State. The center, approved in December, is a joint effort of the College of Medicine and the College of Arts and Sciences and will be available for use by other university departments.

The center is expected to quicken the pace of genomics research at FSU, relieving a current backlog of information that needs analysis.

"Researchers will be able to take large sequence data files and work with the center to perform all downstream computational and statistical analyses," Arbeitman said. "Currently one of the major bottlenecks is that once they have the data the individual researchers don't necessarily have the expertise to know how to move forward with it. The center provides those services."

Planning has taken two years, spurred through weekly meetings involving the center's founder, Gary Tyson (computer sciences), David Gilbert (biology), Arbeitman and Biological Sciences Associate Professor Jonathan Dennis. Daniel Vera (formerly a postdoctoral researcher in Dennis' lab) has been selected as the center's director.

While it is operational, the center has not yet identified a location on campus for its central office. A great deal of the genome sequencing takes place in the College of Medicine's Translational Science Laboratory, which has an automated sequencer that can map an entire genome in a few days. "Our lab produces approximately 16 trillion base pairs of sequence data annually for researchers at FSU and all over the world," said Roger Mercer, director of the Translational Science Laboratory. "That's the equivalent of

about a hundred genomes, though much of our work is done in species other than humans."

The 'personalized medicine' aspect of the center meshes with the development of the College of Medicine's Clinical Research Network (CRN). The CRN potentially will harness information from more than 2 million patients treated by more than 2,400 community physicians who teach FSU medical students throughout Florida.

For now, there's a lot to be deciphered.

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"For most researchers, what comes out during genome sequencing is like having a library filled with classical literature written in Italian – if you don't speak Italian," said Myra Hurt, senior associate dean for research and graduate programs at the College of Medicine.

"You know all the letters, but you need a translator to know the words. The new genomics center will translate the 'letters' into meaningful genetic information, leading to new discoveries."



#### Inside the teenage mind

s a neuroscientist and a father, Pradeep Bhide might wonder about what goes on inside a teenager's brain in a different

way from most parents. He's also in a better position than most to seek definitive explanations.

"I have always been moved – and often felt helpless – by how different, challenging, daunting and dysfunctional the world seems to almost every teenager on more than one occasion," Bhide said. "Yet, to the teenagers' parents, older siblings and teachers, the same world at the same time and at the same place seems more acceptable, less daunting and more understandable."

So when a teenager responds to a particular quandary in unexpected or unacceptable ways, Bhide wonders who's to blame – the teenager or the adult?

"I think that if we knew, understood and

accepted that teenagers and adults are impacted differently by the same stimuli or challenges, we – as parents, teachers, law enforcement officers, social workers and judiciary – may have the opportunity to adopt softer, constructive and less hurtful approaches to dealing with our youngsters and perhaps with ourselves," Bhide said.

Bhide, the Jim and Betty Ann Rodgers Eminent Scholar Chair of Developmental Neuroscience and director of the Center for Brain Repair at the College of Medicine, didn't stop with simple curiosity.

He sought scientific proof, pitching the idea of devoting an entire volume of the scientific journal *Developmental Neuroscience* to a better understanding of the teenage brain.

The result is a series of 19 studies that approached the question from multiple scientific domains, including psychology, neurochemistry, brain imaging, clinical neuroscience and neurobiology. The studies were published in the issue "Teenage Brains: Think Different?"

"The emotional and economic burdens of such behaviors are quite huge," Bhide said. "The research described in this book offers clues to what may cause such maladaptive behaviors and how one may be able to devise methods of countering, avoiding or modifying these behaviors."

Examples of findings published in the book include:

• Unlike children or adults, teenage boys show enhanced activity in the part of the brain that controls emotions when confronted with a threat. Magnetic resonance scanner readings in one study revealed that the level of activity in the limbic brain of adolescent males reacting to threat, even



when they've been told not to respond to it, was strikingly different from that in adult men.

• Using brain activity measurements, another team of researchers found that teenage boys were mostly immune to the threat of punishment but hypersensitive to the possibility of large gains from gambling. The results question the effectiveness of punishment as a deterrent for risky or deviant behavior in adolescent boys.

• Another study demonstrated that a molecule known to be vital in developing fear of dangerous situations is less active in adolescent male brains. These findings point toward neurochemical differences between teenage and adult brains, which may underlie the complex behaviors exhibited by teenagers.

"The new studies illustrate the neurobiological basis of some of the more unusual but well-known behaviors exhibited by our teenagers," Bhide said. "Stress, hormonal changes, complexities of psychosocial environment and peer pressure all contribute to the challenges of assimilation faced by teenagers.

"These studies attempt to isolate, examine and understand some of these potential causes of a teenager's complex conundrum. The research sheds light on how we may be able to better interact with teenagers at home or outside the home, how to design educational strategies and how best to treat or modify a teenager's maladaptive behavior."

# Self-perception a risk factor for obesity

eenagers who mistakenly perceivethemselves as being overweightare more likely to become obese inyoung adulthood, according to a

new study by Florida State College of Medicine researchers Gina Sutin and Antonio Terracciano.

The findings are to be published by *Psychological Science*, a journal of the Association for Psychological Science. The study sheds light on the psychological processes at work in obesity, which is a significant risk factor for diabetes, heart disease, high blood pressure, some types of cancer and stroke, among other health problems.

There is no single cause for obesity and no single approach to prevent or treat it. Sutin and Terracciano have made the psychological processes at work in obesity a focal point of their research.

"This study points to the importance of psychological functioning in the development of obesity," Sutin said. "But let me be clear that when we talk about psychological factors we are not blaming the victim. For many psychological factors we have little control and may not even be aware of them."

With a better understanding of the role psychology plays in the disease, pediatricians may want to differentiate between talking to adolescents about whether they are overweight or underweight and talking to them about how they perceive themselves in relation to weight.

"We're showing in this study that the misperception is nearly as strong as the actual BMI in predicting obesity," Sutin said. BMI (body-mass index) is a common tool physicians rely on to determine if a patient is overweight or underweight.

The American Academy of Pediatrics currently recommends talking to adolescents at every well-child visit about body image. "This isn't just, 'Are you satisfied with your body?' It's whether or not there's a misperception, a discrepancy between what they perceive and what they actually weigh." Sutin and Terracciano looked at data from 6,523 individuals who participated in the National Longitudinal Study of Adolescent Health at age 16 and again at age 28. In the study, participants had their height and weight measured by trained staff to derive BMI. They also rated how they perceived themselves in relation to weight.

"We were specifically interested in those who reported perceptions of being overweight, even though the data collected showed their weight to be in the range of what is defined as normal," Sutin said.

What they found is that those individuals had a 40-percent increased risk of obesity at age 28 than others in the study. The weight gain could be a result of several explanations, Sutin said.

"They may be more likely to engage in unhealthy dieting techniques, like using diet pills or vomiting," she said. "These are associated with long-term weight gain. They also may have lower self-regulatory abilities." In addition, they may be subject to weightrelated stigmatization or discrimination, which Sutin and Terracciano linked to greater weight gain in a previous study.

While they expected some form of the results they found, there were some surprises.

For example, they found that boys were far more likely than girls to become obese later on if they incorrectly perceived themselves as overweight at age 16. The increased risk associated with misperception was nearly three times greater for boys than for girls, though overall fewer boys than girls misperceived their weight early on.

"It is clear that the determinants of obesity are complex and range from genetics to the social environment and public policy," Sutin said. "We need a greater understanding of determinants at all levels, including the psychological determinants, to effectively address our current challenges with the prevalence of obesity."

> Antonio Terracciano, Gina Sutin and their daughter, Baia.





#### A critical eye on scientific findings

s a neuropharmacologist, Gregg Stanwood pays close attention to news about discoveries related to molecular brain function.

So he was excited several years ago when he heard about a potentially "revolutionizing" new therapeutic target for people suffering from diseases such as schizophrenia or Parkinson's. Both involve abnormal functioning of the brain's dopamine receptors, which are common targets for pharmaceutical treatments.

What caught Stanwood's eye was a series of papers sharing the discovery of a new protein complex between two dopamine receptors.

"The idea was that when these proteins formed complexes with one another, that would change the biology," said Stanwood, associate professor of biomedical sciences at the College of Medicine. "D1 and D2 dopamine receptors complex together, and that turns the signaling on its head and changes it fundamentally."

#### Or does it?

Stanwood, then at Vanderbilt, went to work testing the new theory. So did other neuropharmacologists.

"I was really excited," Stanwood said. "Many of us spent a lot of energy, time and money figuring out how this complex signaling works."

