Lay Summary

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Investigating the role of macrophages in schwannoma tumours of the PNS

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Recent findings in many types of tumour have shown that such tumours are made up of different cells. How these cells talk to each other drives the multiplication (proliferation) of cells that isn't normal. This effect is now seen as one of the 'hallmarks' of cancer. One of the best examples of this are tumour associated immune cells, macrophages, which drive tumour formation including cell proliferation, formation of new blood vessels and the spread of tumours. Loss of the Merlin tumour suppressor, a protein that would normally act as a brake for cell proliferation, causes lots of tumours of the nervous system, mainly schwannomas, but also meningiomas and ependymomas. Although schwannomas have been described as being made up of only Schwann cells, our work and the work of others have shown that there are large numbers of macrophages within both human tumours and in mouse models of schwannoma. Macrophages are considered to be of two types, M1 and M2, and by using markers on the surface of the macrophage cells we can identify them within the schwannoma tumours as either M1 or M2. These two types of macrophages have very different properties and by understanding the type of macrophages within these tumours, then we can tailor potential treatments to target these cells within the schwannomas and prevent their growth.