

Cancer Research UK Brain Tumour Conference 2022: Abstract submission form

Please complete the details below as you would like them to appear in the programme.
The deadline to complete this form is **17 June 2022**.

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5. Abstract application: please choose one of the following *

- ☒ Poster session (open to all attendees)
- ☐ Lightning talk (PhD students only)
- ☐ Proffered talk (Post docs only)

6. Abstract title *

Constraining unknown genes in vestibular schwannoma using mechanistic network models

7. Authors *

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8. Abstract (max 500 words) *

Vestibular schwannoma is a benign tumour of the eighth cranial nerve, very rarely becoming malignant. The only known risk factors are genetics and age, with current evidence pointing to three initiating events, two of which usually involve loss-of-function of NF2. By developing computational models in close collaboration with clinical geneticists, we can infer that initiation of the benign tumours probably involves a gain-of-function mutation. Furthermore, malignant progression is more likely to be caused by a loss-of-function mutation than a gain-of-function mutation, consistent with its rarity. By training the model on a combination of epidemiological, genomic, and clinical data, we can constrain the size and location of this unknown gene, TSX [1]. When treated with radiotherapy, VS may become malignant instead of being successfully treated. After extending the model to describe radiogenic mutations, we conclude that radiotherapy is probably safe for sporadic tumours, but the model has not yet been extended to familial NF2 cases.

References

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