

THE INSOAP TIMES



International Society on Aptamers

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EDITORIAL

Welcome to the inaugural issue of INSOAP's newsletter, and the first edition of 2016. We will be using this forum to announce events, summarise recent publications, and showcase individual research laboratories and companies specialising in aptamer research. As the Society is serving as a focal point for academic and industrial researchers, it is hoped that this newsletter will become a source of useful links and information that will allow researchers to become involved in the community.



INSOAP was founded in late 2013 by Professor Said Ismail (Amman, Jordan) and Dr Muhammad Sohail (Oxford, UK) and formally inaugurated at the first International Aptamer symposium in 2014 at Oxford. In 2015, I was invited to be the Secretary of the Society, and when Said was appointed to a new position late last year, I stepped up in to the position of President of the Society. I have really enjoyed being part of the Society since its inception, and I hope that you will support and assist me in my role as President.

Over the last few years, we have seen the Aptamer Symposium attract speakers from around the globe, and we have really enjoyed seeing the diversity of aptamer research. Highlights from last year's meeting are summarised in an article on the next page, and I have also provided a synopsis of what to expect from this year's meeting.

Finally, I would like to thank everyone that has helped to get INSOAP to where it stands today, and I would encourage you to become more involved via our society webpage, our Facebook page, our Twitter account or our LinkedIn groups. We will be calling for breakthroughs, reports, articles and contributions on a regular basis, but if you see something that you'd like to share in the newsletter, you are welcome to forward it to me in between newsletters.



Dr Sarah Shigdar
President

INSOAP AGM

We will be holding the first AGM of INSOAP during the symposium. If you would like to be involved and contribute to the future of our Society, please forward agenda items by the 24th March 2016. As this is the first year of the AGM, attendance will be open for members and non-members, but we do encourage you to become a member of the Society prior to the meeting in April.



From the Editor

If you have anything you would like to see in the next issue of the INSOAP newsletter, send it directly to me at sarah.shiqdar@deakin.edu.au. Please ensure that your articles and information are in by close of business on 29th April 2016

Aptamers Journal

We will be announcing the official journal of INSOAP at Aptamers 2016. Please email us at aptasoc@gmail.com for further information.

Past meeting: Aptamers 2015

Aptamers 2015 acknowledged the 25th anniversary of the first description of aptamers and the selection process, termed SELEX. Attendees at the Aptamers 2015 Symposium heard from established figures in the aptamer field, both from academia and industry. Professor Vittorio de Franciscis, the research director at the CNR Institute of Experimental Endocrinology and Oncology in Naples, Italy, chaired the conference in 2015 and put together a fantastic program. Dr. David Bunka from the Aptamer Group (see 'Spotlight') gave a comprehensive overview of the whole field of aptamer research, summarised the major milestones of the last 25 years, and described a bright future for aptamers. Prof. Said Ismail from Jordan described how he was using aptamers as potential tyrosine kinase inhibitors. We also heard from Prof. Ulrich Hahn from Germany and Dr Sarah Shigdar from Australia about the potential of aptamers as joint diagnostic/therapeutic agents. There were a number of presentations demonstrating aptamers as effective therapeutic agents, delivering either drugs or RNAi to cells, followed by some amazing developments in technology that have enabled aptamers to demonstrate their superiority in the field of diagnostics as aptasensors. It was also great to see a substantial representation from Biotech companies. We had speakers and delegates from Ribomic, SomaLogic, Aptamer Group, 2Bind and Firefly Bioworks, MiNA therapeutics, Piculet Biosciences, AptalT GmbH, AstraZeneca, ATDBio, Altermune Technologies, Tocris, LFB Biotechnologie and others. The conference was also punctuated by the conference dinner which provided a great forum for conversation and collaboration, as well as the fantastic food provided by St Hilda's College.



Aptamers 2016

The Aptamer Symposium to be held in Oxford on the 4th and 5th of April, is already shaping up to be a fantastic conference. Professor Dr Beatrix Suess from the Technical University of Darmstadt is Symposium Chair this year, and she will open the conference. We have a number of speakers who will be discussing how effective aptamers are for therapeutic delivery, and we have several speakers who will show how aptamers can be utilised in a number of diagnostic and analytical assays. Also, given that we are constantly improving the selection process for aptamers, there are several talks on modifications to the traditional selection process. Finally, there will be some presentations on the use of modified bases in the selection process, and what we can do to improve the integration of modifications during selection. We have attendees from around the globe, coming from as far as Australia, Taiwan, Japan, China, Hong Kong, Malaysia, Jordan, the US, and Canada, as well as visitors from Europe and from just around the corner in Oxford. It's also great to see a number of industry representatives attending, and this year we will see the Aptamer Group, RIBOMIC, and AptalT again, as well as talks from NeoVentures, Horiba Scientific, and Base Pair Biotechnologies. We are also very grateful to all of our sponsors for their valuable support of the conference.



