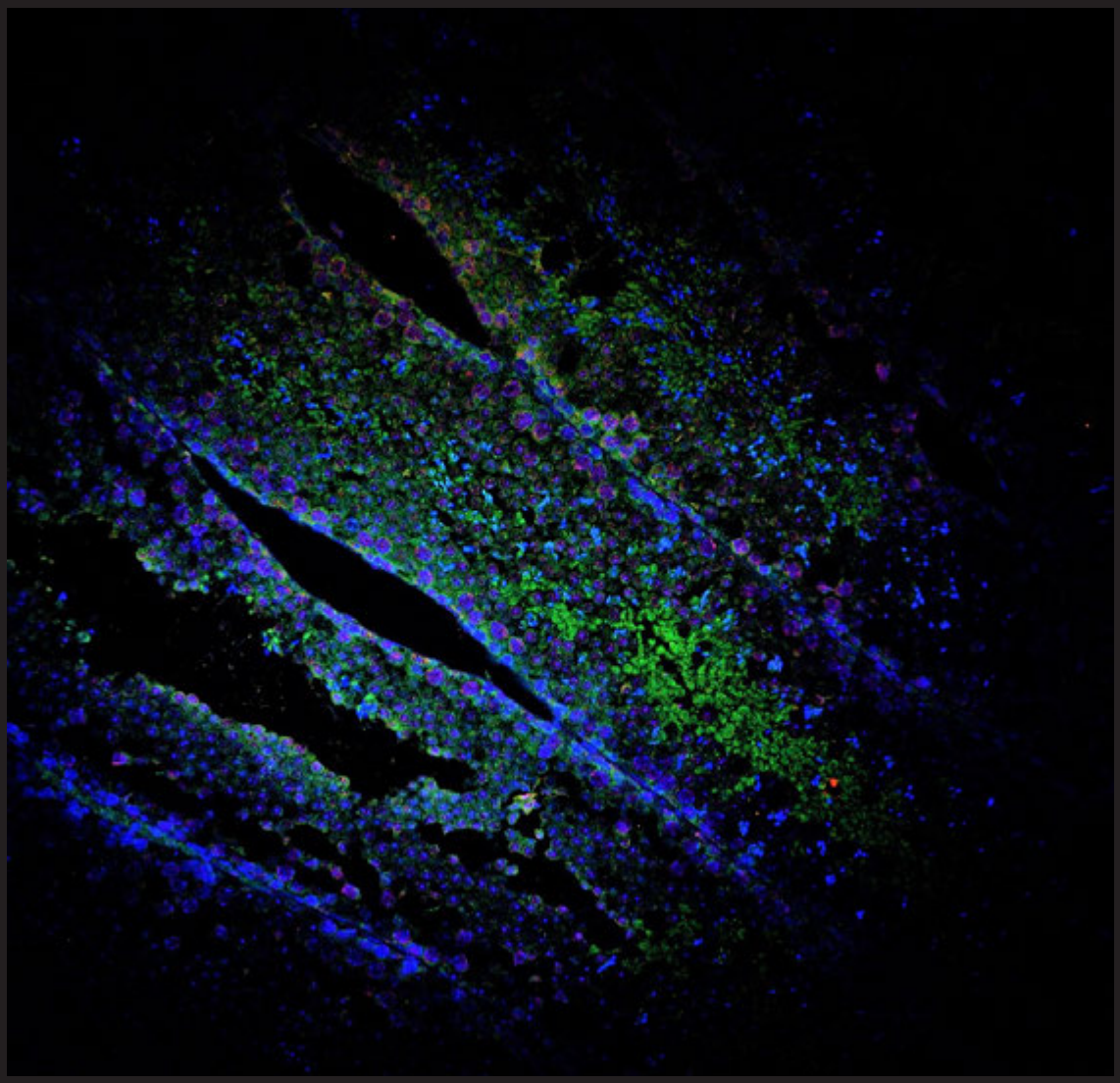
February 2020 Edition

StuCom

Cancer, Stem Cells & Developmental Biology

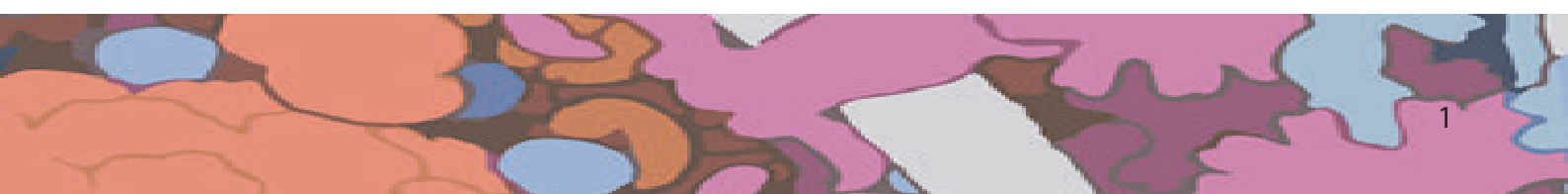


Get to know:
New StuCom Members

From PhD to Company
Afroditi Avgerinou

Favourite Science Stuff

Table of Contents



Introduction...

Dear CSDB Students,

Welcome to the first edition of the newsletter created by the StuCom '19/'20! Hopefully all of you had a wonderful Christmas (break) and may all your (lab) dreams come true in 2020.

In this first edition, we will look back at the November Seminar by Jurian Schuijers and the Sinterklaas activity organized by the StuCom. Furthermore, we will introduce the new StuCom members to you, share the experiences of Roan van Scheppingen on his internship abroad and of Afroditi Avgerinou, an alumni of the Master's. Finally, we will show you some wonderful results of the students on their internships and challenge you to solve multiple puzzles.

We hope you enjoy our first newsletter and are already looking forward to all the amazing activites we will organise for you in 2020!

All the best,

StuCom '19/'20

Meet the StuCom

Myrna

"Record holder pita bread eater and bathrobe wearer"

