Making Medicines

Milton Brown, MD, PhD, Director, Inova Center for Drug Discovery and Development, searches for cancer cures

Milton Brown, MD, PhD, a physician scientist, is one of only a handful of people in the United States who has a Doctor of Philosophy in synthetic chemistry and a Doctor of Medicine degree. After serving as the founding director of the Drug Discovery Program at Georgetown University Medical Center, he brought a team of scientists to Inova in 2017 to focus on finding cures for cancer. Their aim: Develop new drugs in-house and place those clinical therapies into practice quickly to benefit more patients.

Why is it important to have personalized medicine in the area of cancer?

Personalized treatments are important because no two patients' cancers are alike. Cancers can be individualized to the point where you can develop medicines that are specific to one person's treatment. We want to develop tests to tell us which are the right patients for the right medicines. That is the hallmark of personalized medicine.

What are you hoping to accomplish at Inova?

We are going to start using virtual reality in a unique way to help us in drug discovery. It's similar to opening a lock. The drug molecule is the key, and the protein is the lock. You have to combine the right drug molecule with the right protein to discover the drug.

What kind of drugs is the center seeking to discover or create?

There are so many diseases in cancer that don't have drugs to treat them. For example, what if a woman has the BRCA1 gene mutation (making it more likely she will develop breast or ovarian cancer)? Angelina Jolie showed us she could be really courageous to have a double mastectomy before she got cancer. But why couldn't we make a medicine to cause BRCA1 to come back as a tumor suppressor (which helps repair damaged DNA)? Why couldn't we make a medicine that is supplemented for BRCA1, and all you had to do is take the medicine to get the BRCA1 protective effects and don't have to have a mastectomy? That's powerful.

How can this potentially help patients?

We have some innovative technologies where the molecules we make give off signals to track where they are in the body and if they've actually reached the tumor. Sometimes people don't get well, not because the drug didn't work for them, but because the drug never really got to the tumor.

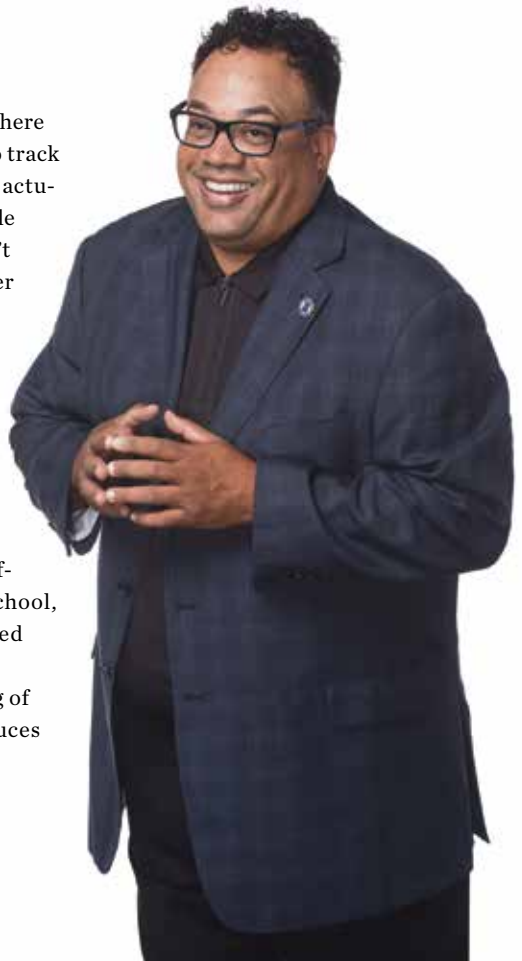
How did your work at Georgetown inform your current role?

The concept that you could build a drug discovery center in a medical school and now in a community-based research facility is very unique. The difference is Georgetown was a medical school, and this is a very large community-based hospital that has embraced the idea of using its knowledge and understanding of diseases to develop research that produces some therapy.

How critical is community philanthropic support to your work?

In the process of bringing a new drug to the clinic, financial support is needed [to fund] required studies [that need] to be completed [and] that are not readily funded by the National Institutes of Health or other governmental agencies. Philanthropic funds accelerate the process of putting new drugs into the clinic by providing available funding to quickly complete required test and regulatory processes. INOVA

Learn more about advancements in cancer at Inova at inova.org/cancer.



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