

EFB Bioengineering & Bioprocessing Section

Newsletter 2020 – Issue 1



Dear EBBS Member,

Hello, and welcome to the latest edition!

It has been a trying time for all of us recently and all of us at EBBS hope you are all keeping in good physical and mental health. Many of us have experienced lock-down in one form or another, and while isolation can take a toll it is good to know that we have a wonderful scientific community out there and that we will all meet again one day soon. Many of us were looking forward to the EFB Congress in Maastricht that would have been going ahead over the summer, but the good news is that it has been rescheduled and will be held in May 2021. Coming up in the meantime will be Applied Synthetic Biology in Europe in November; the hope is that it will still be held in Delft in the Netherlands but as times are still uncertain contingency plans are in place to hold it as a virtual conference. Details and links are below.

Also this issue we have a perspective article from Eva Steele, a PhD student from the University of Edinburgh, UK, looking into the effect the COVID pandemic has had on PhD students, as well as a Q&A with Pablo Iván Nikel, one of our section's newest intake of board members.

This will also be our last newsletter as the Bioengineering and Bioprocessing Section; the EFB is undertaking some restructuring and we will be back as one of seven new divisions. Details of the changes will be posted on the [EFB website](#) soon.

We look forward to seeing you all again soon!

EBBS Comms Team , July 2020

The COVID-19 pandemic from the perspective of a PhD student



Eva Steele, PhD student, University of Edinburgh, UK

The human genome is over 20,000 times larger than that of SARS-CoV-2, and our cells are 1000 times larger than the virus particle, yet COVID-19 has ground the human world to a halt. Everyone has had their own unique experiences during the COVID-19 pandemic. Those who have been part of a national or local lockdown have been confronted with entirely novel challenges to their work life, home life, and social life. This perspective piece will focus on the experiences of PhD students during the pandemic. I will open up about my own experiences and draw on the insights I have gained from participants in a survey that asked about changes in daily routines and perceived effects on their health and work. This survey had 57 participants from 23 universities in 13 different countries, and I would like to thank them all for their openness and honesty.

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For 96% of survey participants, labs have been closed and projects have frozen – literally frozen in some cases as working cultures and reagents were hurriedly packed away into the freezer before they had to be abandoned to lockdown, not knowing when they would be thawed again. Life during the pandemic has been full of unknowns and uncertainty. We read the news and government publications in order to stay up to date on the progression of the pandemic on a local, national and global scale. But we rely on our universities/institutes to translate exactly what that means to us and our work. As the pandemic first began to spread into more countries and national lockdowns came into force, effective communication from universities to their students was essential. However, only 37% of survey participants replied ‘yes’ when asked “Do you feel that your university/department has been effectively communicating with you around changes to and impacts on your PhD as a result of the COVID-19 pandemic?”. Forty four percent replied ‘partially’ and 19% responded ‘no’. When asked if they felt that their university had taken sufficient measures to handle the COVID-19 pandemic, 67% responded ‘Yes’, 28% responded ‘partially’ and 6% responded ‘No’.

Participants were given the opportunity to comment on both issues, and a number who answered felt that communication or action from their university could have been better but were understanding of the huge number of unknowns that their university was facing. Other comments given demonstrated disappointment and frustration. The grievances that some participants expressed seemed to stem from the ‘limbo’ that PhD students uniquely occupy. Ultimately, we are students, but our working relationship with our university is more like that of a member of staff. It often feels as if a university will treat us as one or the other when it is most convenient to them. With the return to work on the horizon PhD students are expected to return to workplaces as staff are, but some feel like they were left out of the discussion when it came to the logistics and conditions of their return. One international student expressed serious frustration at their treatment. Their university expecting them to fly back to restart work with little notice and little concern for the financial cost to the student.