When see does grocery shopping she buys as much as possible as long as her bank account accepts it!

"My brain: https://www.youtube.com/watch?v=Pc2wW5y8Fuk"

Her biggest guilty pleasure is nasal spray

Anneloes

"Bad at making summarizes, enthusiastic workaholic"

She will always sing along to "love is an open door" from Frozen when she hears it

Tessa

"Public transport as a second home and loves to play field hockey"

The last song she listened to is "Ik was toch je meisje" by Roxeanne Hazes

Carlijn

Jip

"Board game fanatic,
grumpy gamer,
either sleeping or gaming"

His favorite drink is Muscow Mule

"One overly excited chatterbox"

Her favorite tv series is
"Fringe"

Severina

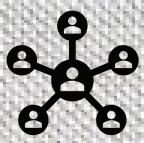
"Coffe addicted, bad at time
management; also, a huge nerd"

A movie about her life will be
named "The uncontrollable
instinct of smiling at dogs"

Sara

"Tea lover and music addict"

If she could only eat one food for
the rest of her life, it would be
cheese



Iris

"Fanatic of dogs with a too busy
agenda"

If he had the chance to have
any superpower he would go for
the ability to read people's
minds

Daan

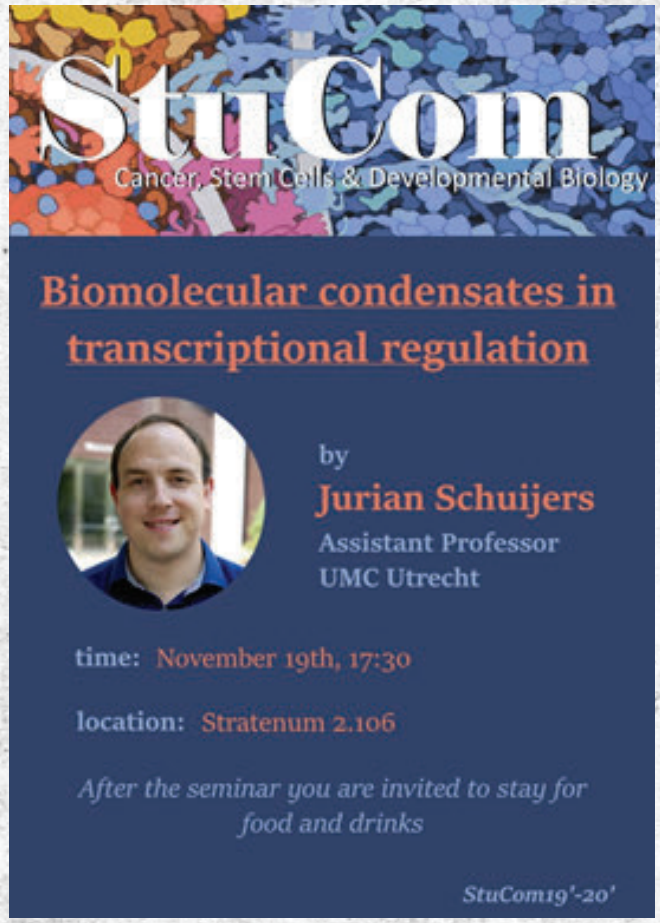
The first StuCom Seminar (19th of November)