After five years and only negative data, however, Stanwood and many of his colleagues began to question the initial finding. Eventually, there were so many concerns that several neuropharmacologists decided to pool resources in further investigating the claim.

Stanwood's lab at Vanderbilt worked with Jonathan Javitch at Columbia University and David Sibley at the National Institutes of Health.

"We decided maybe if we merged our datasets, and looked at the problem at every single level that's ever been examined, and we put it all together, then maybe it would be enough to get the field to recognize there was something more complicated going on," said Stanwood.

The quest culminated with Stanwood and 13 co-authors debunking the original findings in an article published in a recent issue of *Molecular Psychiatry*. While happy with their work, Stanwood said he gained new appreciation for how difficult it is to challenge the work of other scientists.

"It's really hard to publish negative data, but that model moved from hypothesis to accepted dogma in my field in the span of about five or six years," said Stanwood. "As scientists we need to constantly go back, reevaluate, and not accept things as fact too quickly. We need to do our due diligence."

At the College of Medicine, Stanwood works in developmental neuroscience, seeking an early intervention for mental disorders like schizophrenia that do not normally manifest until a person is in his 20s.

He also hopes his most recent collaborative paper will serve as a catalyst for the sharing of negative findings. It's an important part of discovery. Unfortunately, Stanwood said, it's also something scientists too often keep to themselves.

Although the topic is still being vigorously debated among some scientists, Stanwood is confident in the newly published findings and in his belief that what once was "dogma" now is more accurately labeled as myth.

"We were able to get out there in a highprofile way, and we were able to tear down what's become a waste of people's time, effort and money," Stanwood said. "We feel really good about the rigor of our analyses and paper. The D1/D2 complex may exist in rare and nonphysiological cases, but it does not exist in the normal adult brain."

#### science

# Stopping cancer's spread

ne of the most important qualities of DNA – the hereditary material found in humans and almost all other organisms – is that it can replicate. The process allows us to function in good health, but there's a

dangerous drawback when diseased cells also are able to multiply. Understanding why damaged DNA sometimes passes its genetic coding along in the body is essential to preventing it. Although



Kaplan



years, new technology and techniques are allowing FSU biomedical researchers to locate and define a potential solution to the damaged-cell replication found in diseases such as cancer.

researchers have been exploring the topic for

Now Associate Professor Daniel Kaplan and his team have made a discovery he believes will have a "huge" impact on the field of DNA replication. The *Journal of Biological Chemistry* published the news in January.

Kaplan's lab focused on a particular protein that prevents cells from dying by inducing DNA replication. The protein, known as Mcm2, is chemically changed during replication by an enzyme called DDK that coordinates the cell cycle with DNA replication.

Kaplan and Research Faculty Scientist Irina Bruck found that DDK modifies Mcm2, essential for replication to begin. They've made new discoveries about the role Mcm2 plays and the mechanism by

which it operates.

Bruck

During replication, the double-stranded staircase known as DNA must break apart, become two single strands, and copy itself to form two new genomes. A ring-shaped structure called the replication fork helicase unwinds the double-stranded DNA to make single-stranded DNA.

"The ring can only unwind DNA if one strand is on the inside and the second DNA strand is on the outside," Kaplan said. "In order for that to happen, the ring needs to crack open, and what we found is that when DDK phosphorylates Mcm2, that cracks open the ring and allows it to surround one strand of DNA where it's in its active conformation."

Once active, it is ready to start creating DNA for the new cells, but if cell growth perpetuates in a disease like cancer, it becomes a potentially fatal process.

That's where Kaplan's discoveries could lead to advances in the way cancer is treated.

"It's very promising that if we can inhibit DDK from phosphorylating Mcm2, we may be able to treat cancer cells and block their growth," Kaplan said. "We'd like to take this discovery as far as we can."



Foster, left, and Zimmerman at the awards ceremony.

# A 'transformative' award

E

lizabeth Foster doesn't practice medicine, but she advises students who might. Sometimes she transforms lives – and recently she even won an award for her efforts.

The Transformation Through Teaching Award is sponsored by Florida State University's Spiritual Life Project. Since 2011, it has honored fulltime faculty members who've had an intellectual, inspirational and integrative impact on students' lives, as reflected in the students' compelling stories.

Premedical student Julia Zimmerman had such a story after taking Foster's undergraduate Careers in Medicine course.

"When I started my premed journey, I was getting into something over my head," said Zimmerman, a junior. "I was so nervous and so anxious and excited, and I was brought to reality through Dr. Foster. She was realistic with how difficult this experience was going to be, but she brought joy into the whole thing and said the harder we work, the more worthwhile it will be in the end."

Foster also altered Zimmerman's preconceived ideas.

"I was so excited to become a doctor and make money," said Zimmerman. "She made me realize that there is so much more to the medical field and to life itself."

Foster, one of FSU's 10 honorees for 2014, was touched by Zimmerman's nomination.

"It was very humbling and validating that if you speak the truth about your own life experiences, students appreciate it," said Foster, director of student research opportunities at the College of Medicine.

Along with her undergraduate and graduate teaching responsibilities, Foster facilitates research experiences for undergraduate, graduate and medical students and serves as an advisor in research and career development.

In her own career, as she obtained her doctorate in biology, Foster realized she did not want the conventional faculty-tenure track of a researcher.

"I tried to be the 'big questions' person that I like to be, but I also really needed to be practical," said Foster. "Maybe that comes across in how I advise and work with students. Hopefully they sense something like that. They can live their life and keep true to who they are."

Foster is the third College of Medicine professor to receive the honor in addition to Curtis Stine, M.D., and José E. Rodríguez, M.D.



#### An FSU family affair

urtis Stine's father practiced medicine nearly 40 years in a small community in northern Indiana. Growing up, his son watched and learned. One day, he asked his father why he drove nine miles into the country at 2 a.m. to make a house call on an Amish woman. "Her husband had to hitch up his horse and buggy and drive two miles in the dark to the nearest pay phone just to call me," the doctor explained. "So I knew she was sick.""

Now the younger Stine is also a physician. For more than 12 years, he has modeled patient-centered care for students at the College of Medicine. Late last year, Stine received the Exemplary Full-Time Educator Award from the Florida Academy of Family Physicians.

Stine is associate chair of the Department of Family Medicine and Rural Health, where he directs clinical programs, curriculum development and evaluation. He joined the medical school in 2002 after many years in Denver. He has also been in private practice and directed a family medicine residency program. "Dr. Stine is a humble leader," said Abby Peters (Class of 2011), a former student of his who now practices at Tallahassee Pediatrics. "He is quick to listen and slow to speak, allowing students to evaluate their own interests and talents. More than any other physician I know, he receives great joy from adding quality of life to those around him."

Stine received his award in December at the FAFP's annual meeting. As usual, multiple faculty members from the College of Medicine were honored or elected:

- Jennifer Keehbauch (Orlando campus) was installed as president.
- Luckey Dunn (Daytona Beach campus), president-elect.
- Don Zorn (Tallahassee campus), Family Physician of the Year.
- Christie Cavanagh (College of Medicine-Lee Memorial residency program), Young Leader Award.
- Ed Prevatte (Daytona Beach campus), board chair.

In addition, six College of Medicine people serve on the Board of Directors, and one is a delegate to the American Academy of Family Physicians. SPRING 1

#### **Leading Florida's** dementia-research effort

ong interested in health policy, Ken Brummel-Smith has been appointed to an advisory board that will help determine where millions in Alzheimer's research funding goes in Florida.

Brummel-Smith, outgoing chair of the Department of Geriatrics, is part of the 11-person Alzheimer's Disease Research Grant Advisory Board established by Florida Surgeon General John Armstrong.

During the 2014 legislative session Florida budgeted \$3 million for the newly established Ed and Ethel Moore Alzheimer's Disease Research Program. With guidance from the advisory board, the Florida Department of Health will award research grants through a competitive, peer-reviewed process to eligible researchers from Florida universities or research institutes.

In addition, advisory board members will provide advice on program priorities and oversight for effective ways to disseminate research results.

"It was a real honor to be asked by the Florida surgeon general to serve, then to be elected by them as chair was a real treat," Brummel-Smith said. "The board is very diverse - geriatricians, gerontologists, neuroscientists, geriatric psychiatrists and neurologists. The first grant decisions were challenging, but it was wonderful to see the range and scope of dementia research going on in Florida.

"The important thing is going to be funding some great research here that will not only advance the cause of treating dementia, but also position our state's researchers to be more competitive at the federal level."



