Research group tries to produce cancer cure

A University research group headed by Lloyd Dolby is trying to produce a chemical compound which has been tentatively identified as a weapon against leukemia.

Dolby, a professor of chemistry at the University, has a three-year grant of $71,000 from the National Cancer Institute to work on this problem.

He explains that the compound is an alkaloid found in plum yew trees, which are native to China and Japan.

It has passed the initial stages of testing by the National Cancer Institute to determine whether it exhibits biological activity against leukemia. "It showed spectacular activity against this form of cancer in mice," he recalls.

But Dolby warns that testing a compound for potential use in fighting cancer in humans takes many years and only a tiny fraction of these potential medications pass all the tests. The problem, he explains, is to find something that kills cancer cells, but not other cells.

The National Cancer Institute has given funding to the University group and several other research groups in this country to try to duplicate the plum yew alkaloid, because obtaining this cbmpound in its natural state is prohibitively complicated and expensive, according to Dolby. Hundreds of pounds of tree material must be ground and refined just to obtain a few milligrams of the compound, he said.

Typically five to eight man years of work are necessary to develop a synthesis of this complexity, according to Dolby. His group has worked for two years already on this alkaloid. Currently working with Dolby on this and other projects are Yasumasa Koyama, visiting Professor from the University of Chiba, Japan; graduate students Carl Skold and William Bryan, undergraduate David Senkovich of Eugene, and laboratory assistant Mark Tuttle.

Dolby explains that chemists approach this type of problem by working it backwards. "We look at the final product, decide what one chemical reaction can generate this material from an immediate precursor, then repeat this process until we arrive at the basic building blocks," he says.

The average synthesis now requires 20 or more such chemical operations, according to Dolby, who notes that the probability of each one of them working is not 100 per cent. "The difficulty," he says, "is that if one step fails, the whole thing fails."

Dolby points out that the real long range value of this type of project is the improved information and methods in organic chemistry it produces.