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Rare Joint Cancer Yields Its Secrets

By Steven Reinberg
HealthDay Reporter
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MONDAY, April 9 (HealthDay News) — Researchers have found that synovial sarcoma, a rare cancer that affects the joints, actually starts with genetic changes that affect muscle cells.

This finding may help scientists develop treatments for this aggressive cancer, which tends to develop in children and young adults.

"Sarcomas are rare cancers, but they are extremely aggressive and do not react to chemotherapy, radiation or surgery," noted lead researcher Mario R. Capecchi, a professor of biology and human genetics at the University of Utah.

Capecchi noted that the first step is discovering the biology of the malignancy. "Then, you can design a therapy that is specific to this cancer," he said.

His team reported its findings in the April issue of the journal *Cell*.

Synovial sarcoma accounts for between 5 percent and 10 percent of the approximately 10,000 new soft tissue sarcomas reported each year. Synovial sarcoma occurs mostly in young adults, with a median age of 26.5. About 30 percent of patients with these tumors are younger than 20, according to the U.S. National Cancer Institute.

Capecchi and colleagues discovered the genetic components that lead to synovial sarcoma while working with mice. When these gene products were put into the mice, the animals went on to develop synovial sarcomas.

Using this method, Capecchi's team was able to produce a model of synovial sarcoma in mice that is genetically similar to the disease as it occurs in

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humans. "In many respects, these tumors are indistinguishable from human tumors," Capecchi said.

In addition, they found that the cancer starts in muscle cells, not in cartilage or bone cells as had been thought.

These gene products could now be a target for therapy, Capecchi said. "Once you have a model of the cancer, then you can use it as a platform to generate therapies," he said.

One expert said the finding is important.

"Synovial sarcoma is a rare cancer, but one that is highly lethal," said Dr. Len Lichtenfeld, the deputy chief medical officer of the American Cancer Society. "We don't know a whole lot about the causes of synovial sarcoma," he added.

There are people who are concerned that we are not learning enough about rare cancers, Lichtenfeld added. "This finding is not a breakthrough in the treatment of the disease, but it is an important advance in understanding the disease," he said.

When one understands the disease, one can understand what the targets are for treating the disease, the expert said.

"Targeted therapies are for targeted diseases," Lichtenfeld said. "This finding holds out the hope that this might be possible for this cancer."

More information

For more information on synovial sarcoma, visit the U.S. National Cancer Institute.

SOURCES: Mario R. Capecchi, Ph.D., professor, biology and human genetics, University of Utah, Salt Lake City; Len Lichtenfeld, M.D., deputy chief medical officer, American Cancer Society, Atlanta; April 2007, Cell

<http://www.bccancer.bc.ca/PPI/TypesofCancer/Sarcomas/default.htm>
Synovial Cell Sarcomas

- * Usually arise in tissue adjacent to, but not directly from, joints, especially around joints in the lower limbs
- * These tumours do not look like cells of the synovium of the joint, but are given this name because of this tumour location – usually near joints
- * These tumours, as with other soft tissue sarcomas, can occur anywhere in the body, even in the heart
- * Occasionally may spread to the skin, notably the scalp
- * Lymph nodes are involved infrequently

Treatment

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* Complete surgical removal of the tumour is the most important treatment.

* Many high grade, (more rapidly growing) bone tumours are treated with chemotherapy in addition to surgery.

March 2007 We are currently reviewing and updating these pages. If you have any questions about your cancer and its treatment, please discuss with your oncologist or physician.

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