# A familiar path to Tallahassee

Brummel-Smith (left) and Katz

aul Katz remembers when Ken Brummel-Smith left Oregon Health Sciences University to become the chair of the geriatrics department at a new medical school a dozen

years ago.

"I looked at it from a distance with some curiosity and admiration," Katz said.

The curiosity never faded for Katz, who will succeed Brummel-Smith as chairman of the Department of Geriatrics at Florida State in May.

"What I heard about this medical school and this position, it sounded like something that's tailor-made for someone with my interests," Katz said. "Then when I came down and met the faculty and the dean and learned more about the school's mission, the goals for the future, ... it was like a wonderful coincidence in the kind of opportunity I was looking for."

For the past five years, Katz has been shuttling between jobs as chief of the Division of Geriatrics/Aging at the University of Rochester School of Medicine and Dentistry and vice president and chief of staff at Baycrest Geriatric Health Care System in Toronto.

The dual roles in academic medicine and a large, thriving health-care center give Katz insights that will serve FSU medical students well, Brummel-Smith said.

"I think the further academics gets away from the true health-care situation, the more risky it is, because we might be teaching things that are good in theory, but how do they play out in real life?" Brummel-Smith said. "He's been in that real-life situation, but in academics at the same time. So that's going to be a great addition for us."

Brummel-Smith and Katz have been recognized for decades as leaders in the field of geriatric medicine. Brummel-Smith came to the College of Medicine as past president of the American Geriatrics Society (AGS). Katz arrives as past president of the American Medical

#### In death as in life, Maguire's honors continue

Directors Association, the national association of professionals practicing long-term care medicine committed to the continuous improvement of patient care.

The transition began at an AGS annual meeting last year. Brummel-Smith was ready to shift his career focus to teaching, research and advocacy in aging-related issues. He sought Katz to plant seeds about a possible replacement.

"I was sort of thinking it might be someone who is up-and-coming in the field of geriatrics, and not necessarily someone who was already well-established in the field," Brummel-Smith said. "I asked if he knew anybody and he said, 'Hmmm.""

Now Katz is preparing for a career shift that in some ways offers contrasts as sharp as those between Toronto's weather and Tallahassee's.

"I want to stay involved in clinical care – I don't ever want to lose that – but the focus will change," Katz said. "It goes from worrying about budget issues, personnel issues, policy issues to, 'How are we going to teach the workforce of the future?'

"That's the challenge and that's one of the main reasons I'm here."

Nobody looks forward to his arrival more than Brummel-Smith.

"Coming to FSU was one of the great decisions in my life. It's been amazing working with so many incredible students, faculty, staff and patients," he said. "Tve been a chief of a division, and now a chair, for 32 straight years, and I am really looking forward to now becoming a 'regular faculty' for the first time in a long time.

"The tasty icing on the cake is to have Paul Katz taking over as chair. I've known him for at least 25 years and have always found him to be a warm, insightful, caring and brilliant person. We are so fortunate to have attracted him to Florida State."



ix weeks after her death in December, Charlotte Edwards Maguire received yet another honor. It may not be the last for

this whirlwind of a woman.

In January, Gov. Rick Scott announced that Maguire, whom he had saluted as a prestigious Great Floridian in 2013, was one of the three newest additions to the Florida Women's Hall of Fame. The news release from his office cited a handful of her claims to fame:

First female pediatrician in private practice in Orlando.

- First woman physician to lead the Florida Pediatric Society.
- Delegate to the World Health Conference in London.
- Assistant secretary of the Florida Department of Health and Rehabilitative Services.
- One of the highest-ranking women in federal government as assistant secretary of Health and Scientific Affairs.
  - "A driving force" in creating the College of Medicine.

Friends of this medical school are mourning her passing and feeling renewed appreciation for not only her roughly \$4 million in donations but also her years of wise counsel and enthusiastic support, dating back to the College of Medicine's predecessor, FSU's Program in Medical Sciences. Dean John P. Fogarty said she was "loved, admired and respected." Geriatrics Chair Ken Brummel-Smith called her "the quintessential physician." Former Library Director Barbara Shearer said she was a role model who "moved in only one direction forward." (Read about Maguire's life on our website, med.fsu.edu.)

Amid the many Maguire stories, here is a passage you might not know. She wrote this text for a booklet compiled by a former principal of Orlando's Memorial Junior High School. It provides insight into how she became such a dynamo:

"My father always made sure that I not only completed my homework but that I understood the subject. During the seventh grade he kept a constant watch over my school work and before the year was over he concluded that much of the eighth grade was going to be augmentative and discussed with the Principal, Mr. Orville Davis, the possibility of his teaching me during the summer on eighth grade subjects. Mr. Davis agreed that if I took the eighth grade exams at the end of the summer and passed them all that I could go into the ninth grade. I completed the studies, passed the tests, and entered the ninth grade that fall.

"Junior High School was [a] time in my life that seemed to set the momentum of achievements and the values for which I did strive during the rest of my life until I retired from the practice of medicine at age 70 years."

During her 96 years, she always did her homework. She never shrank from a challenge, never gave up. As a physician, she reached out to those who'd had inadequate health care. As a philanthropist, she gave away what she had earned. As a role model, she blossomed around students. And if she were still around, she'd probably have ideas for improving the Florida Women's Hall of Fame.

### **Outreach finding a home**

n many medical outreach activities, whether on a weekend health fair or during a mission trip abroad, the missing component is continuity. Faces – and the stories behind them – come and go. Students miss the opportunity to get to know the people they

serve. Often, that means also missing the chance to learn more about the sociological underpinnings of poor health.

That's part of why a group of current second-year med students worked to develop a permanent and more expansive outlet for putting the college's mission to work in Tallahassee. The effort paid off with the establishment of the Chapman Community Health Program (CCHP).

The program, operating as part of the medical student organization FSU*Cares*, supports a medically underserved population in Tallahassee at Maryland Oaks Crossing, a transitional housing community established by Good News Outreach that provides housing and other services to individuals and families who have experienced, or are at risk for, homelessness. The goal is to assist those people in transitioning to a more stable lifestyle.

"It not only continues a tradition of service, but it delves deeper by establishing a lasting relationship with a medically underserved community," said Christie Alexander, assistant professor of family medicine and rural health at the College of Medicine and faculty advisor for the program.

"It took a great deal of hard work from the students and a monetary contribution from a generous donor to bring the Chapman Community Health Program to life."

The program provides an additional opportunity for students to work closely with physicians who exemplify the College of Medicine's values by volunteering their time in service of the underserved.

Most of those physicians are from the Tallahassee Memorial HealthCare Family Medicine Residency Program and the FSU Internal Medicine Residency Program at TMH. Students, physicians, and medical residents organize and host monthly health-screening events, which allow CCHP volunteers to develop an understanding of the community's needs.

Alexander said the medical school seeks to provide health-education and preventive-health services tailored to Maryland Oaks residents. The physicians and medical residents also help students identify Maryland Oaks residents who need additional medical attention. Those individuals are referred either to one of the residency programs, or to Neighborhood Medical Center.

uno Lee/FSU medical student

"The program provides an opportunity to work on the preventive side of medicine," said second-year medical student Susanna Zorn, who helped write the grant application and get the program started. "During preceptorships with community doctors, medical students see the challenges of treating chronic medical problems, including finding ways to treat the underlying issues. At Maryland Oaks we are in the process of trying to develop relationships through a program that educates and motivates the residents to achieve their health-care goals through prevention."

One component involves teaching community members about the importance of good nutrition.

The FSU medical student organization Allopathic Integrative Medicine Group, for example, worked with CCHP and the residents of Maryland Oaks to build a community garden. In addition to planning nutrition counseling and cooking classes, the students have written and illustrated a health-conscious cookbook that uses ingredients from the garden. Maryland Oaks families each will be receiving a copy.

"I believe the most significant impact we can make is through education and prevention – tobacco cessation programs, nutrition education, exercise programs, stress management skills and other mental health services," Zorn said.

Alexander, a family physician, is thrilled with how quickly the program has grown.

"It is exciting to see such a rewarding project take hold and to watch the students, medical residents and local agencies come together to take care of this community," she said.



Second-year med students Donya Salmasinia, right, and Staci Biegner helped serve residents during a social event to introduce the community health program.

# A pink anniversary in Sarasota

he most eye-catching of the College of Medicine's six regional campus buildings is in Sarasota. It's a three-story pink home built in 1938. For more than 25 years it belonged to a family of former immigrants from Yugoslavia who had become a true American success story. Hans and Maria Weissgerber

arrived in this country with nothing after losing all of their possessions to Communists during World War II.

