International Society on Aptamers

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EDITORIAL

Welcome to the 2021 first issue of INSOAP times, your source to what's happening in the aptamer world, presented by the INSOAP team. As our regular readers will know, this editorial looks at what's happened since the newsletter and looks forward to the Aptamer Symposium in a few months' time. Unfortunately, 2020 did not start off well and it certainly didn't get much better, did it? We had to cancel our in person conference in April last year but we did get over our own technical limitations and were able to hold our conference virtually in September and I have provided a brief report. I personally though it ran really well and we were fielding questions in the chat and online for all our speakers. We will be holding our conference this year virtually again and more details are provided later. Given that Covid-19 has had such an impact on us all we have focussed this issue on Covid research that have utilised aptamers and the personal impact. We put a call out for some of your stories and you will find those in place of our normal 'interview with a researcher'. I have been working from home since March last year but that hasn't meant better productivity, and I'm sure you all feel the same. Even here in Australia, where we have mostly eliminated community transmission, we are in and out of restrictions. But we have mostly got back to what we call first world problems and some of you may have seen social media comments from some professional sports players due to hit balls around soon. When I then look at the world news, I am reminded of the privileged environment we find ourselves in here. Some of our readers will have been affected more than others and I hope you all spend a moment reflecting on this and reach out to colleagues and collaborators to say hi. I hope you are all remaining as sane, safe, and healthy as you can be after a very long year.

As a final note, have you liked our Facebook page? We are currently providing links to new aptamer research papers on a daily basis. Don't have time to keep up to date on current literature? Get our daily updates in your morning newsfeed at https://www.facebook.com/AptaSoc/. Please don't forget to also follow us on twitter (@Aptamer Society, @Japtamers).

Please look after yourselves and those around you. I'll leave you with my favourite quote,

'May the insanity of others float like clouds beneath your feet'

Associate Professor Sarah Shigdar
President

Keep in touch

Websites:
http://aptamersociety.org
http:JAptamers.co.uk

LinkedIn:
http://www.linkedin.com/groups/8282517

Facebook:
www.facebook.com/AptaSoc

Twitter:
https://twitter.com/AptamerSociety
https://twitter.com/JAptamers
https://twitter.com/aptamer_connect

From the Editor

If you have anything you would like to see in the next issue of the INSOAP newsletter, send it directly to sarah.shigdar@deakin.edu.au.

Aptamers Journal

We announced the official journal of INSOAP at Aptamers 2017. Please email us at aptasoc@gmail.com to express your interest in joining the editorial or reviewer team.

Please see http://JAptamers.co.uk to submit your article.

Calling all Early Career Researchers! Special issue in the Aptamers journal

Professor Maureen McKeague

We are now accepting submissions to Aptamers specifically from Early Career Researchers, including postdoctoral fellows, for our special issue: the new generation of aptamer researchers. I highly encourage all of you to consider submitting some of your work here. All publications are open access and free of charge for Early Career Researchers until 18th June, 2021! We accept a variety of manuscript types: articles, reviews, mini-reviews, and protocols, giving you lots of flexibility. Manuscript preparation and submission guidelines are available on the following links:

http://japtamers.co.uk/manuscript-preparation

http://japtamers.co.uk/submit-a-manuscript

Why do this? As an early career researcher, it can be useful to establish your independent and unique research niche. As an example, I published five separate articles in Aptamers in the past few years as corresponding author. Some of those were during my postdoctoral training and some during the first two years of my independent career at McGill University. Having these publications on my CV, as corresponding author, helped demonstrate that I was a ready to establish my own research group and that my ideas were distinct from my former mentors. More importantly, some of these publications were excellent opportunities to learn how to lead the submission of a manuscript and learn how to support my students in their own writing.

Finally, the INSOAP Aptamer community is very supportive. This is a great place to get constructive feedback on your work. In particular, my 2018 publication comparing riboswitches and aptamers was one of the most intensely peer-reviewed documents I have ever submitted! Naturally, this feedback made the manuscript stronger and I learned so much in the process.

We look forward to reading your submissions.

What happened to all the aptamer databases?

