Video: Researchers aim to personalize breast cancer treatments

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With support from the National Science Foundation (NSF), bioengineer Karen Burg and her colleagues at Clemson University are developing and demonstrating a new, integrative means of studying the complex behavior of cancer cells in breast tissue. Their research may one day change the way doctors treat the disease.

"This work contributes to the basic understanding of how cells function and communicate with the environment in a three dimensional (3-D) tissue structure which is a challenging and unsolved problem," says Friedrich Srienc, a program director in the NSF's Directorate for Engineering, which funded the research.

The researchers are building scaffolds that mimic the 3-D structure of human tissue. They use a machine called a biofabricator to deposit cancer cells at strategic locations inside the 3-D structures, just like tumors in human flesh. These structures are high-fidelity test systems. Burg and her team can culture cancer cells in them, experimenting to see which treatments are the most effective, with the ultimate goal of personalizing a treatment or a vaccine for individual patients.

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