

Researchers show molecule inhibits metastasis of colon, melanoma cancers

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Researchers at the Medical College of Wisconsin have shown that a protein can inhibit metastasis of colon and melanoma cancers. The findings are published in the October 10, 2011 issue of *Proceedings of the National Academy of Sciences*.

Michael B. Dwinell, Ph.D., director of the Bobbie Nick Voss Laboratory and associate professor of microbiology and molecular genetics, is the lead author on the paper.

Chemokines and chemokine receptors are extensively involved in metastasis of 23 different forms of cancer. The chemokine referred to as CXCL12 is naturally expressed in the bone marrow, lungs and liver, all organs where cancer commonly metastasizes, but is often repressed in colon, breast and lung cancers.

In previous studies, researchers from the Dwinell laboratory had shown CXCL12 to reduce tumor growth and metastasis in colon and breast cancers. In those experiments, CXCL12 was engineered to produce the protein. However, for this study, researchers administered wild-type CXCL12 (naturally occurring CXCL12) or different oligomeric structures, either "monomer" (single) CXCL12 or a "dimer," a paired CXCL12 [protein molecule](#) and compared the results for both tumor growth and metastatic suppression.

CXCL12 proteins effectively blocked metastasis of the [colon cancer](#) and dramatically improved survival time, with the dimer showing

effectiveness in blocking melanoma metastasis as well. Together with their prior results, the laboratory has shown that repression of native CXCL12 expression is a key signature in colon cancer whose impact on tumor malignancy can be reversed by administering the chemokine proteins. They also demonstrated that the single or paired proteins blocked metastasis while initiating unique [biochemical signals](#) through the receptor CXCR4.

"These data establish CXCL12 as a potential avenue for the next generation of biologic therapies that specifically target metastasis, which is key in cancer treatment and the improvement of survival rates" said Dr. Dwinell.

Provided by Medical College of Wisconsin

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