

# A TRANSDERMAL TOCOTRIENOL BREAST CREAM

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**O**ur research shows that high levels of tocotrienols in the breast were associated with lower incidence of breast cancer. Oral administration of tocotrienols however ends up with poor uptake into the blood. We have therefore developed an alternative method of delivering tocotrienols to the breast via transdermal application.

## BENEFIT

Our research shows that women with benign tumours have 65% more tocotrienols in their breast adipose tissue compared with those who had malignant tumours. No difference was found in the tocopherol level (Table 1).

Here is an opportunity to increase the levels of tocotrienols directly in the breast adipose tissue to possibly play a protective role against breast cancer.



Figure 1. Transdermal tocotrienol breast cream.

## APPLICATION

A transdermal delivery of tocotrienols to the breast may help decrease the risk of breast cancer in women.

TABLE 1. TOCOPHEROL AND TOCOTRIENOL CONTENTS IN BREAST ADIPOSE TISSUE OF MALIGNANT AND BENIGN BREAST LUMPS

Parameters measured	Benign mean value ( $\mu\text{g g}^{-1}$ ) ( $\pm$ SD) n=35	Malignant mean value ( $\mu\text{g g}^{-1}$ ) ( $\pm$ SD) n=40
<b>Tocopherol</b>		
$\alpha$	147.04 (61.90)	126.17 (80.94)
$\beta$	2.75 (1.57)	81.81 (1.53)
$\gamma$	7.51 (3.79)	18.18 (4.17)
$\delta$	1.26 (0.85)	65.65 (0.31)
<b>Total</b>	<b>158.56 (65.41)</b>	<b>135.81 (85.12)</b>
<b>Tocotrienol</b>		
$\alpha$	11.35 (3.31)	21.21 (4.28)
$\gamma$	90.90 (2.61)	3.03 (2.47)
$\delta$	82.82 (0.29)	49.49 (0.31)
<b>Total</b>	<b>20.07 (6.02)</b>	<b>13.73 (6.09)</b>

Source: Nesaretnam *et al.* (2007).

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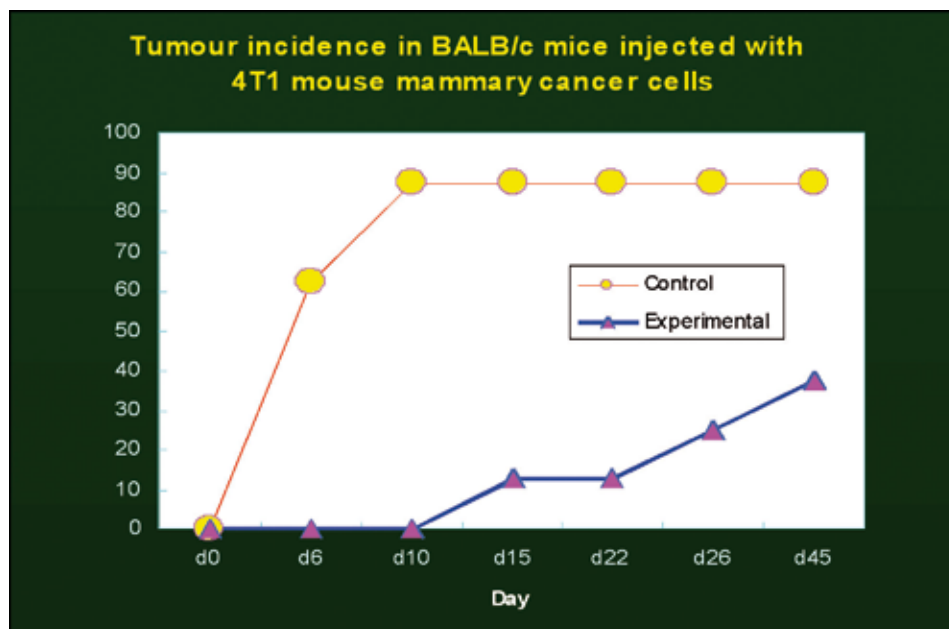


Figure 2.

### COMMERCIAL POTENTIAL

With the ongoing increase in breast cancer, the inhibition of breast cancer cells by tocotrienols can have extraordinarily important clinical implications on world health. Tocotrienols can prevent the growth of these cells in the presence and absence of estrogen, thereby protecting against both hormone-related and other kinds of breast cancer.

### CONCLUSION

The ability of tocotrienols to reduce the risk of breast cancer is likely to be determined by their

delivery to the breast. Here we demonstrate a novel and effective way of directly saturating the breast adipose tissue with tocotrienols. Tocotrienols are non-hormonal natural products with no known adverse side effects and over dosage.

### REFERENCE

NESARETNAM, K; GOMEZ, P A; SELVADURAY, K R and RAZAK, G (2007). Tocotrienol levels in adipose tissue of benign and malignant breast cancer patients in Malaysia. *APJCN* 16 (3). In press.

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