

Lay Summary

BRAIN UK Ref: 15/005

Dissecting the origins of central nervous system tumours exhibiting neuromesodermal differentiation

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During embryo development, the spinal cord, vertebral column and muscles are laid down by stem cells, known as neuromesodermal progenitors (NMPs). Our group has recently found the optimal conditions for isolating and culturing NMPs in the petri dish. Interestingly, many, predominantly childhood, tumours appearing in the brain and spinal cord also consist of a mixture of neural and bone/muscle cells i.e. the natural products of NMPs. These tumours are highly malignant and difficult to treat. We wish to test whether the stem cells driving such cancers resemble normal embryonic NMPs. We will thus examine various tumour samples for the presence of NMP-like cells. If we detect the presence of these cells we will then try to isolate them from primary tumours and culture them using the conditions we have defined for normal NMPs. Our long term aim is to discover drugs that eliminate these cancer stem cells and hence block the formation of the tumours they give rise to.

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