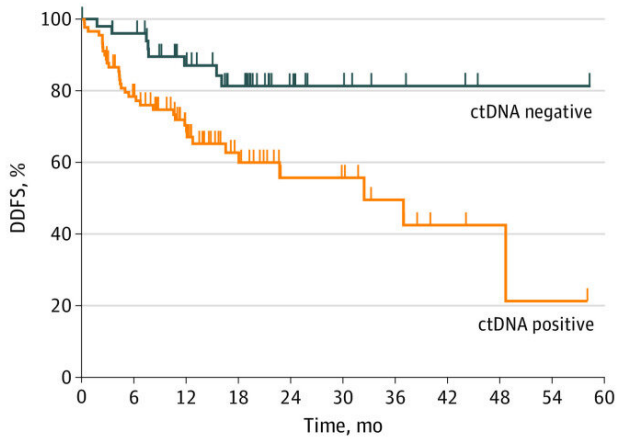
# New study to develop personalized therapies for triple-negative breast cancer patients

October 27 2021

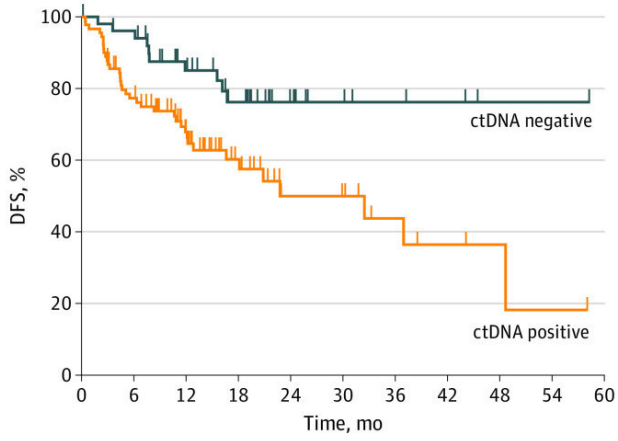
**A** Association of ctDNA with DDFS




No. at risk

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ctDNA negative | 52 | 47 | 35 | 24 | 12 | 7 | 4 | 3 | 1 | 1 | 0 |
| ctDNA positive | 90 | 66 | 43 | 23 | 12 | 11 | 7 | 3 | 2 | 1 | 0 |

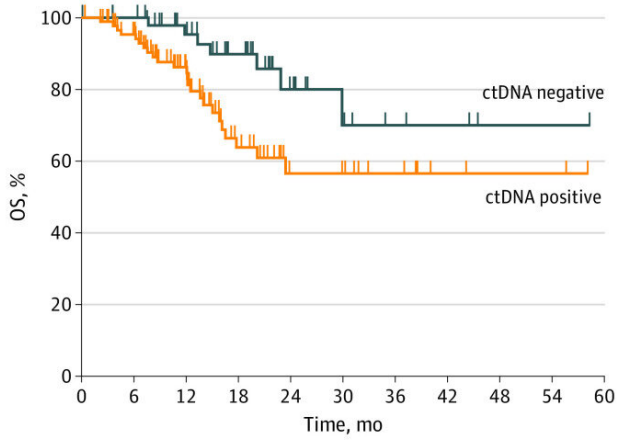
**B** Association of ctDNA with DFS




No. at risk

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ctDNA negative | 52 | 47 | 34 | 22 | 11 | 6 | 4 | 3 | 1 | 1 | 0 |
| ctDNA positive | 90 | 66 | 42 | 22 | 11 | 10 | 6 | 3 | 2 | 1 | 0 |

**C** Association of ctDNA with OS




No. at risk

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ctDNA negative | 52 | 49 | 38 | 27 | 13 | 7 | 4 | 3 | 1 | 1 | 0 |
| ctDNA positive | 90 | 79 | 53 | 25 | 12 | 11 | 7 | 3 | 2 | 2 | 0 |

Figure 1. Survival of Study Patients With vs Without Circulating Tumor DNA (ctDNA) A, Distant disease–free survival (DDFS) (median, 32.5 months vs not reached; hazard ratio [HR], 2.99; 95% CI, 1.38-6.48; P = .006). B, Disease-free survival (DFS) (median, 22.8 months vs not reached; HR, 2.67; 95% CI, 1.28-5.57; P = .009). C, Overall survival (OS) (median, not reached vs not reached; HR, 4.16; 95% CI, 1.66-10.42; P = .002). Credit: DOI: 10.1001/jamaoncol.2020.2295

Indiana University School of Medicine researcher Bryan P. Schneider, MD, is leading a novel nationwide study to better understand how to treat patients with triple-negative breast cancer based on their own unique genetic data.

PERSEVERE is a phase 2 clinical trial with the goal of studying personalized cancer treatment combinations when compared to standard cancer treatment.

"There is a tremendous need for successful triple-negative breast cancer treatments," said Schneider, who is the Vera Bradley Professor of Oncology at IU School of Medicine and a physician-scientist at the IU Melvin and Bren Simon Comprehensive Cancer Center and the Vera Bradley Foundation Center for Breast Cancer Research. "Recurrence and death rates are still too high, and novel strategies to improve that are markedly needed. We feel PERSEVERE is an innovative trial to try to help meet those needs."

While approximately one-third of patients with triple-negative breast cancer will achieve remission after surgery and chemotherapy, two-thirds will have some cancerous tissue in their body. Recent research shows that patients who test positive for circulating tumor DNA

(ctDNA)—tumor cell pieces found in the blood stream—after surgery are at higher risk of their cancer returning. PERSEVERE will enroll 200 participants and test whether there is ctDNA in their blood.

If a participant tests positive for ctDNA, the researchers will look at the DNA of their blood and tumor to see if there are any genetic differences that can be treated with a genomically targeted therapy or a standard treatment. There are several possible combination therapies that these participants may receive based on their genetic differences.

If a participant tests positive for ctDNA but researchers determine they do not have a specific genomic target in their blood or cancer tissue, they will receive a standard treatment recommended by their doctor. Participants who test negative for ctDNA may receive a standard treatment, but they will also have the option to receive no treatment and remain in the study for observation.

"Based on the data that came out of our group, we have shown that circulating tumor DNA is also a very powerful risk stratifier," said Schneider. "In this trial, we'll capitalize on that powerful ability to better focus our attention on novel therapies for those patients at extraordinarily high risk who have ctDNA positivity. Equally importantly, it will provide the opportunity for us to focus on those who do not test positive for ctDNA, a group that may be expected to do quite well in terms of deescalating therapy and improving quality of life."

PERSEVERE builds on a previous discovery by Schneider and colleagues in which they found that the presence of ctDNA and circulating tumor cells (CTCs) in the plasma of women's blood who have undergone chemotherapy before surgery for triple-negative breast cancer treatment are critical indicators for the prediction of disease recurrence and disease-free survival.

Their findings from the BRE12-158 study were first presented at the 2019 San Antonio Breast Cancer Symposium, the most influential gathering of breast cancer researchers and physicians in the world, and then published in *JAMA Oncology*.

Researchers will follow up with all participants for up to five years to check for side effects, as well as signs of cancer recurrence. This study hopes to determine better treatments for those fighting triple-negative breast cancer by looking at characteristics that are unique to each participant's cancer.

**More information:** Milan Radovich et al, Association of Circulating Tumor DNA and Circulating Tumor Cells After Neoadjuvant Chemotherapy With Disease Recurrence in Patients With Triple-Negative Breast Cancer, *JAMA Oncology* (2020). DOI: 10.1001/jamaoncol.2020.2295

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