Meningioma research—status quo and quo vadis

Meningiomas are the most common intracranial tumors. Most meningiomas can be cured by surgical resection and are commonly considered "an easy win" by neurooncologists, who are oftentimes confronted with more difficult tumor types such as gliomas and brain metastases (1). However, up to 20–25% of meningioma cases are not curable by surgical resection due to their location in surgically inaccessible areas such as the skull base, multifocality, or aggressive behaviour associated with higher grade histology or molecular features. Such "difficult meningiomas" have recently moved into the focus of interdisciplinary basic, translational and clinical research. With the advent of next generation sequencing technologies, our understanding of the molecular drivers of meningiomas has rapidly expanded and new clinically actionable mutations have recently been discovered (2-4). Fascinating insights have emerged and paved the way for the development of prognostically relevant classifications based on molecular data (5-11), improved application of established treatments and novel therapeutic approaches with targeted drugs. In this issue of *Chinese Clinical Oncology* (*CCO*) international experts provide an overview of the current knowledge and emerging perspectives in meningioma research. The topics covered include advances in histopathological and molecular classification, radiotherapy, surgery, and animal models of meningioma. Without doubt, meningioma research has become one of the most dynamically evolving fields of neurooncology and is producing insights that benefit our patients. Importantly, several prospective international clinical trials enrolling patients with aggressive or recurrent meningiomas are ongoing and will likely provide us with more effective therapies (*Table 1*). As we continue to explore novel therapeutic approaches, and expand and validate molecular classifications of meningiomas, the paradigm of meningioma diagnosis and management will change.

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Table 1 Selected prospective clinical trials enrolling meningioma patients

Trial	Patient population	Treatment regimen	Number of patients
Alliance A071401 (PI Brastianos)	Grade I, II, III meningiomas with mutations in SMO, AKT, NF2	SMO, AKT, FAK inhibitor for meningiomas harboring SMO, AKT, NF2 mutations respectively	84
EORTC-1320-BTG (PI Preusser)	Grade II or III meningiomas with no treatment options	Trabectedin *vs.* best investigator's choice	86
ROAM/EORTC-1308 (PI Jenkinson)	Grade II meningiomas undergoing gross total resection	Adjuvant radiation *vs.* observation	190

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