A talk about biomolecular condensates in transcriptional regulation by Jurian Schuijers, assistant professor at UMC Utrecht.

Jurian did his PhD in Hans Clevers' lab at the Hubrecht Institute. After which, he became Post-Doc in Rick Young's lab at the Whitehead Institute in Boston. During this time, he started to work on 3D architecture in transcriptional control. Besides that, he expressed his enthusiasm about living in Boston and he mentioned that Boston is a real biotech and research hub.

Then, he explained some of his current research work to us. It all starts with understanding the basics about liquid-liquid phase separation. He expressed that this basic principle could be related to gene regulation and it can be incorporated in the widely approved loop formation theory. He showed us experiments which proves that droplets can form biological materials in vitro and how they can incorporate new transcription factors.

After the seminar, we had the opportunity to ask Jurian everything we wanted to know about his research and about his time as a researcher in Boston while eating pizza.



Tips and Tricks by an Alumni

Afroditi Avgerinou is an alumni from the master. Afroditi was born and raised in Thessaloniki, Greece. During her Bachelor in Biology in Greece, she decided to do an Erasmus Exchange internship for six months in Wageningen University (The Netherlands). In this internship, she analyzed and coded Next Generation Sequencing data in Python and R. Afroditi enjoyed living and studying in the Netherlands and was interested in human genetics, which made her apply for the CSDB Master. Currently, she is nearly finished with her PhD in London and has started working at the company IQVIA.

1. Which internships did you do during your master and on what basis did you choose these internships?

'I think that the internships are the most important part of the master. I was interested in combining lab work and bioinformatics in a project around human genetics. I already knew that the selection procedure for the master was competitive, so I wanted to be sure that if I were selected I really could do the internship I wanted to. That is why, I decided to apply for my internship (Gijs van Haaften, UMCU) beforehand. Luckily, I was selected for the master based on an interview and also accepted to do my internship in the Van Haaften group. As a CSDB student, I was given the choice to do my second internship abroad and while I really loved the Netherlands, I also wanted to take the chance to go abroad and work in different (work) environments. At some point, I came in contact with a girl from the University College London (UCL) that was visiting the UMCU and she put me in touch with the PIs in her department. I contacted a PI with an appealing project which involved CRISPR/Cas9 genome editing and he accepted me. I really appreciated the experience of an extra internship abroad.'

2. How did you find your PhD position (Bonfanti, UCL) and what were your experiences as a PhD?

'After my master's, I wanted to continue academic research and work towards a PhD. I applied for multiple PhD positions in the UK and the Netherlands, since I liked both places and wanted to spread my chances. I managed to get into every interview round of the positions I applied for, which I think is due to the fact that research groups acknowledge that CSDB master students are skilled due to the two long research internships. The selection procedure usually consisted of an interview where sometimes I had to make a small presentation about my previous internship or I had to solve a specific case or problem.'

'Eventually, I chose to do my PhD in the UK since I was selected for the project that was my favourite. This project was a proof-of-principle study to find a combined gene and cell therapy cure for patients with cystic fibrosis It included the collection of lung stem cells from the patients, correction of the CF mutation in the stem cells via CRISPR/Cas9 gene editing and development of strategies for the delivery of the corrected cells back to the lung.'

'I really enjoyed my PhD, since I found the subject interesting and challenging. Self-motivation is really important. I had to deal with a lot of disappointments and research takes a lot of time. You have to do everything robustly and replicate it multiple times.'

