

The Luxembourg Institute of Health (LIH) is a public biomedical research organisation focused on precision health and invested in becoming a leading reference in Europe for the translation of scientific excellence into meaningful benefits for patients. LIH places the patient at the heart of all its activities, driven by a collective obligation towards society to use knowledge and technology arising from research on patient-derived data to have a direct impact on people's health. Its dedicated teams of multidisciplinary researchers strive for excellence, generating relevant knowledge linked to immune related diseases and cancer. The institute embraces collaborations, disruptive technology and process innovation as unique opportunities to improve the application of diagnostics and therapeutics with the long-term goal of preventing disease.

## PhD Student in RNA modification research

3-year fixed-term contract, full time. Start-date: from January 2023

**Background.** Epitranscriptomics is an emerging field that explores how post-transcriptional modifications of RNA transcripts influence the fate and functions of RNA. In recent years, N6-Methyladenosine (m6A) RNA modification was identified as the most abundant epitranscriptomic alteration that plays a role in disease progression. Sudden cardiac arrest (SCA) is the third leading cause of death in Europe. Not only suffering cardiovascular issues, many SCA survivors are prone to considerable long-term neurological impairments. So far, clinical studies investigating whether SCA-induced cardiovascular and neurological impairments are reflected through changes in m6A RNA modification of circulating RNAs are lacking. Early detection of such changes may help monitor and possibly prevent the occurrence and development of adverse events in SCA patients, and therefore may significantly impact healthcare.

**Objectives.** The project aims to explore if m6A modification in circulating RNAs could be used as biomarker of neurological impairment or death after SCA. Furthermore, using in vitro approaches, the project aims to identify and functionally characterize m6A modifications in specific coding and non-coding RNAs involved in disease progression.

**Training and research environment.** The Cardiovascular Research Unit of LIH is a dynamic and multinational research group focusing on studying the biomarker and therapeutic potential of RNAs in heart and brain diseases (e.g. heart failure, diabetic cardiomyopathy, cardiac arrest, Parkinson Disease ...). The team is composed of a core staff of 4 people (research engineers, technician, administrative assistant), PhD students and post-docs, and is led by Dr Yvan Devaux (<https://pubmed.ncbi.nlm.nih.gov/?term=devaux+y&sort=date>). The group has an international visibility and chairs the EU-CardioRNA COST Action network ([www.cardiorna.eu](http://www.cardiorna.eu)), coordinates the H2020 COVIRNA project ([www.covirna.eu](http://www.covirna.eu)), and is a partner of multiple international projects (e.g. IMI2 Cardiateam, [www.cardiateam.eu](http://www.cardiateam.eu)).

### Recent related references:

- (Epi)transcriptomics in cardiovascular and neurological complications of COVID-19. Jusic A, Stellos K, Ferreira L, Baker AH, Devaux Y. *J Mol Cell Cardiol Plus.* 2022 Sep;1:100013. doi: 10.1016/j.jmccpl.2022.100013.

- Regulation of N6-Methyladenosine after Myocardial Infarction.

Vausort M, Niedolisteck M, Lumley AI, Oknińska M, Paterek A, Mączewski M, Dong X, Jäger C, Linster CL, Leszek P, Devaux Y. *Cells.* 2022 Jul 22;11(15):2271. doi: 10.3390/cells11152271

- Peripheral blood RNA biomarkers for cardiovascular disease from bench to bedside: A Position Paper from the EU-CardioRNA COST Action CA17129. Vanhaverbeke M, ... Devaux Y; EU-CardioRNA COST Action CA17129. *Cardiovasc Res.* 2021 Oct 14;cvab327. doi: 10.1093/cvr/cvab327.

More information about the group can be found here : <https://sites.lih.lu/cardiovascular-research-unit-cvru/>

### Key Skills, Experience and Qualifications

- Master's degree in Biomedical Sciences, Molecular and Cellular Biology, Genetics or a related biomedical field.
- Prior experience in RNA modifications and bioinformatics would be an advantage, but is not mandatory.
- Experience in molecular biology, cell culture, PCR, and cloning techniques.
- Good communication, time management, rigor, perseverance, scientific creativity and originality, writing skills, conciseness, sense of priority and ability to work with others.
- Fluency in English.

### Key Responsibilities

- Participate in the setting-up and implementation of a collaborative research project
- Conduct a research project with the aims of submitting a PhD thesis dissertation and obtaining a PhD degree
- Publish her/his results in scientific journals and/or file patents if applicable
- Participation in training and conferences
- Disseminate her/his results to the scientific community and the public
- Participation in international scientific conferences
- Participation in laboratory activities including seminars and interaction with other teams.

Located in Luxembourg, LIH offers the opportunity to work in a dynamic, international and multilingual environment that values personal respect and professional achievement based on the highest intellectual and ethical standards. The remuneration for this position shall be based on qualification and experience.

Applications including a cover letter and a curriculum vitae should be sent before 30 November 2022 via our website [www.LIH.lu/jobs](http://www.LIH.lu/jobs) with the ref: JA/PHDEG0822/EVD/DRC