

[FusTarG: Design and application of precision RNA oligonucleotides and aptamers for targeting gene fusion products in glioblastoma]

Job Profile

CSS

Offer description Postdoctoral position in preclinical and biopharmaceutical targeting of gene fusions for local treatment of glioblastoma at INSERM UMR 1307/ CNRS UMR 6075, France

A postdoctoral position is available at **CRCI²NA**, INSERM UMR 1307/ CNRS UMR 6075, team 5 « Design and Application of Innovative Local treatment in Glioblastoma (GLIAD) », **Angers, Loire Valley, France.**

=> Research Project: The research will be carried out within the FusTarG project « *Design and application of precision RNA oligonucleotides and aptamers for targeting gene fusion products in glioblastoma* » funded by La Ligue Nationale contre le Cancer under the frame of the call « *RNA, an innovative tool in cancer therapy* ». It involves two research teams: GLIAD, team 5 of the CRCI²NA in Angers (<https://crci2na.univ-nantes.fr/en/research/team-5>) and the Unit of bio-organic chemistry of nucleic acids of the Institute Pasteur in Paris (<https://research.pasteur.fr/en/team/bioorganic-chemistry-of-nucleic-acids/>).

Coordination and contact: Emmanuel Garcion, CRCI²NA, INSERM UMR 1307/ CNRS UMR 6075, GLIAD, Université d'Angers, Angers, France. emmanuel.garcion@univ-angers.fr

=> Purpose: The recent identification of novel gene fusions, which may constitute oncogenic drivers of tumors, gives rise to new hopes for the management of glioblastoma (GBM), the most frequent and aggressive primary brain tumour in humans, still considered one of the worst unmet clinical needs. The objective of FusTarG is to design and apply at the cellular and preclinical level small antisense RNAs (ASOs) and aptamers to target the products of fusion genes in GBM and inhibit their oncogenic functions. Two methods of locoregional administration will be used: direct injection in the unresected tumour and application of biopolymer hydrogels/implants of ASOs for “long-term” delivery within the resection cavity and its margins. The aptamers developed will be tested on patient biopsies. FusTarg will further explore gene fusions in GBM and design new tools to possibly pave the way for human trials.

Researcher profiles

- First-Stage Researcher (*PhD candidate*)
- Young Researcher (*with less than 4 years research experience after PhD*)
- Established Researcher (*with more than 4 years research experience*)
- Senior Researcher

Research Fields (2 max.)

<input checked="" type="checkbox"/> Biological Sciences	<input type="checkbox"/> Medical Sciences
<input type="checkbox"/> Chemistry	<input type="checkbox"/> Neurosciences
<input type="checkbox"/> Computer Science	<input checked="" type="checkbox"/> Pharmacological Sciences
<input type="checkbox"/> Engineering	<input type="checkbox"/> Physics
<input type="checkbox"/> Environmental Science	<input type="checkbox"/> Technology
<input type="checkbox"/> Ethics in Health Sciences	<input type="checkbox"/> Other (specify):

Main Activities

The postdoctoral fellow will develop, implement and characterize *in vitro* and *in vivo* injectable/implantable RNA-based biopharmaceutical devices dedicated to targeting gene fusion products in GBM.

He/She will work at the chemistry-biology interface while always keeping in mind the translational side and the potential clinical application of the concept developed.

He/She will contribute to the manufacture of the developed tools and above all be in charge of developing bioassays for their *in vitro* and *in vivo* functional characterization in dedicated models (organoids, orthotopic preclinical models (xenogenic human cells implanted in immunosuppressed mice, injection in the unresected tumour and implantation in resection cavity). These experiments will allow to assess efficacy, bioavailability and biocompatibility of the innovative RNA tools targeting the gene fusion products.

The candidate should be independent, hardworking, methodical, enthusiastic, with very good inter-personal skills, trustworthy (probity, confidentiality), curious, and proactive while confronting complex scientific issues.

Associated Activities

- Mobilities for the successful completion of the project is expected between Paris (Institut Pasteur, bio-organic chemistry of nucleic acids unit) and Angers (GLIAD team of the CRCI²NA).

Specific Requirements or Constraints

- Animal experimentation
- Possible work with radiolabeled materials in dedicated confined areas

Skills/Qualifications

- The candidate must have a dual experience in bioengineering and cell biology (brain cancer ideally), attested by recent publications.
- The position requires experimental approaches including 2D/3D cell cultures, hydrogel matrix, cell-material-device interface and animal experimentation including stereotaxis.
- The candidate will be familiar with the basic techniques of molecular and cell biology, including biochemical assays, RNA analysis, Western blot, fluorescence confocal, microscopic imaging, flow cytometry or immunohistochemistry and, if required, be able to use the radioactivity for biodistribution/clearance studies.
- Expertise in polymer and hydrogel design and analysis (NMR, GPC, TEM, SEM, thermal and mechanical analysis) is valuable.
- The post-doctoral scholar will be responsible for designing experiments with the PI, collecting and analysing research data independently, troubleshooting experiments independently, and training graduate students and research assistants independently. The post-doctoral scholar will also be responsible for the preparation of manuscripts related to his/her work.
- He/she should be highly motivated, focused, methodical, trustworthy (probity, confidentiality), capable of showing intellectual curiosity and be proactive while facing complex scientific problems.
- The post-doctoral scholar will work in a rich environment in which faculty, researchers, clinicians, post-doctoral fellows, research associates and graduate/undergraduate students regularly interact and conduct collaborative research studies. Therefore, excellent communication and interpersonal skills are required.

Required Experience

X 0 to 2 years X 2 to 4 years 4 to 10 years >10 years

Fields:

Required Education Level or Diploma

- PhD in biology and health

- Required Languages**
- English required.
 - French will be useful.

Hosting Unit

Code	INSERM U1307
Name	CRCI ² NA - Center for Research in Cancerology and Integrated Immunology Nantes-Angers
Director	JUIN Philippe
Composition	TEAM 5 – GARCION Emmanuel
Address	Institut de Biologie en Santé – IRIS – CHU, 4 rue Larrey, Angers – France
Website	https://crci2na.univ-nantes.fr/en/research/team-5

Contract

Type	Postdoctoral fellowship
Duration	24 months
Salary	
Envisaged Start Date	The starting date for the contract is scheduled between June 1 st and August 16 th , 2023.

Application

All qualified applicants are required to apply by providing a CV, cover letter, and contact information for 3 references.

Applicants must send a CV and a cover letter to:

Dr. Emmanuel GARCION,
CRCI²NA, INSERM UMR 1307 / CNRS UMR 6075
Team GLIAD - Design and application of innovative local treatments in glioblastoma
Institut de Biologie en Santé – CHU
Angers University, Angers, France.
tel : +33 (2) 44 68 85 43.
emmanuel.garcion@univ-angers.fr

Deadline for application:

June 30th, 2023. Note however that review of applications will begin as soon as they are received and will continue until the position is filled.