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New discovery raises doubts about current bladder treatment

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Researchers at the University of Virginia Health System have found that one of the genes commonly thought to promote the growth and spread of some types of cancers is in fact beneficial in bladder cancer - a major discovery that could significantly alter the way bladder cancers are treated in the future.

Bladder cancer is the fifth most common cancer in the United States, resulting in an estimated 14,000 deaths a year. A majority of these deaths are due to the cancer spreading, or metastasizing, to other areas of the body such as the lung and liver.

The study, published in the April issue of Proceedings of the National Academy of Sciences, shows that in bladder cancer the SRC gene may help rather than hinder the natural ability of cells to suppress aggressive tumor growth.

"We found that SRC modifies a recently discovered metastasis suppressor gene called RhoGDI2 making it more potent at slowing bladder cancer's ability to metastasize," says lead author Dan Theodorescu, MD, PhD, professor of urologic oncology and molecular physiology at the UVA School of Medicine.

SRC is a type of oncogene -- genes that are known to trigger cancer. In most cancers SRC has been shown to promote tumor development and contribute to the spread of cancer. Other genes, called metastasis suppressor genes, block this activity, and only when their levels are

reduced is cancer able to spread.

In the study, researchers analyzed human bladder cancer and discovered that SRC levels diminish as bladder cancer progresses. Furthermore, they found that reduced SRC levels and significant levels of the metastasis suppressor gene, RhoGD12, appear mutually exclusive in individual tumors - providing evidence that both genes are likely involved in the process leading to suppression of bladder cancer metastases.

"Our findings have important implications for the use of targeted therapeutic agents that inhibit SRC in bladder cancer and highlight the general importance of personalizing therapy in cancer," says Theodorescu. "Our data suggest using caution for their use in treating bladder cancer until more studies are carried out to define the implications of this form of therapy in bladder cancer."

Source: University of Virginia Health System

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