The group of **Prof. Dr. med. Kaan Boztug** at the Clinic of Pediatric Immunology and Rheumatology (Centre of Pediatric, University Hospital Bonn) offers a

Postdoctoral position in Bioinformatics/Computational Biology (m/f/d)

(full-time position 100 %) for inatially 7 years

Join a Leading Research Program in Childhood Immune Dysregulation

The newly established Clinic for Pediatric Immunology and Rheumatology at the University Hospital of Bonn, led by the Director, Prof. Kaan Boztug, is seeking a highly motivated and talented Postdoctoral Fellow in Bioinformatics/Computational Biology to join an interdisciplinary team investigating the genetic and molecular mechanisms of inborn errors of immunity (IEI), autoimmunity, and autoinflammation.

Prof. Boztug's research program integrates fundamental discoveries in immune dysregulation with translational medicine, aiming to uncover novel disease mechanism and develop targeted therapeutic approaches. Recent high-impact publications have uncovered monogenic causes of immune-mediated diseases, including Wang L et al., *Nature Genetics* 2021; Salzer E et al., *Sci Immunol* 2020; Block J et al., *NEJM* 2023; or Ransmayr B et al. *Sci Immunol* 2024.

Our group also employs cutting-edge computational and systems biology approaches to support the diagnosis of IEIs and better understand cancer syndromes. These integrative analyses are central to translating genomic data into clinical insights (e.g., Haimel et al., *J Allergy Clin Immunol.* 2021; Guthrie J et al., *Sci Adv* 2023, Haladik et al., *Cell Reports Medicine* 2025).

The position will focus on the computational analysis of multi-omics datasets (genomics, transctiptomics, proteomics, metabolomics and single-cell and spatial omics) to uncover disease pathways and therapeutic targets in pediatric patients. The candidate will work in close collaboration with wet-lab scientists and clinicians, contributing to the functional interpretation of genetic variants and the modelling of immunopathological pathways. The position will be closely integrated with other computational biologists at the ImmunoSensation^2 Cluster of Excellence and other research groups.

The project will integrates:

- Analyis of multi-omics data (WES/WGS, scRNA-seq, -omics)
- Variant interpretation and priorization in monogenic immune disorders
- Pathway modeling and network-based approaches
- Systems immunology integration of molecular and clinical data
- Collaborative projects involving patient-derived samples and model organisms

What we offer:

- A dynamic, international and interdisciplinary working environment with a strong focus on immunology
- Close collaboration with leading scientists in the field of pediatric immunology and rare immune disorders
- Opportunities for professional development and career advancement within the research community
- Integration into the Excellence Cluster of ImmunoSensation^2 with an interdisciplinary network of excellent scientists
- Excellent core facilities to support your research across the campus
- Salary according to the German salary scale TV-L 13 (100% including additional benefits)
- **Flexible for families:** Option for a place in the company daycare center and offers for parents returning from parental leave
- **Provision for later:** Company pension scheme (VBL supplementary pension in the public sector)
- **Smart commuting:** the possibility of an interest-free loan for the purchase of an e-bike
- **Tailored education:** Sponsored further education and training (internal seminar program and individual training/coaching)
- **Healthy at work:** Numerous health promotion offers (BGM)

Requirements:

- A PhD in Bioinformatics, Computational Biology, Genomics, or a related discipline
- Proven experience in multi-omics data analysis, variant interpretation, and/or statistical genomics
- Strong experience in the analysis of high-throughput sequencing (NGS) data, including whole-genome, whole-exome, and/or targeted sequencing
- Solid understanding and hands-on experience with single-cell sequencing data (e.g., scRNA-seq, scATAC-seq, CITE-seq) and associated analysis pipelines
- Experince in the usage of R (including package development) and command line-based analysis tools (e.g Python)
- Experience with common bioinformatics tools and workflows (e.g., STAR, Cell Ranger, Seurat, DESeq2, GATK, Samtools, etc.)
- Knowledge with public sequence databases, error correction algorithms
- Scientific background in immunology, molecular and cell biology is an advantage
- Strong English skills with excellent writing and presentation abilities
- Enthusiastic and collaborative work attitude

Applicants should send their application in a single pdf file (max. 5 MB) including a motivation letter, CV, scanned academic degrees, list of publications and the contact details of two references stating the job advertisement **number ST-32021 until 26.11.2025** to

Prof. Dr. med. Kaan Boztug

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