'During my PhD, I also served as a non-executive director (trustee) at the charity St. Pancras Community Association (SPCA) in London. The charity is a company and I am responsible for governance and have legal responsibilities in regards to decision making. The trustees meet once a month to discuss everything that has to do with the running and financial sustainability of the charity. Serving as a trustee in SPCA, gave me the chance to get a better understanding of businesses.

Currently, I am still a trustee for the charity and also hold the position of the treasurer.'

'Self motivation is really important'

´Try not to worry too much, you are pretty skilled already´

3. Why did you choose to work in the health-care consultancy sector at the company IQVIA?

'I liked academia, but I realized that it was not something for me in the long term. It is really hard to find a permanent position in academia, and you have to heavily depend on your grants. I wanted to have a more permanent position, be involved in more fast-paced projects, and have the possibility to go on holidays and have a weekend or day off. Of course, it was important for me to find a job where I could still use the knowledge and skills I gained during the 10 years I spent in academia. In my current role, I help big biopharmaceutical companies to get their products on the market. As a team, we work with Real-World Data; we collect information from pre-existing sources, such as anonymized medical records or disease registries and use this information to answer the client's question. Eventually, we create a strategy for market access. In IQVIA, I am involved in multiple projects at any given time and I constantly learn about different disease areas and different drugs.'

4. What does a typical work day look like for you at IQVIA?

'There is not really a typical day, but we have a lot of meetings with clients, project teams and workshops. We also have training and learning sessions. The working days are not necessarily 9 to 5; they can be longer depending on the workload and deadlines. The nature of the work requires you to respond quick and fast, as well as be able to balance your time working on multiple projects.'

5. Do you have any advice for the current CSDB students?

'Try not to stress too much: all of us are thinking about the future, what to do next, jump from one thing to the other. This can be an overload for you as a student. If I could go back, I would take a bit more time to think and to relax. Try not to worry too much, you are pretty skilled already.'

Sinterklaas Activity 2019

On 5 December, CSDB students came together to play the classical Sinterklaas dice game, as you cannot let Sinterklaas go by without celbrating it when you are in the Netherlands, can you? Before we started playing the game, we had a nice Indian dinner together. After that, the game was on. For the people who still do not know the game: everybody needs to bring a small present and during the Sinterklaas activity you sit in circle and the presents are placed inside the circle. Each person throws the dice after each other and each number is coupled to specific actions. For example, when you throw 1 you may pick a gift, when you throw 2 you get to give a gift to somebody and when you throw 3 everybody moves all their gifts to the right, etc. As you can imagine, tensions were running high during the night. And if that was not enough, we played a special edition this year: each person got the opportunity to answer an 'easy question' from Severina to pick/unwrap one more present. Just for an impression, this is the favourite question of Severina:

"Everyone has one. Pregnant women carry an additional one. You can buy someone else's for less than 5000$. Some hide them in the closet. What is it?"

Next to buyin and getting presents, each person also wrote a poem. This was a great opportunity to see what kind of creative people are in this Master's programme! Here is one of our favourites, written by Linda van Seters:

'' Sinterklaas was thinking,
Why his HEK293T cells were shrinking.
He asked Piet for some advice,
Piet said: 'Sint, don't put your cells on ice!'
Cells don't like the cold,
When you put them on ice, they won't grow old'
To keep the cells warm, Sint needed another tool
Something he did not learn in school.
Therefore, Piet gave Sint a surprise,
So Sint doesn't have to put his cells on ice.
Sadly, this present will not give the cells any heat,
However, it will be useful to warm up Sint's feet.
This gift will also be perfect for you,
During these cold days, you don't want your feet to turn blue.
So please, wear this nice gift next time you're in cell culture,
Everyone in the lab will love it for sure.

