

**Doktorandenstelle zu vergeben/PhD Position available on:****“Understanding glucose starvation-induced cell death to develop therapeutic strategies for targeting glioblastoma”**

We are offering a two and half years doctorate position (65%) with possible extension. We are looking for a highly motivated, self-driven and team-oriented student who has completed a Master degree in biology or a related field. Experiences with cell culture, standard molecular and cellular biology techniques and biochemistry are required. Experiences in bioinformatics are desirable but not required.

**The focus of our group is to elucidate how cancer cells respond to glucose starvation and how this can be harnessed to design therapeutic strategies.**

While tumors are highly addicted to glucose, they are developing within glucose-limited conditions due to defective tumor vasculature. This creates a severe stress that primarily leads to cancer cell death, even though some rare cell clones can adapt and survive (as supported by our previous work “The eEF2 kinase confers resistance to nutrient deprivation by blocking translation elongation” published in *Cell*). Intriguingly, there is no consensus in the literature about how cancer cells die under glucose deprivation. Our preliminary data indicate that unexpectedly apoptosis and other canonical forms of cell death are not triggered by glucose starvation. Therefore, defining how cancer cells die under glucose-limited conditions is warranted. This can help developing novel therapeutic approaches to treat cancer.

**The aims of the project are to dissect the mechanisms of glucose starvation-induced cell death and to pharmacologically mimic glucose starvation to selectively kill glioblastoma cells.** Possible molecular mechanisms, including changes in protein glycosylation, redox balance and ions transport, will be investigated using various glioblastoma cell models. Furthermore, different compounds interfering with glucose transport will be tested as to mimic glucose starvation-induced cell death. Various genetic and molecular tools, as well as cellular and metabolic analyses, will be employed to characterize the mechanisms of cell death as well as the activity of such compounds. This may allow identifying novel compounds with potential therapeutic values to treat glioblastoma.

We offer a wide range of molecular and cellular biology techniques (cell culture, siRNA, shRNA and CRISPR, genetic screen, cell death assays, Western blot, immunofluorescence, soft agar assays, ultra-low attachment assays, FACS, RNA isolation and qRT-PCR, etc.), combined with various collaborations for proteomics, metabolomics and ions analyses.

The qualified candidate will work at the Institute of Neuropathology (Head: Prof. Reifenberger) under the supervision of Dr. Gabriel Leprivier who has more than 20 years' experience in the field of cancer biology.

Bibliography: Levy T,..., Leprivier G, *Nature Communications*, 2024; Völtzke K,..., Leprivier G, *Cell Death and Discovery*, 2022; Hauffe L,..., Leprivier G, *Cell Death and Discovery*, 2022; Lim JKM,..., Leprivier G\*, Sorensen PH\*, *PNAS*, 2019; Leprivier G et al., *Cell*, 2013.

**Application (including CV and references) should be sent to:**

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Institute für Neuropathologie

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