

Lay Summary

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The role of Endogenous Retroviral proteins in the development of the tumours of the nervous system and as potential immunotherapy and/or drug targets

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Loss of the tumour-suppressor protein Merlin causes benign tumours of the nervous system. These tumours can occur both spontaneously in people and as a part of the hereditary disease called Neurofibromatosis type 2. Unfortunately, there are no effective drug therapies for these debilitating tumours.

Endogenous retroviruses are viruses that over millions of years have integrated themselves into the human genome. It is well known that viral protein expression is increased in a range of diseases, and one group of such viruses, called HERVK, are currently being investigated by at least 10 other groups as potential immunotherapy targets for several cancers and HIV infection.

Using a human cell model to study Merlin-deficient tumours we have found high levels of HERVK proteins and also evidence that HERVK might even be contributing to tumour development. We now need to measure HERVK in actual tumour tissues. Finding high levels will allow us to seek funding for large screens of clinical samples as the next step towards an anti-HERVK drug. Because HERVK proteins are highly expressed in several cancers, we also wish to use our expertise here and measure HERVK expression in malignant brain tumours as a first step towards a wider anti-HERVK based immunotherapy.