Professor Maureen McKeague

Given the exponential increase in the number of new aptamers published each year, it is not surprising that many groups are interested in organizing this collection of data into a database. Indeed, several examples of aptamer database have been described and published in the past two decades: examples include the Aptamer Database, Aptamer Base, and Apta-Index (links below). Unfortunately, these databases are no longer functional or have not been updated for years. Interestingly, Aptamer Base was built using an existing online platform, Freebase, to support contributions from all of you in the aptamer field – with the goal of keeping the database functional and updated. What happened? As one of the developers of Aptamer Base, it is disappointing to report that Freebase[1] was officially shut down in 2016, resulting in all that data moving offline. But do not worry, all is not lost! We are working together to re-establish Aptamer Base. The plan is to use a simple format that is not at the mercy of existing web interfaces. We have a large team working together to restore the data and update all the new aptamers. So, stay tuned!

Aptamer Database: https://doi.org/10.1093/nar/gkh094
Aptamer Base: https://doi.org/10.1093/database/bas006
Apta-Index: https://www.aptagen.com/apta-index/
[1] *So long and thanks for all the data!* https://groups.google.com/g/freebase-discuss/c/WEnyO8f7xOQ 2 May 2016.

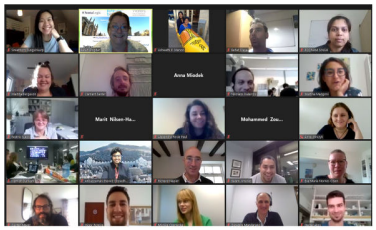
Nominations for INSOAP committee

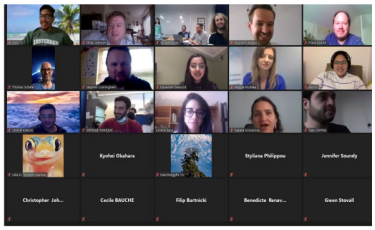
We are currently asking for expressions of interest for membership of the management committee of INSOAP. If you would like to be an integral part of our Society as it moves forward, please contact me at sarah.shigdar@deakin.edu.au.

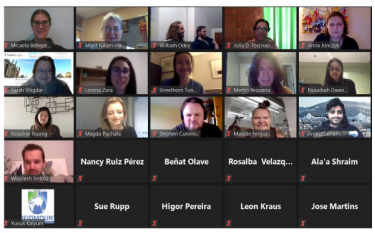
Aptamers 2021 – a virtual symposium (again)

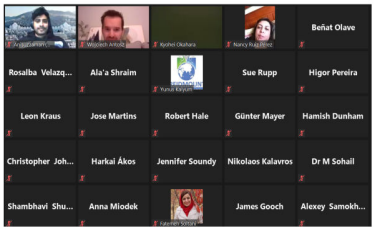
Professor Sarah Shigdar

Covid-19 had a major impact on conferences everywhere in 2020. Who knew so many of us could suddenly flip from a face to face event to Zoom, or a similar format! Even those of us that were initially technically challenged had become quite adept at holding meetings online and teaching. All of our research seminar series moved online once the powers that be worked out how to. Admittedly they were supported, while we learnt as we went. Through many virtual meetings, the INSOAP committee commiserated that it was going to be impossible to hold our normal April conference in Oxford due to the travel bans that were springing up during March 2020. The conversation continued throughout the next few months trying to work out what to do – do we postpone until 2021 or try a virtual format. We decided that we really wanted the community to come together in 2020 in some form so we set up our Zoom invitations and started the ball rolling for our Symposium in September. We split the program over two days so that everyone could attend one day or the other, or indeed both. Time zones were not our friends in Australia and New Zealand but we managed to stay on through the night of the second day. We had great talks, not only from our leaders in the field, but also our next generation of researchers, PhD students and Early Career Researchers. We also ran our speed round of posters, learning about the research that will become future research papers. We didn't get the chance to capture our normal photos of everyone chatting away at lunch or during the breaks, but we did take screenshots of attendees at the end of each session. Can you zoom in and find yourself?









