International Society on Aptamers

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EDITORIAL

As I write this, it is approaching the end of July, and I still don't know where the time has gone this year. I do know that we have been very busy in and with the Society and you will note this is a particularly bumper issue for the second one of the year. We have a new member of the management committee, and I will let Prof. Prabodhika Mallikaratchy tell you all about herself in our interview on pg7. We also have an Early Career Researcher arm to the Society and I will introduce them to you on pg4. I'm really excited with this development and hope to bring fresh ideas to how we can work together to develop all of our younger talented members.

I attended the hybrid Aptamer Symposium in April, and it was great to see so many people in attendance, both in person and online. We have a small write up of our keynote speaker in the newsletter (pg2), which I hope you enjoy. While reading about it may not give you as much excitement as hearing Larry Gold talking about it personally, it did send chills up my spine as to the possibilities we now have to understand our health and disease states much better, thanks to aptamers. We also have our 'save-the-date' for our conference next year and I hope to see as many of you there in attendance as possible on 29-30 March 2023. We are proposing a hybrid mode again as this allows a larger attendance for those unable to travel.

For those that have been following our news on the Aptamer Consortium, I am very pleased to announce that we have published our first article detailing the minimum aptamer publication standards for de novo sequences. This was an incredibly rewarding collegiate effort from some of our leading researchers around the world. We have provided a short discussion on pg3 and a link to the publication.

You'll also see I've been busy with presenting to a new initiative, APTA-lition, based in India recently. We hope that this will become a yearly traditional, and I love the quote at the end of the article, on pg6, regarding imagination – I always say that we are only limited by our imagination with what we can do with aptamers. If you are part of a group that organises similar events, please let me know and we can highlight your contributions in the newsletter. I also spoke to a government organisation based in the UK who are focussed on highlighting non-animal derived reagents, which aptamers fall into perfectly (pg3). Just another advantage of aptamers to highlight.

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).

On that note, I will sign off the editorial for this edition with the hope that you all remain healthy, hopeful, and successful. Until next time,

Associate Professor Sarah Shigdar
President

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http://aptamersociety.org
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www.facebook.com/AptaSoc
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https://twitter.com/aptamer_connect.

From the Editor

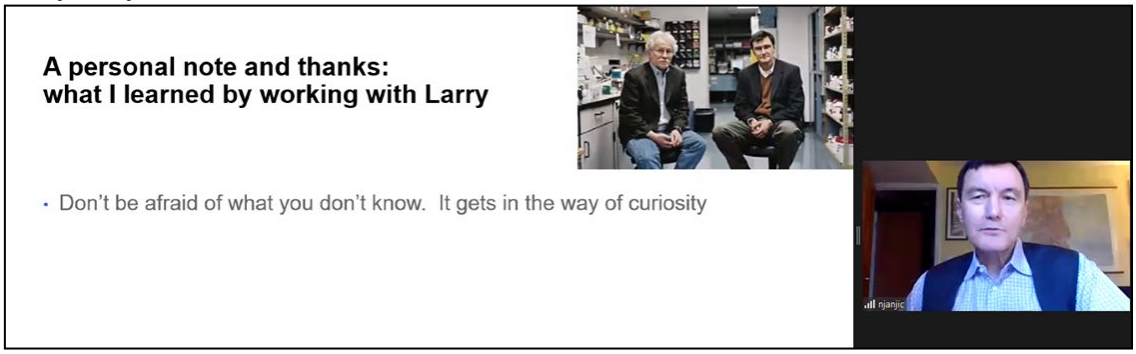
If you have anything you would like to see in the next issue of the INSOAP newsletter, send it directly to sarah.shigdar@deakin.edu.au.

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://libpubmedia.co.uk/aptamers/ to submit your article.