Hans worked in a sausage factory in Milwaukee before saving enough to open a restaurant there. He and his family built it into such a success that in 1992 the restaurant provided food and catering for President George Bush during a visit to Wisconsin.



FLORIDA STATE UNIVERSITY COLLEGE OF MEDICINE

In 2001, in their 80s, the Weissbergers sold the house to developers building a Ritz-Carlton Hotel and condominium complex along Sarasota Bay. Historians feared the house would be razed, but developer Mark Famiglio had other ideas. He renovated the house for use by the FSU College of Medicine as its Sarasota Regional Campus. In 2004, the 4,000-square-foot home was relocated nearly a mile from First

llege of Medicine

olin Hackley

Street and Gulf Stream Avenue at the approach to the John Ringling Bridge to its current location on Cocoanut Avenue.

Nine students arrived in June of 2005 to begin clinical rotations when Sarasota became the fourth of the medical school's regional campuses to open. As the campus celebrates its 10<sup>th</sup> anniversary this year, seven of the original students are now practicing in Florida. Two of them are College of Medicine faculty, including Kristen Shepherd (M.D., '07), an OB-GYN with Sarasota Memorial Health Care.

#### PA program could be next

t your doctor's office, you've probably seen FSU medical students getting on-the-job training. Within several years, you might start seeing even more FSU faces.

The College of Medicine is proposing a 27-month physician assistant program. If all goes according to plan, prospective students could apply beginning in March 2017, and classes would begin the following fall.

"As a school committed to primary care, FSU's College of Medicine has done well in producing the doctors that Florida needs, but the primary care shortages are daunting," said Dean John Fogarty. "Team-based care using physicians in partnership with PAs and nurse practitioners is the way to meet this demand."

The University of Florida is the state's only public university that already has a PA program. Florida International University is developing one.

The training is similar to that of a physician, though at the start of their careers physicians have a deeper background in science and clinical reasoning than PAs do and have much more experience in their field, said Senior Associate Dean Myra Hurt. The PA practices under a physician's supervision, handling duties such as performing physical exams, reviewing patients' medical histories, ordering and interpreting diagnostic tests, making preliminary diagnoses, providing treatment and prescribing certain medicines.

Hurt presented the Master of Science in Physician Assistant Studies proposal to FSU's Graduate Policy Committee, which approved it in February. The Board of Trustees is scheduled to consider it in June.

There would be 60 students per class. They'd spend their first 15 months at the main campus in Tallahassee, then spend a year at one of the six regional campuses across Florida.

In keeping with the med school's mission, the PAs would train with a diverse faculty of community physicians. Many of the students would be drawn from Florida's underserved areas, to increase the likelihood of their eventually practicing in those areas.

Getting a job upon graduation should not be a problem.

"Because of the desperate need for primary care providers, these kids will probably have job offers in the community that they have rotated through," Hurt said. "Last year, *Forbes* magazine named it the No. 1 job because of the abundance of opportunity."

# **DOWN THE ROAD** Our trailblazing 2005 alumni are making a difference

#### BY RON HARTUNG

hen they gathered here at the new FSU College of Medicine in 2001, our first 30 students ranged in age from 19 to 32. They came from Perry, Havana, Apalachicola, Wewahitchka. From Colombia, Iran, even Transylvania.

One had traveled around the world. One had an Arctic Survival School certificate. One had come close to death as a child. One was "poor as dirt."

Varied though their backgrounds were, the Class of 2005 had several things in common. They were hard-wired for empathy. They respected society's forgotten patients. Most important, they were willing to gamble that this new school — with its unorthodox, community-based, apprentice-style approach to medical education - would not only succeed but be a game-changer.

"I want to express how excited I am to be a part of history," Javier Miller Jr. said in his online bio. "The first class to graduate from the first U.S. medical school founded in 20 years is a great honor.... My colleagues and I are going to help change the face of medicine."

Myra Hurt, then interim dean and director of the admissions process, had told the admissions committee to select "people who were ready to be pioneers."

Ten years ago, 27 of these pioneers graduated (the others graduated the next year). They laid the foundation for FSU's excellent reputation among medical residency programs. Maybe because this was a class of risk-takers, 10 of them practice emergency medicine. Eleven teach at least part time. Seven see mostly rural patients. Seventeen practice here in Florida. And all of them helped to shape this school, an experience that now is shaping their careers.







# CHRISTIE (Sain) ALEXANDER, M.D.

Full-time faculty member, FSU College of Medicine Family physician, Doctors' Memorial Medical Plaza, Perry

> s her mom tells it, Christie Alexander declared at age 3 — after seeing a Muppet healed on "Sesame Street" — that she'd become a doctor.

In 1999, when FSU's med school was just a jeopardized piece of legislation, she applied to the Program in Medical Sciences. She would've completed her first year of medical school at FSU, then transferred to the University of Florida. She believed in the PIMS philosophy of teamwork, diversity and serving the underserved. She was raring to go. But PIMS rejected her. At first, she was crushed.

#### ten years down the road

In retrospect, though, things couldn't have turned out better. Instead of being part of the last PIMS class, she helped launch the first new U.S. medical school in roughly 20 years.

TURF

Raised in Orlando, Alexander now has spent 20 years in Tallahassee. She's practiced family medicine and urgent care here. She's now practicing part time in rural Perry. Most important, she's the first College of Medicine graduate to join the faculty full time.

"I thought I was going to hang a shingle and be the Marcus Welby of the town till I retired," said Alexander. But she discovered she wanted something more than just patient care.

In her third year of residency Daniel Van Durme, chair of the Department of Family Medicine and Rural Health, invited Alexander to consider part-time teaching. She was petrified. The thought of teaching straight out of residency was terrifying. But the Class of '05 philosophy is "Let's try this." She loved it.

Now she's the assistant course director for Doctoring 2 and also teaches in Doctoring 1. She enjoys watching students' confidence grow.

At first she wasn't sure she had much to offer, because she had limited clinical experience. "But as I went on in my practice, the experiential part

of it fed into the teaching part," she said. "Seeing patients in Perry has brought me back to my roots in medicine. You really have to know your skills because access to care is a challenge. There is no 'Let's refer you to so-and-so.' If I don't know something, I have to know where to go and look for it. It's been really good for me. And really good for the students, because I can share patient stories and experiences with them."

She praises Myra Hurt, Helen Livingston, Sandy D'Alemberte and the other hardy souls who created this school. They never budged in their belief that too few patients got the consistent medical care they needed, especially in rural and minority communities, and that this apprentice-style approach was the future of medical education.

Creating a successful medical school from scratch emboldens you, Alexander said. So she and her classmates had great expectations.

She encourages her students to be alert to the possibilities all around them. "Make your plans, have goals," she tells them. "Just don't be so steadfast that you close yourself off to other opportunities. Because those opportunities could be something you *never* would have imagined."

Christie Alexander shown here as a full-time faculty member in 2014, and on Page 17 as a fourth-year medical student in 2005, with Tallahassee Memorial physician Todd Patterson.





At the five-year reunion in 2010: (from left) Nari Heshmati, Laura Dacks, Christie Alexander, Karen Miles, Julie Barré, Shayla Gray, Lorna Stewart, Sachin Parikh, Neil Rodgers, Joda Lynn, Javier Miller, Alex Ho and Michael Hernandez.



# KERRY BACHISTA, M.D.

Emergency physician, Georgia Emergency Physician Specialists, Memorial University Medical Center, Savannah, Georgia; parttime faculty member, UF-Jacksonville

Upcoming fellowship: "I will spend a year focusing on pre-hospital care, tactical medicine, flight medicine and disaster response for an additional subspecialty board certification in emergency medical services." Family: spouse Leandra (physician); son Aiden.

# JULIE (Gladden) BARRÉ, M.D

Orthopedic surgeon/sports medicine fellowship-trained, First Coast Orthopedics, Orange Park

**Choosing med school**: Since she graduated from FSU's PE program and her father coached football here, "FSU was the logical choice. I was thrilled to be part of the inaugural class in what I knew would become one of the premier medical schools."

**Mentor:** "Myra Hurt. She exuded strength that often is praised in men but looked down upon in women. Her guts to fight for what is right fueled me and many female classmates who ultimately went into fields not traditionally held by women."

**Family**: spouse Michael, who does investments, currently helping stay at home with daughter Brooke, 2; also have son Mark Christian, 6.

