8th BigBrain Workshop - Challenges of Multimodal Data Integration



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Brain connectivity and glioma: a new approach

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The emerging field of "cancer neuroscience" reveals intricate functional interplays between glioblastoma and the brain's normal cellular architecture encompassing neurons, glia, and vessels. Recent investigations underscore the role of structural and functional brain connections within within hierarchical networks, known as the connectome. These connections contribute significantly to glioblastoma's location, spread, recurrence, and overall survival, revealing a complex interplay at the whole-brain level between the cancer and the nervous system. This mounting evidence prompts a paradigm shift, challenging the perception of glioblastomas as mere foreign bodies within the brain. Instead, these tumours are intricately woven into the structural and functional fabric of the brain. This radical change in thinking holds profound implications for the understanding and treatment of glioblastomas, which could unveil new prognostic factors and surgical strategies and optimise radiotherapy. Additionally, a connectivity approach suggests that non-invasive brain stimulation could disrupt pathological neuron-glioma interactions within specific networks.

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