Aptamer Symposium 2022 – Sarah Shigdar

While I was unable to travel to the conference this year due to travel restrictions, it was a great pleasure to log in and attend the hybrid conference virtually. For those that did attend, you may also have heard me introduce my cat, affectionately known as 'Dude' to the audience as it is seldom he is not in front of the video camera when I'm talking to it. While we are working on the conference proceedings to be submitted to the Aptamers Journal, I want to take the opportunity to highlight our keynote speaker for this year, Professor Larry Gold. While I won't provide a biography of Larry here, I will direct you to read about him on the Aptamers 2022 website (http://libpubmedia.co.uk/professor-larry-gold-to-deliver-a-keynote-address-at-aptamers-2020-2/). He has had a very distinguished career and continues to have an impact in the aptamer field, notably because of his role in founding SomaLogic. He was also awarded a Lifetime Achievement Award at Aptamers 2021. For those that aren't aware of what SomaLogic do, their main focus has been on the development of SOMAmers for use in large arrays that can measure up to 7,000 proteins simultaneously. It was this platform that Larry provided us a clinical update on, and I have to say I was blown away by the results he presented and the enormous possibilities moving forward. The title of the talk was 'broad proteomics and target identification for pain therapeutics: making the leap from correlation to causality', with a TL/DR being the treatment of pain following a severed spinal cord injury and paralysis and it was work completed with Xtalgo, a biotech company in Colorado. If you've ever spoken to anyone with pain following paralysis, you know how excruciating it can be. Working with Scott Falci, who worked out which tissue and the hyperelectrical activity that was causing the pain and had successfully treated about 85% of his patients with ablation therapy, they wanted to understand why some patients didn't respond. By taking a biopsy of the 'hot' tissue and comparing it to 'cold' tissue using the SomaScan analysis of 5,000 proteins identified about 1% as potential drug targets. They then asked the question if drugs had been developed to any of these proteins for other conditions and if they had been FDA approved, which makes the use of these in patients an easier pathway. For one drug against one of the proteins tested for compassionate use in 8 patients, 5 responded, and this drug is now being tested in a larger trial. In order to confirm this was a case of causality and not just luck, they then went on to test another drug against one of the other proteins that was overexpressed. While this was only tested on one patient so far, it also demonstrated success. Now they are looking at repurposing drugs to some of the other proteins that were overexpressed and looking at treatment of neuropathic pain. I anticipate that this approach will become a lot more widespread, especially as SomaLogic are working feverishly to reduce the costs of the SomaScan so that it can be utilitised by a lot more researchers and clinicians. I will be following progress very closely to see what other conditions could be treated in the future. Hopefully there will be more updates at Aptamers 2023, which is a great segue to our save the date request – Aptamers 2023 will be held, in hybrid mode again, on 29th and 30th March 2023 in Oxford and I hope you can join me there! I will leave you with a view of our online and in person attendees this year and a final word from our Symposium Chair, Nabojsa Janjic



Aptamer Consortium – our first paper published – Sarah Shigdar

Back in November 2018, I remember thinking about how the Society could do more to support all the researchers that use aptamers, and thus the Aptamer Consortium was born and we announced it and our core values at Aptamers 2019 with the first job being to have a set of standards for publication. This was also a concept that our Symposium Chair for 2019, Professor Dr Günter Mayer had also been thinking of. While we made a good start in 2019 with an outline for the paper, the pandemic unfortunately brought a lot of changes for many of us and increased our workload. When things appeared to calm down a bit, we set about inviting members of the Aptamer Society to assist with turning the draft into what is now 'The minimum aptamer publication standards (MAPS guidelines) for de novo aptamer selection'[1], published in Aptamers, 2022, volume 6 and freely available. I am incredibly happy that this has finally been published and I hope you all have the time to read it and ensure that the papers you are reviewing meet this standard.