It was assumed that this person had settled in the university city as staff generally do and had stayed there during the pandemic. However, this is often not the case with PhD students. The majority of peers I have been in contact with returned to their home countries/cities to be with family during this troubling time. It is important to add here that a number of participants who commented had nothing but praise for the effort that their supervisors had put into keeping them informed and engaged, myself included. So perhaps this is a systemic issue? Whatever the cause, I believe this is an excellent opportunity for universities to better acknowledge the unique position of the PhD student, and to build support systems that properly reflect it.

The main source of stress to a current PhD student in a normal, pandemic-less world, is the pressure of producing a quality project and thesis in a relatively short time frame... All the while, bulking out your CV with several different types of extra-curriculars and maintaining a good work-life balance. We face an extremely competitive, daunting world. On top of this, despite having already worked hard and demonstrated capability, imposter syndrome is rife among PhD students.

Now... Enter the COVID-19 pandemic.

Working from home has proved challenging for a lot of people for different reasons. The majority of survey participants reported that lockdown had had a degree of negative effect on their productivity (figure 1).

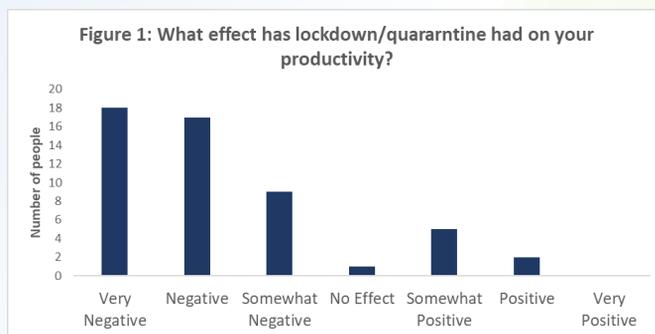


Figure 1

Personally, I have felt as if I was in a constant mental wrestling match with my ‘work brain’. Every morning I sit down at the makeshift desk in my room, open my laptop and begin scrolling through emails.

I followed this common routine every day before lockdown (with the obvious exchange of my room for an office space), and it helped to wake up and engage that part of my brain that sets me into action for the day. Now I sit here, waiting for mental activation of work mode, but instead it is like there is an error message saying “Work mode cannot be activated. Make a cup of tea and try again later”. For a while this threw me into a sort of crisis. I felt it must have been a lack of motivation that was stopping me from working, and if I had no motivation maybe I wasn’t really all that interested in the project that I had committed four years to. Upon reflection what that error message should really have read was “Work mode cannot be activated in home environment”. Unfortunately, I am one of those silly people whose self-value is strongly linked to their productivity. So, feeling as if I had achieved very little, and struggling to do anything about it, my mental health took a significant hit - and it seems I am not alone in this. The majority of survey participants reported that the pandemic has had some degree of negative effect on their mental health (figure 2).

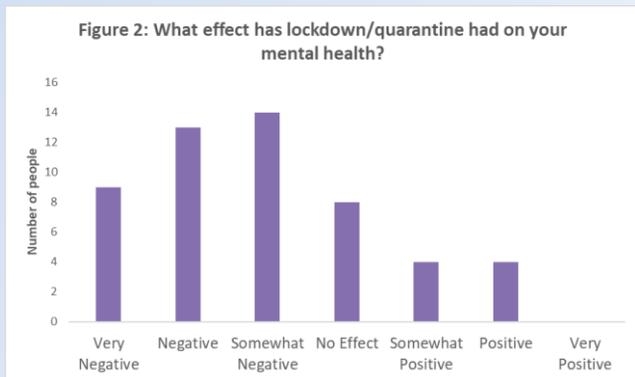


Figure 2

Hopefully anyone who responded this way will read this and see that they are not alone either. If you feel you resonate with my somewhat geeky description of my experience, please feel free to get in touch. I’d be interested to hear your thoughts.

One participant who felt the pandemic had had a positive effect on their mental health wrote that they had used their extra time at home for practicing mindfulness, self-reflection and had simply enjoyed escaping the daily rat-race.

Perhaps this is an outlook many of us could take on board. In our busy lives this could be the opportunity to stop and reflect.