So, what does this year look like? Pretty much the same as last year. The start times have moved around as we are delighted to let you know that Dr Nebojsa Janjic will be Symposium chair for 2021. We have another great list of speakers, with more to be added over the coming months. Registration is open and you can submit an abstract for a poster up to the end of March. We are going to pick some posters for a flash talk round for each day so it is really important that you indicate if you would like to

participate and which day you would like to present on. For the provisional agenda and all the information you require to attend, please see this link:

http://libpubmedia.co.uk/aptamers-2021-virtual/speakers-agenda

COVID-19 and aptamers – have we found our niche?

Professor Sarah Shigdar

As we have learnt over the last twelve months, we have become very fast at embracing new technologies. This is evident in the role out of the new vaccines from Pfizer and Moderna. What this means to the future of nucleic acids therapeutics and whether we see a higher uptake of aptamers, we can only hope. We have seen a number of aptamer researchers start to develop technologies that can not only be used for detection of Covid, but can be developed into a platform for future pandemics. And this then leads into the question of where should we be directing our attention. This question was tackled by Y Lucia Wang and Maureen McKeague in an article published in July in the Aptamers Journal (2020: Vol 4, p1-2). With vaccines now rolling out on most continents (New Zealand and Australia have just received their first doses), in my opinion I think our immediate need is for detection. I say this from living in Melbourne knowing that our second wave started from surface contamination and our most recent lockdown stemming from the use of a nebuliser in a hotel room and the virus becoming packaged up into tiny droplets that then spread into the corridor. In countries or in states or cities that have managed to mostly eliminate the virus, knowing where the virus is is imperative to preventing more cases. Could we use something to confirm that cleaning of surfaces is removing all of the virus particles? Would this be practical every time or performed as part of regular audits? Could we use aptamers to determine if there was live virus in the supermarket, maybe combined with the technology that the DeRosa lab is developing? A wipe down of basket or trolley handles could determine if someone had been in the store that was infectious. What about live viral particles in the air? Could we maybe swab air exhaust vents to detect the virus? I'm sure there are smarter minds than mine that are already considering how these type of systems could go into smart homes or shopping centres in the future to get ahead with this. Going back to the premise of the question, is this then our niche where we could showcase the advantages of aptamers and their inherent stability in diagnostic applications? We know how quickly aptamers can be generated and a quick search on Google Scholar using 'aptamer' and 'SARS CoV2' brings up ~ 3000 articles from 2020 and 2021 (though this does include pre-prints). If we can develop some of these platforms further, we can use them as proof-of-concept for other infectious agents. Personally, I'd love to see these applications combining for (almost) instantaneous hotspot detection. We then need to look at detecting the virus in infected hosts. I'm not limiting this to humans as we have seen the virus in numerous animal species. The gold standard for testing in Australia is a nasal swab that looks incredibly painful for some. It also puts our healthcare workers at risk, even with PPE, of becoming infected themselves and we have seen this across the world. There have been other detection systems developed that may not have quite as high a level of specificity and sensitivity as the Q-PCR currently being used. We do need to have diagnostic systems that we can trust to have a very, very low level of false negatives but we also need to ensure that we can have something that can be administered by the patient with some oversight by healthcare workers that can be performed at a distance. Adding in rapidity of a result in a simplified format would be absolutely fantastic and would certainly reduce anxiety. Again, and not to harp on (though this is my job), is this where aptamers find their niche? I am hopeful and I look forward to hearing about some of this research at our Aptamers Symposium in April and reading about it as it is picked up by the media and published in papers.

Updated list of recently published aptamers

Professor Maureen McKeague

Here are newly reported aptamers since our last issue (2020). We only report aptamers that have been characterized with a dissociation constant (Table 1). Typically, we make use of Pubmed to identify newly published aptamers with the keywords “aptamer” and “SELEX”. If we have missed any newly reported aptamers, please let us know (maureen.mckeague@mcgill.ca). Readers should consult the literature (link provided) for verification and further information.