While we were working on this, another paper was published which highlighted another problem, which is the errors creeping in to the sequences published in aptamer papers[2]. While it would not be possible to review all the papers published on aptamers, some 144,000 to date, the authors looked at the top 10 cited aptamers to see what discrepancies had crept into the reporting. This had been prompted by their own observations regarding their RNA antilysozyme aptamer and a review of the 61 publications citing their 'sequence', which showed 93% reported unexplained altered sequences. The percentage was even higher in those citing the DNA variants, at 96%. A review of the 780 publications for the 10 most frequently used aptamer targets (thrombin, adenosine triphosphate (ATP), vascular endothelial growth factor (VEGF), platelet derived growth factor (PDGF) BB, cocaine, theophylline, lysozyme, nucleolin, immunoglobulin E (IgE), and ochratoxin A (OTA). Through an elegant phylogenic study, the authors found that 59% of published sequences were correct or explained sequence alterations. The remaining 41% had additions, deletions, insertions, inversions, substitutions, complementary sequences, or even entirely different sequences. There was a small percentage in this group that didn't provide the sequence. From my own personal experience, I recently came across a paper that had used one of the aptamers that I had developed. They correctly identified the name of the aptamer but did not cite the original paper and missed the last 'g' off the end of the sequence. A review of the secondary structure of that sequence confirmed that the aptamer would not fold properly, and thus could not work. By not citing the original paper, there are limited ways another reader could confirm the issues with the sequence, unless they were aware of the work with this aptamer over the past 10 years. The conclusions in this paper fit quite nicely with our MAPS guidelines and go hand in hand with each. If authors and reviewers follow our MAPS and are also aware of the issues of replication of aptamer sequences, ensure the original paper is cited if it is not a de novo aptamer and that the sequence has been copied correctly, we may be able to minimise the issues moving into the future. This won't prevent researchers using the aptamers or methodology incorrectly as has also been done, but it is a good place to start.

1. Maureen McKeague, Victoria Calzada, Laura Cerchia, Maria DeRosa, Jennifer M Heemstra, Nebojsa Janjic, Philip E Johnson, Leon Kraus, Janice Limson, Günter Mayer, Marit Nilsen-Hamilton, David Porciani, Tarun Kumar Sharma, Beatrix Suess, Julian A Tanner, Sarah Shigdar. The minimum aptamer publication standards (MAPS guidelines) for de novo aptamer selection. Aptamers, 2022, 6.
2. Alexandra A. Miller, Abhijit S. Rao, Sujana R. Nelakanti, Christopher Kujalowicz, Ted Shi, Ted Rodriguez, Andrew D. Ellington, and Gwendolyn M. Stovall. Systematic Review of Aptamer Sequence Reporting in the Literature Reveals Widespread Unexplained Sequence Alterations. Analytical Chemistry 2022 94 (22), 7731-7737

Non-animal derived reagents – Sarah Shigdar

I was fortunate earlier this year to chat to someone that works for a scientific organisation based in the UK. I think most people who conduct medical research will be familiar with the concept of the 3 'r's, This involves the replacement, refinement and reduction of animals in research, and as such the organisation is called NC3Rs. The initial email, which intrigued me, was about the use of non-animal derived reagents. As you can imagine, and I'm sure you made the very obvious leap, the vast majority of aptamers fit into this category. Aptamers are developed using an iterative process of molecular biology techniques to produce

