

Pro-vitamin E shown to be active against breast cancer cells

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A precursor of vitamin E has been shown to be effective against breast cancer cell lines which over-express human epidermal growth factor receptor (HER2).

About 30% of breast cancers exhibit high levels of HER2 – a feature that appears to make the disease resistant to many common treatments including chemotherapeutic agents.

Now researchers in Griffith University's School of Medical Science have shown that pro-vitamin E or alpha-tocopheryl succinate can reduce tumour volume in experimental animals with high levels of HER2.

Chief investigator Associate Professor Jiri Neuzil said alpha-tocopheryl succinate (alpha-TOS) had the potential to be an inexpensive, safe and selective therapy for hard-to-treat breast cancers.

"Alpha-TOS has already shown promise as a potent anticancer agent in diseases such as colon cancer and mesothelioma. It induces controlled cell death or apoptosis in tumour cells."

Transgenic mice with high HER2 breast cancers were treated over a three week period and tumour size was monitored every three days by ultrasound imaging.

The high resolution ultrasound allows for more accurate measurement of tumour volume than any other non-invasive technique.

The research team found that while alpha-TOS is effective alone, it can be delivered into the tumour cells more efficiently when given in a conjugate form with a targeting peptide.

"Tumour volume reduced more than 50% when animals were treated with the conjugate rather than free alpha-TOS," Associate Professor Neuzil said.

He said one of the benefits of alpha-TOS as a potential anti-cancer drug was that it was metabolised in the liver to vitamin E and unlikely to cause dangerous side effects.

Associate Professor Neuzil is presenting his results at the Gold Coast Health and Medical Research Conference next week. The conference, an initiative of the Griffith Institute of Health and Medical Research, will be held December 14-15, at the Radisson Palm Meadows Resort, Gold Coast.

Source: Research Australia

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