Karagöz and Martinez Labs

Joint Post-Doc position

in the Karagöz and Martinez Labs as a VIP^2 Fellow

About the Karagöz and Martinez labs

RNA processing is crucial for cells to adapt to stressful conditions. An elegant example of stress-induced RNA processing takes place during the unfolded protein response (UPR), an essential pathway that is activated in cells that synthesize large amounts of proteins in the endoplasmic reticulum (ER). The most conserved UPR signaling branch is driven by the ER-tethered RNAse, **IRE1**, which cleaves ER-bound mRNAs during stress. In the Karagöz and Martinez Labs, we share a fascination for the unconventional, cytoplasmic splicing of *XBP1*-mRNA initiated by IRE1 and completed by the tRNA ligase complex (**tRNA-LC**).

About the position

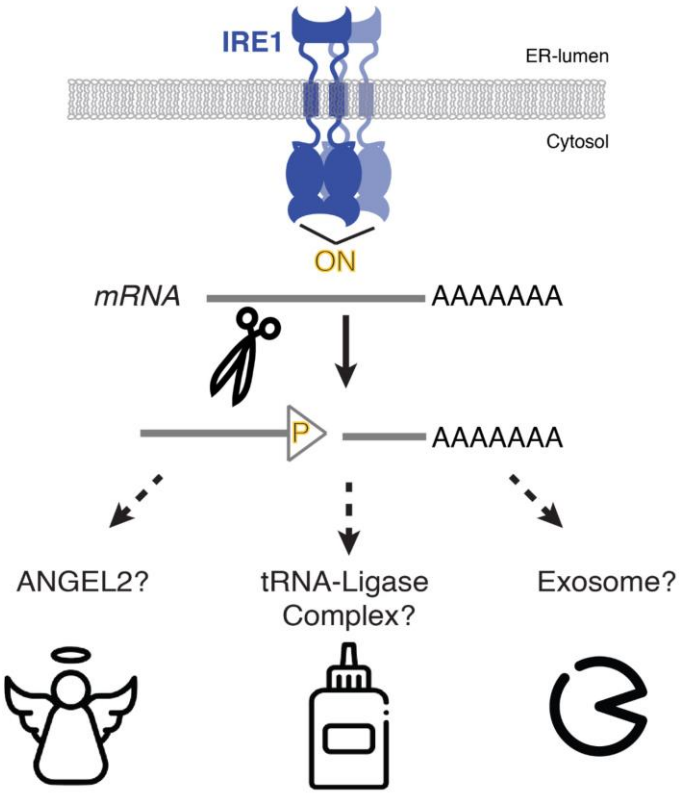
At the Max Perutz Labs, and within the Vienna BioCenter, the **Karagöz** and **Martinez Labs** are joining forces to study how RNA processing enzymes dictate RNA fate during cellular stress.

The position is part of the VIP^2 Post-Doc Fellowship Program at the Vienna BioCenter.

VIP^2 aims to attract creative and committed Post-Docs with passion for science by offering great career support and freedom to pursue innovative and groundbreaking projects.

Key results

We have recently revealed the co-translational cleavage of the Xbp1-mRNA and other mRNAs by the endonuclease IRE1 (Acosta-Alvear D., Karagöz GE. Et al, eLife 2018). IRE1 cleaves mRNAs generating 2', 3'-cyclic phosphates. While IRE1-cleaved XBP1-mRNA is rejoined by the tRNA-LC, the fate of most IRE1-cleaved mRNAs remains largely unknown. We have discovered **ANGEL2**, the first human enzyme able to hydrolyze RNA2', 3'-cyclic phosphates, and we showed that overexpression of ANGEL2 is detrimental for the ligation of Xbp1-mRNA exons by the tRNA-LC (Pinto P. et al, Science 2020). Yet, how ANGEL2 action impacts other IRE1-targeted mRNAs remains unexplored.



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A joint venture of universität wien and MEDIZINISCHE UNIVERSITÄT WIEN

Part of Vienna BioCenter

Project and Approach

These results posit several questions for an enthusiastic VIP^2 Post-Doc eager to dissect ER-linked RNA processing starting at the molecular and atomic level. What is the fate of IRE1-cleaved mRNAs? How is the interplay between ANGEL2 and other enzymes acting at RNA 3' ends such as the exosome? How are these processes regulated during ER stress and oxidative stress? The project will involve complementary approaches to tackle these fundamental pathways in cells and in a test tube. Combining high throughput methods with biochemistry, the VIP^2 Post-Doc will dissect molecular mechanisms from cellular complexity to atomic resolution.

Candidates

Successful candidates should

- Hold a PhD degree in cell biology, biochemistry or structural biology
- For the eligibility criteria of the VIP^2 program, please visit: https://training.vbc.ac.at/vip2-post-doc-program

Application and contact

- Please send your **CV, motivation letter** and **contacts for two references** to: elif.karagoez@univie.ac.at or javier.martinez@meduniwien.ac.at
- Please contact us by May 15th, 2021.
- The VIP^2 application deadline is June 15th, 2021 with a start date of January 1st, 2022.

About the Max Perutz Labs

The Max Perutz Labs (**www.maxperutzlabs.ac.at**) are a research institute established by the University of Vienna and the Medical University of Vienna to provide an environment for excellent, internationally recognized research and education in the field of Molecular Biology. Dedicated to a mechanistic understanding of fundamental biomedical processes, scientists at the Max Perutz Labs aim to link breakthroughs in basic research to advances in human health. The Max Perutz Labs are located at the Vienna BioCenter, one of Europe's hotspots for Life Sciences, and host around 50 research groups, involving more than 450 scientists and staff from 40 nations.