Dear Postdocs and Colleagues,

This has been a peculiar year in many ways. The COVID-19 disease has impacted us in many different ways. We as Postdocs, with a temporary contract, have suffered consequences of a delay in our experiments. Some of the postdocs had to take care of their children while trying to do home office. However, every crisis brings new opportunities. At the end of March, a Hackathon took place in Germany, with the objective of bringing solutions to the table. More about this you can read in a dedicated section.
Additionally, this newsletter will show you, among other subjects, the events organized by the PostDoc Network Committee, the Career paths of DKFZ Alumni and how you can use the Career Check tool to fine-tune your career development plan.
Finally, we would like to invite you to contribute to our community by joining our PDN Slack channel and our biweekly meetings, where we discuss all the activities the committee is carrying out. Have fun reading our newsletter!!!.

In this issue

Did you know?

By Santiago Cerrizuela

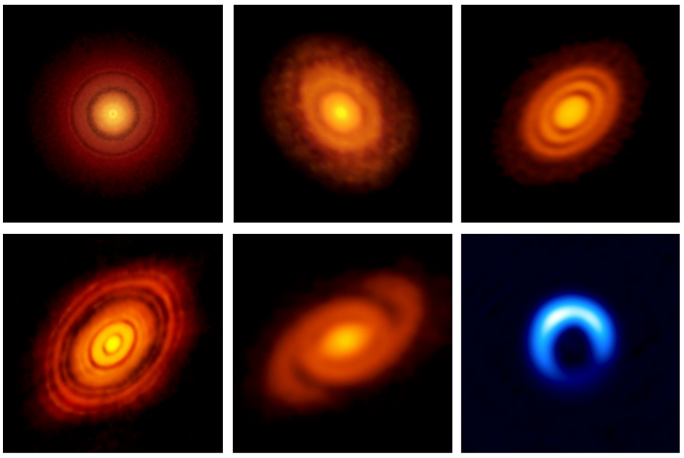
How do you form a planet?

Astronomy is the scientific discipline that studies celestial objects and phenomena. For that it uses mathematics, physics and chemistry. Among the basic scientific questions that astronomers ask themselves is: “How do planets form?”. I had the great opportunity of meeting Dr. Paola Pinilla, who is head of the research group “Genesis of Planets” in the Max Planck Institute of Astronomy, based in Heidelberg. They are focused on the observation of protoplanetary disks, from which planets are hypothesized to be formed. This first hypothesis dates back to the eighteenth century, inspired by the motion of the planets in the solar system. However, the first observations of protoplanetary disks came in the mid-1980s, giving support to the hypothesis that planets form by an accumulation of dust and gas from a forming star.

A protoplanetary disk is a disk of gas (99% by mass) and dust (1%), orbiting a newly formed star. They are studied through excess infrared emission and through resolved imaging at (sub) millimeter wavelengths. Research in the last decade has greatly expanded thanks to the construction of the ALMA telescope, an array of radiotelescopes located on the Atacama desert in Chile. This telescope, together with other initiatives, has increased the number of tools that we have to improve our current knowledge about planet formation.

One drawback of studying planet formation is the time scale (it takes millions of years to form a planet). Therefore the solution is to observe disks of different ages throughout the cosmos (called disk surveys), to be able to predict the dynamic of the planet formation process.

On the bright side, the observation of protoplanetary disks is a proxy to detect new exoplanets (planets outside our solar system). This can be achieved by detecting gaps or “cavities” in the disk structure, which points to the existence of a planet clearing out the dust inside its orbit.



Images of Planet-forming disks of young stars obtained with the ALMA radiotelescope (https://almascience.eso.org).

Protoplanetary disks research has brought many changes in the accepted paradigms of planet formation. One paradigm that was challenged recently is the finding of the previously-mentioned asymmetric disks, which are evidence of exoplanets orbiting their stars. This collection of studies changed the way we think of protoplanetary disks, leading to the hypothesis that the structure of disks is more complicated than originally thought.

