LMU KLINIKUM

PhD Project: Role of Catecholamines in Neuroimmune Communication and Inflammation in Cardiovascular & Infectious Diseases (m/f/d)

Medizinische Klinik I (Kardiologie)

The Hospital of the University of Munich, Germany, is one of the largest and most competitive university hospitals in Germany and Europe. 48 specialized hospitals, departments and institutions harbouring excellent research and education provide patient care at the highest medical level with around 11.000 employees.

WORKPLACE	Campus Großhadern	DATE OF ENTRY	Next Possible Date
WORKING HOURS	Full time	APPLICATION DEADLINE	01.08.2025
INSTITUTION	Medizinische Klinik I (Kardiologie)	REFERENCE NUMBER	2025-K-0236
DEPARTMENT	Cardiology, basic and translational research		

Scope of duties

- In this project, we investigate how neuroendocrine mediators—especially catecholamines—shape the innate immune response during inflammation.
- Our focus is to unravel the molecular mechanisms that govern neuroimmune interactions, particularly in the context of cardiovascular disease and bacterial infections.
- Stress has been linked to the development and progression of many inflammatory diseases, including cardiovascular diseases and sepsis.
- Through activation of the HPA axis and sympathetic nervous system, stress drives the release of catecholamines, which can profoundly influence immune responses.
- This project explores how these stress hormones modulate inflammatory processes across various models.
- By combining expertise in in vitro approaches, murine models, and translational research, we aim to uncover how catecholamines regulate the innate immune response during inflammation.
- We will identify key molecular pathways influenced by catecholamines under both physiological and inflammatory conditions.
- Our experimental designs will allow mechanistic validation of candidate pathways involved in cardiovascular and bacterial inflammation.
- We will extend our findings to translational studies in patients receiving catecholamine therapy.
- Ultimately, we want to define novel targets for therapeutic intervention in stress-associated inflammatory and cardiovascular diseases.

Our requirements

- High motivation and curiosity to explore complex biological mechanisms.
- Commitment to scientific integrity and reproducibility.
- Strong foundational knowledge and interest in immunology.
- Interest in laboratory techniques such as flow cytometry, ELISA, cell culture, qPCR, Western blotting, or immunofluorescence.
- Ability to work independently as well as collaboratively in a multidisciplinary team.
- Strong critical thinking and problem-solving skills.
- Willingness to learn new techniques and engage with interdisciplinary research.

Our offer

- **State-of-the-art facilities:** Access to modern laboratory infrastructure, advanced imaging platforms, flow cytometry, genomics, and animal research facilities.
- **Comprehensive training and mentorship:** Receive close scientific supervision and mentorship from experienced researchers, along with tailored training in experimental techniques, data analysis, and scientific communication. Acquire comprehensive background knowledge on the pathogenesis of stress-associated diseases and establish expertise in murine models for experimental research (e.g., through TVK or FELASA-certified laboratory animal science training).
- **Career development opportunities:** Participate in workshops, conferences, and seminars designed to strengthen your professional and academic skills.
- **International and collaborative atmosphere:** Work in a highly collaborative and international environment, with opportunities to engage in joint projects.
- **Impactful research:** Perform translational research, including studies in a clinical setting at a renowned hospital involving patients undergoing catecholamine therapy, to enhance the clinical relevance of experimental findings.
- **Performance-based salary:** The remuneration is based on the Collective Agreement for the Public Service of the Federal States (TV-L), plus all customary allowances typical for the public sector.

Offers and services of the employer

Further education and training	Job ticket
Company pension scheme	Discounts
Childcare services	Staff accommodation (if available)
Mobile work (if suitable)	

Mr. Dr.med. Gold, Christoph & Mr. Dr. Pekayvaz, Kami Alexander

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Application format

Please use the Online-Form for your application

http://www.lmu-klinikum.de/8136c0f708f23300

Disabled persons will be preferentially considered in case of equal qualification. Presentation costs cannot be refunded.

Please note that we cannot reimburse travel expenses incurred through interviews.

We ask you for your understanding that postal applications will not be returned, but will be destroyed in accordance with data protection regulations. The data usage information also applies to postal applications