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Mesoscopic Imaging of Inflammatory Hyperemia and Extracellular Matrix Microstructures

A novel technique measures skin's hemoglobin and extracellular matrix structures to accurately predict primary tumor formation sites before development, enhancing early cancer detection and surgical planning.

Recent animal studies have demonstrated that primary tumor formation sites can be discerned before a tumor develops by taking measurements of the hemoglobin and extracellular matrix structures in the skin.

Purdue University researchers have developed a technique (and possible device) to predict where a tumor will form on the skin after exposure to a carcinogen. The current area surveyed can be a few hundred millimeters squared and penetrates two millimeters in depth. In mouse studies, the technique predicted the result of foci with a high statistical accuracy. Applications of this technology include tissue engineering scaffold development, dermatology rejuvenation and diagnosis, diagnostic screening of patients who have undergone laser treatments, toxicology studies testing the response to a drug, and devices for pathologist to use in the operating room to get a better understanding of the margins on a tumor.

Advantages:

-Predicts where a tumor will form on the skin

-Can help surgeons better understand the margins of a tumor

-High statistical accuracy in mouse studies

Potential Applications:

-Medical/Healthcare

-Medical imaging

-Cancer detection

Technology ID

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Category

Biotechnology & Life Sciences/Biomarker Discovery & Diagnostics

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