Table 1: Newly-reported aptamers published since our last issue

Link	Target
https://www.ncbi.nlm.nih.gov/pubmed/32294882	C-Reactive Protein and Lactate Dehydrogenase-5
https://www.ncbi.nlm.nih.gov/pubmed/32298104	HIV-RT
https://www.ncbi.nlm.nih.gov/pubmed/32234785	Epithelial cellular activating molecule
https://www.ncbi.nlm.nih.gov/pubmed/32319623	RhD+ red blood cells
https://www.ncbi.nlm.nih.gov/pubmed/32368012	Hepatocellular Carcinoma Cells
https://pubmed.ncbi.nlm.nih.gov/32429721	Human PD1
https://pubmed.ncbi.nlm.nih.gov/32425897	Red-Spotted Grouper Nervous Necrosis Virus (RGNNV)-Infected Cells
https://pubmed.ncbi.nlm.nih.gov/32415571	Proprotein Convertase Subtilisin/Kexin 9
https://pubmed.ncbi.nlm.nih.gov/32456943	Sepiapterin
https://pubmed.ncbi.nlm.nih.gov/32486960	Activated protein C
https://pubmed.ncbi.nlm.nih.gov/32499557/	Legionella pneumophila
https://pubmed.ncbi.nlm.nih.gov/32516525	trastuzumab
https://pubmed.ncbi.nlm.nih.gov/32515842	a whole library of aptamers no sequence but yes Kd but I don't see how this is helpful
https://pubmed.ncbi.nlm.nih.gov/32527457	Carcinoembryonic antigen
https://pubmed.ncbi.nlm.nih.gov/32546848/	Circulating Plasmodium Falciparum-Infected Erythrocytes
https://pubmed.ncbi.nlm.nih.gov/32551560/	SARS-CoV-2 RBD (Receptor Binding Domain)
https://pubmed.ncbi.nlm.nih.gov/32561948/	Bovine Pregnancy-Associated Glycoproteins 4
https://pubmed.ncbi.nlm.nih.gov/32574155/	PD-L1 protein
https://pubmed.ncbi.nlm.nih.gov/32589412/	human M2-like macrophages
https://pubmed.ncbi.nlm.nih.gov/32631977/	*Plasmodium vivax* lactate dehydrogenase (PvLDH)
https://pubmed.ncbi.nlm.nih.gov/32631049/	myoglobin (Mb) and β2-microglobulin (B2M)
https://pubmed.ncbi.nlm.nih.gov/32731467/	Avian influenza virus subtype H5N1
https://pubmed.ncbi.nlm.nih.gov/32739349/	hexahistidine,
https://pubmed.ncbi.nlm.nih.gov/32780154/	triclosan
https://pubmed.ncbi.nlm.nih.gov/32790805/	Newcastle avian virus
https://pubmed.ncbi.nlm.nih.gov/32825904/	metronidazole
https://pubmed.ncbi.nlm.nih.gov/32857495/	doxycycline
https://pubmed.ncbi.nlm.nih.gov/32881630/	C promoter binding factor 1
https://pubmed.ncbi.nlm.nih.gov/32870501/	TAFH (in Drosophilia)
https://pubmed.ncbi.nlm.nih.gov/32959408/	Grass carp reovirus
https://pubmed.ncbi.nlm.nih.gov/33021630/	thrombin
https://pubmed.ncbi.nlm.nih.gov/33017145/	nano-sized DNA
https://pubmed.ncbi.nlm.nih.gov/33039563/	thrombin
https://pubmed.ncbi.nlm.nih.gov/33030015/	glioma cell line SHG44
https://pubmed.ncbi.nlm.nih.gov/33063508/	Cytokine interferon alpha (IFN-α)
https://pubmed.ncbi.nlm.nih.gov/33123724/	Cas9