# SPRING 15

#### ten years down the road



# MARK BOCHEY, M.D.

Emergency physician, La Costa Centre, Austin, Texas

# DAVID BOJAN, M.D.

Emergency physician, Westside Regional Medical Center, Plantation, Florida



# NATOSHA CANTY, M.D.

#### Family physician, Capital Health Plan, Tallahassee

Schedule: Typically four and a half days per week, 8 a.m.-5 p.m. On call every two weeks. Sometimes works a shift in urgent care during flu season. "We never have a boring day!" Background: "My middle-school English teacher asked us what we wanted to be. I wrote that I wanted to be a pediatrician. I was in graduate school at FAMU's Institute of Public Health when the news came that FSU was starting a four-year medical program. I started not to apply, because I heard, 'Well, they've already chosen their first class."" Surprise: Volume of patients. "Much as we try to keep on track, in some instances that 15 minutes does have to turn into a 30-minute visit. I did that yesterday. There was an elderly gentleman who just needed to talk. So I listened, and I gave him a hug."

**Roots**: Born and raised in Gadsden County. Her family used to ask, "When are you going to come back to Gadsden to practice?" Now some come to her for care.



Schedule: 36 hours a week at TMH *and* 36 at Calhoun-Liberty. He likes this schedule: "Except for three or four days a month, I can pick up my kids from school. That's very important." Surprise: "I didn't start out in family medicine. I was in a surgery residency for almost three years. I was not in a good place mentally, went through a nasty divorce and made some poor decisions." Why a family doc is at Behavioral Health: "These individuals need medical help just as much as they need psychiatric help. Besides, I have a lot of family dynamics with behavioral health. I even have a brother who is mentally challenged." It's part of his mission.

FSU's approach: "I trained at a tertiary-care center. In surgery, you'd have a fourth-year resident, a

third-year resident, an intern and eight medical students. When we were making rounds, we residents were exhausted. The medical student was the last person we were trying to train. We had to train our senior residents to make sure they were ready. Unless those medical students went above and beyond, I never knew who they were. Whereas at Florida State, you work hand in hand constantly with an attending physician."

Advice: "If you're willing to learn from everybody, regardless of who it is, you're going to go far. If you don't, you're going to do exactly like I did and find yourself in a burning plane heading toward the ground really fast."

Family: spouse Rachel; children Taylor Grace, 13; Walker, 9; Chasen, 4.



# LAURA DACKS, M.D.

General surgeon, General Surgery Associates, Las Vegas

FSU memories: "How tight-knit our class was. Also, the professors cared about us and were genuine in seeing all of us succeed." FSU's focus on patients: "Starting our clinical experiences right off the bat gave us so much practice that by the time we were third-years, talking to patients was second-nature. They instilled in me giving kind and compassionate care to my patients as well as being a true advocate for them."

New-school uncertainties: "That was half the fun! Looking back, we were paving the way for future classes. How awesome was that!" Family: Carson, 1, "the love of my life!"

#### VICTOR GONZALEZ, M.D.

Assistant professor, Department of Radiation Oncology, University of Arizona College of Medicine, Tucson Member, University of Arizona Cancer Center

# Tallahassee Memorial Behavioral Health Center

Tallahassee Memorial HealthCare

#### GARRETT CHUMNEY, M.D.

Hospitalist, Tallahassee Memorial Hospital Behavioral Health Center Emergency physician, Calhoun-Liberty Hospital, Blountstown FSU College of Medicine faculty







#### SHAYLA GRAY, M.D.

Admissions for TMH Behavioral Health Center FSU College of Medicine faculty

**Job:** Overseeing the Access Center during the night. "My primary role is to admit patients and manage patients in need of acute stabilization, discern appropriateness of admission to the Behavioral Health Center, as well as accept and receive patients from surrounding counties."

**FSU memory:** "The challenges we faced created a bond between us and within the Tallahassee medical community. I was very well prepared when I entered residency, and I am most proud of that — coming from the then-newest medical school in 20 years. Still today, I feel the pride I felt in 2005." **Family:** spouse Donald; they just had their sixth child.

# FAWN (Grigsby) HARRISON, M.D.

Pediatrician, DeSoto Memorial Hospital, Arcadia, Florida FSU College of Medicine faculty

Hospitalist, primary care with focus in geriatrics, Memorial Hospital Jacksonville What she learned in Doctoring: "One of the things I remember is: If you have bad news, you just tell 'em. You don't try to beat around the bush. You don't try to hide it in different words. You don't try to make it sound better. It's the only thing they're going to hear. Just tell 'em and let 'em digest it. And then you answer questions." Family: spouse Matthew; children Madelynn and Lane.





## MICHAEL HERNANDEZ, M.D.

Attending new school: "We were all working toward the same goal of becoming a 'real' medical school. I felt like we were working with each other rather than competing.... This is not the feeling I got when I interviewed at some other medical schools."

Lessons learned: "We went from FSU college classrooms, to trailers, to Florida High School classrooms and then to the site campuses for third and fourth year. We learned that what makes a medical school is how well the teachers teach and how well the students want to learn. The facilities are just a bonus." Family: spouse Amelia; children Tyler, Caden and Anna.

#### NARIMAN HESHMATI, M.D.

Physician partner, The Everett (Washington) Clinic, OB-GYN division, obstetrical section Lead/medical director, Providence Regional Medical Center Everett

**Responsibilities:** "At the Everett Clinic I practice as a full-time OB-GYN. We are one of the largest physician-owned groups in the country. At Providence Hospital, I work with other hospital leaders to develop medical policies and procedures related to the labor unit."

**Other interests:** "I try to be involved in medicine at a level beyond just treating one patient at a time. I'm vice chair of the Washington State Medical Political Action Committee and on the American Congress of Obstetricians and Gynecologists state legislative committee."

**Preparation at FSU:** "We were seeing patients in clinical settings from the first few days. We learned practical information we could use every day to treat real people. Our model of training was seen as untested by other schools, and now many have changed to incorporate similar teaching styles."

**Class of 2005 achievements:** "We had to convince residency programs to take a chance on us. Even locally, our class had to help establish a place within the university and surrounding community. Ultimately we had amazing community mission programs like FSU*Cares*."

**Family:** spouse Kathryne; son Robert Darius, 2, "was born preterm @ 35 weeks when Kathryne's water broke unexpectedly. I was on call at the hospital when she came in and ended up delivering him emergently when his heartbeat crashed."

Emergency physician and assistant medical director of emergency services, TMH Bixler Emergency Center, FSU College of Medicine faculty

**Being in charge:** "I'm fortunate to work in an environment where there are other ER doctors around, so if I have concerns I can always bounce them off one of my colleagues."

Why FSU: "I went to Johns Hopkins my first year of college and was miserable, because everybody was so competitive. When I interviewed at FSU MED [and met first-year medical students in the PIMS program], it seemed everyone was happy with each other and wanted to make sure they succeeded."

**Teaching:** "That's one of the more gratifying parts of my job. Emergency medicine sort of becomes routine to me, but for them to see it for the first time, or to do a procedure for the first time, really makes it worthwhile. I also have a vested interest in turning out a good FSU medical product, so I'm probably one of the harder attendings they'll ever have."

**Priorities**: "I'm a dad and husband first, and a doctor second." **Family:** spouse Sarah; children Evan, 5, and Owen, 3.



# JODA LYNN, M.D.

Emergency physician, Doctors' Memorial Hospital, Perry

# AJAY MHATRE, M.D.

ALEX HO, M.D.

Physician, Capital Regional Cardiology Associates, Tallahassee FSU College of Medicine faculty







#### ten years down the road





## KAREN MILES, M.D.

Medical director and primary psychiatrist, Strategic Behavioral Center, Garner, N.C. Medical director, Hope Services, Raleigh, N.C. Psychiatrist, Developing Minds (child, adolescent and young adult mental health psychiatry), Durham, N.C. University of North Carolina Department of Psychiatry faculty

**Responsibilities:** Working at a variety of venues, she gets to see little kids, adolescents, college students and adults from all different socioeconomic levels. She sometimes does disability evaluations for veterans. "I really feel like working with the veterans provides a service for them." **Hours per week:** "I don't even want to think about it."

**Benefits of being in first class:** "I think it helped to develop my leadership skills and working with systems and processes. 'How do we make this work? How do we make this work *better*?' I can continue when things aren't going well, and I'm not afraid to make changes or try things differently. I mean, I left a full-time salaried position to go out on my own and try this brand-new hospital.... I was used to things starting Day One."

**Family:** spouse Paul Pappas, who's "OK with adjusting his life to meet the needs of me and our children" — Selena, 7, and Madeline, 4.



