LOCAL

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**Old plantation cemetery**

*Historic marker explains Betton's burial ground.* » Page 3B

**MONDAY** VOLUNTEERISM /// **TUESDAY** SCHOOLS /// **WEDNESDAY** HEALTH /// **THURSDAY** TASTE /// **FRIDAY** HOME & GARDEN /// **SATURDAY** MY FAITH /// **SUNDAY** MY FAMILY

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# FSU researcher hopes to improve antidepressant

## 'Recreational' drug is being studied

**By Jordan Culver**
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Dr. Mohamed Kabbaj is doing research that could completely reverse the reputation of a drug.

Kabbaj, a professor and researcher at Florida State University's College of Medicine, is in the midst of a study into the antidepressant effects of ketamine. Many researchers already know that the drug works, and that it can take effect hours after one injection, whereas many antidepressants can take weeks.

While the drug has already been proven to lift the effects of extreme depression, it comes with a variety of side effects that make it unsuitable for widespread use. Ketamine, commonly known by recreational drug users as "Special K," is a highly addictive drug in medium to high doses. It can be refined into an odorless and tasteless powder and snorted or added to drinks. It can create disassociation with a person's surroundings and induce amnesia.

**Dr. Mohamed Kabbaj is studying ketamine at the Florida State Univeristy College of Medicine.** COLIN HACKLEY

Kabbaj is hoping to find ways around those side effects by making the drug more effective in lower doses. He was recently awarded a $1.8 million grant from National Institute of Mental Health to study what he believes is a key component to how the drug works — the fact that the drug's effects are magnified in females.

"We just wanted to try it," Kabbaj said about starting his research. "We injected some male and female rats with low doses of ketamine and we found the females were much more sensitive at low doses compared to males."

Kabbaj's original research, "Sex Differences in the Antidepressant-Like Effects of Ketamine," which was published in the medical journal *Neuropharmacology*, is what earned him the grant to further study the effects of ketamine over the next year.

Now Kabbaj is looking into using gender differences to lower doses of ketamine in males. He said ketamine reacts differently with the hormones estrogen and progesterone, both of which are more naturally prevalent in females.

"This grant is to look further into the molecular mechanisms of why estro-

See DRUG » 4B

Dr. Mohamed Kabbaj was recently awarded a $1.8 million grant from National Institute of Mental Health to study ketamine. COLIN HACKLEY

# Drug

Continued » 1B

gen and progesterone are enhancing the effects of ketamine in female subjects," he said.

The drug is already used as a last-resort antidepressant for patients with suicidal thoughts or tendencies, reports the Centers for Disease Control. But Kabbaj said that combining low doses of ketamine with estrogen and progesterone — in smaller amounts for female patients and larger amounts for male patients — could make it an effective antidepressant for a larger population.

"We're trying to see how low we can go," he said. "Another interest of mine is to see how low we can go in terms of ketamine doses, but add other compounds like estrogen and progesterone and make the drug more efficient but not include addictive qualities."

Of course, Kabbaj will also have to contend with ketamine's reputation as an addictive recreational drug. If his research is successful, though, Kabbaj said more people will be able to benefit from ketamine usage. Instead of waiting weeks for an antidepressant to take effect — and for some people they may not work at all — doctors could use a shot of ketamine for almost instantaneous effects.

Plus, Kabbaj said his research will eventually show gender differences in all antidepressant treatments.

"Usually when you go to a doctor for a treatment, the treatments are the same for both males and females," he said. "They don't differentiate. They just give you a treatment and it's standard. We're trying to adapt the treatment for both men and women."

***"This grant is to look further into the molecular mechanisms of why estrogen and progesterone are enhancing the effects of ketamine in female subjects."***

**DR. MOHAMED KABBAJ,** FSU researcher