https://pubmed.ncbi.nlm.nih.gov/33095511/	anti-HIV-1 Reverse Transcriptase
https://pubmed.ncbi.nlm.nih.gov/33074441/	dichlorvos
https://pubmed.ncbi.nlm.nih.gov/33080969/	Glypican-3 (GPC3)
https://pubmed.ncbi.nlm.nih.gov/33146506/	N-Cadherin Protein
https://pubmed.ncbi.nlm.nih.gov/33151990/	Rituximab
https://pubmed.ncbi.nlm. nih.gov/33177004/	Proprotein convertase subtilisin/kexin type 9 (PCSK9) induces low-density lipoprotein (LDL)-receptor (LDLR)
https://pubmed.ncbi.nlm.nih.gov/33174555/	N-cadherin
https://pubmed.ncbi.nlm.nih.gov/33155587/	PD-L1
https://pubmed.ncbi.nlm.nih.gov/33161980/	human pituitary tumour transforming gene 1 (PTTG1)
https://pubmed.ncbi.nlm.nih.gov/33195056/	glutathione S-transferase (GST), maltose-binding protein (MBP), and poly(histidine) tag (His-tag)
https://pubmed.ncbi.nlm.nih.gov/33184583/	GLUT1 glucose transporter
https://pubmed.ncbi.nlm.nih.gov/33184760/	sulfamethazine
https://pubmed.ncbi.nlm.nih.gov/33206450/	EpCam
https://pubmed.ncbi.nlm.nih.gov/33242496/	Thy-1 membrane glycoprotein in pancreatic ductal adenocarcinoma
https://pubmed.ncbi.nlm.nih.gov/33335255/	daratumumab
https://pubmed.ncbi.nlm.nih.gov/33261145/	CD63
https://pubmed.ncbi.nlm.nih.gov/33262379/	Enterococcus faecalis
https://pubmed.ncbi.nlm.nih.gov/33303143/	thyroglobulin
https://pubmed.ncbi.nlm.nih.gov/33387594/	histatin 3
https://pubmed.ncbi.nlm.nih.gov/33319876/	PD-L1
https://pubmed.ncbi.nlm.nih.gov/33379005/	Klebsiella pneumoniae carbapenemase 2
https://pubmed.ncbi.nlm.nih.gov/33379043/	Osteocalcin (OC) and beta-crosslap (BC)
https://pubmed.ncbi.nlm.nih.gov/33369387/	Plasmodium vivax lactate dehydrogenase
https://pubmed.ncbi.nlm.nih.gov/33400073/	hepatitis B surface antigen
https://pubmed.ncbi.nlm.nih.gov/33410883/	recombinant insulin receptor extracellular domain
https://pubmed.ncbi.nlm.nih.gov/33410654/	RNase H2 from Clostridium difficile
https://pubmed.ncbi.nlm.nih.gov/33480930/	ovarian cancer tissue samples
https://pubmed.ncbi.nlm.nih.gov/33473329/	human lung cancer cell line (A549)
https://pubmed.ncbi.nlm.nih.gov/33502393/	thiamethoxam pesticide

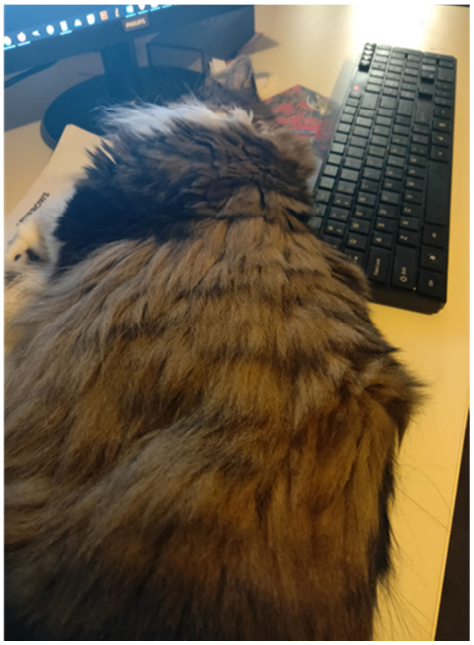
Impact of COVID-19 on research

Professor Sarah Shigdar

Since the first case of unusual pneumonia was announced in December 2019, we have all been impacted by SARS-CoV2 in one way or another. We have seen different countries react to this in a number of different ways. Each of us will have been impacted in different ways, whether that has been from a personal choice or from government restrictions. As the year progressed, I found myself screaming at the TV, not over the restrictions or the announcements, but over the lack of science knowledge that our journalists in Melbourne continued to display. Their questions still demonstrate a lack of knowledge. I'm sure we could all compare stories. Since 18th March last year, I have been into the lab about 20 times to train students but all of my research basically stopped. That made me wonder how others had been impacted by Covid-19 and so I asked on our Facebook page for people to share their stories. Please see some of our stories below.

