

Jeffrey Epstein, New York Philanthropist, Funds Pioneering Cancer Metastasis Research at Mount Sinai Hospital.

It is well known that once a tumor metastasizes into the blood stream, the odds of combatting the cancer decline sharply. Surgically removing a pre-metastatic tumor however can actually stimulate metastasis. Such is often the case with breast cancer. Removal of a pre-metastatic tumor is necessary however to avert the inevitable spreading of the tumor. So what should a surgeon do?

In pivotal new research conducted at Mount Sinai Hospital in New York City, surgeon Dr. Jess Ting, breast oncologist, Dr. Kerin Adelson and molecular biologist, Dr. Doris Germain, are looking at how metastasis is not necessarily intrinsic to the tumor but its environment. The shift in focus is critical explains Dr. Ting because while extractions should not be averted, the tumor's micro-environment might be changed to minimize metastasis from surgery and in general.

To obtain a breast tumor's micro-environment, Dr. Ting and his team are using the unique approach of studying fluid emitted from a post-surgery wound site. To date, clinical analysis of a cancer's environment has been the blood, a rich source of disease-related biomarkers. However, blood's complex composition, amongst other factors, is a major challenge for biomarker assays. Other body fluids, including urine, cerebrospinal, bronchoalveolar lavage, synovial, amniotic, seminal plasma and interstitial fluids are also rich in disease biomarkers. However, these fluids are only informative in advanced metastatic cancer patients and so their prognostic value in terms of disease progression is limited.

Dr. Ting's team saw that wound fluid (emitted from a draining tube), contains all the proteins, growth factors, cytokines and DNA transcription factors that are secreted by the cells around the cancer and presented an ideal way of studying the microenvironment in vivo. Furthermore, wound fluid from a breast cancer patient often has the tremendous advantage of having an exact control specimen since the non-cancerous breast is often removed as a precaution and wound fluid from that breast can be compared.

Over the last year, Dr. Ting and his team have found some critical differences between cancerous wound fluid and non-cancerous both in test tubes and in mice. As their research continues, they are looking to find commonalities with other cancerous wound fluids, so as to not only identify patients at higher risk of metastasis, but to ultimately to develop a targeted systemic approach to minimize metastasis from occurring.

Jeffrey Epstein's foundation, the Jeffrey Epstein VI Foundation, has funded cancer research and cutting edge science all over the world. In 2003, he founded the Program for Evolutionary Dynamics at Harvard University with a \$30 million dollar grant. Jeffrey Epstein is a former member of the Trilateral Commission, the Council on Foreign Relations, the New York Academy of Science and a former board member of Rockefeller University. He is actively involved in the Santa Fe Institute, the Theoretical Biology Initiative at the Institute for Advanced Study in Princeton, the Quantum Gravity Program at the University of Pennsylvania, and also sits on the Mind, Brain & Behavior Advisory Committee at Harvard University.