



Abschlussbericht über Ihre Stipendienzeit

Nachname, Vorname*	██████████
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Stipendienprogramm	RISE weltweit - Forschungspraktika für deutsche Bachelor-
Förderzeitraum	09/06/2025 – 29/08/2025
Gastland/-ort	Malaysia/Subang Jaya
Gastinstitution	Monash University Malaysia

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1 INTRODUCTION OF THE INTERNSHIP AND SCHOLARSHIP

As part of the RISE worldwide program of the DAAD (German Academic Exchange Service), I received funding for a twelve-week internship at Monash University Malaysia. In addition to financial support, a health, accident and personal liability insurance was arranged. The scholarship enabled me to gain practical experience in microbiology in the context of current research topics and questions. Specifically, I worked on isolating phages from wastewater and investigated their ability to lyse specific bacteria. Furthermore, I was able to expand my intercultural skills and familiarize myself with the complex workflows of daily laboratory routines. The organizational and financial support significantly facilitated my stay. I received intensive guidance and training in the laboratory from two PhD students. Overall, the internship was a valuable addition to my studies and greatly enriched my academic and personal development.

2 SITUATION OF THE ACADEMIC FIELD IN THE HOST COUNTRY

Monash University Malaysia is a branch campus of Monash University Australia and is its third largest campus. It ranked 37th in the QS World University Rankings 2025 and 58th in the Times Higher Education World University Rankings 2025. The university is among the top research-intensive universities and hosts approximately 11,000 students. Monash University Malaysia is organized into seven schools: School of Arts and Social Sciences, School of Business, School of Engineering, School of Information Technology, Jeffrey Cheah School of Medicine and Health Sciences, School of Pharmacy and School of Science. My internship took place at the School of Science. Here, the researchers are working collaboratively on critical problems at the intersection of biology, chemistry and medicine. The teacher:student ratio of approximately 28:1 allows for meaningful student-teacher interaction and effective supervision. Although Monash Malaysia does not offer a Microbiology degree, microbial science topics can be integrated within the Bachelor of Science program. Students can adjust their degree to their own interest and select specializations such as applied microbiology. Furthermore, after their bachelors, students can choose to do an "honours year". During this time, the students undertake an independent research project to deepen their analytical and academic skills.

3 WORKING CONDITIONS DURING THE INTERNSHIP

3.1 WORKING HOURS AND SCIENTIFIC EVENTS

The official working hours were from 9am to 4pm. However, in agreement with the supervising PhD students, the working hours were quite flexible and depended on the workload. Especially during the first weeks, when I was still being trained, there was not much to do, so my average working hours were more likely between 10am and 2pm. Also, on Fridays the work often ended around noon because no bacterial cultures or similar experiments were started late in the week. This is because the lab is closed on Saturdays, and no one would be available to take care of the cultures. Moreover, if I was planning a trip on the weekend, the schedule could be adjusted to this. During my time at Monash University there were multiple events that I was able to participate in or assist the PhD students in preparation for it. Such events included, among others, a 3MT competition (a PhD student of my supervisor was a contestant), various presentations of honour-students about their research and the Monash Science Symposium. I also took part in a pipetting workshop by Eppendorf.

3.2 SUPERVISION

Throughout the internship, there was always at least one PhD student present in the laboratory. They assisted me with scientific questions as well as everyday matters. This included guiding me through various laboratory methods and recommending of leisure activities. Moreover, they made sure that I would understand why we are using certain chemicals or methods by asking me to research it and tell them the next day.

My main supervisor was also approachable at any time. His office door was always open for further academic or organizational questions that went beyond what the PhD students could assist me with. Whenever he saw me outside his office, he would always take a moment to ask how I was doing and showed genuine interest in the progress of my internship. Prior to the internship, my supervisor and I were in regular contact via email. He supported me with all my questions and tried to make the transition into the new environment as smooth as possible.

3.3 WORK SCHEDULE AND RESPONSIBILITIES

During the first two weeks I mainly focused on getting used to the lab and its equipment. Additionally, I was observing as the PhD students performed some of the experiments that I would be conducting. I calculated volumes and weights for the creation of broth, agar and gels, prepared them and learned how to use some of the laboratory machines, such as centrifuges, BioDrop, the Fume Hood and incubators. It was also during this time that the honours students held their final presentation about their research which I was allowed to join. I eagerly listened to students during a 3MT competition and helped the PhD students to prepare for the OpenDay at Monash University.