Professor Sarah Shigdar

My two cats kept me company during the strict stay-at-home orders. This was after walking in front of the camera during Zoom meetings!



On 17th March 2020, our lives in Victoria, Australia changed. I remember the date because it was the day after what would have been my Dad's birthday, and the second week of teaching in our first trimester. There had been a few rumours, but on that day, we received official notification that all teaching was to go online from the next day. All of my lectures went online from the following week. I had already met with all of my research students to warn them to wrap up any experiments by the end of the week as it was likely that the research labs would also be closed soon. By the end of March, everything was locked down. What followed was a series of Zoom meetings – meetings to organize teaching, to provide assistance to my unit chairs so they could navigate the online systems and work with the undergraduate students as best we could to deliver our teaching, meetings to discuss administrative tasks, meetings to talk about research, meetings to support my research students, never-ending meetings! I'm sure everyone can relate to the Zoom fatigue that we certainly felt by the end of the year. I had to remind myself to get up every now and then and move around. But I was mostly glued to my emails and answering the never-ending questions. And then in June, we were told that we could apply for exemption to return to the research labs if we were performing critical research. I had a joyous 3 weeks of driving into work to teach one of my students cell culture before our next lockdown. Between March and May, we had been very good at reducing case numbers, hence being 'open' again for some activities. But that all came crashing back down in June when a new outbreak started in Melbourne, later to be discovered to be from surface contamination leading to the infection of a hotel worker, and then asymptomatic spread prior to higher case numbers of symptomatic patients. Numbers were increasing exponentially, until we entered our second lockdown in July and I was forced out of the lab again. Movement was restricted between metro and regional areas so I was in the unfortunate situation where some of my students could carry on but I was locked out because I lived in metro Melbourne and my lab was in regional Victoria. The lockdown toughened in August and it took months for restrictions to ease. My first trip back to the lab was on 8th October but with people limit restrictions on the lab spaces, it was difficult to access the lab some days. It wasn't until 25th November 2020 that my lab was together again in one spot. Between July and November, we waited for announcements every Sunday. Throughout July to September, those announcements brought further restrictions or extensions and my heart dropped every time because of what that meant for my research students, especially those impacted by the great divide of living in Melbourne or because their projects were dependent on me being able to

access the labs. We watched as colleagues returned to the labs in inner Melbourne because they weren't so restricted by the 'ring of steel' around Melbourne protecting our regional communities. Our days would work around the daily press conferences to see what other announcements might be made. Those daily pressers went for at least an hour each day and the questions contributed more hashtags on Twitter than I've ever seen from one event. We had been struck by a series of unfortunate events in Melbourne and wondered when our bad luck would end.

We have been in and out of lower level restrictions since then and have celebrated many good days, as well as express disappointment when new cases arise. Our days of no cases are known as 'donut days' in Victoria, a phrase coined by our State Premier Dan Andrews, who celebrated our first day of zero cases with a pack of donuts (He's also become known for the song 'get on the beers'). Unfortunately, we are back in a 5 day lockdown at the moment and those of you watching the tennis will have noticed we went from crowds watching on Friday to no crowds on Saturday. We hope that this lockdown will end at the end of Wednesday and we can get back in the labs, but with the memory of last year and our second wave, we are very cautious.

