Glioma are the most frequent primary cerebral tumours, classified into 4 grades: I – II: low grades (20-25%), III – IV: malignant glioma (70-75%). Glioblastoma are the grade IV glioma, with a very bad prognostic. Despite the standard referential treatment (Stupp treatment), which involves surgery, radiotherapy and chemotherapy, the median survival rate is approximately 12 months, and the survival rate after 3 years is lower than 5%. In France glioblastoma caused 3,000 deaths in 2011, with 4,560 new cases in 2010 (INCa: www.e-cancer.fr). In the States it caused 14,080 deaths in 2012, with 23,130 new cases in 2012 (NCI: www.cancer.gov). In the world 175,000 deaths in 2008 are estimated, with 238,000 new cases in 2008 (IARC: www.iarc.fr).

The classical chemotherapy is Temodal (Temozolomide a DNA alkylation product). The market in 2009 represented approximately 1 billion $/year. New therapies are under test, in particular using immune-therapies targeting the different pathways that are affected in glioblastoma (VEGFR, VEGF, EGFR, PDGFR, …etc). Most of these treatments failed to be used following clinical trials because of their low efficiency and poor specificity, due to the abnormally high number of mutations in glioblastoma patients. Therefore, they present too many side effects.

Most of these new treatments, as well as the “old” treatments (immunotherapies, gene therapy, 5FU microsphers) were first tested locally (following the surgery), because following the surgery a 4-6 weeks period is necessary for patients to recover from surgery. There is an urgent need to find a product to inhibit glioblastoma proliferation following the surgery.

The Anti-Glioblastoma-Peptide is capable:
1- to penetrate specifically in all the glioblastoma cells lines and primary cultures that were tested (rat, mouse and human),
2- to block microtubule polymerisation,
3- to inhibit glioblastoma cell division in vitro (cell culture models) and in vivo (stereotaxic implantation of glioblastoma cells in the striatum of rats or mice).

- The peptide has no similar effect on the other cells of the nervous system, and shows no detectable toxicity following intra-cranial or intra-venous administration.
- This peptide can be used locally following the resection of the glioblastoma tumour, or injected by stereotaxy into glioblastoma tumours that cannot be operated. (See figure at the end of this document)

The objective of is to bring the peptide from our laboratory to the bedside of the glioblastoma patients. Therefore, we need to find an industrial partner for the clinical transfer of this promising anti-glioblastoma peptide, because our academic laboratories do not have the capacity to ensure a fast and GLP/GCP compliant project. The main tasks will be to:
1- Synthesize and characterize cGMP batches of the AGP peptide.
2- determine the optimal in vivo (rodents) dose/effect use of the cGMP peptide, and characterize the biodistribution, pharmacokinetic properties and possible toxic effects of the peptide,
3- write and submit the Investigational New Drug Application
4- Conduct a Phase I/II clinical trial in order to assess the safety of the peptide and to determine its optimal active dose in patients.
The AGP project has now been transferred to a company, as a spin-off company of Angers University dedicated to the treatment of glioblastoma. The company’s main objective is to obtain an IND for the peptide and to secure a co-development deal within 30 months.

**TARGET POPULATION**

Patients affected by a glioblastoma tumour.

**STRENGTHS & COMPETITIVE ADVANTAGES**

The current state of the art shows that glioblastoma is a fatal tumour of the nervous system.
- This product is a new therapeutic approach for the treatment of glioblastoma as a drug delivered by stereotactic surgery within the glioblastoma tumour or following the tumour removal by surgery. This will be the preferred administration.
- This product acts specifically by penetrating selectively in glioblastoma cells, and blocking cell division only in glioblastoma cells (by aggregation of tubulin in an un-polymerizable state).
- This peptide appears as an attractive alternative in the current context where glioblastoma affected patients have not real effective therapeutic solutions and lead to rapid death.

**INDUSTRIAL APPLICATIONS & OPPORTUNITIES**

The company is looking for:
- the company achieve the non-regulatory preclinical development of AGP within the 12-15 coming months.
- an industrial partner that can bring significant capacities and expertise regarding the GMP manufacturing and regulatory submissions of anticancer drugs, to accelerate the preclinical development.

**CONTACT**

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