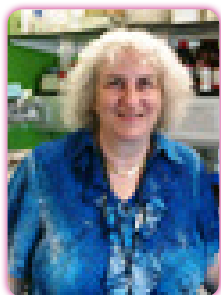


# World Congress on Breast Cancer

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## Role of environmental chemicals in the development of breast cancer

This lecture will discuss the potential for combinations of low doses of environmental chemicals to act over the long term to enable the hallmarks of cancer to develop in breast cells. It is not necessary for each chemical to impact on every hallmark but if a mixture of environmental chemicals can act together to impact on all the hallmarks, and to do so at concentrations measurable in human breast tissues, then there is the potential for breast cancer development. Such chemicals may act together through similar mechanisms or through complementary mechanisms. In view of the established role of oestrogen as a risk factor for breast cancer, there is a potential for environmental compounds which possess oestrogenic activity and which are measurable in the human breast to contribute to the development of multiple hallmarks of breast cancer. However, environmental compounds with genotoxic activity may contribute to genomic instability. Human exposure may be through occupational activities, diet, the indoor environment and personal care products, including cosmetics, and the range of environmental chemicals now measurable in the human breast will be discussed. Specifically, evidence will be presented that exposure to parabens and aluminium can have adverse effects on human breast epithelial cells at concentrations measured in some human breast tissue samples. If exposure to complex mixtures of oestrogenic and/or genotoxic compounds in consumer products is a factor in breast cancer development, then a strategy for breast cancer prevention would be to minimise exposure.

## Biography

Philippa Darbre is an academic scientist with a BSc Hons degree in Biochemistry (University of Birmingham) and a PhD degree (University of Cambridge). Her postdoctoral research began at the Molecular Medicine Institute of the University of Oxford, and continued at the Cancer Research-UK laboratories in London where she became Head of the Cellular Endocrinology Laboratory. In 1991, she moved to the University of Reading where she is currently Associate Professor in Oncology and has a research laboratory dedicated to studying the mechanisms by which oestrogens and environmental oestrogenic chemicals regulate growth of human breast cancer cells.

## Notes: