Cure for cancer: Making tocotrienol a buzzword

The quest for a cancer cure or at least better ways to treat patients involves extensive research which includes the determination of the “pathways” that lead to the development of the disease.

Dr Yip Cheng Har, professor and consultant surgeon at the Department of Surgery at Universiti Malaya Medical Centre, says cancer pathways to the labyrinths of the London Underground.

“When we look at cancer pathways, it’s like the London Underground which is very complicated. We want to prevent a certain pathway which will kill the cancer but there may be other pathways [for the cancer to develop],” she says, adding that this is the reason why targeted cancer therapies are costly.

“Natural products target multiple pathways compared to drugs that target single pathways,” Yip explains.

Some studies have shown that tocotrienol is more potent than a competing form of vitamin E, tocopherols, which can be found in corn and soya oil.

The study is one of the MPOB’s six clinical trials on tocotrienols under the Palm Oil and Rubber NKEA’s EPP 8. The studies on tocotrienols for the treatment of stroke, breast, prostate and colorectal cancers, diabetes and attention deficit hyperactivity disease (ADHD) are funded by Pemandu and carried out by researchers in Malaysia, Singapore and the US.

Kalanithi, who is also the chairperson for EPP 8, explains that the clinical study for breast cancer will now focus on an individual isomer — gamma — from the tocotrienol family.

Members of the tocotrienol family are alpha, beta, gamma and delta.

“Tocotrienol has shown to be quite promising. Now, we will look at an individual isomer, bringing a different angle to the research,” she adds.

In undertaking the latest study using gamma-tocotrienol, Yip and Kalanithi are joined by UM Specialist Centre’s associate professor Dr Nur Alshah Mahd Taib. The three women are excited over the prospects of the study.

“The outcome is improvement in the patient’s quality of life and survival. We want to see whether it improves their quality of life because when it’s stage four, we’re not talking about cure, it’s more about giving them a good quality of life,” says Nur Alshah.

However, it will be a number of years before an actual product based on their study hits the market.

“For a drug to be marketed, based on FDA’s (the US Food and Drug Administration) requirements, you have to achieve efficacy in a phase three trial. In our case, we’re only in phase one, so as you can imagine, there’s a lot of work to be done, it’ll be at least five years before we can say we can be marketed for cancer treatment,” Nur Alshah explains.

In fact, Kalanithi has been studying tocotrienol and its potential to inhibit breast cancer cells for close to 20 years.

In 1992, she produced the first study showing that tocotrienol has anti-proliferation abilities, which stopped cancer cells from dividing. She proceeded to conduct clinical trials on tocotrienol’s effect on patients with stage one and two breast cancer.

The clinical study was promising as more volunteers in the tocotrienol group were protected from dying compared to the control group.

“From then to now, hopefully this is the last phase to bring closure, to say yes, there’s an effect on breast cancer,” she says, adding that bringing the research under the ETP has made tocotrienol a buzzword among policymakers and given it much needed publicity.

The MPOB has been funding research on tocotrienol in the past, spending RM10 million over a span of 25 years. Since the project came under the ETP, MPOB has allocated RM23.3 million in 2011 for EPP 8, of which RM20 million will be used to fund the six clinical studies using tocotrienol.

Kalanithi explains that the studies are also driven by manufacturers’ need for more clinical studies on tocotrienol in order to support their product in the marketplace.

For this year, the mandate for EPP 8 is to explore growth and development of food-based products such as special premium oils and cheese made from palm oil.

While research for tocotrienol is still ongoing, Kalanithi is optimistic that she is seeing light at the end of the tunnel. “We have spent a lot of money on tocotrienol research for cancer and for neuro protection. We’re coming to the end of the tunnel, we are seeing some light, we are trying to get closure for the studies on cancer and neuro protection,” she says.

Whatever the outcome of these clinical studies, they will no doubt contribute positively to research in cancer treatment worldwide — work that may someday lead to a cure for the disease.
Cure for cancer Making tocotrienol a buzzword

From left: Dr Kalanithi Nesaretnam (MPOB), Dr Yip Cheng Har (UMMC) and Dr Nur Aishah Mohd Talib (UMSC)