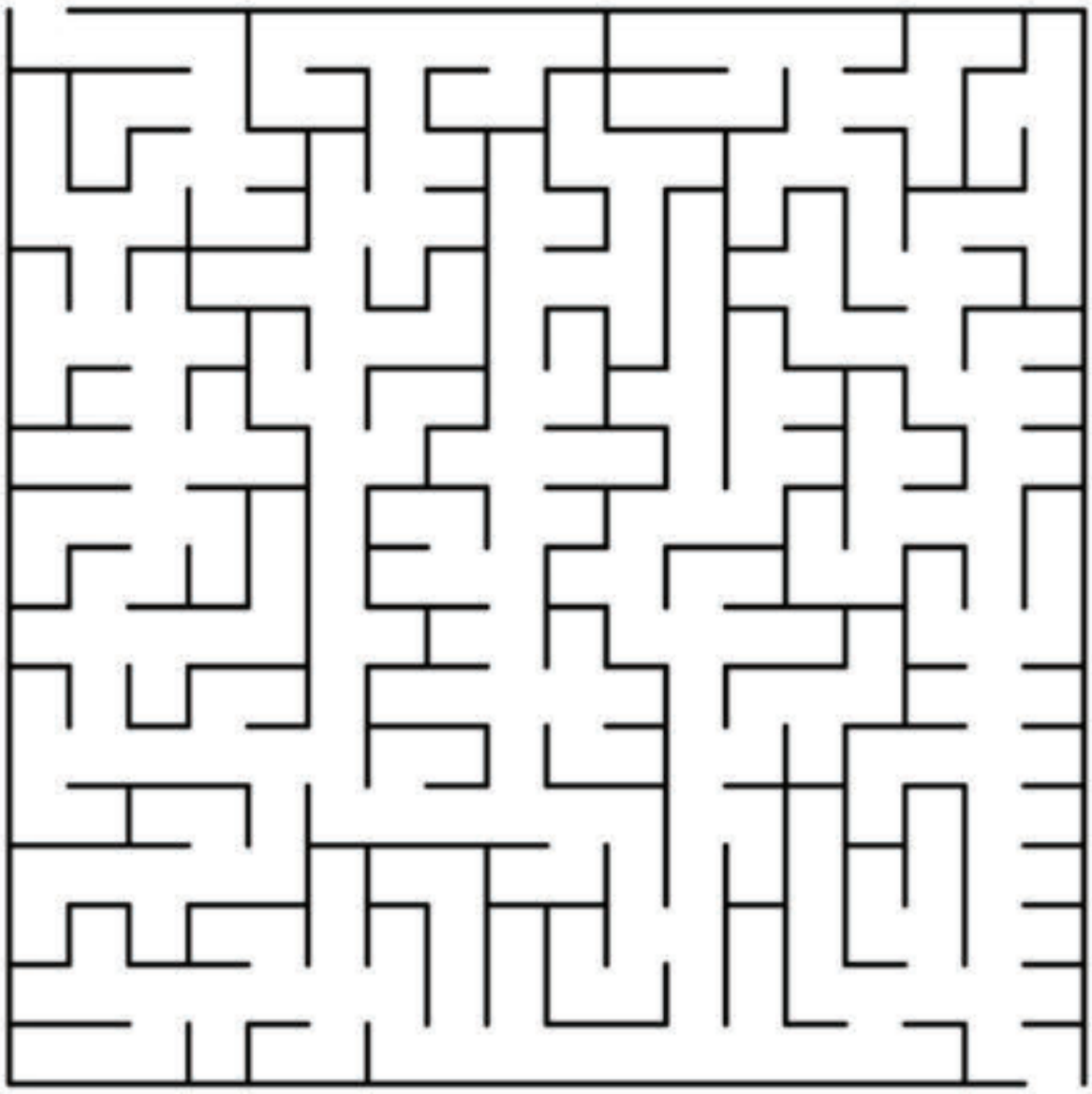
Best wishes,
Sinterklaas ''

All in all, it was a good night and we had lots of fun!

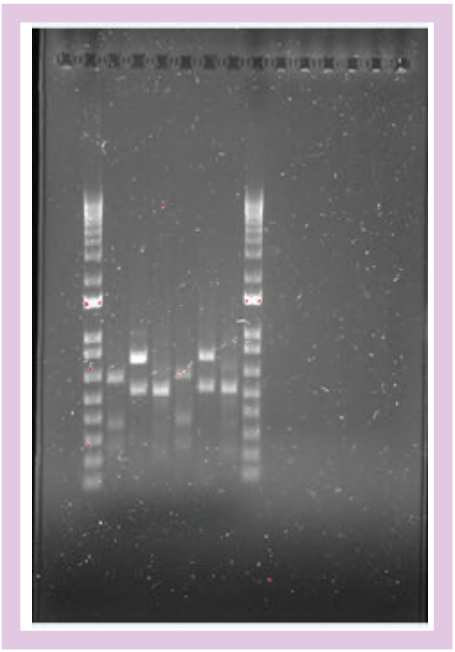
Answer: a skeleton

Help Joost find the StuCom

Joost wanted to attend a meeting of the StuCom, however he got lost in a maze called Stratenum. Can you lead Joost to the StuCom?

