IN BRIEF

MICROENVIRONMENT

Mesenchymal stem cells within the tumour stroma promote breast cancer metastasis

Karnoub, A. E. *et al. Nature* **449**, 557–563 (2007)

In this paper, Bob Weinberg and colleagues show that human bone marrow-derived mesenchymal stem cells (MSCs) increase the metastatic potential of human breast cancer cells in a mouse xenograft model. When in close proximity to the MSCs, the tumour cells induce the MSCs to secrete the chemokine CCL5. Binding of CCL5 to its receptor CCR5 on the tumour cells seems to increase the capacity of these cells to migrate and extravasate into tissues, rather than increasing their proliferation or survival.

INFLAMMATION

Mast cells are required for angiogenesis and macroscopic expansion of Myc-induced pancreatic islet tumors

Soucek, L. *et al. Nature Med.* **13**, 1211–1218 (2007)

Expression of the *Myc* oncogene in pancreatic β-islet cells induces tumour formation when MYC-induced apoptosis is blocked by the anti-apoptotic protein BCL-X_L. Now Gerard Evan and colleagues have shown that expression of MYC induces the translation of a number of inflammatory cytokines and chemokines, which in turn recruit mast cells. Suppression of mast-cell degranulation using sodium cromoglycate prevented tumour growth, and mice that lack mast cells did not develop MYC and BCL-X_L-induced tumours. Release of pro-inflammatory molecules by the mast cells seems to be required for sustained tumour angiogenesis.

CANCER RISK

Fetal microchimerism in women with breast cancer

Gadi, V. K. & Nelson, J. L. *Cancer Res.* **67**, 9035–9038 (2007)

Fetal microchimerism — the long-term persistence of allogeneic fetal stem cells in the mother — has been associated with autoimmune disease. It might also impart increased recognition of cancer cells by the immune system. In this paper, 35 women with breast cancer and 47 healthy women were screened for male DNA in the peripheral blood as a method for searching for fetal cells. Male DNA was identified by real-time quantitative PCR and was more often found in healthy women than women with breast cancer (relative risk 4.4 (95% confidence interval 1.34–16.99)) and the relative risk was increased when only women who were known to have given birth to a son were included.

ANGIOGENESIS

Angiogenic factors FGF2 and PDGF-BB synergistically promote murine tumor neovascularization and metastasis

Nissen, L. J. *et al. J. Clin. Invest.* **117**, 2766–2777 (2007)

A requirement for both fibroblast growth factor 2 (FGF2) and platelet-derived growth factor β (PDGF-BB) in tumour angiogenesis has been shown previously, but the nature of the interaction between these growth factors was unclear. Yihai Cao and colleagues have found that a feedback loop exists between these factors that enables the rapid establishment of a primitive and disorganized neovasculature. This increased metastasis in a mouse fibrosarcoma model.