MedicalXpress

New target isolated for leukemia drug development

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There are potentially effective treatments for acute myeloid leukemia (AML), but they only work in 20 to 40 percent of cases. In a paper published today in *Leukemia*, a Nature journal, a UT Health Science Center researcher has pinpointed a protein that could play a key, previously unknown role in the development of pediatric AML—promising new information in the quest to treat and cure childhood leukemias.

AML starts at the point when cells mature into different kinds of blood cells. In AML, the cancerous cells grow and proliferate in an abnormal way, and they fail to develop, or differentiate, into normal functioning white blood cells. Also, high levels of a protein called WTAP contribute to abnormal cell behavior, observed Sanjay Bansal, Ph.D., a researcher at the Greehey Children's Cancer Research Center at The University of Texas Health Science Center at San Antonio.

Dr. Bansal and his team, working with leukemia cells, used a laboratory technique to "knock down" WTAP expression in AML cells. What resulted was, in the research world, a resounding success.

"Knocking down this protein, WTAP, greatly suppressed proliferation and induced differentiation," said Hima Bansal, Ph.D., senior research associate at the Health Science Center and lead author of the paper. "It took care of both problems."

But they needed to understand how WTAP levels get so high in AML in

the first place.

The researchers turned to another protein called Hsp90, a so-called "molecular chaperone" that helps stabilize more than 200 other proteins, known as Hsp90 "clients".

"When we suppressed Hsp90, we reduced WTAP," Dr. Bansal said. "So we have discovered two things: WTAP's role in AML and the mechanism underlying its overexpression."

Many of Hsp90's other client proteins are known targets in oncology, and "WTAP joins the list," Dr. Bansal said.

This discovery could open the door to more effective therapies for children and adults with newly diagnosed AML or for patients who have failed currently available treatments.

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