

# Watercress may 'turn off' breast cancer signal

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The research, unveiled at a press conference today (14 September 2010), shows that the watercress compound is able to interfere with the function of a protein which plays a critical role in cancer development.

As tumours develop they rapidly outgrow their existing [blood supply](#) so they send out signals which make surrounding normal tissues grow new blood vessels into the tumour which feed them oxygen and nutrients.

The research, led by Professor Graham Packham of the University of Southampton, shows that the plant compound (called phenylethyl isothiocyanate) found in watercress can block this process, by interfering with and 'turning off' in the function of a protein called Hypoxia Inducible Factor (HIF).

Professor Packham, a molecular oncologist at the University of Southampton, comments: "The research takes an important step towards understanding the potential health benefits of this crop since it shows that eating watercress may interfere with a pathway that has already been tightly linked to cancer development.

"Knowing the risk factors for cancer is a key goal and studies on diet are an important part of this. However, relatively little work is being performed in the UK on the links between the foods we eat and cancer development."

Working with Barbara Parry, Senior Research Dietician at the

Winchester and Andover Breast Unit, Professor Packham performed a pilot study in which a small group of [breast cancer](#) survivors, underwent a period of fasting before eating 80g of watercress (a cereal bowl full) and then providing a series of blood samples over the next 24 hours.

The research team was able to detect significant levels of the plant compound PEITC in the blood of the participants following the watercress meal, and most importantly, could show that the function of the protein HIF was also measurably affected in the [blood cells](#) of the women.

The two studies, which have been published in the [British Journal of Nutrition](#) and *Biochemical Pharmacology*, provide new insight into the potential anti-cancer effects of watercress, although more work still needs to be done to determine the direct impact watercress has on decreasing cancer risk.

Watercress Alliance member Dr Steve Rothwell says: "We are very excited by the outcome of Professor Packham's work, which builds on the body of research which supports the idea that watercress may have an important role to play in limiting [cancer development](#)."

Breast cancer is the most common cancer in women in the western world and currently affects approximately 1 in 9 women during their lifetime.

**More information:** The study published in the *British Journal of Nutrition* was called 'In vivo modulation of 4E binding protein 1 (4E-BP1) phosphorylation by watercress: a pilot study.' Researchers were Syed Alwi SS, Cavell BE, Telang U, Morris ME, Parry BM, Packham G. The second study, 'Inhibition of hypoxia inducible factor by phenethyl isothiocyanate' was published in *Biochemical Pharmacology*. Researchers were Wang X-h, Cavell BE, Alwi SSS, Packham G.

Provided by University of Southampton

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