# IN BRIEF

TECHNIQUE

## Production of human monoclonal antibody in eggs of chimeric chickens.

Zhu, L. *et al*. *Nature Biotech.* **23**, 1159–1169 (2005)

This study outlines a new method for the production of human monoclonal antibodies in chickens, rather than by traditional mammalian cell-culture protocols, to meet the increasing demand for therapeutic use. An expression vector encoding a monoclonal antibody under the control of the upstream and downstream regulatory DNA sequences from the gene encoding chicken ovalbumin, which is expressed specifically in egg white, was used to stably transfect chicken embryonic stem cells (ESCs). When the chicken ESCs were used to generate female chicken chimeras, the monoclonal antibody was expressed specifically by the oviduct and was deposited in egg white. Antibody purified from egg white had a higher activity in terms of antibody-dependent cellular cytotoxicity than antibody produced by mammalian cell culture.

MACROPHAGES

## Inflammation-induced lymphangiogenesis in the cornea arises from CD11b-positive macrophages.

Maruyama, K. *et al*. *J. Clin. Invest.* **115**, 2363–2372 (2005)

Wayne Streilein and colleagues have shown that $CD11b^+$ macrophages can physically contribute to the formation of lymphatic vessels in the corneal stroma that occurs during inflammatory conditions of the eye. This new insight into lymphangiogenesis has implications for both tumour metastasis and antigen presentation in lymph nodes during the response to infection. After the induction of corneal inflammation, new lymphatic vessels arose *de novo* from clusters of bone-marrow-derived macrophages expressing the lymphatic markers LYVE1 and PROX1, and these cells were shown to form tube-like structures *in vitro*. Furthermore, systemic administration of clodronate liposomes to deplete $CD11b^+$ macrophages suppressed corneal lymphangiogenesis. The authors suggest that inflammatory macrophages might also have a role in the development of lymphatic vessels in other tissues and organs.

VACCINES

## Vaccine-induced tumor-specific immunity despite severe B-cell depletion in mantle cell lymphoma.

Neelapu, S. S. *et al*. *Nature Med.* **11**, 986–991 (2005)

Neelapu *et al*. tested the effects of B-cell depletion on the induction of immune responses to a therapeutic vaccine in humans with mantle-cell lymphoma. The vaccine consisted of the unique variable regions of the lymphoma B-cell receptor (the idiotype) conjugated to a carrier protein. After chemotherapy and B-cell depletion using rituximab, several doses of vaccine were administered. Despite the absence of B cells, $CD4^+$ and $CD8^+$ T-cell responses to the idiotype and carrier protein were rapidly induced in most individuals, and these contributed to marked type I cytokine production. By contrast, tumour-specific antibody responses were delayed, and they correlated with the recovery of B cells. So, despite the increasing use of B-cell depletion in patients with lymphoma, vaccines remain a viable treatment option.