ELECTRONIC LETTER

Molecular changes in skin predict predisposition to breast cancer

V J James, B E Willis

METHODS

For this study, 19 fresh skin samples, approximately 1 mm × 10 mm were removed from the anterior axillary fold to ensure that they were free of actinic damage from sunlight. Immediately after excision, sutures were attached by the surgeons to both ends for tying the samples into the experimental cells and then all samples were placed in physiological saline and stored at −20°C until required. Before mounting in the cells, which have been specifically designed to maintain 100% humidity throughout the experiment, the skin samples were gently scraped to remove the epithelial and the epidermal layers to expose the dermal layer.

These samples were investigated at the BioCAT Facility, Advanced Photon Source, Argonne, USA, using a camera.

RESULTS

After completion of the data analysis, only one sample was clearly identified in the set of 19 as having the altered “fetal-like” pattern observed in the eight earlier samples.

DISCUSSION

At the conclusion of the analysis, it was shown that all 19 volunteers involved in this experiment had recently undergone their annual check-ups, which included pap smears and mammography, and all were declared to be in perfect health. The person identified as having the altered pattern was subsequently determined to be the only one in the set with a familial history of breast cancer. Her sister and all maternal female relatives from the previous two generations had died of breast cancer. Although the experiment was carried out with the approval of the Ethics Committee of the hospital, the participating surgeons were unaware of the family histories of the volunteers before the results of these experiments were

Abbreviations: IDDM, insulin dependent diabetes mellitus
known, making this a totally double blind experiment. Statistically, the possibility of correctly identifying this person is of the order of 1 in 500,000.

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Authors’ affiliations

V J James, Research School of Chemistry, Australian National University, Canberra, Australia
B E Willis, Eastmoreland Hospital, Portland, Oregon, USA

Correspondence to: Professor V J James, Research School of Chemistry, Australian National University, Canberra ACT 0200, Australia; vjs@bigpond.com

REFERENCES