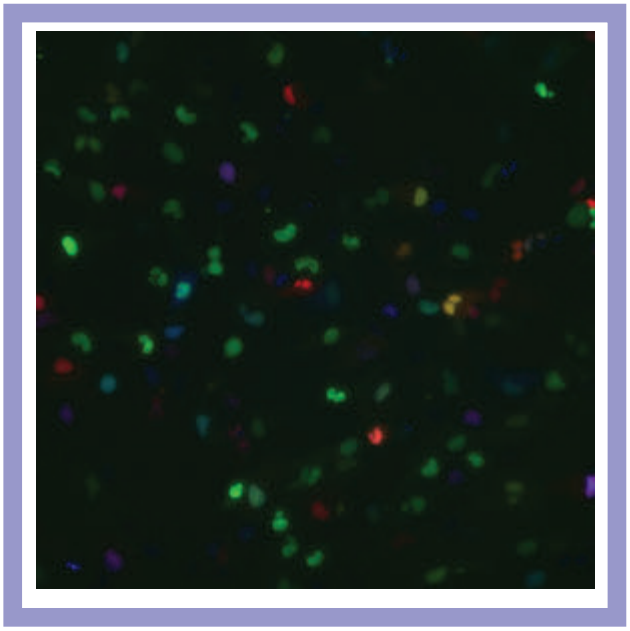


Wall Of Fame and Shame



Severina Pociunaite

'When dsDNA synthesis did not go as planned. There should be one band in every well.'



Marlinde Schoonbeek

'What is a party without confetti?!.'

Highlights of our internships

1. That moment when you noticed that you have killed the wrong fish in the facility (read: not yours).

2. That moment when your supervisor give you permission to take your plates out of the VMT lab and you run into the head of the VMT lab (hiding the plates under your jacket works, luckily…).

3. That moment when you put your acrylamide gels in the freezer overnight, and the gels end up like some personal ant nests.

AN EXPERIENCE ABROAD

ROAN VAN SCHEPPINGEN IS PERFORMING HIS INTERNSHIP IN THE HELMHOLTZ ZENTRUM MUNCHEN

Famous for its Oktoberfest, **Munich** is a city characterized by beer and bretzels. However, Munich is much more than that! Munich also houses two universities (TUM & LMU), Boeing and the Helmholtz Zentrum. I am now undertaking my final master internship (extended to 8 months) at the latter.

Originally, I am from Amsterdam. After my bachelor at the University of Amsterdam, I decided to broaden my horizon and apply to the CSND program. While applying, I also applied to the **Summer Internship** from the Helmholtz. When I figured out I was selected, I cancelled my holiday job and spend my precious holiday before my master in Munich. After falling in love with the city and enjoying the lab, I bluntly asked the PI whether I could return more than a year later, after my internship at the van Rheenen laboratory and my writing assignment at the Rowland laboratory. Early planning is key, since spots were already filling up by then. Hence, I am finally back at the Torres-Padilla lab!

Early planning is key, since spots were already filling up by then.

Although I was certain of an internship in Munich, there was still a lot to consider and plan. For example, I wrote plenty of cover letters and research proposals for various funds. Unfortunately, I could only get the Erasmus+ Traineeship and a small reimbursement from the **Hendrik Muller fund**. Make sure to start with applying to these funds in time. Most of the funds require quite some documentation, itemized budgets, maxed out loan possibilities, letters of recommendation or even full research proposals. Ask your PI in time about possibilities!

