Cows produce milk that is healthy and full of nutrients that help prevent diseases, such as osteoporosis, Type 2 diabetes and cardiovascular disease. University of Guelph researchers have discovered that cows fed selenium through their feed produce milk that may help reduce human breast cancer tumours.

Selenium is a mineral essential to all living organisms. It has a critical role in reproduction, DNA synthesis, thyroid hormone metabolism and protects from oxidative damage and infection.

Graduate student Jenny Warrington and animal and poultry science professor John Cant first began exploring the effects of organic selenium in cows’ diets two years ago, after PhD candidate Scott Cieslar suggested studying the potential health benefits of selenized milk casein.

The researchers collected milk from cows fed Alltech’s Sel-Pex, organic selenium yeast, at the university’s dairy research centre. Casein was isolated from the milk and fed to mice that had human breast cancer cells transplanted into them. The mice were fed four diets, consisting of chow containing low- to high-level selenium-enriched casein.

“With each increase of selenium, tumour growth dropped,” says Cant. “We saw anti-cancer effects at every level.”

Cant was surprised that, even in low doses, the selenized casein had a significant impact on the tumours. He believes if low levels of selenized casein can reduce tumour size, it could one day be used in addition to chemotherapy.

He says the public may also benefit from an organic selenium boost. Even though it’s an essential mineral, it’s difficult to incorporate into many foods, he says. For instance, researchers have studied selenium-enriched broccoli, says Cant. However, value-added milk products would offer numerous ways to incorporate selenium into the human diet, he adds.

More studies are needed to determine exactly how organic selenium reduces cancerous growths, but its effects are evident, says Cant.

“We’re excited about what this product can do,” he says. “We have real results.”

Alaina Osborne is a student writer for the University of Guelph’s office of research. This research is supported by Dairy Farmers of Ontario, Alltech Inc. and the Natural Sciences and Engineering Research Council.