



Abuzar Kabir, below left, and Kenneth Furton found that cotton muslin, when coated with a special polymer, could better allow scientists and other experts to separate compounds in samples.



FIU

Analysis Breakthrough

Here's the problem in chemical testing for medical labs, coroners and environmental scientists: Analyzing a substance — blood on a towel, for example, means separating it from the sample, and that takes time, solvents and expensive equipment. At Florida International University, Kenneth Furton, FIU's provost and an analytical chemist, and Abuzar Kabir, an analytical chemist and materials expert, found a way to simplify things. They found that by coating cotton muslin — an everyday textile — with a special polymer, it would soak up enough of a component from a sample in 15 minutes to allow a chemical analysis. More component means more conclusive results. FIU, which holds a patent on the method and process, is working on commercializing it. FIU says researchers at 30 universities globally have invested time in validating different applications of the technology and have produced more than 25 peer-reviewed articles for publication. "We hope this will be a game changer for the industry," Furton says.

FAU

Neuroscience Pillar

No Florida university has been as well sited to take advantage of the state's massive investment in out-of-state life science research organizations as Florida Atlantic University.

Rather than pump the money into its own public universities, Florida chose, beginning in 2003, to lay out hundreds of millions of dollars to recruit branches of renowned researchers Scripps, Max Planck and Sanford Burnham Prebys to Florida. FAU wound up home to two of the recruits; Scripps and Max Planck have their state-of-the-art buildings on FAU's Jupiter campus.

The two high-profile institutions came as FAU itself was developing and launching its own med school and raising its life sciences profile. But FAU looks to do more than ride the coattails of its internationally known campus-mates. FAU has made neuroscience one of the university's four research "pillars." (The others are healthy aging, environmental and ocean science and sensing and smart systems.)

In 2016, FAU hired Vanderbilt University scientist Randy Blakely to head its newly formed FAU Brain Institute with offices on FAU's Boca and Jupiter campuses. The institute aims to understand how the brain works and how diseases such as autism, schizophrenia, depression and Alzheimer's come to be. (FAU President John Kelly says Max Planck CEO and scientific director David Fitzpatrick and Scripps chair Ronald Davis served on the search committee that went after Blakely.)

Blakely brought 12 faculty, post-docs and grad students with him from



Scientist Randy Blakely heads FAU's Brain Institute.

Vanderbilt, has brought in more since arriving and plans to hire still more. The institute also draws on existing FAU faculty from its four campuses — 52 faculty in all — and 17 affiliate faculty from Max Planck and Scripps.

The Legislature in its past two sessions gave FAU a total of \$12 million to develop plans for a building for the Brain Institute. The university needs another \$20 million to erect it. Meanwhile, FAU this academic year launches a neuroscience graduate program that aims to have 50 grad students in five years able to pursue Ph.D. studies with FAU and Max Planck researchers. FAU and Scripps already offer a joint M.D./Ph.D. degree.

It helps FAU's direction that Scripps Florida is heavily invested in neuroscience and Max Planck Florida is devoted exclusively to it. They all share equipment and facilities. "Anything they have is available to us, and anything we have is available to them," says Kelly. Like Max Planck and Scripps, FAU has put money into microscopes. One of FAU's first core facilities is cell imaging with \$1 million in high-end microscopes and a designation as the only Nikon Center of Excellence in the Southeast United States. Blakely nevertheless cheered the arrival of Max Planck's super-resolution microscope. "The kind of faculty I want to recruit will be the people that thrive in this environment," Blakely says.



Scripps, left, shares equipment and facilities with the Brain Institute.