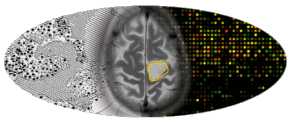
Omics-based approach to personalized treatment of therapy-refractory malignant brain tumours



OMICSGLIOMA
www.omicsglioma.com

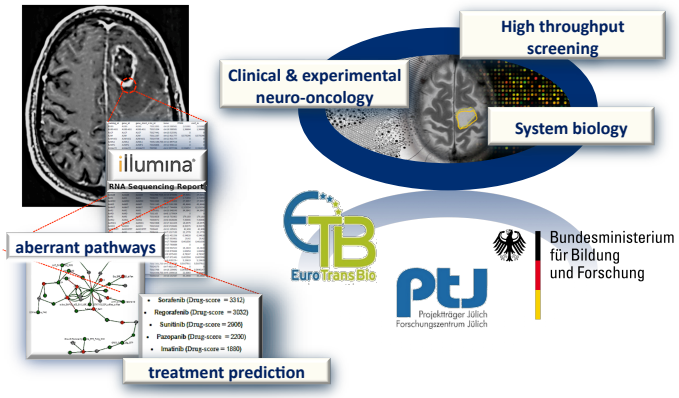
StarSEQ

JG|U UNIVERSITÄTSmedizin. MAINZ
Clinic for Neurosurgery and Laboratory of experimental and translational Neuro-oncology

BIOGERONTOLOGY AND REGENERATIVE MEDICINE CENTER

Personalized Medicine Convention – 2016 – Cologne

PROJECT STRUCTURE & FUNDING



OBJECTIVE

Glioblastoma (GB) is among the top priorities in today's clinical oncology (Tab. 1). Based on the "one-treatment-for-all" principle, the current standard of care for newly diagnosed GB is marginally effective (Fig.1). The inevitable tumour recurrence poses a major clinical challenge and substantial socio-economic burden on public health institutions. For recurrent GB (recGB), no effective therapeutic options currently exist. Recent advances in genomics in conjunction with a paradigm shift in the understanding of GB biology have revealed the therapeutic promise of a personalized genomic approach to GB.

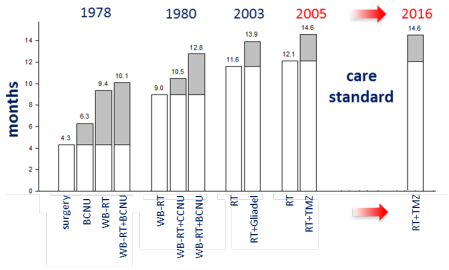
OMICSGLIOMA is an interdisciplinary consortium aiming at developing an integrative framework for personalized diagnostics and treatment of recGB (Fig. 2). The consortium combines know-how and expertise in cutting edge genomics (StarSEQ GmbH), system biology (BRMC, Russia), clinical neuro-oncology and experimental glioma stem cell research (University Medical Centre Mainz).

GB FACTSHEETS

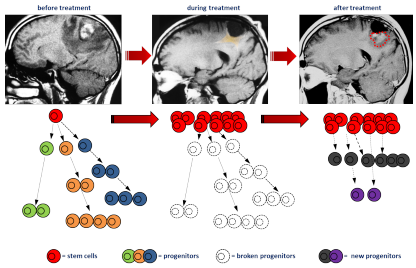
Tab. 1 GB- general information

incidence	8.3 per 100.000
new cases	7.000 per annum (Germany) 250.000 per annum (worldwide)
clinical data	mean surival: < 15 months 5 years survival rate: < 10% post-therapy recurrence: 100%
standard of care	surgery + radio- chemotherapy (TMZ)
treatment costs	~ 70.000 € (before TMZ) ~150.000 € (after TMZ) ~250.000 € (by 2020)

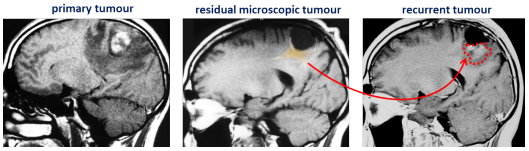
"one treatment for all"



Glioma stem cells drive GB recurrence under standard therapy



Inevitable post-treatment recurrence



Limited access to latest therapy

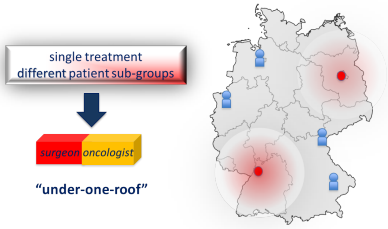
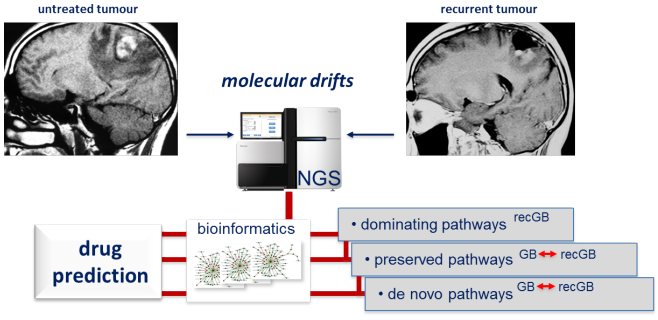


Figure 1

OMICSGLIOMA GOALS

Identification of therapeutically actionable lesions in recGB



Innovative features

- patient-matched longitudal approach
- multi-sampling method
- parallel profiling of patient-matched tumour tissue and glioma stem cells

Development of an intergative web-based model for personalized oncoservice

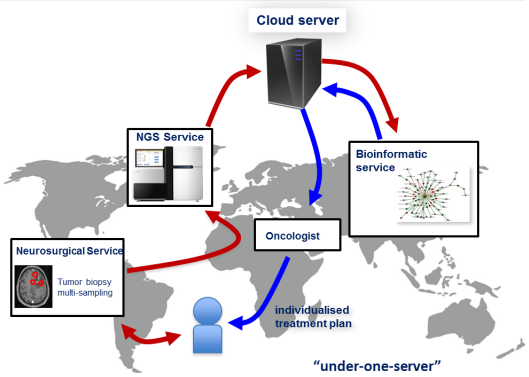


Figure 2