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Gene May Hold Key to Reducing Spread of Oral Cancers

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(PhysOrg.com) -- The spread of cancer cells in the tongue may be reduced if a gene that regulates cancer cell migration can be controlled, according to new research at the University of Illinois at Chicago.

Oral cancer is an under-treated and poorly understood disease, says Xiaofeng "Charles" Zhou, assistant professor in the UIC Center for Molecular Biology of Oral Diseases and lead researcher of the study.

More than 90 percent of oral cancers are squamous cell carcinomas that normally start on the gums, floor of the mouth, or tongue. About 30,000 Americans are affected each year, Zhou said.

While new cancers of all types have risen 8 percent in the last five years, oral cancer increased 21 percent, according to the American Cancer Society. Tongue squamous cell carcinoma, one of the most frequent oral cancers, rose more than 37 percent in this period. And although overall cancer deaths decreased during this period, those due to oral cancer increased by 4 percent -- and those due to tongue squamous cell carcinoma by 10 percent.

Improvements in patient survival require better understanding of tumor invasion and how cancer spreads, Zhou said, so that aggressive tumors can be detected early and targeted therapies can be developed.

While researchers have tried to identify altered genes that contribute to the aggressive nature of tongue squamous cell carcinoma, most previous

studies have focused on protein-encoding genes, Zhou said.

The new study examines a noncoding gene called microRNA-138.

MicroRNAs are small, noncoding RNA molecules that control the expression of a target gene after the intermediary message for the gene has been transcribed into RNA, Zhou said. Several microRNAs are believed to stimulate the spread of various types of cancer. The new study, he said, demonstrated that a reduced level of microRNA-138 is associated with enhanced ability of tongue squamous cell carcinoma cells to spread.

"Our knowledge of genomic aberrations associated with noncoding genes and their contributions to cancer initiation and progression is relatively limited," he said.

The study is published in the August issue of the *International Journal of Cancer*.

Provided by University of Illinois at Chicago