After securing funding, I had to look for a place to stay. Munich is expensive and massive, but short on houses. Especially when you are not yet in Munich, it is hard to find proper accommodation, since roommates want to meet you in person. In the end, I worked something out through AirBnB and “Dutch people in Munich” Facebook groups. I would recommend you to contact everyone you know to find a room. The **right connection** might show up unexpectantly.

Back to the exciting part, science! In the **Torres-Padilla lab** I am working on epigenetic differences between toti- and pluripotency. Early after fertilization, the zygote starts the cleavage divisions and around the 4-cell stage, totipotency is lost for pluripotency.

I am using mouse embryonic stem cells as a model of this embryonic development, since 0.5% of embryonic stem cells in culture exhibit totipotency, while the other cells are pluripotent. During my internship, I will use the low-input CUT&RUN protocol (somewhat similar to ChIP-seq) on sorted populations of either pluri- or totipotent cells to generate sequencing libraries of 6 different histone modifications. After sequencing, I will compare the histone marks between the states of potency. **Hopefully**, potential differences the two populations give relevant insights into the biology behind the change in potency. So far, this project will be descriptive in its nature, but if the sequencing comes in in time, I hope to address some more questions! Going abroad has many benefits. I think the major advantage to going abroad is that you can fully submerge yourself into a **new environment** and focus on the science.

Back in Amsterdam, I have the tendency to meet with friends a lot and sometimes forget the internship. Also, I think it is an advantage that I am in a now f**ully international community**. I am the only Dutch guy in the building and one of 17 nationalities. It is nice to meet so many different people! Although, the a serious disadvantage of this internship is that I am sometimes quite alone. Munich can be described as conservative. For example, shops close at 8 p.m. during weekdays, and do not even open on Sunday! In Amsterdam, I would have more freedom to plan whatever I wanted, but here I need to be very aware of when I go shopping and how to plan my days accordingly.

Moreover, since many places are closed during the weekend, I am still struggling to find some new friends, although will be able to find some in the end! I should just visit some of my favorite places some more and talk to some people. Everyone is kind, you just need to start a conversation, preferably with a beer, or a Maß (1L beer). Luckily, **the lab is kind** and we often stay for beers after seminars, resulting into shots, going home at 12 p.m. and a slightly hungover day-after.

Pro-tip: never, ever drop a box of cryotubes into a liquid nitrogen storage. You will spend approximately 2 hours fishing them out, while all you want to do is go home and sleep…

Pro-tip: never, ever drop a box of cryotybes into a liquid nitrogen storage.

If I were to formulate some take home messages. First of all, **go abroad** if you have the chance! You will learn a lot, about yourself, about different lab environments, but also about different people and what motivates people in science. Second, start planning early. There is a lot to do when you are going abroad, and people tend to overlook the details. Yes, finding a home and securing funding are two major things, but there is so much more, ranging from insurance, booking tickets, to discussing your project. Ideally, I would recommend you to have a full project discussed prior to coming, so you can start right away. Last, but most importantly, enjoy. Although you are there primarily for your internship, take the time to **relax**. Book a sightseeing tour, explore the city and talk to strangers.

Okay, very last thing. Start writing your **report** on time, we have all been there…

If you ever want to ask me about further experiences abroad, do not hesitate to contact me. You can reach me on Facebook, LinkedIn, Twitter (especially fun, there you'll see my science frustrations) or whatever means you can get a hold of me. I am more than willing to answer some questions.

Servus,

Roan

YOUR FAVOURITE SCIENCE STUFF

A Day in the Life of a Motor Protein

The primary aim of the Hoogenraad research lab at the University of Utrecht, the Netherlands, is to understand how intracellular protein transport underlies the development and function of nerve cells. During this 5 min movie we follow John, a motor protein, who has to transport his package to the right destination in the nerve cell, illustrating the relevance and mechanisms of proper intracellular transport in the nervous system.

https://www.youtube.com/watch?v=tMKlPDBRJ1E
From Hoogenraad lab (Utrecht University): http://cellbiology.science.uu.nl

