MedicalXpress

Melanoma drug revs immune cells but cancer cells ignore it

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A new study shows that an important drug used in the treatment of malignant melanoma has little effect on the melanoma cells themselves. Instead, it activates immune-system cells to fight the disease.

The drug, called interferon alpha (IFNa), is used to clean up microscopic tumor cells that may remain in the body following surgery for the disease. It is the only drug approved for this purpose.

Researchers say that these findings underscore the need to develop ways to make melanoma cells more vulnerable to the drug, or to overcome the block within the cells that prevents them from responding to it.

The study showed that melanoma cells taken directly from patients, as well as those grown in the laboratory, respond poorly to IFNa, even when the drug is given at very high doses, while immune cells respond well to the same substance.

The study, led by researchers with the Ohio State University Comprehensive Cancer Center, is published in the journal Clinical Cancer Research.

“IFNa is effective in only 10 to 20 percent of patients, but it's the best therapy available for these patients, and no therapies on the horizon have been proven any more effective,” says principal investigator William E. Carson, III, professor of surgery and a melanoma specialist at Ohio State's James Cancer Hospital and Solove Research Institute.

“It is critical that we understand exactly how this drug works and learn how to improve its effectiveness.”

IFNa is an immune-system hormone made by the body to help other immune cells recognize and destroy developing tumors. As a drug, the substance is used to treat melanoma and other cancers.

Formerly, it was thought that IFNa acted directly on melanoma-tumor cells to stop their growth. But earlier research by Carson's laboratory and others suggested that the drug has a greater effect on the immune system.

“The present study confirms that earlier work,” says first author Gregory B. Lesinski, a research assistant professor in the department of molecular virology, immunology and medical genetics. “The new findings are significant because they confirm that the immune system, and not the tumor cell, is the primary target of IFNa.

“We show for the first time that even normal melanocytes are inherently less responsive to IFNa compared to immune cells.” Melanocytes are the normal cells that, when cancerous, cause melanoma.

“Some unknown factor in melanoma cells seems to turn down their response to IFNa,” Lesinski explains. “We are now trying to understand what that factor might be.”

Source: Ohio State University