**STUDENT SURVEY**

Please send this survey to Selis Schmidt at the **Zentrum für Internationale Beziehungen** (e-mail: selis.schmidt@boku.ac.at) **within two months** of the end of the study abroad period. The letter of acknowledgement from the host institution should also be turned in to ZIB (Peter Jordan Straße 82A, 1190 Wien). If all forms are not handed in (including this one), it is possible that the entire sum of the scholarship must be re-paid by the recipient to KUWI (see the agreement).

**BASIC INFORMATION**

**Fieldof study: LBT**

**Student ID number -------**

**Host Institution: NASA/JPL, Caltech Host country/city: Pasadena, CA (USA)**

**Study Abroad Period: from 10.04.2018 until 30.09.2018**

**RECOMMENDATIONS FOR FUTURE STUDENTS**

1. **Information about the research offerings at the host institution: How helpful were the following informational resources?**

(1 = not helpful to 5 = very helpful)

* + Center for International Relations
  + Lecturers at BOKU
  + Degree course schemes
  + Students / friends

Host institution

4

Host institution’s web homepages Other:

5

### How would you rank your knowledge of the language spoken at your host institution?

(1 = little to 5 = excellent)

Vor dem Aufenthalt im Ausland

Nach dem Aufenthalt im Ausland

Reading comprehension Listening comprehension

Speaking ability

**1 2 3 4 5 1 2 3 4 5**

Writing Ability

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### Languages most often used at the host institution, in percent:

Used language German: Ja Nein

|  |  |
| --- | --- |
| 1.English 100 | 2. |
| 3. | 4. |

### Which recommendations/tips would you give to future students about the host country and host institution?

**(**Please give any recommendations, information resources, contacts and links)

### Host country

California is a great place wehere to live, however the cost of life is pretty high. Keep this in mind before applying for a research stay. Public transportation in southern California is far from being as efficient as in Austria, therefore be ready to rent a car, use a bike or Uber most of the time. People are very friendly and welcoming.

1. **Host institution**

NASA/JPL is generally an outstanding place where to work, especially for people in engineering and computer science. Microbiology work can be as well very interesting, as it most often deals with samples from the Internations Space Station or very stress resistant microorganims.

1. **To which degree did you feel socially integrated??**

(1 = not at all to 5 = very good)

Local culture/ society overall

With students from the host institution

With other foreign students at the host institution

1 2 3 4 5

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### With help from which contact person (at BOKU/ at the host institution) did you organize your stay?

I organized the stay entirely by myself following the tips about housing and living in Pasadena, that I found on the CALTECH homepage and in the CALTECH postdocs marketplace. The Caltech international offices personnel mostly helped with the VISA application, by informing me about the documentation which was required.

1. **To which degree would you rate the support you were thereby given (before and after your stay)?**

(1 = low to 5 = high)

|  |  |  |  |
| --- | --- | --- | --- |
|  | 4 |  | Center for International Relations |
|  |  |  | Lecturers at BOKU |
|  | 4 |  | Host institution |
|  | 4 |  | Students from the host institution |
|  | | | Other: |

-

### Application forms, financial support, other needs

KUWI OUTGOINGS, FWF HERTHA FIRNBERG STIPENDIUM

1. **Please give tips and helpful suggestions in reference to your host country/ host institution regarding society (cultural differences, importance of command of language, etc.):**

People are generally very friendly and like to engage in small talks. Relationships are often kept pretty superficial, with a few exceptions. Knowing English is paramount.

1. **During your stay abroad, were special events organized specifically for exchange students?**

Yes No

If yes, please include descriptions:Informative meeting for exchange students and new employees about the most important things to know about living in California.

# ACCOMODATION, SERVICES AND EXPENCES

### Where did you actually live during your stay abroad?

Student dormitory Hotel / boarding house / guest house Room in a private apartment

Private apartment Shared apartment with other students

### Who helped you find living accommodation?

Host institution Friends/family

Broker Other: Caltech Postdocs marketplace

### What quality of support did the host institution give in the search for accommodation?

(1 = bad to 5 = excellent)

1 2 3 4 5

### How would you rank the accommodation?

(1 = bad to 5 = excellent)

1 2 3 4 5

### To which extent were student resources available to you? (libraries, computer labs, laboratories, facilities, etc.)?

(1 = not at all bis 5 = very good)

1 2 3 4 5

### How was the computer and internet access?

(1 = bad bis 5 = very good)

1 2 3 4 5

### Monthly expenditure during the course of the stay abroad ( in Euros):

Travel expenses (for one way there and back):780,00 €

Monthly expenditure (incl. accommodation): 1.825,00 € ,spent on:

1.270,00

€

Accommodation

500,00 € Maintenance

55,00 € Commuting expenses (0,00 €) Costs of books, copy, etc. (0,00 €) Tuition

Other

# OVERALL ASSESSMENT

### Evaluate your stay in an academic sense:

(1 = bad to 5 = excellent)

1 2 3 4 5

### Evaluate your stay in a personal sense:

(1 = bad to 5 = excellent)

1 2 3 4 5

### Which aspects of your study abroad stay did you most enjoy? In an academic sense:

Having the chance to extend my research network by establishing collaborations; having the possibility to learn new methodologies and to use machinery only available at NASA.

**In a socio-cultural sense:**

Working with and getting to know people with a cultural background different from mine.

1. **Did you have any problems during this study abroad stay?**

I could not start with the experimental part from the very beginning of the stay because I had to personally take care of the purchase of reagents and consumables needed for my research and to make sure that the lab was equipped. I therefore had to become familiar with the paperwork and the workflow for placing orders, among others.

1. **Did the fact that you studied abroad cause you to have to study at BOKU longer?**

Yes No I don’t no

If so, why?

### In your opinion, how can the KUWI scholarship program improve upon itself?

By supporting students/researchers with the search for an accomodation. This could be done by collecting information from people who previously visited the same host institutuion.

I hereby give permission for KUWI to show my completed study abroad survey to other students who are thinking about going on a study abroad trip:

Yes No

**Research Report**

(Brief report of stay abroad from scientific point of view, ca. 1 page)

The stay at NASA/Jpl took place in the frame of my current postdoctoal position (i.e. T872 FWF Firnberg programm) at the Department of Biotechnology. The main goals of my project are: the investigatation of the molecular basis for stress tolerance in a morphological group of fungi from extreme environments - grouped under the generic name black fungi - as well as the detection of metabolites and macromolecules with a key role in adaptation and of possible biotechnological interest. The major part of the work revolved around the study of the effects of microgravity on the ecophysiology of Knufia chersonesos wild type (melanized) and mutant (nonmelanized), selected as model organism for experiments of stress resistance. As black fungi – especially rock inhabiting species – proved to be extremely resistant towards several stresses, their origin from outer space and their subsequent colonization of the earth have been hypothesized (panspermia). Analysing the effects of microgravity on extremotolerant and extremophilic fungi could therefore shed light on the evolution of extremophily as well as also help to define the actual limits for life and provide insight for the investigation of its existance beyond planet Earth. The growing isolation of opportunistic bacterial and fungal strains from spacecraft due to extended human occupation, is one of the main concerns for prolonged space travel. Studying the physiologic responses and pathogenicity under microgravity might therefore help developing strategies to reduce hazard. To this purpose, a workflow for the cultivation of black fungi strains in bioreactors under low sheer simulated microgravity (LSSM) was established. Due to the low number of microgravity studies in fungi available up to now, the methodology had to be developped from scratch. Microscopic observation (SEM: scanning electron microscopy) of the mycelium at different time-points were carried out in order to assess alteration of the morphology in response to microgravity. Quantitative and qualitative changes in cellular and secreted proteomes of K. chersonesos strains were measured using isobaric tandem mass tags (TMT-TRAQ) combined with multidimensional liquid chromatography mass spectrometry (LC-MS). Protein identification and data mining are currently ongoing. Furthermore, an analysis of the secondary metabolites was performed both in the culture supernatant and in the micelium to detect changes in small compounds, induced by microgravity. All analyses additionally aimed at the elucidation of the role of melanin – well known stress protectant in fungi – in the organism survival to stress. This study is the first to characterize the response to LSSMG in black fungi. Preliminary results confirmed the hypothesis: rock inhabiting fungi cope with microgravity stress through a fine modulation of their physiology. No major morphological alteration seem to be induced in both the wild type and the mutant by the treatment. Similarly, the survaivability of the strains is not negatively affected by SMG. Interestingly, small compounds seem however to have a role in stress resistance as the yield of a number of metabolites increases under SMG in both strains. A more complete picture of the physiology will emerge as soon as the proteomics analyses will be completed. Along with the micromicrogravity, part of my research work at JPL was dedicated to polymer degradation studies. Fungal strains isolated from spacecraft, space vehicles and clean rooms, as well as fungal isolates from extreme environments were screened for their ability to degrade plastic polymers. Additional research work was carried out to investigate the viability of fungal isolates from extreme environments after UV and heavy ions irradiation.

### Thank you for your help!