strings of nucleic acid binding sequences that have high specificity to their target. And if you've been an avid reader of this newsletter since our first issue (they are all available on the Aptamer Society website), you'll know that we have covered the issue of antibodies in the past. Notwithstanding that they are still mostly animal derived reagents, but that there is batch to batch variation, and cross-reactivity, making them less than reliable as detection reagents. The vast majority of academic research that develops new antibodies still focusses on immunising an animal to produce a possible clone that produces antibodies to a specific target. While there are newer technologies to produce antibodies that don't involve animals, techniques such as phage display are not easy to implement and are a lot more hands on than the traditional method of injecting a mouse and then keeping your fingers crossed for around 3 months. Phage display is, though, very similar to aptamer SELEX. If you can do one, you may be able to do the other. However, as one publication pointed out on this topic, regardless of how the antibody is produced, it may still lack intrinsic specificity[1]. S, there are still the obvious benefits to generating aptamers rather than a protein. The main focus of phage display has been in toxins and venom research where the use of these to immunise an animal would likely result in their death. A quick search on Google does bring up a list of company websites and a similar search on Google Scholar does bring up a large number of results for phage display antibodies. Not wanting to promote antibodies over aptamers too much, this does seem to be a step in the right direction, especially given the fine that one antibody company received over animal health. While there is still an expectation that therapeutics are tested in animal models prior to entering clinical trials, there are a number of advancements in more humanised models that will ensure that preclinical research is much more predictive of expected results. After all, there is a reason there is a hashtag on Twitter #inmice demonstrating our ability to cure animals of every disease we give to them but not translating that success into humans. Having a scientific organisation such as NC3Rs working to reduce/remove animal derived reagents, and possibly promoting aptamers as non-animal derived reagents can only benefit us as aptamer researchers. And given we all know the superior properties of aptamers over conventional antibodies, I'm sure we can all start mentioning this other property of aptamers in our conversations with non-aptamer researchers. If you'd like to learn more about NC3Rs, please click through their website https://www.nc3rs.org.uk/

NC 3Rs National Centre for the Replacement Refinement & Reduction of Animals in Research

1. Gray, A., Bradbury, A.R.M., Knappik, A. *et al.* Animal-free alternatives and the antibody iceberg. *Nat Biotechnol* **38,** 1234–1239 (2020). https://doi.org/10.1038/s41587-020-0687-9

New Early Career Researcher (ECR) input into the Society

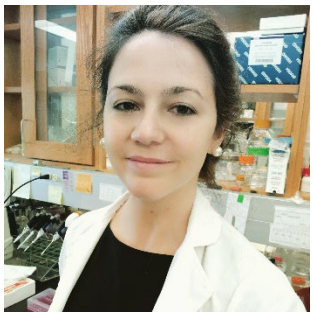
One of the tasks we've been focussed on is how we can help our 'younger' members of the Society develop and get the support needed to progress their projects and careers. We introduced the poster flash talks a few years ago in the conference program and this has allowed our students and ECRs to introduce themselves and present their research, which has been an invaluable opportunity to network with our more experienced members of the aptamer community. I know I have really enjoyed hearing about some of the new areas of research that aptamers are proving successful in. While this was a great initiative, we are hoping for more ideas to grow and support our next generation of the Society. So, we have invited a team of PhD students/ECRs to be part of the management committee. Some of you will be very familiar with a couple of the members as editors for the ECR issue of Aptamers. See below for information on our new team members. If you have any ideas or would like to be part of the team, please email me at **sarah.shigdar@deakin.edu.au**

Dr Dave Porciani

My academic training and research experience have provided me with an excellent background in multiple disciplines including chemical biology, molecular biophysics, nanomedicine, and cancer biology. I studied at the University of Pisa, where in 2010 I earned a Master's degree in Chemistry and Pharmaceutical Technology. In 2016, I obtained a PhD in molecular biophysics from the Scuola Normale

Superiore of Pisa with a thesis entitled 'Aptamers against transferrin receptor: rational engineering of nanoscale platforms for targeted delivery of molecular payloads' with supervisors Professor Fabio Beltram and Dr. Giovanni Signore. Subsequently, I joined the lab of Professor Donald Burke at the University of Missouri as postdoc. In October 2020, I was awarded a non-tenure track Assistant Research Professorship in the department of Molecular Microbiology & Immunology at the MU. During my PhD training and postdoc experience, my scientific interests have focused on improving precision of tumor cell targeting and targeted cancer therapy using aptamer technology. My current research aims to develop RNA aptamer therapeutics for a subset of lung adenocarcinoma with EGFR activating mutations.

