

# Summer Research in Germany

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(German town en route to Munich)

This last summer I had the honor of being selected for the CU/Biofrontiers Institute Undergraduate research program hosted by the University of Regensburg. I was given the opportunity to work in a research lab at the university while also having chances to visit amazing places throughout Europe. I'll talk about my time in the lab and my other adventures here. Note: I didn't take many pictures in the lab space, so even though I spent the vast majority of my time in the lab, most of the pictures will be from other amazing experiences I had.

## Regensburg:



During my time abroad I was based in the town of Regensburg. It's about an hour and a half north of Munich, built on the banks of the Danube river. Its history dates back to the first century C.E. meaning there is no shortage of amazing things to learn about it. For someone interested in Bavarian history, the area could have easily been explored for the entirety of the 11 week experience without getting bored.

The city is of course also home to the University of Regensburg where I spent a majority of my time awake. The student population made for a very diverse community in the city.

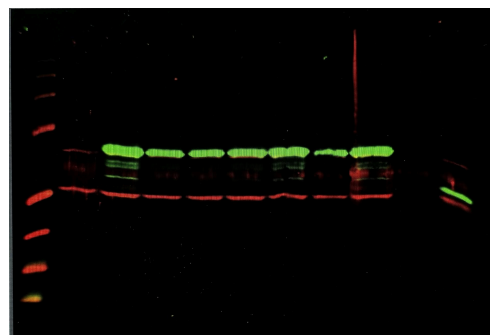
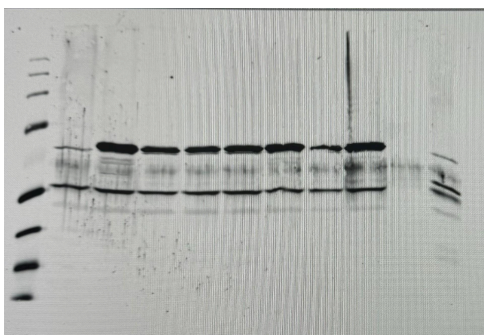
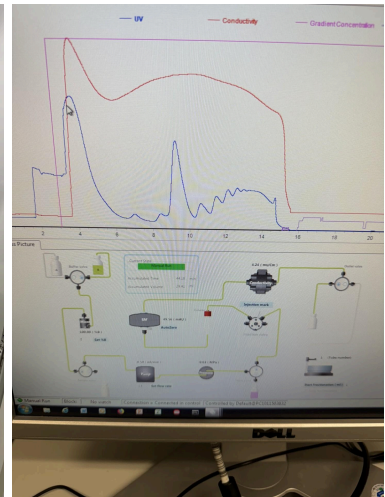
Compared to many of the European cities I visited this summer, Regensburg felt the most similar to Boulder. The people are friendly and always very helpful. The city's nightlife makes enjoying time out possible at any time. It would be a great place to have as a home base for any traveler in Europe.

## The Research:



I was given the opportunity to work on a project in the lab of Wolfgang Seufert in the Genetik department at Uni Regensburg. I was advised by Sophia Pinz, a post doc in the lab. Our project was based around observing sections of the cell cycle in yeast. The team specifically hoped to characterize what happens when eukaryotic initiation factor 2 is removed from the equation. In order to do that research, we of course needed to have a method for inhibiting eIF2 production in the yeast. My job in the lab was mainly to perform a cloning project which created a yeast strain where the gene for eIF2 was hidden behind a human estrogen based regulator. Because estrogen is not present in yeast naturally, it is non-toxic, and has no off target effects on metabolism or cell function. I finished my time there just as I successfully finished the cloning project!

I was lucky to be given chances to try a bunch of techniques which were new to me. These included using an ultracentrifuge, using an ÄKTA FPLC machine, performing polysome profiling, tetrad dissections, Western blot, and yeast work in general. I believe this experience has helped me to become a better student and a better scientist as I am working my way further into the field of biochemical research.





## Excursions:

### Munich:



Being so close to Germany's third largest city made it easy to get that "big European city" experience. Munich is a city full of life and excitement. I only spent a few total days there and I know I missed so much, but even just wandering around and seeing the architecture was amazing. In the square imaged here there was some sort of festival or show happening each time I visited. It was also in Munich that I had my first authentic Bavarian Bier and pretzel. And wouldn't you believe it, there were some churches to see too!

Munich Town Hall



Beer and pretzel at Biergarten in Munich



Scene inside Munich LEGO store



Ceiling inside Heilig Geist



## Italy:



Torre Annunziata at night



Mount Vesuvius from inside Pompeii



Mediterranean black sand beach at dusk



Looking into Crater of Mount Vesuvius

Fairly early in our trip, we were able to take a four day weekend to visit some amazing sites in Italy. We flew into Rome but spent most of our time in the Bay of Naples touring historic sites like Pompeii and Herculaneum!



## Budapest:



An example of amazing Hungarian architecture



Hungarian parliament building at night



Church on Castle Hill in Buda



Street in Pest



Tasty Hungarian veal stew

Budapest is one of the most beautiful cities I've ever seen. It's incredibly unique with its rich history melding almost seamlessly with the modern hustle and bustle one would expect from a major European city. The people there are super nice and inviting. There are a large number of free or very cheap historical sites to visit in the city which give visitors a better understanding of its story. The food is also something special. The stew shown above was maybe the most flavorful thing I've ever tasted, and it was only slightly ahead of the other dishes I had there. I also have to mention the delicious funnel cakes which I unfortunately never took a picture of despite having 5 in the three days I was there. In general, Budapest was the most mind opening place I visited. Being the most "different" from what I am used to, I felt it gave me the best view into parts of the world that were before unknown to me.



## Austria:



The foothills of Salzburg



Cow pasture in the Austrian Alps



Alpine trail in the Austrian Alps (top three best hikes of my life)



Telfes im Stubai underneath Serles (Waldrastspitze)

During my last week in Europe, my lab advisor had already planned a vacation (to Colorado funnily enough). As such, we finished up our lab work the previous week. This left me with a little bit of time to spend on my own exploring. I decided the thing I wanted to do most was to go on a good hike. From the time I first knew I was going to be in Europe, my grandma had told me how much she recommended visiting Innsbruck and seeing the Alps. Combining those two things, I made a plan to spend a few days in the Austrian Alps. It ended up being one of the most amazing places I've ever been. With the similar jagged gray rock features to the Rockies and the lush greenery in the lower altitudes, it was the perfect place to find a bit of peace after a non-stop summer.