Master thesis : Genetic engineering of senescence and cell death (m/f/d)

Apply now

We are recruiting an ambitious master's thesis student who wants to pursue groundbreaking biomedical research. This position requires a 12-month commitment. The successful candidate will join the research group led by Christoph Bock at the CeMM Research Center for Molecular Medicine (Austrian Academy of Sciences). The project combines CRISPR, cell death, and aging. It is primarily wet-lab and benefits from a technology development / cell engineering mindset.

The Candidate

We are seeking a motivated master's thesis student with prior fulltime experience in wet-lab biology (e.g., as part of an experimental Bachelor thesis project and internships). The project is scientifically and technically challenging, and you will receive hands-on training in a highly supportive and collaborative environment, with the opportunity to contribute to scientific publications. Our research group has a track record of successful mentorship (https://tinyurl.com/bocklab-alumni).

Required experience and skills

- Enrollment in a master's program in molecular biology, biotechnology, biomedicine, or a related field (proof of enrollment required).
- Solid fundamentals in molecular biology techniques including mammalian cell culture.
- At least one year of previous hands-on wet-lab work in a biology or biomedical research lab
- Good command of English and a careful, structured way of working in the laboratory.

Desirable experience and skills

- Familiarity with CRISPR–Cas systems, lentiviral or AAV production, recombinase or Cre/lox-based systems, flow cytometry, fluorescence microscopy, or related methods.

Training and Supervision

You will be trained in the methods listed below, including biosafety training for work with viral vectors, as part of the research group led by Christoph Bock. Day-to-day supervision will be provided by postdoctoral fellow Mihaela Peycheva.

Typical Tasks

- Design and molecular cloning of genetic constructs for induction of senescence and cell death.
- Production of viral vectors and delivery into human cell lines, primary cells, and organoid models.

- Engineering and maintenance of reporter and effector cell lines, including clonal selection and genotyping.
- Quantitative validation by flow cytometry, microscopy, senescence and apoptosis assays, and sequencing readouts.
- Characterization of validated constructs in mouse and human model systems, in collaboration with partner groups.

The Research Group (https://bocklab.org)

We seek to advance biomedicine with technology-driven research, combining experimental and computational approaches to understand and program epigenetic cell states and to develop cell-based therapies for cancer and immune diseases.

Main areas of research include:

- ***Bioinformatics***. Computational methods are essential for data-driven biomedical research. We develop algorithms and software for large-scale data analysis, and we pursue clinical collaborations to establish medical impact.
- ***Single-cell biology***. Epigenetic cell states contribute broadly to the regulation of human organs. As part of the Human Cell Atlas, we use single-cell and spatial sequencing to dissect their role in tissue homeostasis and pathogenesis.
- ***Machine learning***. Huge datasets pose new analytical challenges. As part of the European Laboratory for Learning and Intelligent Systems, we develop methods for interpretable deep learning and artificial intelligence in biomedicine.
- ***Biotechnology***. Groundbreaking discoveries are often enabled by new technology. We develop and apply innovative methods in the areas of single-cell sequencing, CRISPR screening, epigenome editing, and synthetic biology.
- ***Cell therapy***. CAR T cells have shown dramatic efficacy for blood cancers and spearhead a broader shift toward personalized cell-based therapies. We use high-throughput technology to design synthetic immune cells as therapeutics.

The Principal Investigator (https://scholar.google.com/citations?user=9qSsTcIAAAAJ)

Christoph Bock is a Principal Investigator at the CeMM Research Center for Molecular Medicine of the Austrian Academy of Sciences and Professor of [Bio]Medical Informatics at the Medical University of Vienna. He is also the scientific coordinator of the Biomedical Sequencing Facility at CeMM, member of the Human Cell Atlas Organizing Committee, fellow of the European Lab for Learning and Intelligent Systems (ELLIS), and co-founder of two Vienna-based start-up companies (Myllia, Neurolentech). He has received major research awards, including consecutive ERC Starting, Consolidator, and Advanced Grants (2016 to 2032), the Otto Hahn Medal of the Max Planck Society (2009), Overton Prize of the International Society for Computational Biology (2017), and the Erwin Schrödinger Prize of the Austrian Academy of Sciences (2022), and he has been included in the global list of “Highly Cited Researchers” by Clarivate Analytics (ISI Web of Science) each year since 2019.

About the Institute

CeMM is an international research institute of the Austrian Academy of Sciences and a founding member of EU-LIFE. The mission of CeMM, the Research Center for Molecular Medicine of the Austrian Academy of Sciences is to achieve maximum scientific innovation in molecular medicine to improve healthcare. At CeMM, an international and creative team of scientists and medical doctors pursues free-minded basic life science research in a large and vibrant hospital environment of outstanding medical tradition and practice. At CeMM, an international and creative team of scientists and medical doctors pursues free-minded basic life science research in a large and vibrant hospital environment of outstanding medical tradition and practice. CeMM's research is based on post-genomic technologies and focuses on societally important diseases, such as immune disorders and infections, cancer, aging and metabolic disorders. CeMM operates in a unique mode of super-cooperation, connecting biology with medicine, experiments with computation, discovery with translation, and science with society and the arts. CeMM discovers and develops technologies to explore human biology with the purpose of defeating disease at its roots. Because Science is our Medicine! CeMM trains a modern blend of biomedical scientists and is located at the campus of the General Hospital and the Medical University of Vienna. CeMM is a proud recipient of the HR Excellence in Research Award (HRS4R). This award indicates that CeMM takes care of the well-being of its employees, that the recruitment process is open, fair, and transparent, and that CeMM offers professional appraisals and career development procedures. More than 150 people from 49 nationalities are working at CeMM. The institute promotes equal opportunity and harbors a mix of different talents, backgrounds, competences, and interests. www.cemm.at

We offer

- Work within an experienced, interdisciplinary, and international team at one of Austria's leading research institutes
- Ample opportunities to contribute and gain experience in a key area of biomedical research and precision medicine
- An inspiring workplace with an international setting, strong team spirit, and an excellent work climate
- A wide range of social, cultural, and sports activities organized by the institute
- Excellent employee benefits including full insurance coverage (health, accident, retirement), health care services, subsidized cafeteria
- Monthly gross salary of EUR 1.379,60 for 20 hours/ week (following the recommendations of FWF)
- Support for relocating to Vienna is provided (relocation reimbursement, visa support, etc.)

Please apply online(https://cemm.onlyfy.jobs/job/e6cuoxft) with cover letter, CV, academic transcripts, proof of master's enrollment, and contact details of two referees. Applications will be reviewed on a rolling basis. Any application received by 6 January 2027 will be considered. Anticipated start date: flexible (please indicate the preferred timeline in the cover letter).

Additional information

City	**Vienna**
Position type	**Part-time employee**

Start of work	01.03.2027

Responsible

Memo Mokhles

Apply now