Dr Victoria Calzada

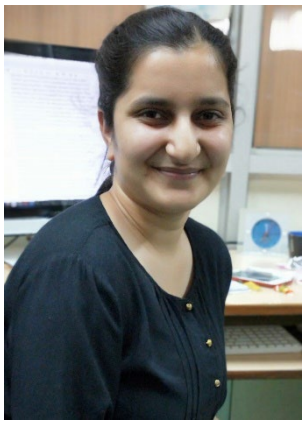


Since 2008 I have worked in the radiopharmacy department and my PhD topic was about aptamers for in vivo imaging. My current position is Assistant Professor at Faculty of Sciences-University of the Republic, Uruguay. I mentored several undergraduate students, master, and PhD students, in cell and molecular biology as well as in biotechnology of aptamers for in vivo approaches.
Currently, I managed the Aptamer´s group in my institution, the Biopharmaceuticals postgraduate course and the Iberoamerican Network of Aptamers (REDIBA, www.rediba.org). Improving the social impact and the science popularization is also very important to me.

Dr Anna Koudrina

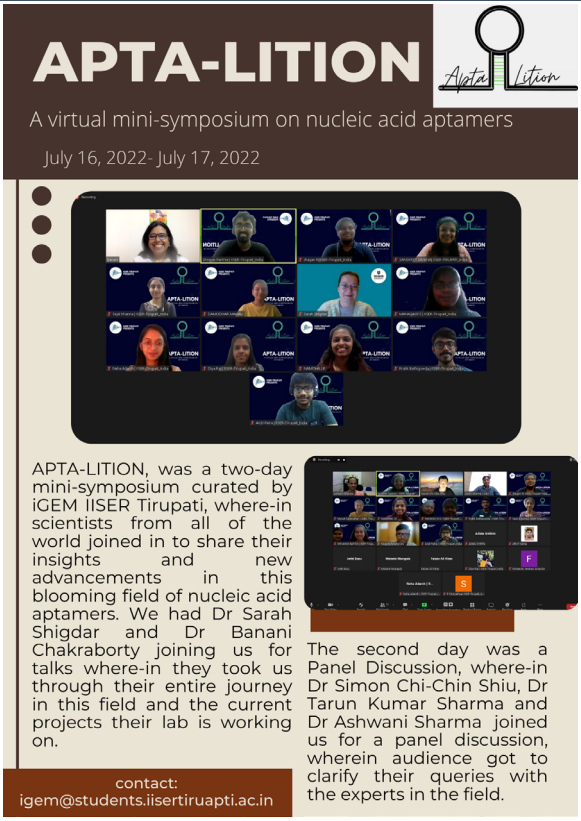
I received by PhD in 2020 from Carleton University (Ottawa, Canada). Under the supervision of Dr. Maria DeRosa, I worked on developing novel contrast materials for applications in MRI and CT imaging, incorporating target-specific aptamers to optimize distribution of the contrast agent throughout the biological system. I then did a postdoc under the supervision of Dr. Jonathan Watts at University of Massachusetts Medical School, where I developed antisense oligonucleotides for repair mutations causing genetic diseases. I am currently transitioning to a new position as a Research Officer at Children's Medical Research Institute in Westmead, Australia, where I will work with Dr. Leszek Lisowski, with a continued focus on gene therapies.
Outside of the lab, I have been involved with the Ottawa Chapter of Science to Business Network (S2BN), a group that organizes career development and networking events for STEM and Health/Life Sciences graduate trainees. Currently, I am a communications and marketing associate, and I help to develop sponsorship strategies and reach out to potential sponsors for funding conferences. I also help to run the events, where I have the opportunity to interact with science trainees and assure that their needs are met.

Miss Vipasha Sharma



For brief introduction, I am a Ph.D. student in CSIR-Central Scientific Instruments Organisation (CSIO), Chandigarh, India. In my Ph.D., I have worked on an "Aptamer based Nano- Biosensors for Cortisol Detection". Now, I am compiling my work and writing a thesis. Also, looking forward to further postdoctoral opportunities.

APTA-LITION
A virtual mini-symposium on Nucleic-acid Aptamers
July 16, 2022 - July 17, 2022



July 18, 2022, Tirupati, Andhra Pradesh, India: Apta-lition was a two-day mini-symposium on aptamers curated by iGEM IISER Tirupati 2022. The event was a combination of guest talks on the first day and a panel discussion the next day. The event witnessed quite a number of participants, mainly undergraduates and master's students, along with global iGEM teams.