In the last decades the astronomical community has developed two theories of planet formation. One scenario is called Core Accretion and the other is called Disk Instability. They are mostly focused on the formation of gas giant planets, like Saturn and Jupiter. In core accretion, planets slowly form through the collisions of larger material in the debris disk of gas and dust surrounding a young star, such as pebbles, boulders and eventually larger planetesimals (the building blocks of planets). The disk instability theory suggests a rapidly triggered process that occurs when the debris disk is massive and cool enough to form spiral arms. This mechanism requires no direct interactions between solids, just the condensing of gas and dust in the planetary disk in a very short time frame.

Over the last years, “Core Accretion” has gained support from astronomers, but the recent discovery of the GJ3512b exoplanet, casts doubts on this theory and swings the pendulum towards the disk instability theory. This also suggests that a full understanding of giant-planet formation has yet to be attained. In summary, I think this is a clear example of how dynamic the Astronomy scientific field is and how important are new observations to the development of knowledge.

For more information on the subject you can check these websites:
‘Impossible’ exoplanet and an alternate planet-formation theory
https://www2.mpia-hd.mpg.de/homes/planetgenesis/

Aerial view of the Max Planck Institute for Astronomy, in the Königstuhl (source: www2.mpia-hd.mpg.de)

The "*Wir vs. Virus*" Hackathon, the response of Germany to COVID-19

By Santiago Cerrizuela

The COVID-19 pandemic has brought an unprecedented crisis upon all of us. During that time we had to work from home and struggle with the daily challenges of quarantine. In the middle of all of these difficulties, a digital initiative came to life to try to solve the problems that the COVID-19 pandemic had generated.

The "Wir vs. Virus" Hackathon initiative was conceived to bring together all kinds of minds in all Germany to work on solving the current and future challenges linked to the outbreak of the coronavirus. The german government together with a group of entrepreneurs and start-ups developed the idea of a virtual Hackathon to collect and develop solutions to the obstacles that the pandemic has imposed. It took place virtually from the 20-22 of March and as many as 42000 people participated through the virtual platform Slack.

Among the 1500 solutions proposed, 147 projects were developed, tested and finally 130 of them are being implemented in the society, with funding from the german government. As an example, during the time when the stores were closed, a project called "Small Business Hero" helped the small-store owners by allowing you to log in into the app to buy products from the stores that were in your neighborhood, reducing the chances of them going into bankruptcy. From then on, many more projects have been established.

All in all, this initiative shows how teamwork and collaboration can solve many of our social problems.

For more information you can visit the official Hackathon website.

Career Check - A career advisor tool

By Santiago Cerrizuela

The Career Service department of the DKFZ has created and implemented the Career Check website. It was created at the end of last year with the goal of helping scientists, especially postdocs, to develop a career plan with up-to-date information on job profiles and useful tips from Alumni.

The website offers the “Career Checkpoint Tool”, which guides you through the process of establishing your career plan in an organised manner. Particularly, in my case I found it very intuitive. The idea is to do a Self-Check first, in which you add your skills, and the values and preferences you think are important for your ideal job. That allows you to generate your own personal career profile. After that you will get 5 job recommendations which fit your selected skillset (a tool called Skills-to-job matching).

The Career Checkpoint chart, which helps you go through the process of establishing your career plan (source: https://careercheck.dkfz.de/)

It is really clever to discover that, to reach your ideal job, you need to know that this job should be the best fit possible for your skillset, your preferences (what do you like to do and what not) and your values (the set of beliefs you have about what is important in your work). The special design of the website makes it more interesting and interactive for the user. If you really get inside the website and complete all of these steps, you gain the chance of a one-to-one meeting with the staff of the Career Service. There you can ask all

the questions you want and they will be happy to discuss any career related inquiry. The cherry on the cake is the Resources site, in which you can check different job descriptions related to our scientific profile and the application know-how tool, which gives you advice on career transition.

