Zegeye Hailu Jebessa, DVM, MSc, PhD

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GLOBAL BIOMARKER SCIENTIST | PRECISION MEDICINE | CARDIOVASCULAR DISEASE

Translational scientist with 10+ years of experience driving **biomarker strategy development** in cardiovascular disease, integrating molecular insights with clinically relevant endpoints. Expertise in **target engagement, pharmacodynamic biomarkers, and patient stratification**, with a strong track record of translating preclinical discoveries into **decision-enabling data supporting clinical development**. Proven leader in cross-functional environments spanning discovery, translational science, and biomarker operations.

CORE EXPERTISE

- **Cardiovascular Disease Biology:** Cardiometabolic signaling, heart failure, molecular mechanisms
- **Translational Science:** Mechanism-of-action (MoA), discovery-to-clinic alignment, IND-enabling research
- **Biomarker Strategy & Precision Medicine:** Target engagement, pharmacodynamics (PD, translational biomarker frameworks
- **Assay Development:** Cell-based functional assays, biomarker validation, phenotypic screening
- **Genome Engineering & Gene Delivery:** CRISPR/Cas9, AAV, lentiviral and adenoviral systems
- **Data Integration:** Multi-modal datasets (molecular, imaging, sequencing) for translational insights
- **Collaboration & Leadership:** Cross-functional team leadership, external partnerships, scientific communication

PROFESSIONAL EXPERIENCE

University of Colorado Anschutz Medical Campus **Nov 2023 -**
Principal Scientist . *Aurora, CO, USA*

- Lead translational research in cardiometabolic disease linking **molecular pathways to functional cellular phenotypes**
- Developed and implemented **quantitative biomarker assays** (cell-based and molecular) to evaluate disease-relevant phenoty pes and therapeutic response
- Apply **CRISPR/Cas9 systems** to interrogate gene function and therapeutic targets
- Designed **translational biomarker frameworks** linking molecular pathways to functional outcomes, enabling **decision-making for therapeutic prioritization**
- Identify and validate **biomarkers of target engagement and disease modulation**
- Apply CRISPR/Cas9 & gene delivery systems to interrogate disease mechanisms &support biomarker-driven hypothesis testing

University Hospital Heidelberg **Jan 2009 - Aug 2023**
Team Leader, Molecular Cardiology *Heidelberg, DE*

- Discovered the **ABHD5–HDAC4 cardioprotective signaling axis** (Nature Metabolism), informing **biomarker hypotheses and therapeutic strategies**
- Developed **functional cellular models and biomarker assays** to evaluate pharmacological response and disease progression
- Integrated **genetic perturbation with phenotypic readouts** to define MoA
- Translated molecular findings into **therapeutic hypotheses and strategies**
- Led multidisciplinary teams and mentored junior scientists

EDUCATION

PhD, Molecular Biology — Heidelberg University (Magna Cum Laude)

MSc, Molecular Biology — KU Leuven (Distinction)

DVM, Veterinary Medicine — Addis Ababa University(Distinction)

TECHNICAL TOOLKITS

CRISPR/Cas9 • Cell Culture (primary & engineered) • qPCR/ddPCR • NGS • AAV/Lentivirus/Adenovirus • Flow cytometry • High-content imaging • ELISA • Western blot • Biomarker assay development
GraphPad Prism • Python (NumPy, pandas) • ELN • SOPs

SELECTED IMPACT

- Published in high-impact journals (*Nature Metabolism / Nature Medicine*), demonstrating **mechanism-to-phenotype translation in cardiovascular disease**
- Established **biomarker-driven frameworks** linking molecular targets to functional and translational outcomes
- Recipient of **American Heart Association International Award** for contributions to cardiovascular research