On day 01 of the event, we had A/Professor Shigdar, the President of the International Society on Aptamers, currently employed at Deakin University. She is the Head of the Laboratory of Aptamer Theranostics. She leads a large research group that focuses on developing novel chemical antibodies that are used for diagnostic and therapeutic applications. Her current interest is in developing effective treatments for brain metastases and brain cancers. She led us through her lab's work on developing aptamers to cross the blood-brain barrier, which can lead to assisted drug delivery to targets. In addition to this, the results from this study demonstrate that through intercalation of a cytotoxic drug into the bifunctional aptamer, a therapeutic delivery vehicle can be developed for the specific targeting of epithelial cell adhesion molecule-positive brain and systemic metastases. Their lab is now investigating this technology against primary brain cancers with different aptamers targeting other cell surface receptors.

The next speaker in the series was Dr Banani Chakraborty. She is currently a DBT Ramalingaswami Fellow in the Department of Chemical Engineering, Indian Institute of Science, Bangalore. Dr Chakroborty, in her talk, took the audience through the basics of aptamers, their discovery, and selection criteria for specific biomolecules for her current lab research, which aims to combine the precise point-to-point programmability of DNA nano surfaces and the target specificity of DNA aptamers to make detection of targets in parallel practically and cost-effectively. In future, such sensing platforms can also be upgraded to deliver cargo in the desired location using various 3D shapes using the sensing application of DNA aptamers.

The next day of Apta-lition was composed of a panel discussion. We had Dr Simon Chi-Chin Shiu, a postdoctoral student in Prof. Julian Tanner's lab, Dr Tarun Kumar Sharma, an Associate Professor of Medical Biotechnology at Gujarat Biotechnology University (GBU) and Dr Ashwani Sharma, Assistant Professor in the Department of Chemistry and Biology, IISER Tirupati, joining us for the discussion. As part of the panel discussion, questions asked by numerous iGEM teams, undergrads, masters and PhD students who wanted to know more about this field of aptamers were put forth to our panellist and were discussed. The meeting witnessed an enthusiastic audience making the entire event lively and engaging.

The event concluded with the remarks of Prof Ramesh Sonti, the Biology Department Chair at IISER Tirupati. This event aimed to bring together brilliant minds to discuss their ideas on this blooming field of aptamers. Furthermore, the motive was also to help aspiring young minds and various iGEM teams from around the globe to get more insights and advancements in the field. As rightly said by Professor Ramesh Sonti, "Science is all about imagination". Aptamers seem a promising replacement for the many existing techniques in theranostics. This field of science requires a constant input of innovative ideas, and with the current headway at which this field is potentialising itself, everything seems to be possible. We hope to have the second edition of APTA-LITION next year soon, with more exciting and fun-filled sessions.

Interview with a researcher: Prof. Prabodhika Mallikaratchy

Prabodhika Completed her undergraduate degree in Chemistry in Sri Lanka, before moving to the University of Louisiana for her Master's degree. It was when she joined Weihong Tan's group at Florida University that she first encountered aptamers and was part of the team that developed cell-SELEX. Following her PhD, she then moved to Memorial Sloan Kettering Cancer Center when she investigated the preclinical applications of nucleic acid molecules. She joined City University of New York 10 years ago and has focused on developing nucleic acid aptamers as molecular tools to decipher interactions in the immune system and utilize this knowledge to develop therapeutic molecules. She has now joined the management team at INSOAP.

Q1) How did you become interested in the field of aptamers?
I got interested in aptamers when I worked on a summer project at Weihong Tan's lab as an incoming graduate student at the University of Florida. Given the immense potential of aptamers as cell surface protein targeting agents, I was immediately drawn to SELEX technology and aptamers. The variants of SELEX that allow us to use whole cells as the target in SELEX screening are unique to aptamers.

