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NEWS

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RESEARCHERS EXPLORE CONNECTION BETWEEN CHOLESTEROL AND CANCER

Boston, Mass.--Cholesterol-lowering drugs, such as lovastatin, may be effective in halting the spread of colon cancer to the liver, according to a study published in the current issue of Cancer Research. Researchers from Boston University School of Medicine (BUSM) found that human colon-tumor cells deprived of cholesterol lacked the ability to generate LDL receptors to draw LDL cholesterol, needed for the tumor cells to grow, directly into the cells.

All normal cells need cholesterol, which they obtain by manufacturing it or by extracting it from the blood serum. Previous studies in animals demonstrated that tumor cells deprived of cholesterol generated receptors to extract cholesterol from blood serum, and that these cells took up more cholesterol than normal cells because of their rapid proliferation.

The BUSM researchers studied human colon-tumor cell lines in vitro to determine if, when deprived of cholesterol, they also had the ability to generate LDL receptors. They were surprised to find that five out of the six human colon-tumor cells they studied did not produce LDL receptors.

Selwyn Broitman, Ph.D., FACG, a professor of pathology at BUSM and the senior researcher on the project, and Michelle Fabricant, Ph.D., a former graduate student at BUSM and the lead author of the study, say this research may eventually help patients with liver metastases. "It's possible that we can halt the spread of these tumors into the liver or kill them by using cholesterol-lowering drugs," says Broitman. "Cholesterol-lowering drugs may be useful in conjunction with chemotherapy or as a preventive measure when colon tumors are surgically removed," he adds.

Many colon-cancer patients are successfully treated with surgery.

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However, one-third of patients treated surgically have liver metastases at the time of surgery. The cancer is more difficult to treat when it spreads to the liver.

According to Broitman, these findings may eventually lead to a new approach to treating colon cancer. Since normal liver cells generate LDL receptors, it may be possible to protect them by linking a rescue chemical to the receptors. The patient could then be treated with a cytotoxic drug that would bypass the normal "protected" cells but kill the cancerous cells. "Eventually we may be able to specifically direct a drug to the tumor in the liver without affecting the surrounding normal tissue," says Broitman.

BUSM researchers will collaborate with researchers at the New England Deaconess Hospital on further research in this area. They hope to begin clinical trials within the year in patients who have colon cancer surgically removed.

Boston University School of Medicine is located in the South End of Boston between two of its principle teaching hospitals--The University Hospital and Boston City Hospital.

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