

MEET THE SCIENTIST

Preventing Cancer from Spreading to the Bone



When most people think about dealing with cancer, their thoughts tend to center on survivability, treatments, and side effects. But one issue that many cancer patients have to unexpectedly contend with is excruciating bone pain.

“It’s not well known, but when most cancers spread, they tend to go to the bone,” says Wakenda Tyler, assistant professor in the Department of Orthopedics and Rehabilitation. “The bone is full of tiny nerves that react very strongly and can cause great pain. We’re working to prevent the cancer from reaching the bone, or at the very least attack it before it can damage the bone tissue.”

In addition to being extremely painful, bone cancer often weakens the bone to the point that the bone breaks; meaning the patient now has to deal with possible immobility while fighting cancer. Often, chemotherapy and radiation treatments must also be suspended until the fracture has healed.

Tyler’s research is focused specifically on inhibiting the growth of blood vessels that feed cancer

cells on bones. When a cancer cell metastasizes to a bone, it releases a chemical signal that triggers the formation of new blood vessels in the area. As the body develops, it needs such signals to know where to grow new blood vessels, but once the “blueprint” is established, the body essentially shuts down all the signaling. Cancer cells have found a way to turn the signaling back on.

“That’s what we’re going after,” says Tyler. “For the most part, only the cancer cells are releasing that signal in an adult, which means if we can find the perfect antibody that interrupts the signal’s pathway, we can choke off the cancer’s blood supply. And if we can find how to do that on the bone, we might have a really good target to aim for on the initial site of the cancer as well.”

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