Q2) From your point of view, what is unique about aptamers?
Aptamers are unique because of their programmability and the simplicity of SELEX (any lab with basic molecular biology instruments can do SELEX), which allow us to customize the screening process against various targets. I do not know if any other combinatorial screening processes can do this.

Q3) What do you think is the future of aptamers?
The future of aptamers mainly depends on how we select and validate aptamers. Also, we need to promote commercial partnerships and effective collaborations with clinicians. If we can accomplish all these partnerships, the future of aptamers as a therapeutic or a diagnostic is unlimited.

Q4) What are the major challenges that need to be solved?
The biggest challenge of the field is the lack of structural data on aptamer-target complexes, particularly aptamer-protein complexes. If we can find a way to identify the functional structures of aptamers as they bind to their target, that would make it easier to modify and apply them in translational applications.

Q5) What we should do for aptamer science?
I think collaborations or collaborative projects are the key.

Q6) Tell us about your research.
We develop methods to identify versatile and robust aptamers against cell surface markers with several applications in mind. These applications include the development of aptamer-based biochemical tools and potential therapeutic and diagnostic molecules.

Q7) How did you know about the INSOAP?
I got to know about INSOAP through peers in the field.

Q8) How will you support the INSOAP?
I would be happy to be part of INSOAP to promote aptamer research positively.

Q9) What kind of advice can you give to the young researchers about aptamers?
To achieve success, perseverance and integrity are the key. Understanding that failures are part of research and life is important: how you respond to failed events/experiments, what you learn from them, and how you evolve to be better are important.

Q10) What is your personal philosophy on life and science?
I believe in working hard with integrity while appreciating each other's contributions to the growth of the field/society. For example, in our lab, we work hard to produce good science with the highest integrity while being appreciative of the contributions to the field made by peers.

Q11) What is your favorite part about research?
In addition to the intellectual stimulation, you get from thinking about new ideas and coming up with experiments to test the ideas, one of my favorite parts of my research is training young students. I work in the lab with high school, undergraduate, and graduate students. I believe training a good researcher is part of research and an essential contribution to the aptamer field, which I enjoy very much. We need well-trained aptamer researchers who can develop new ideas to grow the aptamer field.

Q12) What do you like to do in your free time?
I enjoy long-distance running, swimming, yoga, and meditation. I also love to read non-fiction books.

INSOAP updated list of recently published aptamers – Maureen McKeague and Sarah Shigdar

Here are newly reported aptamers since our last issue to 30th June. 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(s)
https://pubmed.ncbi.nlm.nih.gov/35211356/	Annexin A2
https://pubmed.ncbi.nlm.nih.gov/35258047/	CD133
https://pubmed.ncbi.nlm.nih.gov/35282009/	Kunitz trypsin inhibitor (KTI)
https://pubmed.ncbi.nlm.nih.gov/35290115/	Kynurenine (KP) metabolites
https://pubmed.ncbi.nlm.nih.gov/35294188/	DFAME (3,5-difluoro-4-hydroxybenzylidene imidazolinone-2-acrylate methyl)
https://pubmed.ncbi.nlm.nih.gov/35312740/	Human intercellular adhesion molecule-1, soluble (sICAM-1)
https://pubmed.ncbi.nlm.nih.gov/35324725/	Saxitoxin (STX)
https://pubmed.ncbi.nlm.nih.gov/35324692/	Gymnodimine-A (GYM-A)
https://pubmed.ncbi.nlm.nih.gov/35327224/	Malachite green oxalate (MG)
https://pubmed.ncbi.nlm.nih.gov/35335217/	p57 or major soluble antigen (MSA)
https://pubmed.ncbi.nlm.nih.gov/35339548/	Prorocentrum minimum
https://pubmed.ncbi.nlm.nih.gov/35341514/	Thiamethoxam (TMX)
https://pubmed.ncbi.nlm.nih.gov/35341244/	SARS-CoV-2 RNA
https://pubmed.ncbi.nlm.nih.gov/35345324/	Diazinon
https://pubmed.ncbi.nlm.nih.gov/35382297	L-allo-isoleucine
https://pubmed.ncbi.nlm.nih.gov/35397426	EBV positive NPC cells
https://pubmed.ncbi.nlm.nih.gov/35410404	RBD domain of ACE2
https://pubmed.ncbi.nlm.nih.gov/35408040	ATP
https://pubmed.ncbi.nlm.nih.gov/35416565	L-pneumophila
https://pubmed.ncbi.nlm.nih.gov/35424249	Spores of Aspergillus species(A. fumigatus, A.flavus and A. niger)
https://pubmed.ncbi.nlm.nih.gov/35423405	Saponin
https://pubmed.ncbi.nlm.nih.gov/35436103	CYP24A1(Vitamin D3 inactivating enzyme)
https://pubmed.ncbi.nlm.nih.gov/35663338/	Human skeletal muscle
https://pubmed.ncbi.nlm.nih.gov/35700603/	Metastatic colorectal cancer
https://pubmed.ncbi.nlm.nih.gov/35700936/	Lipopolysaccharide (LPS)
https://pubmed.ncbi.nlm.nih.gov/35567939/	Interleukin 23