What the past 11 months have taught me is that my cats aren't just annoying when I'm sitting on the sofa trying to write on my laptop, but they can lie on keyboards and delete emails wherever I work. I've followed the daily activities of the new Corvid family that moved into the area and the little gurgles from the baby crow when being fed are almost as enjoyable to listen to as the laughter of the neighbourhood kids playing in their gardens. I have also watched the real life struggle of David and Golliath when a sparrow took on a dove, and when the baby crow tried to emulate his parent and chase the other birds away while still not quite comfortable hopping. I heard about 'WindowSwap' during our lockdown, and when I was struggling with the lack pf productivity that we have all experienced, I would watch the view of other windows around the world (there's a lot more on there now). So, I've learnt to appreciate the little things more. I must also commend the resilience of everyone who has got through this with only a little bit of sanity lost. It is impossible to be as productive as we would normally be without the world events of the last 12-15 months. Some of my research students have been able to carry on their research since June, while others were impacted more severely. We have been told that the Melbourne lockdown was one of the longest and harshest in 2020. But, we are mostly now privileged to be talking about those pesky first world problems again and we are able to go to work without worrying too much about the risks to our health – something that not many other countries can experience yet and it feels very surreal to be here while following the world news every day. For those countries that chose a lockdown at the start of the pandemic, we mostly all came out of those restrictions around the same time, with few countries having extensive lockdowns in the first wave. We were the first to reenter lockdown on 8th July and that extended to the end of October. And with all the time we've spent in lockdown with strict stay at home restrictions, my research students have still been able to carry on some work in the last 12 months, though all are still reeling from the current fast lockdown. Other students have been completely restricted due to not being able to continue their research because of location and travel bans.

How COVID-19 affected my life - Qurat ul Ain Zahra

I belong to Pakistan, a developing nation where almost half of the population is illiterate and opportunities are rather limited for those who do manage to get some education. I was lucky to get my MS degree in science in my early twenties and got through a competition to become a government school teacher. Although being a teacher is a great job, but I had a dream to become a scientist and do something meaningful in my life, something which could be beneficial for not only me but the whole of mankind. With the high aims to explore the world and to make my dreams come true, I started seeking for scholarships to pursue doctoral degree at the risk of losing a stable Government sector job.

My passion make me brave enough to resign my job, leave my family, friends, hometown and everything behind for a noble cause when I successfully secured a PhD position (three years ago) at one of the top ranked universities in China and in the whole world, fully funded by Chinese Government Scholarship. I had to quit my job, which obviously I can't rejoin in future, to chase my childhood dreams. After learning basics of Chinese language and culture for a few months officially at China, I stepped into my laboratory in the mid of 2018, started focusing on my PhD course work along with learning a number of new research skills. My research focused on Aptamers, a word completely new to me. I not only studied hard to familiarize myself with new laboratory techniques but also learnt to survive in a different environment (I have never been outside my hometown before this). I got so involved in my work that I didn't realize how two years passed.

In the last week of December 2019, my family almost forced me to visit them. I planned my trip home for a month and I was committed to complete my pending research projects after returning back as I was supposed to graduate in July 2021. Then all of a sudden COVID-19 epidemic started and it became a pandemic within a few months. International flights were cancelled and almost all countries imposed some sort of travel bans. I was also barred from returning back to my university so, I got stuck at my hometown.

With hopes of invention of vaccine or some miracle treatment, I believed that these travel bans will be lifted. But unfortunately, I am not able to get back to my formal studies yet. Although I have not wasted my time at home, reading scientific literature about aptamers and have successfully wrote a review article, another article is in process. But, I could not utilize my time as efficiently as I could have if I were at my laboratory, learning new skills in doing new experiments every day. Moreover it's not enough to get my degree requirements which makes me stressed a lot because the graduation deadline is very near yet I have miles to go.

The most detrimental outcome of this pandemic is that I and a number of my batch mates (last year students) outside China had to suspend this fall semester because there are certain degree requirement which cannot fulfilled online. It means that I will not be able to continue my studies and research until I get back to China. Even my original documents are not here with me to apply for some jobs in the hour of disappointment as we are not being paid any kind of scholarship these days. Moreover, I recently heard that my co-supervisor also left my university after getting an opportunity somewhere else (it can affect my research directly or indirectly). While I do understand and appreciate that travel bans are there to protect mankind against this invisible enemy. At the same time I am depressed by the fact that I am profoundly affected by this disaster because there is yet no chance for students to go back. It's hard to hold on your life while you are having many dreams for your future career but you suddenly came to know at the final phases that you cannot either go back or move forward for an unknown time limit. I do not know what the future holds for me but I am still passionate to come out of these uncertain situations soon to walk through my destination. I can only hope for a better future which can end our sufferings by controlling this pandemic.