All in all, the Career check tool is specially built for us and I think we should give it a try. For more information you can contact the career service at careerguidance@dkfz-heidelberg.de.

Career Paths of DKFZ Alumni

Karin Cicatelli, PhD - Medical Science Liaison at The Janssen Pharmaceutical Companies of Johnson & Johnson, Vienna, Austria

What is your research background?

I did my PhD and a short postdoc at DKFZ in Heidelberg and the Helmholtz Center in Munich working on Molecular Metabolics, specifically Adipose Tissue Browning and Insulin Signalling.

What is your current position and what do you like about it?

MSL (Medical Science Liaison) at Janssen. I enjoy how translational this position is, by being in daily scientific exchange with leading medical experts who give me a great perspective of how research (and medicines that are based on that research) translate into effects on the daily life of numerous patients. Also, I enjoy being the "go to Science person" that our customers (physicians) as well as colleagues come to to learn more about the data behind our medicines.

What skills are most useful to get this job?

Besides the obvious (deep scientific understanding, capacity to grasp new data fast and make connections between different available information) a lot of interpersonal skills. Science communication to diverse audiences, self confidence, professional attire, general positivity.

What is your tip for DKFZ postdocs and PhD students who are interested in a similar job?

It is a classical entry job of newly graduated PhD students and young postdocs to pharmaceutical companies. Make sure you genuinely enjoy being "out there", travelling to hospitals and talking about science with passion - and to be able to convey this passion both during the application process as also during the job.

Michael Fletcher, PhD, Associate Editor, Nature Genetics at Springer Nature, Berlin

What is your research background?

I did my PhD in a breast cancer genetics lab, where I was the experimental part of a very heavily computational/systems biology project that was investigating gene regulatory networks for their role in breast cancer risk gene function. After that, I had a short postdoc in a lab that was studying evolution in wild mice, where for a time I straddled the bench/desk divide. When I moved to the DKFZ to join Peter Lichter's division, I became a fully computational researcher, analysing a multi-omic glioblastoma dataset.

What is your current position and what do you like about it?

I left the DKFZ at the end of last year (2019) to join the journal, Nature Genetics, as an Associate Editor in Berlin. It's a fantastic job because it's incredibly stimulating: we have to read a lot of submitted manuscripts, as well as more widely; and our team discusses a lot of papers that the journal handles. Plus, we also spend a lot of time communicating with our authors, "attending" conferences and talks, and so on. The big difference to being a researcher is that there's something different to do every day – the conveyor belt of new papers never stops!

What skills are most useful to get this job?

For a researcher, depth of knowledge is prioritised over breadth – you should be, if you're doing it right, the world expert in your specific project. But it's the opposite for an editor, because the majority of papers we handle are outside our expertise; so you need to be interested in, and reading, a wide range of science. Another absolutely vital skill is communication; unlike doing an experiment in the lab, which is often a solitary endeavour,

the editorial job involves a lot of interaction with others (editors, authors, publishing staff, etc.) in the day-to-day. For example, when I assess a new submission, if I think it's worth sending out to review, I circulate my assessment to my colleagues. So I'm, firstly, using my scientific knowledge to place the paper in the wider context, to help judge whether it warrants being sent to review; and secondly, I have to communicate the logic behind my assessment to my fellow editors. One thing that's not actually that useful is perfect written English, as copyediting (i.e. careful checking of language) is not actually part of my job!

What is your tip for DKFZ postdocs and PhD students who are interested in a similar job?

Just engage with as much research as you can – most especially the stuff that's not directly related to your project! Go to conferences, talks, courses, have as many conversations as you can with other scientists, as that will all help with expanding your breadth of knowledge. We get a lot of on-the-job training for the specialist skills of being an editor, but one major part of my job interview was having to write a manuscript assessment in an hour – so also practice reading, and summarising, papers quickly. Finally, don't be afraid to ask those who're doing the job – DKFZ Connect will put you in touch with them!

