IN BRIEF

DENDRITIC CELLS

Transcription factor E2-2 is an essential and specific regulator of plasmacytoid dendritic cell development.

Cisse, B. *et al. Cell* **135**, 37–48 (2008)

The E protein E2-2 (also known as TCF4) has been found to be crucial for directing the development and function of plasmacytoid dendritic cells (pDCs). This report shows that immune cells that lacked this protein failed to differentiate into pDCs and that E2-2 heterozygous mice had marked impairments in the pDC functions that are important for antiviral immune responses, such as the production of type I interferons. In addition, humans with loss-of-function mutations in E2-2 had abnormal pDC populations that showed severe functional defects *in vitro*. Molecular analyses demonstrated that E2-2 is an important controller of the pDC genetic programme and that E2-2 induces the expression of other transcription factors that are crucial for the development and function of these cells, including SPI-B and interferon-regulatory factor 7.

LYMPHOCYTE MIGRATION

Stromal mesenteric lymph node cells are essential for the generation of gut-homing T cells *in vivo*.

Hammerschmidt, S. I. *et al. J. Exp. Med.* 13 October 2008 (doi:10.1084/jem.20080039)

The expression of specific integrins and chemokine receptors by T cells determines their capacity to migrate to different tissues, but how tissue-specific imprinting occurs is not well understood. Here, the authors show that stromal cells of mesenteric lymph nodes, rather than gut-derived dendritic cells (DCs), are essential for imprinting T cells with gut-homing capacity. Mesenteric, but not peripheral, lymph nodes induced the expression of gut-homing receptors on T cells that were activated in the absence of DCs. Importantly, only stromal cells from the mesenteric lymph nodes expressed high levels of the enzymes that are involved in the synthesis of retinoic acid, which is essential for imprinting T cells with gut-homing capacity. So, stromal cells of lymph nodes that drain different organs are important for determining the tissue tropism of T cells that are activated within them.

TUMOUR IMMUNOLOGY

Modulation of the antitumor immune response by complement.

Markiewski, M. M. *et al. Nature Immunol.* 28 September 2008 (doi:10.1038/ni.1655)

Contrary to expectations, this study shows that key by-products of complement activation — the anaphylatoxins C3a and C5a — promote tumour growth by suppressing the antitumour immune response. In a mouse model involving subcutaneous injection of TC-1 malignant cells, deficiency of the complement components C3 or C4 or the C5a receptor (C5aR) was shown to inhibit tumour growth. Moreover, pharmacological inhibition of C5aR was as efficient as the antitumour drug paclitaxel at limiting tumour growth. The suggested role of C5a in promoting tumour growth was explained by the finding that C5a induced the recruitment of myeloid-derived suppressor cells (MDSCs) to tumours and increased their suppressive capacity. MDSCs inhibit local antitumour responses by producing reactive oxygen and nitrogen species, an activity that was enhanced by C5a and was consistent with an observed increase in antitumour T-cell responses following C5aR blockade.