I learned different laboratory techniques involving pipetting, bacterial cultures and dilution series. At first, I was always under supervision but I was gradually able to perform experiments more independent. During the next four weeks, I got accustomed to take care of the larvae and moths which continued to be my responsibility for the duration of the internship.

It was also during this time that the Monash Science Symposium 2025 took place. For three days I was able to listen to experts from various areas of research as well as postgraduate and honours students presenting their own research.

The experiments and data collection for my own project were distributed over the entire period of the internship. Furthermore, I had the opportunity to occasionally shadow and support PhD students from other laboratories and the host lab.

An overview of the experiments I performed is provided in table 1.

Table 1: Overview of performed tasks during the internship

Experiment/Task	Brief Description	My Role / Contribution
Lab-Maintenance	Routine tasks supporting laboratory operations, including preparation of buffers, agarose gels, and bacterial media; cleaning equipment, refilling pipettes, and autoclaving materials.	Prepared lab materials independently to support experiments.
Overnight Culture	Growth of bacterial cultures overnight for subsequent experiments.	Set up and maintained cultures.
Bacterial Streaking	Streaking bacteria on agar plates to isolate colonies.	Independently streaked bacteria.
CFU Assay	Determination of bacterial counts by plating dilutions and counting colony-forming units.	Prepared dilutions, plated bacteria, and counted colonies to calculate CFU/mL.
Phage Collection/Enrichment	Collection and enrichment of bacteriophages from environmental sample.	Participated in collection and enrichment procedures.
Lysate Clean-Up	Purification of phage lysates to remove bacterial debris and prepare for analysis.	Performed lysate purification.
Plaque Assay	Detection and quantification of bacteriophages by observing plaque formation on bacterial lawns.	Plated and counted plaques to determine phage concentration.
Spot Assay	Testing bacteriophage activity by spotting phage solutions onto bacterial lawns.	Performed spotting and documented lysis zones.
DNA Extraction (Bacterial, Phage, Plasmid)	Isolation of DNA from bacterial cells, bacteriophages, and plasmids using phenol-chloroform and commercial kits. Measurement of DNA quality and quantity using BioDrop/Nanodrop.	Prepared samples, performed extractions under supervision, and measured DNA quality and quantity.
Gel Electrophoresis	Separation and visualization of DNA fragments via agarose gel electrophoresis.	Prepared gels, loaded samples, and interpreted results.
Bacterial Growth Curve	Monitoring bacterial growth over time using spectrophotometric measurements.	Prepared cultures, recorded optical densities, and plotted growth curves using Excel.
Larvae Maintenance and Monitoring	Daily care of larvae (<i>Galleria mellonella</i>), used for future insect infection model experiments.	Fed larvae, removed sick or dead individuals, and sorted pupae independently.
PCR (non-project specific)	Polymerase Chain Reaction to amplify DNA fragments.	Assisted in preparing the PCR setup and operating the thermal cycler.
Plasmid-Transfer (non-project specific)	Introduction of plasmid DNA into bacterial cells via transformation.	Prepared competent cells and assisted in transformation experiments.
Others / Non-experimental Activities	Participation in academic and outreach activities (3MT Competition, Honour Student Presentations, Open Day preparation, Symposium attendance, observation of PhD projects, holidays).	Attended events, prepared materials, and shadowed PhD students for additional learning.

4 INTERNSHIP OUTCOMES

4.1 ACHIEVEMENTS AND LEARNING EXPERIENCES

The internship provided me with an opportunity to improve my laboratory skills. I became confident in performing microbiological tasks independently. Furthermore, I have gained some hands-on experience with phage specific protocols. I grew accustomed to handling biohazardous material responsibly to maintain a safe lab environment and learned about the importance of writing clear and complete experimental protocols. Some experiments required preparations on the day before and I had to schedule my work effectively to avoid weekend shifts. Thus, I developed strong time management skills. I further improved my organizational skills by planning trips and managing my finances. The interpretation of data collected from e.g. bacterial growth curves or gel electrophoresis experiments, improved my ability to understand and explain variations in results and protocols. Shadowing of students with different research focus and therefore, different experiments and protocols, broadened my interdisciplinary understanding and my scientific perspective. While working in a multicultural research team, I naturally improved my adaptability and communication skills.

Overall, performing these fascinating experiments, seeing the results and working with my amazing colleagues has confirmed and strengthened my motivation to pursue a laboratory focused academic path.

