Large-scale functional epigenomics and single-cell sequencing in cancer & immunity (ERC-funded postdoc)

On a project funded by the European Research Council (ERC) we are recruiting an ambitious postdoc who wants to pioneer new technologies for large-scale functional dissection and cellular reprogramming, and to apply them for cutting-edge research in epigenetics, cancer biology, or immune diseases (including animal models and primary patient material).

Our lab at the CeMM Research Center for Molecular Medicine of the Austrian Academy of Sciences in Vienna combines a strong focus on high-throughput biology (epigenomics, single-cell sequencing, drug screening, mass spectrometry, imaging, etc.) with a deep interest in bioinformatics. We are working closely with physicians at the Vienna General Hospital and the Medical University of Vienna to advance personalized/precision medicine.

The Project
Building upon a breakthrough technology for pooled CRISPR screening with single-cell transcriptome read-out (Datlinger et al. 2017 Nature Methods), we seek to decipher complex biological pathways and gene-regulatory networks in high throughput, overcoming the classical “one gene, one postdoc” paradigm. We are particularly interested in epigenetic regulation, cancer biology, and immune diseases – but also very open to other project ideas and interesting biological models (including in vivo studies and translational research). For example, we use single-cell technology to dissecting functional heterogeneity and drug resistance in cancer, and we are pursuing an engineering-inspired “build it to understand it” approach to cancer epigenetics, where we combine CRISPR epigenome editing and computationally designed drug combinations to rationally reprogram normal cells into cancer cells and vice versa.

The Candidate
We are looking for highly motivated and academically outstanding candidates who want to pursue a scientific career at the frontier of biomedical research. A strong candidate would have a wet-lab (e.g., functional genomics, chemical biology, human genetics, molecular medicine, etc.) or a computational background (bioinformatics, statistics, physics, engineering, etc.) and a strong interest in interdisciplinary collaboration. We are fully equipped and experienced with wet-lab and computational work, thus allowing candidates to get the best of both worlds and establish a unique skill set that will allow them to effectively combine wet-lab and bioinformatics in their future group.

The Lab (http://epigenomics.cemm.oeaw.ac.at/)
The Medical Epigenomics Lab at CeMM pursues an interdisciplinary and highly collaborative research program aimed at understanding the cancer epigenome and establishing its utility for precision medicine. The lab is internationally well-connected and active in several fields:

- Epigenomics. Many diseases show widespread deregulation of epigenetic cell states. As members of the International Human Epigenome Consortium, we use epigenome sequencing to dissect the epigenetic basis of cancer and immune disorders.
- Technology. Groundbreaking biomedical research is often driven by new technologies. Our lab is therefore heavily invested into technology development, including single-cell sequencing, CRISPR screens, and epigenome editing.
- Bioinformatics. New algorithms and advanced computational methods allow us to infer epigenetic cell states from large datasets, in order to reconstruct the epigenetic landscape of cellular differentiation and complex diseases.
- Diagnostics. New technologies (genome sequencing, mobile devices, etc.) provide important information for personalized medicine. We develop and validate assays and algorithms for translating the value of digital medicine into routine clinical practice.

The Principal Investigator (https://scholar.google.com/citations?user=9qSsTcIAAAAJ)
Christoph Bock is a biomedical researcher and principal investigator at CeMM. He is also a guest professor at the Medical University of Vienna’s Department for Laboratory Medicine, scientific coordinator of the Biomedical Sequencing Facility at CeMM, and an adjunct group leader for bioinformatics at the Max Planck Institute for Informatics. Christoph Bock obtained his PhD summa cum laude from Saarland University and the Max Planck Institute for Informatics in 2008, followed by three years of postdoctoral research at the Broad Institute of MIT and Harvard, where he contributed to the NIH Roadmap Epigenomics project. He has been a principal investigator of BLUEPRINT (in the International Human Epigenome Consortium), and he co-founded Genom Austria, a citizen science project that is the Austrian partner in the International Network of Personal Genome Projects. He has received several major research awards, including the Max Planck Society’s Otto Hahn Medal (2009), a New Frontier Group grant by the Austrian Academy of Sciences (2015–2020), an ERC Starting Grant (2016–2021), and the Overton Prize of the International Society of Computational Biology (2017).

The Institute (http://www.cemm.at/)
CeMM is an international research institute of the Austrian Academy of Sciences and a founding member of EU-LIFE. It has an outstanding track record of top-notch science (last five years: >10 papers in Nature/Cell/Science/NEJM, >25 papers in Nature/Cell sister journals) and medical translation. With just over a hundred researchers, CeMM provides a truly collaborative and personal environment, while maintaining critical mass and all relevant technologies. Research at CeMM focuses on cancer, inflammation, and immune disorders. CeMM is located at the center of one of the largest medical campuses in Europe, within walking distance of Vienna’s historical city center. A study by “The Scientist” placed CeMM among the top-5 best places to work in academia world-wide (http://the-scientist.com/2012/08/01/best-places-to-work-academia-2012). Vienna is frequently ranked the world’s best city to live. It is a United Nations city with a large English-speaking community. The official language at CeMM is English, and more than 40 different nationalities are represented at the institute.

Please apply online (https://goo.gl/oKlUrG) with cover letter, CV, academic transcripts, and contact details of three referees. Applications will be reviewed on a rolling basis. Any application received by 15 June 2017 will be considered. Start dates are flexible.