

Researchers' discovery revives hope in promising lymphoma treatment

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(Medical Xpress)—Researchers at UCLA's Jonsson Comprehensive Cancer Center have discovered the mechanism by which an experimental drug known as GCS-100 removes from lymphoma cells a protein that prevents the cells from responding to chemotherapy.

The discovery revives hope in a [drug](#) that had been tested in clinical trials years before but had been delayed indefinitely. The researchers hope GCS-100 can be combined with chemotherapy to create an effective treatment for diffuse large B-cell [lymphoma](#) (DLBCL), the most common and aggressive form of non-Hodgkin lymphoma, a cancer of the immune system.

The findings are published in the advance online issue of the journal *Blood* and will appear in a forthcoming print issue of the journal.

The UCLA researchers found that a protein called galectin-3 binds to an enzyme called CD45 on the surface of [lymphoma cells](#). This protein–enzyme combination regulates the [cancer cells'](#) susceptibility to chemotherapy, essentially protecting them from [chemotherapy drugs](#).

Derived from citrus pectin, GCS-100 works outside the cancer cells to remove the protective galectin-3. Once the galectin-3 is removed, a lymphoma cell can be effectively killed by chemotherapy drugs, part of a chain reaction of programmed cancer-cell death known as apoptosis.

Although the researchers knew the drug had shown action against

lymphoma cells, the finding that GCS-100 literally removed the barrier to the initiation of cell death by removing galectin-3 from the cell surface was unexpected.

"We let the results guide our ideas, and we were able to establish a mechanism for GCS-100," said the study's first author, Mary Clark, a graduate student researcher in pathology and laboratory medicine. "I am excited to follow the progress of GCS-100 and hope to see its use in the clinic as an adjunct therapy for lymphoma in the near future."

Dr. Linda Baum, a professor of pathology and laboratory medicine and senior researcher on the study, said, "This drug had been abandoned because of the vagaries of the economy. My hope would be to restart this drug in clinical trials and, using this new knowledge, to include it in a more targeted lymphoma therapy."

Early [clinical trials](#) of GCS-100 had shown no known side effects of the drug other than a mild rash in some patients, which other research has demonstrated is the result of the drug also promoting the development of T cells, which are created by the immune system to fight disease.

Provided by University of California, Los Angeles

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