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IN BRIEF

IMMUNOSURVEILLANCE

Presentation skills

Tumour-infiltrating CD8$^+$ T cells are often located within stromal-rich areas in the tumour and thus are in close contact with cancer-associated fibroblasts (CAFs). New research by Lakins et al. shows that CAFs are able to inhibit tumour-antigen-specific T cell activity through engaging in antigen processing and immune checkpoint ligand expression. CAFs isolated from murine lung tumours processed and cross-presented peptides of tumour cell-specific ovalbumin (OVA). In co-culture, tumour cell survival was significantly increased when T cells were pre-conditioned with OVA-presenting CAFs, owing to a reduction in T cell viability. This effect was dependent on increased programmed cell death 1 ligand 2 (PDL2) and FAS ligand expression on CAFs compared with normal fibroblasts, the inhibition of which led to reduced tumour growth in a mouse model.

ORIGINAL ARTICLE Lakins, M. A. et al. Cancer-associated fibroblasts induce antigen-specific deletion of CD8$^+$ T Cells to protect tumour cells. *Nat. Commun.* **9**, 948 (2018)

METASTASIS

Go with the flow

Medulloblastoma metastases almost always localize to the leptomeningeal surface of the brain and spinal cord, which has led to the assumption that the only mechanism of metastatic seeding is via dissemination of primary tumour cells into the cerebrospinal fluid and subsequent distal re-colonization of the leptomeninges. However, Garcia et al. detected circulating tumour cells (CTCs) in the blood of therapy-naive patients with medulloblastoma. Use of flank xenografts and a parabiosis model in mice confirmed that medulloblastoma cells could disseminate via the blood to reach the leptomeningeal space and establish leptomeningeal metastases. Furthermore, the CC-chemokine ligand 2 (CCL2)–CC-chemokine receptor 2 (CCR2) axis was identified as driving haematogenous dissemination of medulloblastoma in vivo. Recognition of this metastatic route has implications for the diagnosis and treatment of this metastatic paediatric disease.

ORIGINAL ARTICLE Garzia, L. et al. A hematogenous route for medulloblastoma leptomeningeal metastases. *Cell* **172**, 1050–1062 (2018)

IMMUNOTHERAPY

iPSC-based vaccines provoke a response

Stem cells and cancer cells share some properties, which has led to the hypothesis that irradiated stem cells might be used as a vaccine for cancer treatment. Kooreman, Kim et al. tested this hypothesis using induced pluripotent stem cells (iPSCs). They first observed that both human and mouse iPSCs express tumour-associated antigens and then developed autologous vaccines from irradiated iPSCs created from mouse fibroblasts. These irradiated iPSCs plus the adjuvant CpG prevented tumour growth in mice that were later injected with melanoma, mesothelioma or breast cancer cells. In addition, although the iPSC vaccine could not eradicate established melanomas, administration following partial surgical removal of tumours prevented recurrence. Furthermore, the immune response was shown to be cancer-specific, as adoptive transfer of T cells from vaccine-treated mice inhibited tumour growth in unvaccinated mice. No adverse effects were observed, supporting the potential for clinical translation.

ORIGINAL ARTICLE Kooreman, N. G., Kim, Y. et al. Autologous iPSC-based vaccines elicit anti-tumor responses in vivo. *Cell Stem Cell* https://doi.org/10.1016/j.stem.2018.01.016 (2018)