

Carbone clinical trials test dietary therapy for triple-negative breast cancer

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A new clinical trial for women with clinically aggressive triple-negative breast cancer (TNBC) will test a novel theory: Will a diet low in an essential nutrient make TNBC cells more vulnerable to cell killing by a new cancer drug?

Women with TNBC have limited treatment options apart from chemotherapy because their tumor cells lack three proteins - estrogen, progesterone and human epidermal growth factor receptors—commonly targeted with standard treatments. But chemotherapy often fails in these patients, so there is an urgent need to develop new therapies.

Dr. Vince Cryns, who is leading the study along with Dr. Ruth O'Regan, says his team has developed an entirely new approach for TNBC that combines diet with a new cancer drug. This drug, called ONC201, is the first of a new class of cancer drugs that selectively kills tumor cells but not normal cells. It is being developed by the Philadelphia company Oncoceutics.

The clinical trial is based on studies by the Cryns lab showing that a diet low in the essential nutrient methionine make [tumor cells](#) more susceptible to cell killing by ONC201. In this phase II trial, funded by the V Foundation for Cancer Research and the Wisconsin Partnership Program, 112 women with metastatic TNBC will be randomized to a diet low in methionine or a regular diet followed by ONC201.

"Our strategy is the first of its kind to use diet to prime TNBC cells to respond to a targeted cancer drug," says Cryns.

"I think this will be a really attractive trial to patients, because it is safe and the drug is well-tolerated - it's not like chemotherapy," O'Regan says. "Our advisory board of breast-cancer survivors is very excited about this trial." The trial will recruit patients across the state through the

Wisconsin Oncology Network, which partners community hospitals with the University of Wisconsin Carbone Cancer Center.

That trial is expected to begin sometime in early 2017.

Before that, Cryns and O'Regan are launching a smaller trial to better understand the effects of the diet on TNBC. In this trial, funded by the Avon Breast Cancer Crusade, 25 women who are newly diagnosed with TNBC will take a low-methionine diet for one to three-weeks before their definitive surgery or chemotherapy. The trial will examine the impact of the low methionine diet on the growth and molecular characteristics of the tumors as well as the effects on body composition and metabolic health.

"A low methionine diet has been shown to reduce body fat and improve metabolic health in rodents so we want to determine whether a short-term reduction in methionine has metabolic benefits in women with TNBC," Cryns says. These metabolic effects could be an additional health benefit of this dietary intervention.

Provided by University of Wisconsin-Madison

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