

## The anxiety puzzle

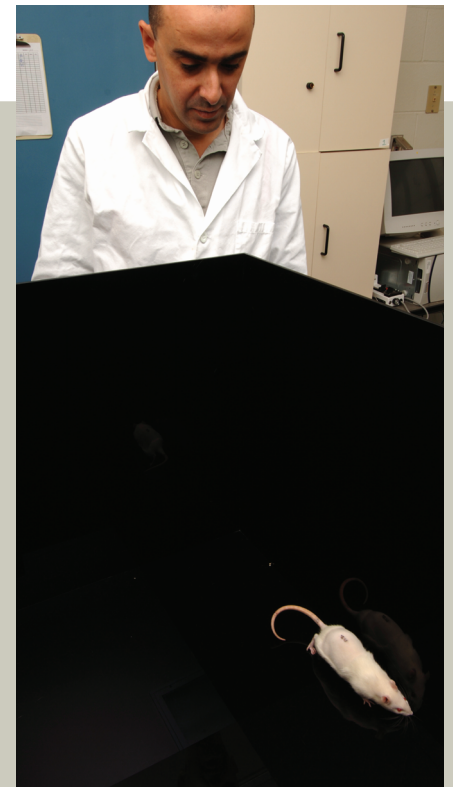
Testosterone. It usually makes the news only when boys behave badly.

But in the laboratory of Mohamed Kabbaj, researchers are beginning to see a previously unknown benefit of testosterone – as a shield against anxiety. They’re wondering whether the greater amounts of this hormone in males could help explain why men are afflicted by anxiety only half as much as women are.

To seek answers to those and other questions, Kabbaj, an associate professor in the Department of Biomedical Sciences, has been awarded a five-year, \$1.8 million grant from the National Institute of Mental Health.

“We have shown recently that estrogen is not implicated in sex differences in anxiety,” Kabbaj said. “Now we are focusing on testosterone. We think testosterone is protective in males. And since females don’t have a lot of testosterone, they are more prone to developing anxiety and depression. That’s the hypothesis we are trying to follow up on.”

As part of this research, Kabbaj’s team also is trying to pin down the exact



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**Mohamed Kabbaj received a \$1.8 million grant to study the neurobiology behind sex differences. His work could lead to better ways of controlling anxiety in humans.**

role played by the gene known as zif268. Using animal models, they’ve discovered that, during stressful situations, the gene is activated in the medial prefrontal cortex of the brains in males far more than in females.

“I see our studies as shedding light on the neurobiology behind sex differences – why females are more anxious,” Kabbaj said. Eventually, he said, a drug manufacturer will be able to take his information and develop a drug to reduce anxiety more effectively.

“Once you have identified a target, I think it’s easy for people who design drugs on a regular basis to do that,” he said. “I have more fun, though, with finding those first pieces of the puzzle.”

Thanks to this grant, he has until 2015 to work on that puzzle.