Events Organized by the PDN

By Susanne Lux

This year the Postdoc Network, in collaboration with other initiatives, has held many events, at first in a face-to-face format and then in a virtual one.

Research Lounges:

"The Complete works of the single-cell community" by Dr. Jan-Philipp Mallm
In this lecture, Dr. Jan-Philipp Mallm explained the evolution of the single-cell sequencing field. He showed us how we advanced from assessing the mRNA of a few genes in a few cells to massively analyzing the whole transcriptome and epigenome of thousands of cells.

"Labs going green: How to reduce our carbon footprint" by Dr. Rachel Relph
Here we learned how to identify greener laboratory practices that we can implement in our labs. This Research Lounge was used as an opportunity to share and discuss ideas about

what steps we can take in our labs to combat climate changes. This event laid the foundation for the establishment of a new interest group: the DKFZ sustainability group.

“Scientific Misconduct in Publishing” by Prof. Chirstoph Plass
In this seminar we learned what are the good practices that we need to follow when preparing our manuscript for publishing.

Lunch Talks:

Lunch talks are usually organized by the PDN and BioMedX. Before the pandemic gained momentum, two seminars were held in the DKFZ:

“Dissecting selective protein degradation in health and disease” by Dr. Anton Khmelinskii
Selective protein degradation is involved in most cellular processes and contributes to proteome homeostasis through the removal of unnecessary or abnormal proteins.
The ubiquitin-proteasome system (UPS) plays a key role in selective protein degradation, whereby a cascade of E1 ubiquitin-activating, E2 ubiquitin-conjugating and E3 ubiquitin-protein ligase enzymes mark proteins with polyubiquitin chains for proteasomal degradation.
Deubiquitinating enzymes, which remove ubiquitin marks and replenish the pool of free ubiquitin, are involved at various stages of the targeting and degradation processes. Despite the central role of the UPS in protein degradation and its association with various diseases and ageing, many UPS components remain poorly characterized and our understanding of specificity in the UPS is inadequate.
During the talk he described their previous work where they developed proteomic approaches to gain insights into selective protein degradation, including unbiased screening pipelines to identify substrates and functions for various components of the ubiquitin-proteasome system and to define signals involved in substrate recognition.
In addition, he introduced their ongoing work aimed at understanding how cells deal with mislocalized proteins.

“Shaping Chromatin structure in development and transcriptional regulation” by Dr. Alexandra Pekowska
Topologically Associating Domains (TADs) are megabase-sized genomic intervals of preferential genomic contacts. TADs provide the framework for understanding the functional interplay between cis-regulatory elements. The formation of TADs critically relies on the concert action of cohesins and CTCF, an eleven zinc finger insulator protein. Cohesins tether sequences to each other while CTCF underlies the formation of TAD boundaries by limiting the interactions to regions within TADs. The two CTCF-enriched TAD boundaries frequently form a strong interaction reminiscent of a loop.

In her talk she showed their previous and current work where they combined high-throughput sequencing approaches, including in-situ HiC, and computational tools to address the question of how cohesins and CTCF participate in the regulation of genome topology and in the control of gene expression. She presented data connecting cellular energy consumption and cohesin action on chromatin. She introduced architectural stripes, a specialized chromatin structure formed by super-enhancers, that intervenes in the regulation of promoter activity. In the second part of the talk, she showed the timing of the maturation of chromatin structure during the earliest stages of mammalian development.

In April, there was the first virtual Lunch Talk, organized by the PDN, unfortunately no lunch provided, but nevertheless a very interesting seminar:

“Principles of Infection and replication in the Coronaviridae family - straight from the textbook” by Dr. Ursula Neu

It was a comprehensive and insightful description of the structure and mechanisms of infection of the viruses belonging to the Coronaviridae family (in which the SARS-COV2 is included).