# JAVIER MILLER JR., M.D.

Urologist, Florida Urology Associates, Orlando FSU College of Medicine faculty

Schedule: Weekdays 8 a.m.-6 p.m. Other activities: Spending time with family; golf. FSU memories: "The drive, tenacity and passion that the people who built the FSU College of Medicine had. Nothing could stand in the way, and today you see the result of their relentless effort. A great deal of gratitude is owed to people such as Dr. Ocie Harris, Dr. Myra Hurt and Dr. Helen Livingston, who helped put us [alumni] where we are today."

Advice for students: "Choose a specialty that fits your personality, ... where you can see yourself having long-term success and happiness. Be balanced with your personal and professional life and student life throughout medical school, residency and, ultimately the longest rotation you'll ever have: your practice. Remember it's a marathon, not a sprint."

**Family:** spouse Hilary; son Javier Charles (Charlie), 1.

# SARAH B. (Fein) MULKEY, M.D.

Assistant professor, University of Arkansas for Medical Sciences College of Medicine, Arkansas Children's Hospital, Pediatric Neurology

**Primary responsibilities:** "I conduct clinical research on newborns with hypoxic-ischemic encephalopathy and brain injury from critical congenital heart disease. I am a site-PI for a phase II clinical trial. During my clinical time, I work as the state's only dedicated neonatal neurologist; I see all of the newborns in the neonatal intensive care unit with neurologic conditions. I also do general in-patient child neurology."

**Schedule**: "I work full time and have 75 percent of my time protected for research. I am also working toward a Ph.D. in clinical and translational sciences."

Advice for students: Keep your options open. "There are so many experiences that you will have



along your way to becoming a physician, and you do not know where that road will take you. Try and grow from each experience, and your heart will tell you what is right." **Family:** spouse Brian; children Anne, 6, Katelyn, 3, and Jack, 10 months; cat Trapezius.

## ADAM OUIMET, M.D.

Emergency physician, Alpine County Health Department, Markleeville, California





# SACHIN PARIKH, M.D.

Principal, Lieberman & Parikh Facial Plastic Surgery, Palo Alto

#### Schedule: 60 hours a week.

**Best part of job:** "Making a difference in my patients' lives, whether it's making them feel better about how they look or reconstructing someone's face after skin cancer. I also enjoy the entrepreneurial aspect of starting a practice and offering the latest technology and techniques."

**Influential faculty member:** "Elena Reyes. Her passion for helping the underserved instilled that value in me."



#### ten years down the road

# KEVIN RAVILLE , M.D.

Emergency physician, Rochester (New York) General Hospital

# JASON ROCHA, M.D.

Orthopedic trauma surgeon, Baptist Health Care, Pensacola



# NEIL RODGERS, M.D.

Emergency physician, Lakeland Regional Medical Center



# KIMBERLY RUSCHER, M.D., MPH

#### Pediatric surgeon, Sacred Heart Hospital of Riverbend, Springfield, Oregon

FSU memories: "The camaraderie with my classmates and the close relationships with faculty, especially the surgeons. The first time one of my patients passed away. Doing a fourth-year rotation with my mother, a certified nurse-midwife. Living in Pensacola when Hurricane Ivan hit in 2004." Mentors: "Dr. Myra Hurt continues to be a role model. [Pensacola clerkship faculty member] Dr. John Gage and I have kept in touch. I still remember a lot of what he taught me about being a surgeon." Lesson from FSU: "The key to caring for the patient is *caring* for the patient."

**Family:** spouse Kevin Modeste, minimally invasive and acute-care surgeon; children Marieange, 4, and Soriah, 1.

## LORNA STEWART, M.D.

#### Hospitalist, TMH Internal Medicine Hospitalist Group

**Schedule**: Generally, seven days on, seven days off. She likes the continuity of care she can provide. "We take care of pretty much anybody anywhere in the hospital." Several times a year she also works as admitting physician in ER, and occasionally fills in at rehab center.

**Hospitalist life**: "Patients come in sick and you have the opportunity to make them feel better, diagnose something, make them more comfortable or help them transition into a different part of their life, but it's more in real time than seeing somebody and then saying, 'I'll see you in a couple of months.' There's somebody from our group available 24 hours a day, in-house. So if there's any emergency, it's not 'Oh, I'm in the office with a patient – I'll be there at 5 o'clock.' I'll just walk over to that patient's room."

How often she uses what she learned in Doctoring: "Every day. This morning I've already had a conversation with a patient's husband because we're calling hospice. One minute you're saving someone's life; the next minute you're helping someone prepare for the transition into death." Both are rewarding. Sometimes she cries with patients or families. "Even if I don't know them, and their family member is dying or has died, I will give them a hug — because that's what they need." Family: spouse Bill (who works from home and helps with the kids); children Liam, 3, and Ashton, 1.





# AMANDA DAWN SUMNER, M.D.

Emergency physician, Wayne Memorial Hospital, Jesup, Georgia

**Responsibilities:** "I'm in a community hospital setting that covers four counties, so I do what any ER doctor would do in a place that small with not very many specialists — basic emergency medicine."

Mentor: "Dr. C. David Smith in Jay, Florida, and his relationships with his patients. It was one of my first rotations at the Pensacola Regional Campus. I was poor as dirt, and they told me I was going to have to be driving back and forth to Jay, and that was something I really

had not planned for. I tried to get it changed to somewhere local, and Dr. McLeod [the campus dean] told me that if I would trust him and spend that time with Dr. Smith, he knew that I would love the experience. I'm thankful I listened to him."

**FSU training:** "I've kind of run the gamut of experiences in emergency medicine with the military. I've dealt with medical students, and the chain of residents and attendings — and the amount of one-on-one teaching and hands-on experience that we got at FSU is unmatched."

**Family:** significant other Maggie, emergency medicine nurse, studying to become nurse practitioner; children Hadleigh, 9, and Ryder, 3.



# A toast to HOST

The College of Medicine's HOST program has helped numerous students connect with alumni while traveling for residency interviews. The program does what the name implies – Help Our Students Travel. Along the way, it has helped build relationships that stand to benefit both students and alumni.

Amanda Abraira (Class of 2015) recently made multiple connections through HOST. She stayed with the family of **Emily Overholser** (M.D., '10) while interviewing in Memphis, Tennessee, and also with the family of **Hope McLean** (M.D., '07), while interviewing in Mobile, Alabama.

"To trust someone by opening up your home and heart to a complete stranger just speaks to the level of kindness these alumnae exhibit," said Abraira, a student at the medical school's Daytona Beach Regional Campus. "I can't pay them back for their generosity and hospitality, but I hope to pay it forward once I graduate.

"The HOST program saved me a few loan dollars, but more than that, it introduced me to physicians that understand where I've been and hope to go with my training."

Overholser is a former chief resident in dermatology who now is practicing in Memphis. McLean is an OB-GYN in Mobile. Abraira interviewed for OB-GYN positions in both cities.

"I think it's so helpful to get the local tour, get an idea where residents really live, where to eat and the fun things you can do," Overholser said. "So often, the interview tour only includes the facilities where you'll work. Granted, you spend quite a lot of time at work, but what will you be doing when you're off?"

Abraira, like her classmates, will find out where she's headed after graduation on Match Day – March 20 at Ruby Diamond Concert Hall on the FSU campus. No matter the outcome, Abraira said, taking advantage of HOST made her interview experience more enjoyable.

"I gained a mentor and role model in my specialty," she said. "That particular kind of generosity and willingness to give back is not something you come across daily. I think you would only find it from those individuals who fit the FSU mission statement both within and outside their practice of medicine."



Amanda Abraira



Emily Overholser



Hope (Mitchell) McLean



Johnson at the awards ceremony in Orlando.

# **Resident of the year**

Mary Ann Nau Johnson (M.D., '09) was excited to learn that her residency program director had nominated her to be selected as the RDD Leaders of Distinction Resident of the Year.

"When I found out I had won I was ecstatic," Johnson said. "I think I literally called everyone in my family. I was so honored to be a finalist; winning was icing on the cake."

Johnson, chief resident of the UC Davis Dermatology Residency Program, has been active with research and publications since leaving the College of Medicine as a member of both the Gold Humanism and AOA honor societies. She has served as principal or coprincipal investigator of more than a dozen studies related to her field, and has published numerous articles, including a book chapter. She plans to practice general medical and surgical dermatology.

Away from the hospital, Johnson is raising two children and volunteers in the classroom and with an outreach organization providing breakfast to more than 700 economically challenged individuals in Sacramento.

