

Abschlussbericht über Ihre Stipendienzeit

Nachname, Vorname*	██████████
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Stipendienprogramm	RISE weltweit - Forschungspraktika für deutsche Bachelor-Studierende der Natur- und Ingenieurwissenschaften, 2025
Förderzeitraum	06/2025 – 08/2025
Gastland/-ort	Oxford, UK
Gastinstitution	University of Oxford

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Hinweise:

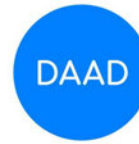
Der Abschlussbericht ist **spätestens zwei Monate nach Förderende** einzureichen. Er soll Hinweise auf die Situation des Studienfaches im Gastland und die Arbeitssituation an der Hochschule/dem Gastlabor/der Praktikumsstelle enthalten. Insbesondere sollten Sie über die Ergebnisse des Aufenthaltes im Hinblick auf Erfolge und ggf. Hindernisse berichten. Besuche von Fachtagungen und Konferenzen sind ebenfalls von Interesse sowie Anregungen, die der Verbesserung der Arbeit des DAAD dienen.

Kurzstipendiatinnen und -stipendiaten (bis zu einer Förderdauer von 6 Monaten) sollten ergänzend auf folgende praktische Aspekte des Aufenthalts eingehen: Vorbereitung des Aufenthalts, Kontaktaufnahme zur Gastinstitution, Visum/Aufenthaltsgenehmigung, Zahlungsverkehr, Zimmersuche und Miethöhe, Freizeitgestaltung, nützliche Adressen im Gastland. Mit Annahme des Stipendiums (lt. Ziffer 10 der „Allgemeinen Bedingungen für Stipendiatinnen und Stipendiaten des DAAD im Ausland“) haben Sie sich bereit erklärt, dass dieser Bericht ohne Nennung Ihres Namens und Ihrer Kontaktdaten an künftige Stipendiatinnen und Stipendiaten des DAAD zur Information weitergegeben werden kann. Wenn Sie Ihren Namen und Ihre E-Mail-Adresse jedoch gerne mitteilen möchten, um eine eventuelle Kontaktaufnahme zu ermöglichen, tragen Sie Ihre Kontaktdaten bitte oben ein. Aus Gründen des Datenschutzes bitten wir Sie, in Ihrem Abschlussbericht keine personenbezogenen Daten Dritter zu nennen. Dazu gehören alle Informationen, die sich auf eine identifizierte oder identifizierbare natürliche Person beziehen, z.B. Namen, Kontaktdaten, Position im Institut, etc.

Weitere Einzelheiten zur Berichtspflicht sind ggf. in den "Besonderen Bedingungen" enthalten.

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Verlauf des Vorhabens (Textfeld erweitert sich nach Eingabe automatisch; Formatierungen sind jedoch nicht möglich. Für eine bessere Strukturierung können Sie dieses Formular als Deckblatt nutzen und den Bericht als Anlage beifügen.)



I was accepted to a laboratory on cancer immunotherapy at the University of Oxford, UK. I applied to this internship via the DAAD program, which grants a monetary scholarship to the successful applicant. Before the acceptance, the supervisor of this program held informal interviews, which I found to be incredibly helpful, as it allowed me to ask questions and understand better what would be expected of me as an intern.

After this, I agreed on start/end dates with my supervisor and started looking for accommodation under the DAAD budget. My supervisor was of great help for looking for accommodation, as he told me to write to specific university colleges, where they had empty rooms during summer. These colleges offered slightly cheaper accommodation than other places, but required an official internship letter, which was provided by my supervisor. He also did all of the department-related paperwork. As a Swiss citizen, I only needed to apply for the ETA visa to enter UK, which allows me to stay up to 6 months for tourism, business, study, or family visits. The application for this visa was very easy, as it was online and accepted within 2 weeks.

As an expensive town, DAAD scholarship was useful to cover the rent, but I needed external help to cover the food. The rent was 700 pounds per month, and the food was more expensive than in Germany, even though I cooked my own food and tried to only buy the necessary/cheapest ingredients. Oxford had many activities that were cheaper for Oxford University Card holders (which was provided by my supervisor), which was amazing.

The Organization:

I chose to apply to the University of Oxford not only because it is one of the most prestigious research institutions in the world, but because of the research question that the laboratory was working on. Being associated with this university presents a huge advantage in future applications, e.g. masters/PhD degrees, as well as good networking environment to make meaningful connections with the researchers in my field of interest. Working in this research center, meant working in a cutting-edge lab, and having access to the libraries and advanced equipment.

But most importantly, I chose to apply to Oxford, specifically this lab, due to the innovative technology they were developing for cancer. This lab focused on creating new technologies and proteins, rather than discovering a natural phenomenon. Immunotherapy for cancer is an area I see myself pursuing in the future. Being exposed to the most novel advances and technologies in this field is an invaluable addition to my path as researcher. By being under the supervision of such high-level scientists, I knew that I would be pushed to take the initiative and develop independent research skills, as well as spark fresh ideas and innovative approaches.