Symposium website: <http://libpubmedia.co.uk/aptamers-2016>
Email: AptamersOxford@gmail.com



Student sponsorship

This was the first year that we have asked specifically for companies to become involved in sponsoring students to attend the Aptamers Conference and we had a good response. This is something that we would like to continue as we feel it is important for the next generation of aptamer researchers to attend this meeting and integrate into the aptamer community. If you would like to be involved in student sponsorship for Aptamers 2017, please get in touch.



Updates to the website

We have been working on updating the website for INSOAP over the last few months. 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. 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.

Future predictions of the aptamer market

Geoff Baird wrote an editorial back in 2010 asking where all the aptamers are and suggested that there is limited widespread knowledge regarding aptamers. Geoff pointed out at the time, that aptamers could replace antibodies for a fraction of the cost, and their significant advantage over antibodies is the ease with which you can attach detection molecules. Both I and several others have demonstrated significant improvements to assays when using aptamers rather than antibodies. As Geoff said in 2010, a PubMed search for 'aptamer assay' yielded 939 hits. Fast forward to 2016 and a similar search conducted now yields 3056 hits, suggesting that we are definitely creating a knowledge base.

While Geoff Baird suggested that the switch to aptamers hasn't occurred due to a resistance to change, John Bruno in his review article in 2015 suggested that the huge investment made over four decades by the pharmaceutical companies to advance monoclonal antibody technology might be responsible for the resistance of major companies towards aptamer technology. While I am aware of a couple of major companies investigating the potential of aptamers, I am very pleased to see so many small companies and start-ups entering this area. We have a listing on our website now of all the companies that are specialising in aptamer development, whether for research, diagnostic or therapeutic purposes. Some companies have also validated their aptamers for a number of applications, including ELISA, Western blotting, flow cytometry, and immunohistochemistry. While there has been a struggle against the entrenched antibody-based assays and the ignorance of the R & D community about aptamer advantages and performance, I do feel as though we are slowly making progress. I wonder how many of you have heard a talk from someone in the past that finished up with '...but of course that antibody isn't really very specific'. Aptamers have definitely demonstrated higher specificity than antibodies in the past. And given the ease at which we can functionalise these little molecules, they make the perfect theranostic, thus meeting the requirements of the FDA for a companion diagnostic test. As our aptamer community grows, so too will the ease with which we advance aptamers from the bench to commercial applications. I'm looking forward to revisiting this topic at the beginning of each year to provide updates on the aptamer market.

G. Baird. Where are all the aptamers? 2010 AJCP 134: 529-531

J. Bruno. Predicting the uncertain future of aptamer-based diagnostics and therapeutics. 2015 Molecules 20: 6866-6887



Company Spotlight

The Aptamer Group

The Aptamer Group is based in York, UK, and comprises four separate arms: Aptamer Solutions; Aptamer diagnostics; Aptamer Therapeutics; and Aptasort; with each one specializing in a specific area. Aptamer Solutions provides an aptamer selection service against almost any type of target or for any type of application. Their Diagnostics arm is focused on developing aptamer-based tests for targets of interest which can be used in a variety of applications, such as lateral flow devices and ELISAs. Biosensors are also another area of focus. In conjunction with their Diagnostics arm, the Therapeutics arm is working to deliver a therapeutic cargo to the site of interest, or directly modulate the target activity. The Aptasort division focuses on developing cell-specific aptamers, a process optimized within the Aptamer Group.



Short News Summary

2015 was a very busy year for us at the Aptamer Group. We have again expanded our lab and office space within the Biocentre at York Science Park. This was necessary to house our latest liquid-handling platform, which further expands our capacity for parallel processing of aptamers. Our cell selection facilities have also been expanded to facilitate our continued growth in 2016 and push our Aptasort Biomarker Discovery platform forward. Alongside this, we have recruited four new members of lab staff; including a new lab manager and a post-doctoral scientist with extensive experience in characterisation of cell targeting aptamers. We have also expanded our Sales and Marketing team with the inclusion of a new Business Development Executive with experience in both sales and Molecular Biology. These new team members will ensure that 2016 is just as busy and even more productive. Onwards and upwards!



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 before the 31st of March 2016.

Keep in touch

<http://aptamersociety.org>
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