

Postdoctoral Position in Cardiovascular Epigenomics – RESIDE Project



Join us in advancing precision medicine for Aortic Stenosis and transforming inflammatory cardiovascular disease research. We are seeking a highly motivated Postdoctoral Researcher with strong expertise in bioinformatics and/or computational biology to join the RESIDE project, an ambitious European translational research program dedicated to understanding and targeting inflammatory mechanisms driving Aortic Stenosis (AS).

The RESIDE project aims to uncover the role of epigenetic regulation—particularly H3K27 methylation enzymes (EZH2, *KDM6A/UTX*, *KDM6B/JMJD3*)—in monocyte/macrophage-driven valvular inflammation, fibrosis, and calcification. Our ultimate goal is to develop personalized anti-inflammatory therapeutic strategies, for selected AS patient subgroups. The project integrates large clinical cohorts, CHIP mutation profiling, bulk and single-cell transcriptomics (RNA-seq, CHIP-seq, sc/snRNA-seq), functional *ex vivo* assays, and *in vivo* mouse models, within a strong translational consortium spanning clinical cardiology, immunology, epigenetics, and genomics.

The successful candidate will play a central role in the performing *in vitro* and *in vivo* experiments along with computational analysis of multi-omics datasets generated across the project, including:

- Bulk-sc-snRNA-seq, ChIP-seq, CHIP mutation sequencing datasets
- Multi-layer integration of clinical, imaging, and molecular data

Your role and candidate profile

The postdoctoral candidate will perform quality control of high-throughput sequencing data, differential gene expression and epigenomic peak analysis, multi-omics data integration, development of predictive biomarker signatures (*e.g.*, LASSO, GLMs), cell–cell interaction and pathway analyses (*e.g.*, Seurat, DESeq2, MultiNicheNet). An important part of the RESIDE project include *in vitro* experiments on both primary and cell line human/murine myeloid and interstitial cell cultures and *in vivo* cardiac phenotyping. Contribution to data interpretation, manuscript preparation, and grant writing is expected.

We are looking for a candidate who:

- Holds a PhD in Systems Biology, Bioinformatics, Computational Biology, Genomics, Biostatistics, or a related field.
- Has strong skills and expertise in cardiovascular biology, immunology, or epigenetics
- Is familiar or at least interested in bioinformatics (scRNA-seq, CHIP-driver mutations etc...) and programming skills (R and/or Python)
- Is able to work independently while thriving in a multidisciplinary, international consortium
- Has excellent communication skills in English

The main localization of the post-doctoral candidate will be in Rouen (France) affiliated to UMR-INSERM-URN U1096 with regular travels between partner's laboratories in Paris (France), Madrid (Spain), Copenhagen (Denmark) and Riga (Latvia).

Research environment

The RESIDE consortium brings together European experts in cardiovascular medicine, innate immunity, epigenetics, genomics, and translational research.

- Sylvain Fraineau, UMR Inserm U1096, Rouen, France
- Ilva Trapina, University of Latvia, Riga, Latvia
- José Javier Fuster Ortuño, Spanish National Center for Cardiovascular Research, Madrid, Spain
- Anne Yaël Nossent, August Krogh Section for Human and Molecular Physiology, Copenhagen, Denmark
- Clément Cochain, Paris Cardiovascular Research Center Inserm U970, Paris, France

The project is embedded within well-established clinical cohorts (STOP-AS program), with access to extensive biobanks, high-throughput sequencing platforms, and advanced animal models. Close collaboration with clinicians and patient organizations ensures strong translational impact.

What we offer

- A fully funded postdoctoral position up to 3 years depending on the candidate experience
- Access to unique clinical cohorts and multi-omics datasets
- A highly collaborative, translational research environment
- Opportunities for high-impact publications and international visibility
- Strong support for career development

Application

Applicants should submit:

- A CV including publication list
- A brief statement of research interests (1–2 pages)
- Contact details of 2–3 referees

Applications will be reviewed on a rolling basis until the position is filled. We are committed to promoting equality, diversity, and inclusion in research.

For informal inquiries, please contact:

Sylvain Fraineau, Associate Professor, PhD-HDR
UMR-INSERM-URN U1096
+33 2 35 14 83 74
sylvain.fraineau@univ-rouen.fr



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+33 2 35 14 83 74
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<http://www.insermu1096.fr>