DKFZ Mental Health Awareness Month

During 2020 we were also involved in the organization of the DKFZ Mental Health Awareness Month, which took place in October. The seminars described different risk and protective factors for mental health and ways to promote it. These talks also gave us some tips on how to handle and overcome harassment in the workplace. Finally to end the month, we showed the different ways that we can get practical support at the DKFZ and in Heidelberg in general.

“Let’s talk LGBTQ+” by Joseph Unsay

This was a virtual Rainbow lunch seminar on lesbian, gay, bisexual, transgender, queers and related communities at the workplace. The talk covered an important point raised by a recent survey from the UK- of particular interest was the interactive discussion on how visibility and inclusive policies at the workplace can empower the LGBTQ+ community. It was organized by the PDN in collaboration with the PhD council and the Equal Opportunity and diversity office.

Future Events

Pub Quiz - organized by Lea Schroeder & Susanne Lux

Dear PostDocs and friends,

the year 2020 has probably not worked out as planned for any of us and has demanded a lot of flexibility and creativity from everyone. Nevertheless we would like to warmly invite you to our first and last get-together of this year:

What: **Christmas Pub Quiz**

Where: **Zoom**
https://us02web.zoom.us/j/85879256824?pwd=VHh0c09uSXZCc1F2WDdHQWZYZGQ1Zz09

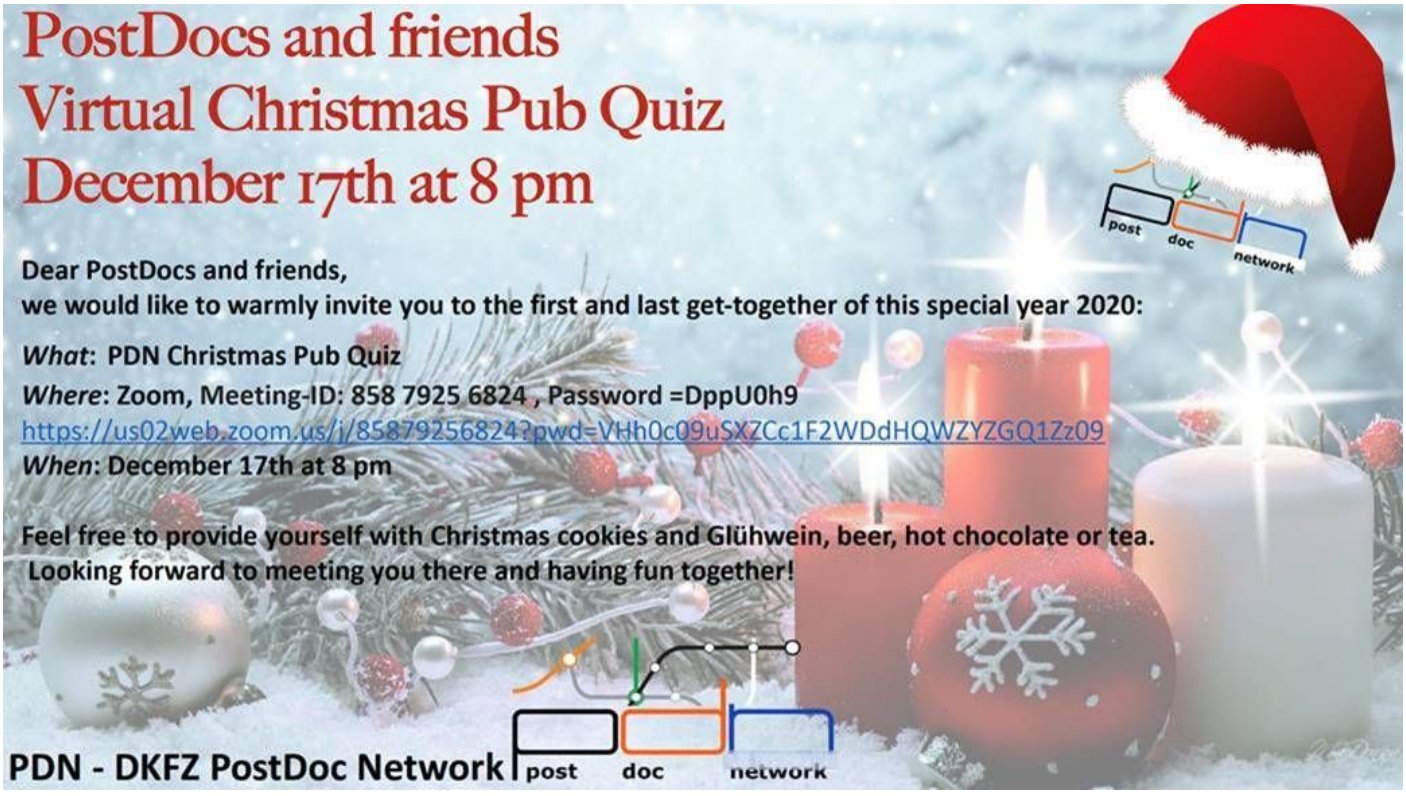
Meeting-ID: 858 7925 6824 Kenncode: =DppU0h9