4.2 OBSTACLES AND CHALLENGES

4.2.1 At the lab

One challenge I faced was the lack of a fixed work schedule. On many days, I arrived at the lab without knowing in advance which experiments would take place or what tasks I would be assigned. A major reason for this was that the PhD students also had to focus on their own projects. This means that for some time I could not perform experiments independently without supervision. However, the situation improved significantly at the start of the new semester because:

1. There were fewer events that temporarily paused lab work (e.g. Symposium, OpenDay, Presentations of Honour students).
2. I was gradually entrusted with carrying out certain experiments independently and without supervision which gave me more control over planning.

Most of the machineries in the lab were foreign to me. Naturally I faced difficulties with operating them for the first few times. Luckily the PhD students were always willing to lend a hand and answer my questions, when I needed anything.

4.2.2 Outside the lab

While there were some challenges within the lab, I faced the biggest challenges outside of it.

The first obstacle was finding accommodation. Acquiring a place to live for 3 months from overseas proved to be more difficult than I expected.

For navigation I was used to relying on Google Maps. In Malaysia however, the app was not as reliable, displaying non-existing public transport and walking routes. For an accurate replication of live public transport, I started to use the app Moovit. Before going to an unfamiliar place, I always downloaded an offline map of the area. While I could not rely on proper guidance using google maps, I made sure to set markers to important landmarks (e.g. McDonalds or malls for access to WIFI, tourist attractions or my housing, public banks). Whenever possible, I used GrabCar (similar to Uber), to reach unfamiliar, further away places. This was a quite reliable mode of transportation, though up to five times more expensive than using public transport.

The access to mobile data was also quite unreliable. Even though I have purchased an e-SIM with an active internet plan, access to mobile data was frequently not possible. Especially during the first weeks, when I was unfamiliar with the area, it was stressful not being able to look up directions. It also significantly complicated planning weekend trips and going somewhere (e.g. looking for food, an activity nearby) spontaneous.

I did not encounter any such problems while working at the university, as WIFI was provided.

Another challenge I encountered was managing my financial situation. This included withdrawing an appropriate amount of cash, paying at local stores and budgeting weekend trips. I tried to reduce the amount of cash I needed as much as possible to due withdrawal fees. I also struggled with payment when there was no internet connection. The preferred payment method for most stores was QR-payment.

When I went on a weekend trip to Singapore, I forgot to bring my physical card with me for cash withdrawal. I used Western Union to get cash there.

To further enjoy the Asian culture and to do some sightseeing, on almost every weekend, I did a trip. I also arrived four days before the start of the internship to spend some time discovering Kuala Lumpur and its surrounding area. The trips always required organization and planning in terms of travel-options, activities, accommodation and estimating the amount of cash needed.

5 PRACTICAL ASPECTS OF THE STAY

5.1 PREPARATION OF THE STAY

This year, I was the first person of the scholarship holders to arrive and stay in Malaysia (3 weeks before the next person). That is why I made a few mistakes, which either cost me money or made staying in Malaysia more inconvenient and stressful than necessary. This included finding housing, figuring out how to pay, getting proper internet access and traveling using public transport.

In addition to the standard vaccinations recommended or required by the Robert Koch Institute (RKI) in Germany, I consulted with my physician to assess potential health risks related to my stay in Malaysia. As a precaution, I received additional vaccinations against Hepatitis B and Japanese encephalitis, although these were not mandatory requirements for entering Malaysia. Furthermore, I was provided with emergency medication for suspected malaria infection.

I decided to get a virtual e-Sim by the provider Airalo (3 GB, 7.50€ / month). This allowed me to keep my German phone number. When traveling to a different country, I also used Airalo to get an e-SIM for internet access there. For logging into the Touch 'n Go App, I needed a Malaysian phone number. Fortunately, I brought a second, old phone. I brought it as a security measurement in case I lost my other phone and I don't remember all the important numbers. I went to a Celecom-Digi store and purchased a SIM card for the phone (10 GB, 8.60 € / month). Then I could use the Touch 'n Go App.

I went to the Tourist information, where I was told to purchase a Touch 'n Go card for easy access to public transport. This card I could use in most trains by simply tapping in and out of the exit. I could top up this card either by using cash or via the App.

5.1.1 Contacting the Host Institution

Contact to Monash university was mostly via email. Due to the time difference of six hours, it sometimes took a day to receive a reply. My supervisor gave me the contact information of another person, that I could contact for e.g. help to find housing, visa application and receiving an offer letter. Unfortunately, due to recent changes in Monash's policy regarding management of external visitors (which happened while I was in contact with the university), this formal process took a while. I received my offer letter three weeks before the start of the internship.