University of Oxford has a very large campus, with its buildings spread across the city of Oxford. It has multiple departments on many different areas. I was working in Nuffield Department of Medicine (NDM), at the CAMS Oxford Institute (COI) in the lab of Ricardo Fernandes. It was in the Old Road Campus, near two important hospitals in Oxford. This lab was specialized in protein therapeutics for modulating immune system (for both cancer and autoimmune diseases), and it was subdivided in two groups: one focused on developing bispecific proteins for TCR modulation, while the other group focused on TCR kinetics and pMHC association. My supervisor was Martin Fellermeier, a post-doctorate in the lab that had projects in both groups.

The Internship Position:

Upon arriving, I was asked to go over the usual safety trainings. I was invited to the lab meetings and was given a set of publications I had to read and study from, to create a strong background. For the first part of the internship, I learned how to carefully read and understand publications of high-level journals, as well as think critically on the theory behind them. My supervisor was of great help, as he personally answered content-related questions, and pushed me to further understand the topic.

For the internship, I was presented a range of projects that I could pick up from and further develop during the summer. My supervisor was very open/supportive to any decision I would take, and I was grateful to

be granted such freedom. I ended up choosing a project on protein therapeutics, focused on developing a bispecific that could potentially re-activate TCRs for cancer recognition and extermination. This project was new for the lab, it was an idea that my supervisor had wanted to try. For the whole summer, I was responsible for that project, a task that proved to be very rewarding. I divided my time between gaining and advancing in laboratory methods and understanding theoretical background.

In the laboratory, it took a while to feel comfortable and confident enough with the equipment to start working independently. The first weeks were spent on techniques that I had already done previously during my prior internship or in laboratory courses at Constructor. My supervisor was with me in every step of the project, explaining both the theoretical and practical aspects of each experiment. I was asked to keep a lab-book, and to register the data of all my experiments. I later understood that writing down every step is crucial for downstream troubleshooting.

Working on a project meant that as I advanced and collected data I would go over multiple techniques. I first started with protein production, which entailed bacterial cloning, eukaryotic protein synthesis and purification. This also required me to understand protein kinetics (affinity in antibodies), fusion proteins and how recombinant proteins work. Then, I moved to tissue culture lab, where I was responsible for maintaining and creating my cell lines (Jurkat T cells, HEK293s and artificial Antigen-presenting cells aAPCs). I familiarized myself with P2 lab work, cellular transduction and T cell activation assays (including co-cultures and measuring expression in flow cytometry). And finally, the last “step” of my project was to work on protein affinity via surface plasmon resonance.

My work was far from repetitive. I was constantly exposed to a new technique, which I tried to take up and collect data from as effectively as possible to be able to go to the next step. There was a lot of troubleshooting involved, which forced me to understand that experiments do not always work. I was taught how optimization of an assay is crucial to be able to avoid artifacts and trust the data that is being produced.

Difficulties and Problems:

Around the fourth week, an unforeseen circumstance happened: my supervisor had to leave urgently for a period of four weeks, something he did not plan but could not bypass (it was very important). I was very glad that by that time; I had experience in the laboratory and was comfortable enough around my colleagues to rely on them or ask any question. In my advisor’s absence, all of the lab members helped and supervised me.

The lab I was working on is one of the most beautiful environments I’ve ever had the opportunity to be in. Even though I was the only bachelor student, and all the other members were post-doctorates or PhD students, I felt included in the lunch breaks and the little plans outside work hours. I was invited to a “Labberol” (Lab Aperol) in the park, a Barbeque, a music festival and even punting (a well-known summer activity in Oxford). The laboratory (named RAF lab) was very international, with members from China, Portugal, Chile Germany, etc. They all had a very strong bond, and I was grateful to be part of them, even for just a little while. Home-baked goods and warm conversations were part of a normal RAF lab weekday, and I was happy to have shared laughs and tears with them (even between incubation times). Even though I was in one of the most competitive institutions in the world, I did not feel pressured in any kind. If I ever over-worked, it was because of the pressure I put myself in.

Work Environment:

When my supervisor had to leave, three laboratory members offered to take turns to supervise and help me. I was very grateful for this. For each experiment, I was under the guidance of the person with the most experience in lab for that specific area. This was one of the unexpected benefits of having different supervisors. I had the opportunity to learn the technical steps and tricks that other members (who were specialized on other experiments) might have overlooked.

On the other hand, every supervisor planned and organized the experiments differently. Despite doing the same experiment, the protocols and calculations would vary greatly. Everyone had optimized and modified the original protocol to suit their specific project or optimal yields. This wide variation was very confusing and overwhelming at first, since I was not aware that such variation could be permitted in a laboratory protocol. This also made it difficult to be consistent in my experiments, which made it harder to

interpret results. On the other hand, it helped me understand the methods better, as I was able to see how altering a step could lead to different yields.

