

# Innovation could improve personalized cancer-care outcomes

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An innovation created by Purdue University researchers could improve therapy selection for personalized cancer care by helping specialists better identify the most effective drug treatment combinations for patients.

David D. Nolte, a professor in Purdue's Department of Physics, and his collaborators Ran An, a graduate student in physics, and John J. Turek in the Department of Basic Medical Sciences have created a technique called BioDynamic Imaging that measures the activity inside cancer biopsies, or samples of cells. It allows technicians to assess the efficacy of [drug combinations](#), called regimens, on personal cancers.

"Technicians can use BioDynamic Imaging to measure tumor response to [cancer therapy](#), such as metabolism and cell division. This can tell how well the drug is working and if there are side effects," Nolte said. "Our approach is called phenotypic testing, which is more pertinent than genetic testing because it captures the holistic response of cancer to chemotherapy."

BioDynamic Imaging tailors therapies to fit each [cancer patient](#).

"No two cancers are alike," Nolte said. "Therefore, every patient needs his or her own selected therapy to get the best results."

Nolte said BioDynamic Imaging has other applications, including drug discovery and improving success rates for in vitro fertilization.

"BioDynamic Imaging is a new type of imaging that has broad uses and many applications," he said. "In IVF clinics, it can select the most viable embryos for implantation, improving [pregnancy rates](#) and decreasing the risk of [having twins](#) or triplets. It also can be used on a large scale to help search for new types of drugs."

Animated Dynamics LLC, based in the Purdue Research Park, is commercializing the BioDynamic Imaging technology. The company will manufacture the first commercial units for laboratories and clinics for testing and appraisal. The company won first place and \$30,000 in the [2013 Burton D. Morgan Business Plan Competition](#).

Provided by Purdue University

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