

# nature REVIEWS

## NATURE REVIEWS CANCER

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Original design by Jane Walker

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Printed in the UK by The Friary Press on acid-free paper

The development of new research tools can often add impetus to a slow-moving area of research. The concept of synthetic lethality — that the mutation of two genes individually does not kill a cell, but mutation of both of these genes does — was first mooted by Stephen Friend and Lee Hartwell in 1997. In a review on page 689, William Kaelin discusses how the availability of RNA interference technology to perturb gene function, together with the ability to perform large-scale genomic screens, has allowed synthetic lethal genes to be identified and exploited to discover new targets for anticancer drug development.

Established models in cell culture monolayers or soft-agar assays do not recapitulate the structural organization or functional differentiation of glandular epithelium *in vivo*. Another new tool — 3D epithelial culture systems — is proving valuable for modelling cancer genes in epithelial cancers in a structurally relevant context. This model is discussed, using breast cancer as an example, by Jayanta Debnath and Joan Brugge on page 675.

This month we also launch a Web Focus on Cancer vaccines, which is freely available online (<http://www.nature.com/reviews/focus/cancervaccines>) until February 2006. One of the reviews in the Focus also illustrates how a struggling field can be re-energized by new techniques. In the review (first published as Laheru, D. & Jaffee, E. *Nature Rev. Cancer* 5, 459–467 (2005)), the authors explain how new screening techniques are unveiling immunogenic antigens in pancreatic cancer that might be of use in developing immunotherapy for this hard-to-treat tumour. The discovery of a relevant pancreatic cancer animal model will also help to test new vaccine strategies more efficiently and rapidly. The Web Focus also contains many other Reviews, Perspectives and Highlights (from *Nature Reviews Cancer*) that relate to cancer vaccines.



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