Lay Summary

BRAIN UK Ref: 21/010

Molecular diagnostics of brain tumours with Nanopore technology

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The diagnosis of brain tumours has been markedly improved over the last 10 years, thanks to a better understanding of the genetic fingerprints of individual tumour types and new technologies. One of the greatest advancements in the last 5 years was the use of so-called methylation arrays. These arrays detect small chemical changes in the DNA of the tumour and such patterns can be compared with fingerprints, or so-called epigenetic changes in a comparison group.

This technology is very powerful and has become an important test method for improving brain tumour diagnosis. The disadvantage is the relatively long time it takes to complete these tests, usually 3-4 weeks.

We have identified an opportunity to get this test done much more quickly, using a novel technology, Nanopore sequencing, that became available in the last few years. This method works on frozen samples and can give us a result within 2-3 days, and we hope that we can develop this method into a clinical test method.