Study: Enhancing cancer response to radiation

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Researchers Cristina Espinosa, Rebecca Ruhl and Sudarshan Anand in the lab. Credit: OHSU

OHSU researcher Sudarshan Anand, Ph.D., has a contemporary analogy to describe microRNA: "I sometimes compare MicroRNA to tweets—they're short, transient and constantly changing."

Because microRNA is dynamic, it makes for a compelling target for cancer research.

Anand, an assistant professor of radiation medicine in the School of Medicine and member of the Knight Cancer Institute, teamed up with a group of researchers to take a closer look at microRNA in the context of the tumor microenvironment.

Their findings, published in *Nature Communications*, provide early evidence that a panel of microRNA may be used in the future as a biomarker for several types of cancer. Using a mouse model, Anand and colleagues demonstrated how microRNAs in the tumor microenvironment play a critical role in tumor progression and response to radiation therapy. With microRNAs, the team mimicked features of the autoimmune disease lupus within cancers to provoke an immune response.

This promising, early research may one day translate to human cancer radiation and treatment, and begs the question: Can we use microRNA biomarkers to influence cancer radiation? Anand and team believe it is a line of inquiry worth pursuing.

"Biology is such a random process," Anand says. "Two neighboring cells won't always act the same way, just like two people don't react the same way when they see the same event. We hope we will one day be able to read microRNAs and predict if a person's cancer is going to respond to radiation."

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