Washington University in St.Louis

SCHOOL OF MEDICINE

Department of Neurological Surgery

Dimitrios Mathios, MD

Assistant Professor of Neurological Surgery Director of Molecular Neurooncology Laboratory Brain Tumor Center ,Siteman Cancer Center Email:mathios@wustl.edu Phone: 443-931-7692

Liquid biopsy technology development for early and non-invasive diagnosis of brain tumors

A postdoctoral position with a bioinformatics focus is available in the Molecular Oncology Laboratory of Dr. Dimitrios Mathios, MD at The Brain Tumor Center of Washington University School of Medicine. Our laboratory aims to harness the expansive knowledge in brain cancer genomics, cancer epigenomics and immunogenomics to design liquid biopsy assays that will help us diagnose patients with brain tumors without the need for invasive surgeries. The goal of the lab is to take the liquid biopsy technologies developed in the lab and translate them to tests that can be used to guide patient care.

The postdoctoral fellow will work under the supervision of a faculty investigator and will be responsible for applying and developing computational and statistical methods for the integrated analysis of high-throughput sequencing studies that may include whole genome, methylation, and/or RNA sequencing platforms. This position is fully funded.

Our lab has extensively published in the field of liquid biopsy (Nature Communications, Nature Genetics, Cancer Discovery) for cancer detection and we have recently extended our efforts in using novel genomic and epigenomic technologies such as cfDNA fragmentomics for detection of brain cancer, a cancer that is the hardest to detect in the blood of patients, using machine learning algorithms. The candidate will be spearheading projects to further improve and optimize the existing technology and will be given the opportunity to develop additional novel technologies towards the main goal of the lab.

Ongoing projects:

cfDNA fragmentation for non-invasive brain tumor diagnosis

cfDNA fragmentation as a biomarker of response to chemoradiation for brain tumor treatment

Assessment of sequencing technologies for development of multiomic genomic and epigenomic liquid biopsy approaches

Minimum qualifications:

- Graduate degree (MSc, Ph.D and/or M.D.) in computer science, statistics, bioinformatics, biology, biochemistry, chemistry or a related field, or anticipation of degree conferral in the near future
- Minimum two years of prior experience in biomedical computational research
- Exceptional organizational, communication, writing, and visualization skills
- Self-motivation and an interest in biomedical careers
- Experience with experimental design and reproducible research principles
- Experience with genomic data and computational biology tools and databases
- Familiarity with R, C++, Perl, Python
- Microsoft office proficiency, especially Excel

Interested candidates should send a cover letter, their C.V. and a list of 2 or 3 references to mathios@wustl.edu .