McKeague Lab

Due to my joint appointment across two departments and two faculties, my lab group has always had distance challenges. In particular, my two labs are physically separated on a small mountain, about a 15 minute steep walk apart – this can be rather dangerous on an icy Montreal Winter Day! Nonetheless, my students are dedicated, fit, and resilient – and therefore travel between labs to collaborate and learn new techniques. Unfortunately, COVID-19 has especially impacted the progress and morale of my group. This is because necessary physical distancing rules prevent my students in my chemistry laboratory from accessing my pharmacology laboratory and visa versa. I am really proud of my students for finding creative ways to make up for these challenges, spending time via zoom to communicate and collaborate. More impressively, my lab contributed to a huge McGill-based effort for COVID-19 testing in Montreal. Here is a photo of some of the McGill team members (Dr. Marcel Behr, Dr. Susanne Bechstedt, Dr. Raymond Tellier, Dr. Maureen McKeague (me), and Dr. Don van Meyel) posing for a socially-distanced photoshoot when we delivered 15,000 McGill-made COVID-19 tests.

Reference: https://muhc.ca/news-and-patient-stories/research/15000-covid-19-tests-produced-mcgill-university-and-ri-muhc-step

Aptamers Journal

Aptamers
The Official INSOAP Journal

The Aptamers journal is the official journal of the International Society on Aptamers and will publish studies on all aspects of aptamer research. The Aptamers journal, launched at the end of 2017, is the first-ever peer-reviewed journal aimed to publishing all aspects of aptamer research. The journal is specifically open-access to help make aptamer research accessible to scientists all over the world. Moreover, the journal will consider “negative” data, as we all know that this can be very valuable information when performing aptamer research.

The landscape of published articles in the Aptamers journal to-date is very diverse. For example, topics of the presentations include selection methods, aptamer characterization, chemical modification of aptamers, applications in drug delivery and biomaterials. Furthermore, the publications have been received by authors from all over the world: specifically, USA, Germany, Russia, Australia, Canada, South Korea, Switzerland, Uruguay, Japan, Italy, China, Spain, UK, and Jordan. Finally, the journal accepts several forms of publications, and indeed each of the publication formats have included. In particular, we received three full Research Articles, three Research Reports, five Reviews/Mini-Reviews, one Protocol/Method, and three Meeting Reports/News Articles.

We would like to thank our very diverse and international Editorial Council team and reviewers for helping make the publications of these 15 articles a reality. We look forward to many more aptamer articles in 2019! Please submit your articles for peer-review to the Aptamers journal. All symposium delegates can submit an article before 30th September 2019 for free. So if you'd like to publish your work in the first Aptamers journal, please follow this link http://www.JAptamers.co.uk .

Updates to the website

We have been working on updating the website for INSOAP and you will now see that we have a listing of all aptamer companies throughout the world, as well as a listing of all the aptamer laboratories to date. If we haven't got you listed, please get in touch and we will add you to our growing list. We are also providing a careers page so please get in touch with any vacancies you wish to be listed. Finally, if there are any suggestions for improvements to the website, please contact us and we will make the changes.

Aptamer Consortium

Professor Sarah Shigdar

One of issues that we've watched develop over the last few years is the reproducibility crisis that we first discussed in the June 2017 newsletter. At the time we suggested that aptamers could fix some of the issues of reproducibility by providing a more reliable tool for applications. The next step in this process is to develop best practice guidelines for the publication of research articles describing the generation of aptamers and their use in specific applications. To that end, within the Society, we have been discussing the need for a small group of researchers to come together from both Academia and Industry to work on these guidelines. Our Mission Statement, while still a work in progress, states:

'*The Aptamer Consortium supports researchers, academic institutions, and partners, to promote best practice for aptamer techniques in both diagnostics and therapeutics, to provide guidance for basic and applied research as well as development and commercialisation, and facilitate discussion and interchange of ideas*.'

We are currently working on our first paper from the Consortium, which will tackle the minimum standards for publishing novel aptamers and we hope to have that published soon. If you are interested in sharing your views on the Consortium, please email me (sarah.shigdar@deakin.edu.au).