Researchers at the University of South Florida have developed a novel method of diagnosing large granular lymphocyte (LGL) leukemia cancer by detecting certain enzyme biomarkers that are overly expressed by the cancer cells.

Leukemia is a type of cancer found in the blood and bone marrow that is caused by the rapid production of abnormal white blood cells, which leads to impairment of normal body functions. Specifically, LGL leukemia is a chronic leukemia affecting a category of white blood cells known as lymphocytes. It is characterized by enlarged lymphocytes containing noticeable granules. Normal lymphocytes are responsible for fighting various diseases and have the ability to induce cell death in a number of disease causing cells, including cancer cells and bacteria. This ability comes from certain enzymes produced by the lymphocytes, called “granzymes,” which when released by the leukocyte induce cell death in the disease causing cell.

USF researchers have discovered that a certain granzyme, known as granzyme H, is expressed more prominently in LGL leukemia cells. Furthermore, the researchers have developed a deeper understanding of the genetic makeup of the cells as it pertains to their production of granzyme H, along with other specific granzymes such as granzyme B. Based on these discoveries, the genetic sequences that code for these precise granzymes were identified. Using these sequences, a method has been developed for diagnosing LGL leukemia in a patient. This invention is a powerful tool for doctors seeking enhanced methods to screen patients for this variation of leukemia.

**ADVANTAGES:**
- Potential LGL leukemia screening and diagnostic tool
- Potential as a therapeutic agent
- Accurate detection of LGL enzymes
- LGL leukemia biomarker exposure

**Enhanced Screening of LGL Leukemia Based on Cancer Specific Biomarkers**

**Analysis of Leukemia (1-6) and Healthy Patients (7-11) Reveals Higher Expression of Granzyme H in Those with Cancer**

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