5.1.2 Flights and Visa

I booked my flight to Kuala Lumpur 1.5 months before the trip. It was a one-way trip for 630 €. The return flight was booked a month before returning and cost 486 €.

As a German passholder I was allowed to stay in Malaysia up to 90 days. I adjusted the duration of the internship accordingly. Furthermore, after a few weeks, I left Malaysia for weekend trips to Singapore, Bangkok and Hoh Chi Minh City respectively, thus resetting the 90 days timer. I have never encountered any problems at immigration. I needed to show the following things when I entered Malaysia:

1. Malaysia Digital Arrival Card (Includes Information about Flight, Return/Continuing Flight and Accomodation)
2. Prove of Return/Continuing Flight
3. Passport
4. My Face + Fingers

5.1.3 Financial Matters

The funds of the scholarship were enough to take care of fees for housing, food, arrival and return flight. However, as I was visiting various places on weekends, I had to dig into my personal funds. Whenever possible, I paid with a virtual Revolut card. Other payment options were QR-payment (GrabPay or Touch 'n Go eWallet) or Cash. Some of the hotels I stayed at required a credit card and a cash deposit of 50 – 100 MYR.

5.1.4 Housing Situation

Finding accommodation was more difficult than expected. My initial plan to stay at the Sunway student dorms failed because the application deadline was 30 days before move-in, and I hadn't received my offer letter from Monash in time. I first stayed in an AirBnB for three weeks (523 €).

I later applied for Sunway Housing but experienced slow communication, high fees and a lack of clarity during the process. Rent was ~378 €/month for a single room in an 8-person shared flat without a kitchen. Due to these downsides, I decided not to extend my stay and booked another AirBnB for the final days (71 € for 5 nights).

In between, I nearly fell victim to a rental scam on AirBnB, which required intervention from AirBnB Germany. The payment was refunded, though I lost a small amount due to currency conversion.

When planning my weekend trips, I stayed in hostels (female-only dorm or single room) or hotels with a rating of at least 8/10. For booking, I used hostelworld.com and booking.com. Here I only had positive experiences.

5.2 LEISURE ACTIVITIES AND SOCIAL INTEGRATION

I honestly spent most of my free time planning the next trip. Sometimes I would also go to one of the many malls or go to the swimming pool. I also spent a lot of time looking for places to eat good, not too spicy food.

After the internship, I spent two weeks travelling through Malaysia (including Sabah).

There I was fortunate to experience a wide variety of landscapes, cultures, and wildlife. I enjoyed the cool jungle air while trekking through the Cameron Highlands and visiting lush tea plantations. In Penang, I explored the vibrant food scene and watched the sun rise over the misty hills from the top of Penang Hill — a truly unforgettable moment.

One of the most exciting adventures was a river cruise on the Kinabatangan River in Sabah, where I had close encounters with several of Borneo's "Big Five." I also visited the nearby Orangutan Rehabilitation Centre and the Bornean Sun Bear Conservation Centre, where I got to observe the animals up close.

I stood in awe before the massive Rafflesia flower and soaked in a natural hot spring under the open sky. In Kota Kinabalu, I watched the sun set over the ocean and joined another magical river cruise to see fireflies light up the mangroves. I also visited the famous Sky Mirror and spent a day island hopping, relaxing on white beaches and swimming in crystal-clear waters.

Each of these experiences deepened my appreciation for Malaysia's natural beauty and cultural diversity. I wholeheartedly encourage future interns to take every chance to explore this incredible country — it's worth it.

6 RECOMMENDATIONS FOR DAAD AND SCHOLARSHIP HOLDERS

6.1 SUGGESTIONS FOR IMPROVEMENTS BASED ON MY EXPERIENCE

The application and selection process went smoothly. It was always possible to reach someone via mail when I encountered any problems. Using the website, finding information and getting access to documents was easy. The two online meetings before the internship also helped me with any questions. Also, during the internship I could always contact someone from DAAD.

6.2 ADVICE FOR FUTURE SCHOLARSHIP HOLDERS

1. Always check in which currency you are paying.
2. If you don't get a place in the student dorms, rent an AirBnB. It might be more expensive, but the cost should be covered by the scholarship.
3. Always take a physical (credit) card with you, especially when visiting other countries.
4. If you are not used to spiciness, always ask for non-spicy menu options.
5. Buy a notebook for protocols etc... and bring your laptop.
6. Don't just work all the time – you also need to have fun and discover the area!
7. Do a river cruise on the Kinabatangan River in Sabah! Seeing the wildlife in its natural habitat is amazing.