Translational neuro-oncology research

- Molecular and clinical determinants of response to checkpoint inhibitor immunotherapy in glioblastoma
- Multi-omics dissection of MAPK-driven senescence unveils therapeutic vulnerabilities in KIAA1549::BRAF-fusion pediatric low-grade glioma models
- Biomimetic extracellular vesicles derived from chimeric antigen receptor monocytes to treat glioblastoma: An efficient and safe intranasal drug delivery nanoplatform
- A phase 1/2a dose-finding study and biomarker assessment of oral lisavanbulin in patients with high-grade glioma or glioblastoma
- Evaluating the Diagnostic and Prognostic Value of Peripheral Immune Markers in Glioma Patients: A Prospective Multi-Institutional Cohort Study of 1282 Patients
- Glioportal: a comprehensive transcriptomic resource unveiling ligand-mediated mesenchymal transition in glioblastoma
- Basophil Activation Test: Bridging Allergy and Oncology for Diagnostic, Therapeutic and Prognostic Applications in AllergoOncology: An EAACI Position Paper
- Recent advances in NIR-II photothermal and photodynamic therapies for drug-resistant wound infections

Translational Neuro-Oncology Research refers to the process of applying discoveries from basic neuroscience and oncology research to clinical applications for brain and spinal cord tumors. It bridges the gap between laboratory findings and patient care by developing new diagnostic tools, treatment strategies, and personalized therapies.

Key Areas

Molecular and Genetic Profiling

Identifying genetic mutations and molecular pathways involved in gliomas, medulloblastomas, and other CNS tumors.

Next-generation sequencing (NGS) and liquid biopsy are used for tumor characterization.

Targeted Therapies and Immunotherapy

Development of small-molecule inhibitors targeting pathways like EGFR, IDH1, and BRAF mutations.

Advances in CAR-T cell therapy and checkpoint inhibitors for glioblastoma and other aggressive brain tumors.

Tumor Microenvironment and Drug Resistance

Understanding the blood-brain barrier (BBB) and strategies to enhance drug delivery (e.g., focused ultrasound, nanoparticles).

Studying the role of hypoxia, immune suppression, and glioma stem cells in tumor progression.

Advanced Imaging and Biomarkers

Integration of MRI spectroscopy, PET imaging, and AI-driven radiomics for tumor detection and monitoring.

Identification of biomarkers for early diagnosis and treatment response.

Preclinical Models and Clinical Trials

Use of patient-derived xenografts (PDX) and organoids to test new drugs.

Adaptive trial designs for rapid assessment of novel therapies.