Even with the other lab members' help, my project and internship took a great turn, especially since my supervisor was the only person who completely understood my project. I went from following a plan, previously laid out by my supervisor, to taking full responsibility for my project. Not only did I have to understand the theoretical/practical aspect of each experiment but also make important decisions depending on the data I collected. Some of the assays I had to do required a lot of optimizations before being able to see any results. For co-culture assays to measure T cell activation, I optimized two different methods and had to learn how to interpret the results to understand which of the variables had to be changed. There were many variables to take into account: e.g. protein dose, receptor expression in cell line (and negative population), cell count, ratio between co-cultured cell lines and report method. The hardest task of all was to merge theoretical knowledge with the work I was doing in laboratory. It took me quite some time to understand the limits and disadvantages of each technique, and the important factors that really altered the final yield.

In the absence of my supervisor, I was supervised in lab, but only the first time I did a specific experiment. And even though all the lab members were supportive, I had to quickly learn how to manage the project to have significant results by the end of my stay. My supervisor was able to support me online at all times by answering questions and suggesting changes to the workflow of the project. He helped in any way that was possible.

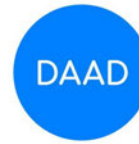
I was responsible for booking the equipment on time and discussing with different people the possible next steps of the project. I had personal meetings with the laboratory's PI to discuss my results and troubleshoot a set of complicated assays. In lab, I was expected to have memorized the location of the solvents/reactants and be able to replicate the experiment after having observed it once/twice. I wrote the protocol in advance, calculating the right concentrations and adjusting the parameters to have optimal results, as well as including positive and negative controls. This was a stressful period, as I had to juggle between understanding the theoretical and the practical aspects of the project. To analyze the data, I had to learn how to use the corresponding software, such as FlowJo, and carefully normalize the data. During work hours, I would go over my projects and ask questions to whoever was available, which also allowed me to create strong bonds with everyone. I really felt taken care of, and not only by my supervisor, but the whole laboratory. On the other hand, outside of lab I would explore the University's grounds, as I had access to all of the main buildings that students have access to. I would go to the Bodleian Libraries to analyze the data and keep up reading publications and researching on my project.

In parallel, I attended the weekly laboratory meetings, where they went over different projects. I tried to ask questions and think critically on the presented data. The laboratory also hosted journal clubs. Prior to these meetings, I had to read in advance the papers that were going to be discussed. These journal meetings were fascinating, as I had the opportunity to see how the group criticized and challenged the data presented in the paper of interest. This was a very formative experience where I was able to grasp better the scientific research career. There was a lot of networking involved in these sessions. As a leading group in the research area, RAF Lab recognized and talked about the authors of these papers, as well as discussed potential collaborations or inclusion of ideas into the lab protocols. I could really feel how competitive the environment between leading institutions was.

I learned more about how the research world was structured. I understood better concepts like grants and became more familiar with the hierarchy in research and academia. I currently do not know what I'll do after graduation, but this experience made me have a good impression on academia.

By the end of the summer, I was able to go over almost all the experiments I had planned for the project. My experiments proved to have some surprising results. These even gave me hope that the protein I synthesized might lead to significant scientific advances in the future. I was happy and proud of myself for successfully contributing to the research group. Specially since all of its members are my role models to this day. I am confident to say that they were proud and happy of my achievements as well.

To culminate my project, I was asked to give a professional presentation to the research group. I worked on the presentation slides, and my supervisor helped me go over possible discussion points. I meticulously chose the significant data and tried to find ways of presenting it so that it is understandable. The day of the



presentation, my supervisor booked a seminar room, where I presented my findings to the lab members. As I explained my project, different lab members asked questions, and I was able to openly discuss my results. As the presentation came to an end, I discussed with the lab's PI the possible routes that my project could take. That same evening, my supervisor brought a cake that he baked himself with my favorite ingredients, we celebrated my achievements and said goodbye.

Evaluation:

This internship made me learn and grow personally and professionally. Walking through University of Oxford's colleges and streets was as mesmerizing as holding conversations with the leading scientist in the research labs. I was given a beautiful example of how lovely and supportive a research group can be. Even though I worked under time and academic pressure, I deeply enjoyed being part of a laboratory of such level and feel it was a very rewarding experience. In the end, the scariest period was when my supervisor left, but his absence allowed me to learn how to independently manage a project that contributed to the research group.

The skills I gained in this internship are ones I will use daily in my research career. I learned how to produce and deal with data, as well as how to ask the right questions and how to answer them. I made important contacts that will be crucial for my career growth. And with my final presentation, learned how to present a data set to an experienced audience.

I do not know which career path I want to take, but I am confident that I am prepared for whatever the future holds. I discussed my future with the research group members, and they suggested that I should pursue a postgraduate degree and offered to help with the applications. I have always been interested in research and this experience made me realize that I could successfully have my own research project.