Tumour network in glioma

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In this podcast, a new biological insight in brain tumours is discussed. The author's group has identified the existence of a tumour cell network in incurable gliomas which facilitates multicellular communication and exchange of small molecules between single tumour cells. The tumour cells that are integrated in this network, around 50% of cells according to studies in mouse models and patient samples, appear to be protected from the effects of radiotherapy and possibly also chemotherapy, which may explain how such tumours develop resistance to therapies and why patients relapse after treatment. An overview of ideas that are being investigated preclinically to therapeutically target this network of tumour cells is given. These include approaches to disrupt the network, such as obstructing cellular communication with gap junction blockers and targeting the neurodevelopmental pathways required to form the networks. Conversely, methods to exploit the network through the local application of gap junction-permeable drugs that specifically target the integrated tumour cells could also being studied. This new discovery may result in the development of therapeutic strategies which the author hopes will reach the clinic in the next few years.

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