



**Job announcement No. 35/2019**

The research group “Recoding Mechanisms in Infections” of Jun. Prof. Dr. Neva Caliskan at the Helmholtz Institute for RNA-based Infection Research (HIRI) in Würzburg (Germany) is seeking a

**Doctoral researcher (f/m/d).**

**Project title: Single-molecule approaches to study the role of RNA in infections**

**Project description:**

RNA is a versatile molecule that acts as a key regulator of non-canonical translation events. RNA can exist in various shapes and interact with other regulatory elements such as ncRNA, small molecules and proteins to alter the meaning of the message encoded in the primary sequence of the mRNA. Many bacterial and viral pathogens and their eukaryotic host cells contain structured mRNA in order to express hidden genes from alternative open reading frames (Caliskan et al., 2015). How RNA structure and regulatory elements drive alternative translation events is currently not fully understood. In addition, it is largely unclear to what extent these translation events are used by the pathogen and the host cell during infections. We use cutting-edge RNA analytics, such as ribosome profiling and deep sequencing combined with single-molecule and computational tools to understand dynamics of translation and the functions of RNA regulators during infections. Ultimately, we want to better understand the interplay between the host’s and pathogen’s gene expression and harness our knowledge to develop novel therapeutic strategies to combat infectious diseases.

The successful candidate will work on the interface of biology and physics as the project will mainly focus on developing single-molecule tools to monitor dynamics of mRNA in conjunction with regulatory elements in real time. There will be the opportunity to take part in collaborations with other teams to study RNA-based regulation using high-resolution imaging and other biophysical tools such as optical tweezers.

The selected applicant will work in the dynamic and international research environment of the HIRI in Würzburg (<https://www.helmholtz-hiri.de>), which is part of the Helmholtz Centre for Infection Research in Braunschweig (<https://www.helmholtz-hzi.de/en/>). The candidate will further be embedded within the highly successful structured doctoral training program of the Graduate School of Life Sciences (GSLs) Würzburg (<http://www.graduateschools.uni-wuerzburg.de/life-sciences/doctoral-researchers/>).

The Helmholtz Institute for RNA-based Infection Research (HIRI) has been established in May 2017 as joint venture between the Helmholtz Centre for Infection Research (HZI) and the Julius Maximilian University of Würzburg (JMU). Located on the Würzburg medical campus, it is the first research institution worldwide to exclusively address the role of ribonucleic acids (RNAs) in infection processes. Based on these findings, the HIRI will pioneer an integrative approach to exploit the vast potential of RNAs as a diagnostic molecule, target and drug for new strategies to combat infectious diseases. For further information please visit: [www.helmholtz-hiri.de](http://www.helmholtz-hiri.de)

**Qualifications:**

- Master’s Degree in biochemistry, physics, molecular biology, or a related field within the life sciences
- Excellent English communication skills (written and spoken)
- Ability to work independently and as part of an international team
- A strong desire to do research, enthusiastic, creative, and highly self-motivated
- Basic knowledge of Matlab and/or Python



Equal Opportunities are part of our personnel policy. Qualified applicants with a disability will be given preference.

- Starting date:** July 1, 2019  
- initial term 1 year, with the possibility of an extension of additional 2 years -
- Salary:** follows TVöD E13 (50%) with the possibility of an additional payment of 10%
- Probation period:** 6 months
- Published:** April 1, 2019  
**Closing date:** April 22, 2019
- Application:** Applicants are required to complete the online application form here:  
<https://hzi.opencampus.net/> (Please refer to the job number **35/2019**.)

For more details regarding the PhD project, please contact Jun. Prof. Dr. Neva Caliskan via email at [neva.caliskan@helmholtz-hiri.de](mailto:neva.caliskan@helmholtz-hiri.de) or by phone on +49 931 31 85 298.

Further information about the research group of Jun. Prof. Dr. Neva Caliskan can be found on our website: <https://www.helmholtz-hiri.de/en/research/organisation/teams/team/recoding-mechanisms-in-infections/>