

# Sparking discovery

## Special gift helps explore new idea for fighting leukemia and other blood cancers

By Marcia Locke

Great scientific discoveries often start with just a spark of an idea. A scientist is going about her usual research when she discovers something that takes her in a whole new direction. But building that idea into a research project isn't easy or cheap.

That's why the new Linders Family Cancer Research Expansion Award is so helpful. Thanks to a generous donation from Christy Linders, Manhattan, Kansas, the Johnson Cancer Research Center is able to award start-up funds for junior investigators to pay for supplies and personnel to work on a new cancer-specific study.

In 2021, the center awarded \$12,500 to Stephanie Shames, assistant professor of biology, to explore a new idea she had for fighting acute myeloid leukemia and other blood cancers.



Shames studies how bacteria both cause disease and help the body fight disease. Using bacteria called Legionella, she investigates how bacterial pathogens interact with their host. Specifically, she looks at proteins that are required for infection yet also help the immune system detect the pathogen.

While studying a Legionella protein and its impact on the immune system, Shames made a discovery relevant to cancer. With her Linders Award, she gets to explore it further.

Shames is investigating a component of protein complexes called proteasomes, which break down unneeded or damaged proteins. She focuses on a protein that activates proteasomes and is important to the survival of leukemia cells, which are cancerous white blood cells. She wants to inhibit, or restrain, the activator protein and its proteasome, as inhibiting specific proteasomes in leukemia cells reduces their survival.

"We hope our study of this protein will offer new information about the mechanisms of leukemia cell biology and lead to the development of new anti-leukemia therapeutics," Shames said.

Linders, a breast cancer survivor, said she is pleased to support this compelling and promising project, recognizing that life-saving cancer treatments start with basic research.

"Dr. Shames' research doesn't relate directly to the cancers I'm passionate about, but it's still something that could go somewhere," she said.

Linders has been deeply affected by cancer. Soon after fighting breast cancer herself in 2013, she lost her husband, Clark, to pancreatic cancer when he was 62 years old. Before that, he had also fought testicular cancer at age 27 and prostate cancer in his mid-50s.

Clark and Christy Linders

The Linders have had a huge passion for K-State cancer research. In the 1990s and 2000s, the former owners of six Manhattan-area McDonald's restaurants hosted many annual "Raise the Roof" fundraisers atop their Westloop restaurant. Rain or shine, radio personality John Anderson spent all day on the roof urging listeners to get him down by raising \$5,000 for the Johnson Cancer Research Center. The Linders always ensured success by donating at least \$1,000.

One thing about the center that impressed the Linders is its multidisciplinary approach.

"Having people in engineering, biology, veterinary medicine — all of those people working together — to me, that is really interesting and so necessary when you're doing research on something like cancer," Linders said.

She hopes her latest gift will help advance innovative research that leads to better ways to fight cancer without harming the body.

"In the big scheme of things, it's not a lot of money," she said. "I might just be buying test tubes. But if that's what Dr. Shames needs, then that's what I'm happy to do. And if we can get more people to do these small things, then we can help the researchers get where they need to be.

"After you fight cancer, it's a part of you," Linders said. "I want to support efforts that are strengthening to our society, that keep people alive and hopeful."

Programs to advance K-State cancer research and education are made possible by private donations.



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