When: **December 17th 2020 at 8 pm**

No matter if you are new at the DKFZ or practically already part of the inventory - we would be very happy to have you join us.

Feel free to provide yourself with Christmas cookies and Glühwein, beer, hot chocolate or tea.

Looking forward to meeting you there and having fun together!



Workshop on Publishing

Topic: "How to publish your research in year 2021"

Date: 21.01.21, 16:00

Where: Zoom, link and more info will come soon, stay tuned!

You will learn about preparing a manuscript, selecting the appropriate journal, handling peer review and promoting an accepted article

Speaker Info: Maria Papatriantafyllou, PhD, is Editorial Manager of the journal *Molecular Oncology* at FEBS Press

About the PDN

The PDN was formed from Postdocs for Postdocs to represent the Postdocs' interest within DKFZ. Together with the International Postdoc Program we aim to support your career development and increase social and scientific networking among the Postdocs at the DKFZ and beyond. We would really like to get to know you better and introduce you to the activities that are regularly organized by the PDN and in which you are invited to participate during your time at the DKFZ.

The scopes of the PDN are the following:

- Improve communication and spread information between PostDocs.
- Participate in the organization of events and seminars.
- Take over responsibilities to promote the PostDoc Network.
- Welcome the newcomers by providing them with relevant information concerning their work at the DKFZ and their life in Heidelberg.
- Share and discuss career-related issues.
- Provide and share information concerning grant applications and funding opportunities.

PDN Committee Meetings

Join the PDN committee today by subscribing to the PDN committee mailing list and our slack channel by sending an email to PDN-committee@dkfz.de, which is used to pass on information to all active members of the PDN, and attending the biweekly virtual committee meetings.

Our next meeting will be on **January 14th 2021, 5 pm**. We are happy to welcome many new members!

Editors:
Santiago Cerrizuela
Alexander Tolkachov
Susanne Lux
Renée Roller

PostDoc Network (PDN)
German Cancer Research Center (DKFZ)
Im Neuenheimer Feld 280
69120 Heidelberg
Phone: +49-6221 - 424938
E-Mail: PDN@dkfz.de
Homepage: www.dkfz.de/pdn

PDN Committee:

Alexander Tolkachov
Aoife Gahlawat
Azer Aylin Acikgöz
Carmen Veith
Dharanija Madhavan
Doreen William
Isolde Schuster
Lea Schroeder
Neda Yahoo
Renée Roller
Ruzhica Bogeska
Santiago Cerrizuela
Susanne Lux
Vesna Zivanovic

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IN THE HELMHOLTZ ASSOCIATION
Research for a Life without Cancer