87% of survey responders took the opportunity to take up a new hobby – the most common of which include baking, cooking, exercise, learning a language, and creative hobbies like painting and knitting. Like me, many participants seem to take great enjoyment from eating and reported an increase in daily snacking during lockdown (figure 3).

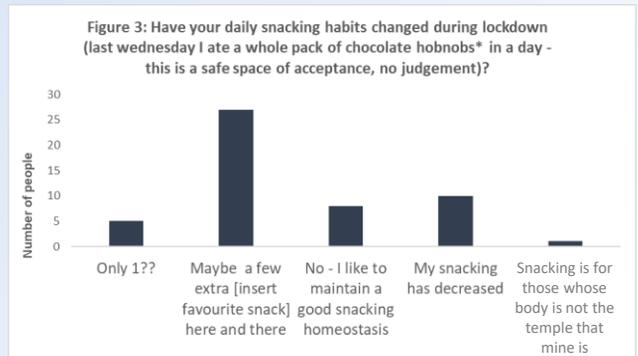


Figure 3

This combined with being sedentary for more of the day might have caused a negative effect on physical health, however participants had mixed responses when asked about this (figure 4).

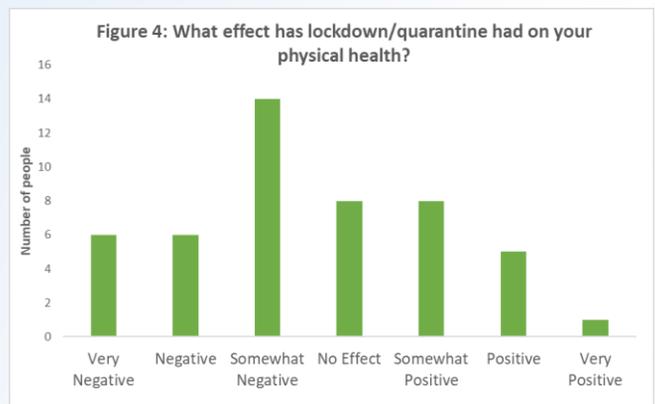


Figure 4

Strangely, I have found sitting at a computer for hours on end to be exhausting. An increased consumption of caffeine has been the only thing stopping me from taking regular afternoon naps. Plus, we all know that making a cup of tea is the perfect procrastination activity. If it was for the former or latter reason (or both), there was also a small general increase in tea/coffee consumption among survey participants (figure 5).

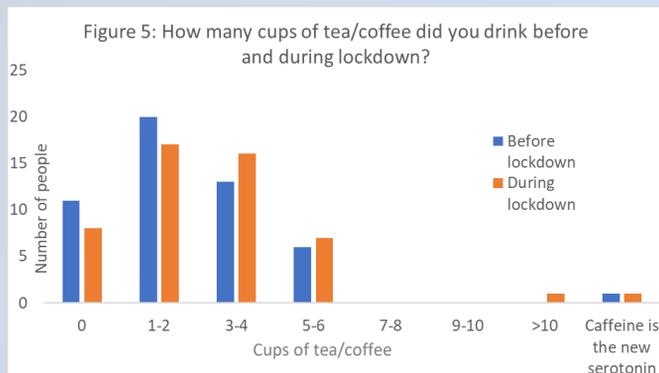


Figure 5

For one responder caffeine has become an integral part of their endocrine system... someone should probably check on that person. In fact, everyone should check on someone. Video call someone you

haven't spoken to in a while. Sit uncomfortably close to the camera and have an honest, open conversation about your experiences during this strange and scary time that we are all going through.

