



Ph.D. and Postdoctoral Positions on Surveillance of mRNA Translation in Health and Disease

July 2026: Ph.D. and Postdoc positions are available in the **Joazeiro laboratory** at the **Center for Molecular Biology (ZMBH) in Heidelberg, Germany** (www.joazeirolab.com).

Errors during protein synthesis pose a constant threat to proteome integrity. Among the most consequential are ribosome-stalling events, which generate incomplete proteins that can be toxic. Our lab discovered Ribosome-associated Quality Control (RQC), a fundamental process that promotes the elimination of these aberrant proteins. Since then, we have uncovered molecular mechanisms of RQC, revealed its deep evolutionary conservation, and established that defects in RQC cause neurodegeneration in mice and humans. These discoveries have been published in leading journals including *Nature*, *Cell*, and *Mol Cell*. Building on this foundation, we currently investigate translational surveillance more broadly to understand how cells maintain proteostasis in health and disease, including cancer.

Many unsolved problems await you

Ribosome stalling is no longer viewed as a niche problem in translation. It is increasingly recognized as a central hub connecting proteostasis, stress signaling, and disease. Unexpected discoveries—including the realization that classical chemotherapeutic agents (etoposide and 5-FU), together with diverse cellular stresses and human disease mutations, converge on ribosome stalling—have transformed translational surveillance into a rapidly evolving area of biomedical research.

As a lab member, you could lead research exploring:

- Molecular mechanisms by which cells detect ribosome stalling and activate downstream pathways
- Coordination between RQC and stress signaling
- Identification of genetic suppressors of neurodegeneration caused by defective RQC
- Mechanisms underlying dependence on translational surveillance in cancer
- Therapeutic targeting of translational surveillance

A uniquely interdisciplinary research setting

Our research combines molecular genetics, biochemistry, cell biology, and disease models. We collaborate closely with leading experts in structural biology (cryo-EM/-TEM) and proteomics. Experimental systems span bacteria, mammalian cells, iPSC-derived neurons, and mouse models. Together, they provide exceptional opportunities to pursue critical biological questions across multiple levels of biological organization, and at the interface of basic biology and human disease.

An outstanding scientific environment

Heidelberg is one of Europe's premier centers for molecular life sciences. Lab members benefit from a collaborative and international research environment and access to exceptional core facilities.

We are looking for creative and highly motivated scientists who enjoy tackling fundamental biological problems and discovering new biological principles. These positions are supported by an ERC Advanced Grant, enabling ambitious, long-term, curiosity-driven research. Ideal

candidates will possess a strong background in molecular genetics, biochemistry, cancer biology, or related fields; postdoctoral candidates should also have a demonstrated track record of publications.