"The mission of the Florida State College of Medicine echoes in my heart," said Johnson, who entered medical school through the college's Bridge Program. "I strive to continually practice patient-centered care and work to advance knowledge in my field through research and medical education."

#### Home, at last

**Daniel Gordon** (M.D., '11) and his wife, Jennifer, were not the average first-time home buyers. After getting married, they finished college at the University of Florida, and she provided emotional and financial support as he finished medical school at Florida State. With a new son, Luke, they continued to rent as he progressed in the family medicine residency program at Bayfront Medical Center in St. Petersburg.

As graduation drew near, they decided the time was right to purchase a home. By then, they had become fans of the HGTV show "Property Virgins," about ... first-time home buyers.

Curious, they checked online and were excited to see that the network was casting for participants in the Tampa Bay area, where some of the episodes are taped. Within a few hours of submitting an email and photos telling their story, the Gordons got a response from the show's producer.

"They really loved our story," Daniel Gordon said. "The fact we had been going through the college, med school, residency process waiting to buy a house was great to them. My wife supporting me emotionally and financially was also a big part of the story. They also loved including our son, Luke, in the family shots."

As a medical resident, Gordon was familiar with hard work and long hours, but was surprised to learn that it applied to being on television as well. The Gordons had to complete a 10-page application and a Skype interview with HGTV producers in Toronto before becoming one of two families selected to be on the show's premiere episode of the 2014-15 season.



Daniel and Jennifer Gordon during a taping of 'Property Virgins'

"It's an older home and it does need some work to make it our own, but we really do love the neighborhood and we are working on the house to make it fit all our needs. We are hoping to stay in this location for a long, long time," said Gordon, who has finished residency and is a hospitalist at Bayfront.

If you catch a replay of the episode, you might also notice another familiar face. The producers wanted to film a scene of Gordon seeing a patient, but HIPAA regulations forced them to settle for a mock patient. They sought a family medicine resident who wasn't on duty at the time and found one: **Eilene Weibley** (M.D., '10).

"I probably wouldn't do it again because it does take a tremendous amount of time," Gordon said. "But the response to the show has been very positive. Overall, we were very pleased and felt it was true to our family."

That was just the beginning.

They spent three, 10-hour days filming to produce around 20 minutes of screen time for the episode. "People don't realize how many takes you may do of one scene," he said. "Sometimes we would spend an hour shooting the same reaction to the pool over and over."

In return, they got a "once-in-a-lifetime experience," some great advice from a Georgiabased realtor who otherwise would not likely have been available to them, and a chance to be on a television program seen by millions of people.

Oh, they also found the home they were hoping for – in a great neighborhood full of kids, located in the school zone they wanted, and on the water with access to Tampa Bay.

> Gordon on the show examining a 'patient,' played by College of Medicine alumna Eilene Weibley, then a medical resident in St. Petersburg.



SPRING 1



Joe and Jazmin Lesnick

#### Mr. and Mrs. Chief Resident

Joe Lesnick (M.D., '12) and Jazmin Overton Lesnick (M.D., '11) were excited when they each were named chief resident, but it was tempered by some trepidation, he said. They knew the additional responsibilities would further encroach upon the time they spend together. He is chief resident of the emergency medicine program at University of Texas-Houston. She is chief resident of pediatrics at Brooke Army Medical Center in San Antonio. Living in cities three hours apart for residency was challenge enough, but the extra duties have taken it to another level.

"Being chief means that my cell phone rings at all hours, my email inbox will have 200 new messages a day, and a 'day off' always carries a caveat," Joe Lesnick said. "You are always on call. Half of the job is quelling minor emergencies, tracking down residents, and calling residents to cover shifts when others are sick. My wife likens the job to herding cats.

"The other half is much more rewarding in that you get to advocate for your residents and try to change what you can to make resident life a little better. Sometimes this means bringing in breakfast and coffee for everyone, other times it means working an extra shift. Mostly it means making schedules. Lots and lots of schedules."

The schedule for time together as a couple is tricky. A single obligation at work – a meeting, an interview or something else – has prevented them from seeing each other for the day.

They cope with humor and a heightened sense of appreciation for the precious little time they find to be together. Jazmin jokes that she is looking forward to the day when they are tired of seeing each other.

"We are lucky, however, in that we both understand the demands of the job," Joe Lesnick said. "When the work has you running around most of the time, heaven is being able to curl up in bed and watch TV together.

"Our time together is priceless because of all the time that we are forced to be apart."



# Legacy Celebration Program

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In addition, the college offers substantial naming opportunities ranging from individual auditorium seats to rooms. For more information, contact Jim McNeill, Assistant Dean for Development at 850.644.4389 or by email at jim.mcneill@med.fsu.edu.

To order your commemorative brick, contact Chelsea Knott at 850.645.9248 or by email at chelsea.knott@med.fsu.edu.

Help pave the way to a new medical future, visit med.fsu.edu/LegacyCelebration

#### class notes













#### 2006

Matt Henry, M.D., completed a CT surgery residency at Texas Heart Institute/Baylor College of Medicine and is a cardiovascular surgeon at St. Francis Hospital in Roslyn, N.Y.

#### 2008

Ivan Porter, M.D., completed the nephrology fellowship program at Mayo Clinic in Jacksonville. He is now senior associate consultant for Mayo's Department of Internal Medicine, Division of Nephrology and Hypertension. Porter also is an assistant professor of medicine at Mayo Clinic. He and his wife have two daughters – Averie, 4, and Eva, who turns 2 this summer.

#### 2009

Jada Leahy, M.D., serves as the general surgeon aboard the aircraft carrier CVN 77 – the U.S.S. George H.W. Bush. She also is a staff physician at Navy Medical Center Portsmouth in the Department of General Surgery. Leahy is relocating in July with her husband to continue military careers at Naval Hospital Pensacola.

Mikelson MomPremier, M.D., is a boardcertified diplomate of the American Board of Ophthalmology. He also is first author of an article – "Phacovitrectomy for the Retina Surgeon" – published in *Retina Today*. He and his wife, Kenya, have a son, Miken MomPremier.

Aaron Wagner, M.D., graduated from the Temple University General Surgery Residency Program and now is completing a vascular surgery fellowship at Albert Einstein College of Medicine/Montefiore Medical Center in the Bronx.

#### 2010

**Michael Hall, M.D.**, is chief resident of radiation oncology at Allegheny General Hospital in Pittsburgh, Pennsylvania.













#### 2011

Ashley Newell, M.D., is completing the first year of the Pediatric Critical Care Fellowship at Vanderbilt University Monroe Carrell Jr. Children's Hospital.

#### 2012

**Stefani Altman, M.D.,** is completing the Pediatrics Residency Program at the University of Florida College of Medicine-Jacksonville and has been accepted there for the Pediatric Emergency Medicine Fellowship starting in July.

**Jason Colizzo, M.D.,** an internal medicine resident at the University of South Florida, has been accepted for the Gastroenterology Fellowship Program at USF starting in July.

**Bryan Garcia, M.D.,** is completing the internal medicine residency program at the University of Florida in Gainesville and has matched in the Pulmonary Critical Care Fellowship at the University of Alabama-Birmingham.

**Shelley Murphy, M.D.,** is in the final year of the Pediatrics Residency Program at Orlando Health and has been accepted for the Pediatric Emergency Medicine Fellowship starting July 1 at Vanderbilt University Monroe Carrell Jr. Children's Hospital.

Amol Purandare, M.D., is completing the Pediatrics Residency Program at St. Louis School of Medicine and has been accepted for the Pediatric Infectious Disease Fellowship at Children's National Health System in Washington, D.C., with a focus at the Food and Drug Administration Center for Drug Evaluation and Research.

#### secondo pinion



# Marijuana:

#### There's more to the story BY PRADEEP BHIDE

arijuana is a miracle medicine for some, but a mindaltering and addictive curse upon society for others. These are the seemingly irreconcilable sides of the marijuana debate. It seems as though there is little middle ground.

Can science play a role, by helping us make up our minds, take sides, defend our positions or feel more comfortable on the fence?

