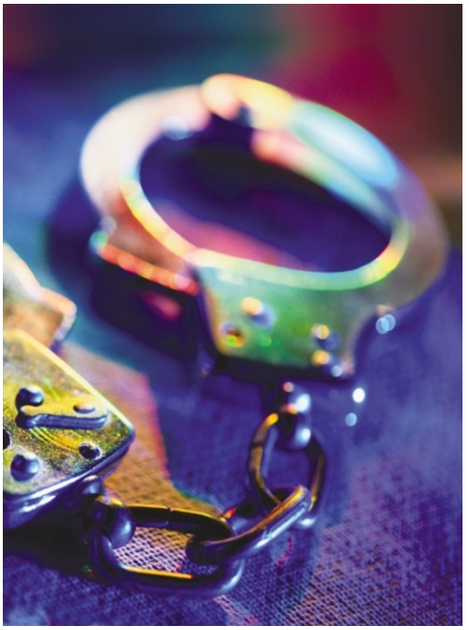

spleens of these mice five days after hapten treatment had a strong cytotoxic T-lymphocyte response against an ovalbumin-transduced cell line, and this was comparable to what could be achieved with a standard dendritic-cell vaccine.

The therapeutic and preventative efficiencies of the vaccine were also tested by inoculating mice with ovalbumin-expressing tumour cells either one day before or five days after administration of the vaccine, respectively. The vaccine had a 50–60% therapeutic efficacy, but provided mice with almost full protection when administered before tumour inoculation.

But will this vaccine strategy also work with tumour antigens isolated from a patient's tumour — an essential prerequisite for its successful translation into the clinic? The authors incorporated crude extracts from the S1509a fibrosarcoma cell line into the EVA rods and co-implanted them in mice with rods expressing MIP-3β. Following hapten treatment, the mice had cytotoxic T-lymphocyte activities that were able to lyse S1509a targets.

This anticancer vaccine strategy therefore seems to be as effective as traditional dendritic cell vaccines, but has the advantage of being *in situ*. Let's hope that these new technologies will soon provide real benefit to patients in the clinic.

Emma Greenwood

References and links

ORIGINAL RESEARCH PAPER Kumamoto, T. *et al*. Induction of tumor-specific protective immunity by *in situ* Langerhans cell vaccine. *Nature Biotechnol.* **20**, 64–69 (2002)

WEB SITE

Akira Takashima's lab: http://swnt240.swmed.edu/gradschool/webrib/takashim.htm

extent of the impact that this might have on tumorigenesis remains to be determined.

Emma Greenwood

References and links

ORIGINAL RESEARCH PAPER

Baranovskaya, S. *et al*. Functional significance of concomitant inactivation of *hMLH1* and *hMSH6* in tumor cells of the microsatellite mutator phenotype. *Proc. Natl Acad. Sci. USA* **98**, 15107–15112 (2001)

WEB SITES

Sergei Malkhosyan's lab: http://www.burnham.org/reports/5.Malkhosyan.97.html

Encyclopedia of Life Sciences: http://www.els.net microsatellite instability

IN BRIEF

APOPTOSIS

Identification of BARD1 as mediator between proapoptotic stress and p53-dependent apoptosis

Irminger-Finger, I. *et al. Mol. Cell.* **8**, 1255–1266 (2001)

We know remarkably little about the function of BRCA1, but even less about its binding partner BARD1. This study indicates that BARD1 has a dual mode of action: in the presence of BRCA1, BARD1 acts as BRCA1's accomplice in DNA repair, but the authors find that it can also act independently of BRCA1 to elevate levels of p53 and promote apoptosis. The ratio of BRCA1 to BARD1 might therefore be involved in life or death decisions.

TUMOUR SUPPRESSORS

Activation of retinoblastoma in mammary gland leads to ductal growth suppression, differentiation, and adenocarcinoma.

Jiang, Z. & Zacksenhaus, E. *J. Cell Biol.* **156**, 185–198 (2002)

Although retinoblastoma is a tumour suppressor, its activation might also promote tumorigenesis because it suppresses apoptosis. Transgenic mice that expressed constitutively active Rb in the mammary gland showed reduced cell proliferation, premature differentiation and increased survival of epithelial cells. About 30% of these mice developed hyperplastic nodules, and ~7% developed mammary adenocarcinomas. Given these results, the development of anticancer therapies that involve activating Rb should be reconsidered.

IMMUNOTHERAPY

Ex vivo expansion of polyclonal and antigen-specific cytotoxic T lymphocytes by artificial APCs expressing ligands for the T cell receptor, CD28 and 4-1BB.

Maus, M. V. *et al*. *Nature Biotechnol.* **20**, 149–154 (2002)

One approach used to create cancer vaccines involves *ex vivo* priming and expansion of human cytotoxic T cells. To overcome the difficulty in obtaining sufficient numbers of these cells, the authors developed artificial antigen-presenting cells (APCs) that express ligands for the T-cell receptor and co-stimulatory surface molecules. These APCs activate and rapidly expand polyclonal or antigen-specific $CD8^+$ T cells. The starting repertoire of $CD8^+$ T cells was preserved during culture, and T-cell apoptosis was diminished.

GENE THERAPY

Chromosomal effects of adeno-associated virus vector integration.

Miller, D. G. *et al. Nature Genet.* **30**, 147–148 (2002)

Adeno-associated viruses (AAVs) are currently in development as a delivery mechanism for gene therapy. But could integration of these viruses within host-cell DNA have a deleterious effect? Miller *et al.* now show that AAVs integrate at chromosome breaks — probably by a non-homologous end-joining pathway — and are often associated with deletions and chromosomal rearrangements, but it remains to be determined whether AAV actually causes these breaks.