



## MU Researcher Combining Traditional Medicine, Nanoparticles for Cancer Treatment

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The future of medicine, as Velaphi Thipe might say, lies in returning to its roots — literally.

Thipe's research has produced an evolution in cancer treatment that puts materials associated with traditional medicine inside nanoparticles for a more effective, cheaper and more environmentally friendly way to treat the disease.

Thipe, an [MU](#) postdoctoral fellow, detailed the process in a virtual presentation for the university's [Black History Month](#) series focused on Black health.

The presentation starts with plants, which Thipe calls “an abundant source of potential for new drugs or medicines.”

And there's a fruity twist, too. His research takes chemical compounds from the skins of mangoes and red grapes and combines them with two metals, gold and palladium, to make nanoparticles.

The particles are tiny — between 1 and 200 nanometers in size. (A piece of paper, for example, is about 100,000 nanometers thick.) Still, Thipe said, they can pack in a “pharmaceutical payload.”

When creating new medicines on this scale, “size really matters,” according to Thipe. It's actually vital to the function of nanoparticles in cancer treatment.

Healthy tissue, at this level, has small pores that are less than 10 nanometers wide. Cancerous tissue, however, has much larger pores that are more than 100 nanometers wide.

That means a nanoparticle that is, for example, 55 nanometers wide can infiltrate and attack

a tumor while leaving healthy cells alone.

Ensuring healthy cells stay intact and avoiding attacks is an improvement from chemotherapy, Thiipe said, which doesn't always make the same distinction.

Thiipe also found that the fruit-metal combination inhibits a protein that's key to the rapid growth of tumors. And because of their natural origins, the nanoparticles leave no carbon footprint.

The advance represents a balance between Western medicine and ancient practices, which Thiipe described as "trying to combine both worlds."

That could be important in creating a cancer treatment that's more accessible around the world in terms of cost and familiarity; researchers estimate around 80% of the global population relies on traditional herbal medicine as a primary form of health care.

"(Cancer) is actually a very expensive disease to eradicate, so we need to develop therapeutics that are as effective as possible, safe and accessible to a lot of people around the world — not only in the first-world countries," Thiipe said.

Read the [original article](#) on Columbia Missourian.