Science tells us that marijuana is addictive. As early as 1785, the French biologist Jean-Baptiste Lamarck described in scientific detail the intoxicating properties of *Cannabis indica*, the marijuana plant from India. Today, science tells us that marijuana not only is addictive but also may be a gateway drug – luring youngsters into the darkness of drug abuse. However, alcohol and nicotine also are gateway drugs. Moreover, many naturally occurring or synthetic miracle medicines have side effects, some life-altering. Yet those drugs do not appear on election ballot questions. Is there a double standard for marijuana? Since Lamarck's original observations, science has made significant strides toward understanding how marijuana works on our brains. We know the mechanism of action of its two major bioactive constituents: the psychotropic or mind-altering substance  $\Delta$ 9-tetrahydrocannabinol (THC) and the non-psychotropic cannabidiol (CBD). On the medical front, scientific data support THC for treating emesis and cachexia during chemotherapy, and for promoting appetite in AIDS patients. Extensive research and clinical trials have led to approval of a mixture of THC and CBD for treating multiple sclerosis. Ancient Indian, Chinese and Arab pharmacopeias had promoted medicinal use of marijuana centuries ago.

Therefore, to some extent, modern science appears to have upheld ancient wisdom about medical marijuana as well as marijuana's intoxicating properties.

That scientific process also revealed something disconcerting, if you are not enthralled by the drug's medical benefits.

Marijuana's adverse effects are worse on younger brains and can last a long time. Data show that teenagers' brains, still undergoing significant developmental changes, are affected by marijuana use differently, in some ways more severely, than the brains of adults. Therefore, teenagers may be affected to a greater extent by laxer rules – because they are more likely to abuse marijuana.

One study showed that casual use by adolescents and younger adults was enough to create structural differences in regions of the brain at the core for motivation, decision-making, memory and response to fear.

Complicating matters is that marijuana's THC concentration has increased significantly over the past 20 years, according to findings from the federal Drug Enforcement Administration. The Substance Abuse and Mental Health Services Administration reports that emergency room visits related to marijuana nearly doubled from 2004 to 2011.

The dangers are understood well enough to raise an alarm.

We know that the endocannabinoid system in our brains is intrinsically programmed to respond to marijuana. Receptors are activated by anandamide (from the Sanskrit word *ananda* meaning joy or bliss), a chemical substance naturally present in minuscule amounts in our brains. Some of marijuana's ingredients mimic anandamide's actions and can take its place effortlessly. If our endocannabinoid system is incapacitated by disease, damage or old age, marijuana can become a soothing substitute.

Thus, science is telling us that marijuana can be a miracle medicine capable of rejuvenating our brain's endocannabinoid system, or it can be a gateway to the dark side of drug addiction. It is a conundrum all too familiar to scientists, scholars and keener students of human history. Yet, it is all too often ignored in the heat of the marijuana debate.

One thing that should not be debated: More research is needed to better understand how far and how fast we travel on the road to placing marijuana alongside aspirin in our medicine cabinets.

Bhide, Ph.D., is the Jim and Betty Ann Rodgers Eminent Scholar Chair of Developmental Neuroscience and director of the Center for Brain Repair at the College of Medicine. See more about his work on Page 7 – "Inside the teenage mind."

#### Florida State University College of Medicine Partners

As a community-based medical school, the FSU College of Medicine provides clinical training at regional medical school campuses around the state through affiliations with local physicians, ambulatory care facilities and hospitals. The medical school is proud to recognize its partner institutions and organizations.



#### Daytona Beach Campus

Bert Fish Medical Center Flagler County Health Department Florida Health Care Plans Inc. Florida Hospital DeLand Florida Hospital Fish Memorial Florida Hospital Flagler Florida Hospital Memorial Medical Center Florida Hospital Oceanside Halifax Health Stewart-Marchman-Act Behavioral Healthcare Surgery Center of Volusia County Twin Lakes Surgical Center Volusia County Health Department Volusia County Medical Society

#### Fort Pierce Campus

Department of Health in St. Lucie County Florida Community Health Center Inc. Children's Medical Services - Southeast Region Grove Place Surgery Center HANDS Clinic of St. Lucie County Heart & Family Health Institute HealthSouth Treasure Coast Rehabilitation Hospital Indian River Medical Center Indian River County Medical Society Lawnwood Regional Medical Center Martin Health System Martin County Medical Society New Horizons of the Treasure Coast Port St. Lucie Hospital Raulerson Hospital Sebastian River Medical Center St. Lucie Medical Center St. Lucie Surgery Center St. Lucie/Okeechobee Medical Society Surgery Center of Okeechobee Inc. Surgical Center of the Treasure Coast The Surgery Center at Jensen Beach Treasure Coast Center for Surgery Treasure Coast Community Health Treasure Coast Hospice VNA of the Treasure Coast Volunteers in Medicine Clinic

#### Orlando Campus

Alliance Surgical Center Central Florida Regional Hospital Community Health Centers Inc. Department of Health in Orange County Downtown Surgery Center Florida Hospital HealthSouth – Physicians' Surgical Care Center Nemours Children's Clinic Orange County Medical Examiner's Office Orange County Medical Society Orlando Center for Outpatient Surgery Orlando Health Orlando VA Clinic Seminole County Health Department South Lake Hospital St. Cloud Regional Medical Center UF Cancer Center – Orlando Health

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#### Pensacola Campus

Baptist Health Care Children's Medical Services - Northwest Region Covenant Hospice Department of Health in Escambia County Department of Health in Santa Rosa County EmCare Escambia County Medical Society Haven of Our Lady of Peace Lakeview Center Inc. Naval Hospital Pensacola Nemours Children's Clinic North Okaloosa Medical Center Sacred Heart Health System Santa Rosa Medical Center VA Gulf Coast Health Care System West Florida Hospital

#### Sarasota Campus

Aesculapian Surgery Center Bay Pines VA Healthcare System Cape Surgery Center Department of Health in Sarasota County DeSoto Memorial Hospital (Arcadia) Doctors Hospital of Sarasota Doctors Same Day Surgery Center GulfCoast Surgery Center Inc. Lakewood Ranch Medical Center Manatee Memorial Hospital Sarasota County Medical Society Sarasota Memorial Health Care System Venice Regional Bayfront Health

#### Tallahassee Campus

Advent Christian Village Apalachee Center Inc Archbold Medical Center (Thomasville, Ga.) **Big Bend Hospice** Bond Community Health Center Inc. Capital Health Plan Capital Medical Society Capital Regional Medical Center Centre Pointe Health & Rehabilitation Children's Medical Services - Big Bend Region Department of Health in Leon County Doctors' Memorial Hospital (Perry) Emerald Coast Behavioral FSU Health and Wellness HealthSouth Rehabilitation Hospital Life Care Centers of America (Thomasville, Ga.) Memorial Hospital and Manor (Bainbridge, Ga.) Neighborhood Medical Center Red Hills Surgical Center Refuge House Southwest Public Health District 8, Unit 2 (Thomasville, GA) Tallahassee Memorial HealthCare Tallahassee Outpatient Surgery Center Tallahassee Plastic Surgery Clinic Tallahassee Single Day Surgery Tallahassee VA Clinic Westminster Oaks

#### Rural Medicine

Collier County Health Department (Immokalee) Florida State Hospital (Chattahoochee) Healthcare Network of Southwest Florida (Immokalee) Jackson Hospital (Marianna)

#### FSU College of Medicine -Sponsored Residency Programs

Dermatology Residency Program at Dermatology Associates (Tallahassee) Family Medicine Residency Program at Lee Memorial Health System (Fort Myers) General Surgery Residency Program at Tallahassee Memorial Hospital (Tallahassee) Internal Medicine Residency Program at Tallahassee Memorial Hospital (Tallahassee) Obstetrics & Gynecology Residency Program at Sacred Heart Health System (Pensacola) Pediatrics Residency Program at Sacred Heart Health System (Pensacola) Procedural Dermatology Fellowship Program at Dermatology Associates (Tallahassee)

#### Family Medicine Residency Program Affiliations

Bayfront Medical Center (St. Petersburg) Florida Hospital (Orlando) The Florida State University College of Medicine Family Medicine Residency Program at Lee Memorial Health System (Fort Myers) Halifax Health (Daytona Beach) Mayo Clinic (Jacksonville) Miller School of Medicine, University of Miami, Department of Family Medicine and Community Health (Miami) Morton Plant Hospital (Clearwater) Naval Hospital Pensacola St. Vincent's Medical Center Inc. (Jacksonville) Tallahassee Memorial HealthCare

#### **Other Affiliates**

Gadsden County Health Department (Quincy) H. Lee Moffitt Cancer Center & Research Institute (Tampa) Halifax Health General Surgery Residency SPRING



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SUMED

Many FSU medical students take time away from the demands of school to put the College of Medicine's mission to work. Some of them are devoting one Saturday every month to assist with the new Chapman Community Health Program (see story, Page 14).

