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Researchers discover possible biomarker and therapeutic target for melanoma

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Researchers at Boston University School of Medicine (BUSM), in collaboration with Johns Hopkins University, have identified a potential new biomarker and therapeutic target for melanoma. The novel cell screening method used in the study also clarifies the process behind tumor metastasis and may allow the identification of biomarkers for other aggressive cancers. The findings now appear online in *Cancer Research*.

According to the American Cancer Society melanoma is the most serious type of skin cancer and one in 55 people will be diagnosed with it during their lifetime. Previous research has found that metastasis causes more than 90 percent of solid tumor deaths throughout the world and is particularly aggressive in melanoma.

The researchers investigated the process through which melanoma cells communicate with blood vessel cells and promote the formation of tube-like conduits that may allow for tumor metastasis. With the combined expertise of the biologists and biomedical engineers they used microfluidics technology to identify molecules that were essential to this communication process. They found that the molecule Neuropilin-2 played a large role in the process and that silencing it inhibited cancer cell growth.

"We found that Neuropilin is an important mediator of melanoma cell and blood vessel cell interactions," said Rhoda Alani, MD, BUSM professor and Chair of Dermatology. "We can now investigate this

molecule as a potential biomarker and melanoma treatment target. We can also use the unique methodology developed in these studies to evaluate cellular crosstalk between other tumor cell types and vessel cells. Such studies are likely to provide important insights into the metastatic process for other cancers."

According to the researchers the cell-to-cell communication process necessary for metastasis of tumors has garnered much attention recently but detailed knowledge of its underlying molecular mechanisms is lacking. These findings clarify this process in melanoma tumors and support the use of the team's methods to discover novel factors controlling cell communication for a variety of malignances.

Provided by Boston University Medical Center