Be kind and stay safe,

Eva



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Upcoming events

ECB 2021



European Congress on Biotechnology postponed to 2021

9 May – 12 May 2021; Maastricht, Netherlands
Registration and abstract submission deadlines to be confirmed
For enquiries please contact: registration.ecb@tfigroup.com

EBBS section

5th Applied Synthetic Biology in Europe
EFB Bioengineering & Bioprocessing
Section
2 – 4 November 2020
Delft, Netherlands

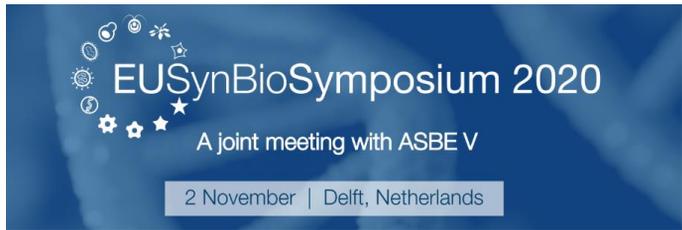


Please note that due to the Covid situation this conference may be held virtually with a decision made after the summer break; if this is the case a 75% discount on registration fees will be given to all participants.

Upcoming events

EUSynBioS 2020
**In conjunction with 5th Applied Synthetic
Biology in Europe**

2 November 2020
Delft, Netherlands



Please note that due to the Covid situation this conference may be held virtually.

Sister sections

Microbial Stress 2020
EFB Microbial Physiology Section
POSTPONED TO 16 – 18 November 2020
Rome, Italy



Please note that due to the Covid situation this conference may be held virtually with a decision made on 4 September; if this is the case a 75% discount on registration fees will be given.

OxyZymes
EFB Biopolymers Section
POSTPONED TO 2021
dates to follow



Other events

GCSB – German Conference on Synthetic
Biology
GASB
24 – 25 September 2020
Virtual conference



Meet the team



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EBBS Board member Q&A Pablo Iván Nikel

The Novo Nordisk Foundation Center for Biosustainability
Copenhagen, DK



Can you tell us about your background? Where are you based now?

My background is biochemistry and molecular biology and I earned a PhD degree in Molecular Biotechnology. My current position as a group leader is based at the Novo Nordisk Foundation Center for Biosustainability in the Copenhagen area, Denmark.

What is your area of expertise?

The work in my team is focused on metabolic engineering of bacteria and applied synthetic biology.

What is your current research?

We are interested in the synthesis of new-to-nature molecules that cannot be easily accessed through currently available production methods. In particular, we design and implement synthetic metabolism in environmental bacteria (such as *Pseudomonas putida*) for the biosynthesis of halogenated compounds, which have a number of applications in the pharma and material sectors.

Why did you join EFB/EBBS?

I have been a member of EFB for more than 5 years, and now that metabolic engineering of alternative hosts and synthetic biology have gained momentum, I found the opportunity of joining the section to be an exciting challenge. My expertise in metabolic engineering of non-traditional cell factories is something I like to

share with the EBBS, and I believe that the interest in synthetic biology in Europe will continue to expand as attested by the well-established ASBE meeting series. I am honoured to co-organize the next [ASBE meeting in Delft, Netherlands \(November 2020\)](#).

Where do you see EBBS in the future?

It is no secret that Europe (and our planet as a whole) is begging for a true circular bioeconomy. I am convinced that EBBS and EFB can help mediating this transition into a greener future, especially by creating cross-section links to ensure that we bridge academic research and industrial exploitation.

Would you share an interesting fact about yourself?

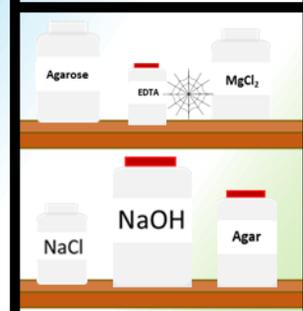
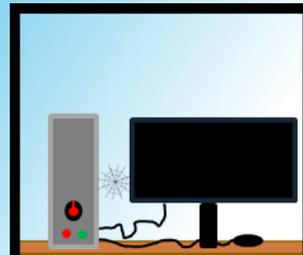
When I am not delving into the intricacies of metabolic pathway, I am a devoted opera fan. I guess I am also an example of scientific mobility: I have been living in five different countries in the last 10 years.

Contact us

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The Sound of Science



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