Using Stromal Collagen to Help Diagnose and Characterize Breast Cancer

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Technology description

Biomedical imaging allows physicians to detect the onset of disease, injury and other disorders at an early stage, and to monitor their progression. UW-Madison researchers have developed an imaging method that may assist in diagnosing cancerous and precancerous conditions in breast tissue. Because breast cancer is frequently associated with the increased deposition of proteins, particularly collagen, in the extracellular matrix, the inventors developed three tumor-associated collagen signatures, or TACS, which provide novel markers for localizing and characterizing breast tumors.

To identify breast carcinomas, nonlinear optical microscopy is used to generate high resolution, 3-D images of a test tissue. The images are then analyzed to detect and characterize any TACS that may exist in the tissue. The degree to which the TACS are present correlates with the onset and progression of cancer, thus providing diagnostic information complementary to conventional diagnostic methods. The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an imaging method that may assist in diagnosing cancerous and precancerous conditions in breast tissue.

Application area

Breast cancer diagnosis

Advantages

Provides reliable indicators to help identify and characterize breast tumors in animal models and human tissues
Enables clinicians to more effectively diagnose abnormal tissue
Facilitates therapy at an earlier stage
Test tissue may be a fresh, unfixed, unstained biopsy sample; an intact tissue in an organism; or a paraffin-embedded, sectioned biopsy or tissue sample.
Method is non-invasive and non-destructive

Institution

Wisconsin Alumni Research Foundation

Inventors

Patricia Keely
John White
Kevin Eliceiri
Paolo Provenzano