MedicalXpress

# Researchers pinpoint potential enzyme for T-cell leukemia treatment

February 22 2016

For the first time, researchers at Boston University have shown that T-cell leukemia cells use a particular cycle, called the TCA or Kreb cycle, to support their growth and survival.

The findings from Dr. Hui Feng and her postdoctoral trainees (Dr. Nicole M. Anderson, Dr. Dun Li, and Dr. Fabrice Laroche), which appear online in the journal *Leukemia*, may lead to the development of therapeutics to effectively kill these types of tumor cells by targeting a critical enzyme called DLST that exists in the TCA cycle.

Despite improvement of T-cell leukemia treatment, this disease is fatal in more than 20 percent of children and 50 percent of adult cases. Additionally, current treatment protocols are highly toxic.

Using an experimental model, BUSM researchers performed genetic screenings to identify mutations that can specifically suppress tumor development. The screening led to the identification of the TCA cycle enzyme DLST as an important contributor to T-cell acute lymphoblastic leukemia development. Further analysis using human T-cell leukemia cells demonstrated that inhibiting the DLST enzyme activity could effectively kill human T-cell leukemia cells.

"Researchers have wrongly assumed that cancer cells do not use the TCA cycle to support their growth. Our new findings provide solid evidence that these cancer cells depend on the TCA cycle for their survival," explained corresponding author Hui Feng, MD, PhD, assistant professor

of pharmacology and medicine at BUSM. "Additionally we demonstrated the importance of DLST in T-cell leukemia development, and have identified a targetable enzyme for T-cell leukemia treatment," she added.

The researchers believe the therapeutic benefit of DLST inhibition may extend to cancers other than T-cell leukemia.

Provided by Boston University Medical Center