https://pubmed.ncbi.nlm.nih.gov/35762921/	Amyloid precursor protein (APP)
https://pubmed.ncbi.nlm.nih.gov/35491395/	SARS-CoV-2 spike protein
https://pubmed.ncbi.nlm.nih.gov/35731347/	Antimicrobial peptide
https://pubmed.ncbi.nlm.nih.gov/35617726/	BCL-XL
https://pubmed.ncbi.nlm.nih.gov/35846753/	Acinetobacter baumannii
https://pubmed.ncbi.nlm.nih.gov/35695183/	apo- and holo-retinol binding protein 4
https://pubmed.ncbi.nlm.nih.gov/35752088/	Netilmicin
https://pubmed.ncbi.nlm.nih.gov/35742000/	Aflatoxin M1
https://pubmed.ncbi.nlm.nih.gov/35745014/	Streptococcus suis Serotype 2
https://pubmed.ncbi.nlm.nih.gov/35756119/	Mouse interleukin-2
https://pubmed.ncbi.nlm.nih.gov/35699641/	Pesticides
https://pubmed.ncbi.nlm.nih.gov/35402070/	Acetylcholinesterase
https://pubmed.ncbi.nlm.nih.gov/35397426/	Epstein Barr virus positive nasopharyngeal carcinoma
https://pubmed.ncbi.nlm.nih.gov/35444329/	RNA G-quadruplex
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https://pubmed.ncbi.nlm.nih.gov/35171466/	Human lipocalin 6 (hLCN6)
https://pubmed.ncbi.nlm.nih.gov/35682807/	Brucella Species
https://pubmed.ncbi.nlm.nih.gov/35546052/	Patulin
https://pubmed.ncbi.nlm.nih.gov/35578872/	Echinococcus granulosus
https://pubmed.ncbi.nlm.nih.gov/35247355/	SARS-CoV-2 spike glycoprotein
https://pubmed.ncbi.nlm.nih.gov/35180537/	Ciprofloxacin (CFX) and Thioflavin T (ThT)
https://pubmed.ncbi.nlm.nih.gov/35151974/	Polysialic acid

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 articles a reality. We look forward to many more aptamer articles in 2022! Please submit your articles for peer-review to the Aptamers journal. All symposium delegates can submit an article before 30th September 2022 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

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.

Updates to the website

We have been working on updating the website (http://aptamersociety.org/aptamer-laboratories/) 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 email me at sarah.shigdar@deakin.edu.au. 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 – 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. 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 have published our first paper from the Consortium in the *Aptamer* Journal in 2022, which will tackle the minimum standards for publishing novel aptamers. If you are interested in sharing your views on the Consortium, please email me (sarah.shigdar@deakin.edu.au).