

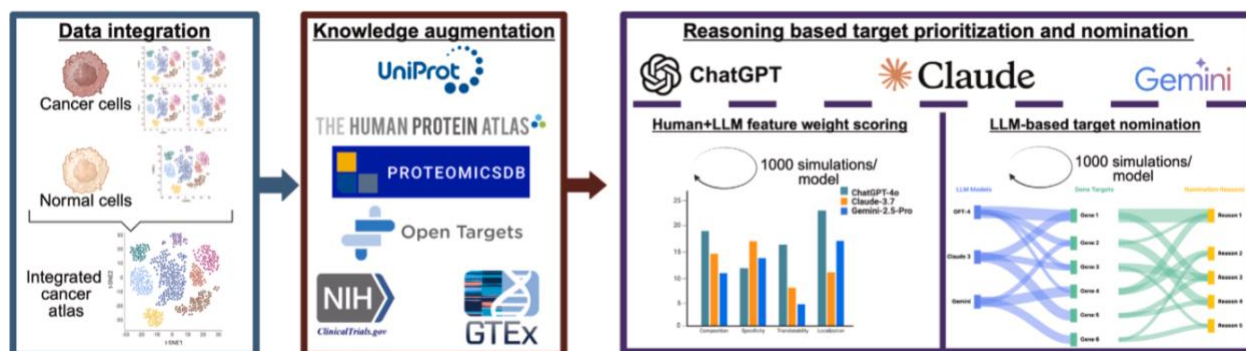


Hayat Lab is seeking a:

Bachelor / Master thesis / HiWi (m/f/d)

Topic: Multi-Agentic framework for novel target discovery

Participate in real-world AI-driven biomedical research: We are seeking an outstanding **Bachelor/Master thesis student or HiWi** for a fully-funded international (Aachen - New York) collaborative project to apply and further develop our multi-agentic AI framework for evidence-based hypothesis generation, and novel drug target discovery using **single-cell and spatial omics data**. The project builds on our previous work (Baker, Frommer *et al.*, Cell 2026) with the goal of building explainable AI systems that can integrate biological knowledge, multimodal data, and scientific literature to generate novel and testable biomedical hypotheses.



Agentic AI-driven novel drug target discovery (Baker, Frommer *et al.*, Cell 2026)

Research Focus: You will contribute to the development of a new Multi-Agentic AI framework that combines: Single-cell and spatial transcriptomics, large language models and multimodal foundation models for hypothesis generation and target discovery. The project aims to move beyond black-box prediction towards **explainable, mechanism-aware AI** capable of supporting scientific reasoning and experimental design.

Potential topics:

- Application of a multi-agent AI systems for biomedical hypothesis generation and study design
- Improving scoring and explainability of AI-generated hypotheses
- Integrate multimodal biological data with mechanistic knowledge and foundation models
- Develop evaluation frameworks and open benchmarks for AI-assisted scientific target discovery

Desired Skills: Must have programming skills (Python). Experience with machine learning and deep learning (generative AI, causal modelling, or multimodal learning) and/or with single-cell, spatial omics, systems biology, or biomedical data analysis are advantageous. **We Offer:** A highly interdisciplinary and collaborative research environment, Access to state-of-the-art single-cell and spatial omics datasets, Opportunities to work at the forefront of AI for scientific discovery, international collaborations and Competitive salary and benefits according to institutional guidelines

Apply: Please submit a CV, brief motivation letter, and relevant supporting documents to shayat@ukaachen.de