

ERC funded 4 year Post Doc Position

'Selective mRNA translation control: Cardiovascular development'

Background: Human cardiac development, RNA biology and/ or CRISPR/Cas9-based genome engineering

Project: In mammals, translation is exquisitely regulated at the exit of pluripotency to rapidly reprogram the proteome to enable lineage commitment. Yet, the embryonic mediators of translation control and their mechanisms remain elusive. Our recent discoveries revealed that ribosomes act as decision hubs controlling cell fate and homeostasis via proteins recruited on the translation machinery and specialize mRNA translation. **The project is dedicated to studying the mediators, mechanisms, and impact of selective mRNA translation in the regulation of embryonic cardiac cell fate and cell identity.** This involves various high throughput approaches such as targeted CRISPR screens, eCLIP-seq, and Ribo-seq in combination with systematic molecular and mechanistic studies in hiPSC-based cardiac developmental models.

Your background and expertise: A stem cell/ dev. Biologist with expertise in hESC/iPSC-based human cardiac differentiation models and/or CRISPR/Cas9-based genome engineering, with at least one first-author high-quality publication with a Ph.D. in Biological Sciences. Experience in conducting pooled CRISPR screens is highly advantageous. A keen interest in transcriptomic and proteomics data analysis is desirable.

What we offer: Kurian lab is a multicultural, interdisciplinary work environment. We work at the intersection of RNA biology, Developmental Biology, functional genomics, and systems biology. We provide opportunity and support to develop your own independent career, access to state-of-the-art methodologies in RNA biology, stem cell biology and genome engineering. Stable long-term funding and state-of-the-art resources to conduct innovative research in RNA biology using human pluripotent stem cell-based models. Competitive salary, benefits, and family-friendly work culture.

Our Research Focus: We study the RNA regulatory principles that govern cell fate and identity during human cardiac development, homeostasis, and pathomechanisms of cardiac diseases. We employ pluripotent stem cells and cell fate engineering (2D differentiation and organoid models) in combination with systems biology and genome editing approaches to reconstruct and investigate human cardiac development and disease. Our long-term mission is to gain a systems-level understanding of the RNA regulatory principles that shape the self-organization and homeostasis of tissue and organs in humans to develop therapeutic solutions for tissue/ organ regeneration.

www.kurianlab.com

1. Bartsch et al,.... Kurian L, **Science Advances**, 2023 Mar 29;9(13):eade1792
2. Frank S, ...Kurian L, **Cell Stem Cell**. 2019 Feb 7;24(2):318-327.e8.
3. Kurian L et al **Nature**, 2011

How to apply: Please submit your application as a single PDF file that includes:

1. Cover letter detailing your scientific interest and how that aligns with focus of our lab.
2. CV (including a list of publications, extra-curricular activities, and the contact details (e-mail address and phone number) of 2-3 academic referees. Submit the application to **Kurian (at) med.uni-frankfurt (dot) de**

Lab values: We believe that science is for everyone, and we are committed to welcoming and supporting all members of our community regardless of age, sex, gender identity, gender expression, sexual orientation, pregnancy, marital status, family structure, disability, ethnicity, race, religion, nationality, education, or socio-economic background. Our lab is a safe space where everyone will be welcomed in their pursuit of knowledge. We strive to use this commitment and learning to build a welcoming and supportive lab environment for all current and prospective lab members. In doing so, we want to recognize the challenges faced by other minorities in STEM, including LGBTQ+ scientists and scientists with disabilities, who are often implicitly or explicitly excluded in academic spaces.

Our lab is at the **Vascular Research Center (VRC)** (<https://www.vrc.uni-frankfurt.de/>), Faculty of Medicine, Goethe University Frankfurt. VRC hosts multiple closely knit, highly collaborative working groups with a wide range of expertise including in vivo models of cardiovascular development and disease, metabolism, RNA biology, proteomics, and redox biology. The vibrant local research environment includes groups from the German excellence cluster, **Cardiopulmonary Institute (CPI)**, (<https://www.cpi-online.de/>), with a strong focus on RNA biology, and systems biology of the cardiovascular system. CPI is a prestigious national excellence research initiative with state-of-the-art infrastructure and resources involving 71 laboratories at the forefront of cardiovascular research in Germany. This provides an ideal scientific environment for research in cardiovascular Biology.

The **Johann Wolfgang Goethe University Frankfurt am Main** is one of the largest universities in Germany with around 44,000 students and with about 5,700 employees. Founded in 1914 by Frankfurt citizens and since 2008 once again proud of its foundation status Goethe University possesses a high degree of autonomy, modernity, and professional diversity. Goethe University offers a total of 16 departments on five campuses and 154 degree programs along with an outstanding research reputation. Furthermore, Goethe University is part of the Group of Rhine-Main-Universities (RMU).