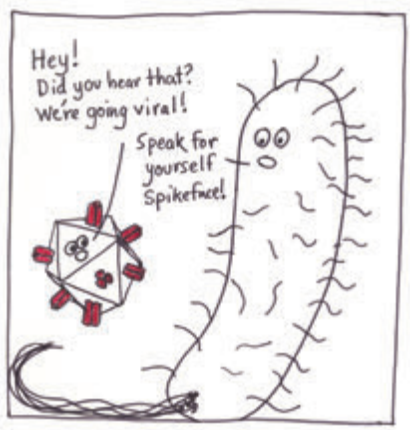
The Philadelphia chromosome: a genetic mystery, a lethal cancer, and the improbable invention of a lifesaving treatment written by Jessica Wapner

Philadelphia, 1959: A scientist scrutinizing a single human cell under a microscope detects a missing piece of DNA. That scientist, David Hungerford, had no way of knowing that he had stumbled upon the starting point of modern cancer research: the Philadelphia chromosome. It would take doctors and researchers around the world more than three decades to unravel the implications of this landmark discovery. In 1990, the Philadelphia chromosome was recognized as the sole cause of a deadly blood cancer, chronic myeloid leukemia, or CML. Cancer research would never be the same.

One of The Wall Street Journal's 10 Best Nonfiction Books of 2013
"There were numerous strong books about cancer in 2013, but this account of the decades of work to find a drug to fight chronic myelogenous leukemia was the strongest. Jessica Wapner translates the complexities of medical science for the general reader and demonstrates the necessity of collaboration between two traditional enemies, academia and Big Pharma."

Evo-Devo (Despacito Biology Parody) - A Capella Science

Listen how we go from a single cell to people in this amzing parody on Despacito. Everything from development, differentiation and transcription regulation is discussed in a way you have never seen it before!
https://www.youtube.com/watch?v=ydqReeTV_vk&t=160s



Word (re)search

G	P	D	M	U	E	R	B	S	Z	U	C	C	D	R	T	X	Y
O	U	F	B	R	I	H	Y	J	T	E	C	G	D	B	H	R	S
T	U	W	T	U	J	D	D	I	N	Y	S	S	J	D	C	S	C
G	E	H	T	T	F	N	B	N	E	D	I	R	K	J	E	Y	I
E	Y	I	U	J	Y	J	U	T	M	X	N	H	F	O	R	H	E
S	T	Y	T	Z	Q	I	Y	E	P	S	T	S	A	G	B	B	N
T	I	M	R	Z	Z	D	Z	R	O	P	E	Y	D	S	U	X	C
R	S	Y	E	D	E	L	C	N	L	Q	R	A	O	D	H	M	E
A	R	G	C	R	B	G	E	S	E	O	K	D	R	S	Z	G	N
T	E	O	H	O	R	S	L	H	V	A	L	I	G	A	U	R	I
E	V	L	T	S	A	L	L	I	E	M	A	L	A	M	M	Y	Z
N	I	O	H	O	F	S	G	P	D	I	A	O	N	T	O	I	T
U	N	I	A	P	I	X	M	D	C	X	S	H	O	S	C	O	H
M	U	B	Q	H	S	G	Y	A	K	A	M	S	I	I	U	J	X
E	E	H	M	I	H	J	T	V	S	M	O	I	D	R	T	B	V
Y	Y	V	I	L	N	B	H	Z	C	T	H	M	S	H	S	W	L
T	R	H	X	A	A	K	O	C	Q	S	E	D	R	C	D	U	B
W	M	X	Q	L	K	J	I	P	K	H	R	R	U	W	P	P	R

- BIOLOGY
- CELL
- CHRISTMAS
- DEVELOPMENT
- DROSOPHILA
- GSLS
- HOLIDAY
- HUBRECHT
- INTERNSHIP
- LAB
- MASTER
- MAXIMA
- NKI
- ORGANOIDS
- SCIENCE
- SINTERKLAAS
- STRATENUM
- STUCOM
- UNIVERSITY
- UTRECHT
- ZEBRAFISH

Colophon

StuCom e-mail
stucomcsd@gmail.com

StuCom facebook
StuCom CSND

CSDB Instagram
CS&D Master Students & Alumni

CSDB LinkedIn
CS&D Master Students & Alumni

Frontpage photo
Sabina Jašarević

This StuCom Newsletter was written and designed by Tessa Remmers, Iris Gooijers, Carlijn Friedrichs and Anneloes Keijzer, unless otherwise specified.

Final Quote:
Research is what I am doing, when I do not know what I am doing.