



BRITISH SOCIETY FOR NANOMEDICINE

NEWSLETTER

JANUARY
2017
ISSUE 1

Welcome to the inaugural edition of the British Society for Nanomedicine (BSNM) Newsletter

With the global benefits of the new science of nanomedicine growing each year, the British Society for Nanomedicine has been created to allow open access for industry, academia, clinicians and the public to news and details of ongoing research throughout the UK.

As a registered charity (Charity number 1151497) our mission includes the direct explanation of the ongoing science and commercial developments to allow the public to understand and stay in touch with this exciting area as it impacts future global healthcare. Scientists can also present their latest advances and highlight their work to industry and other researchers.

The Society is affiliated to other leading organisations involved with nanomedicine including: CLINAM, the European Technology Platform for Nanomedicine, the British Pharmacological Society and the American Society for Nanomedicine.

This newsletter will endeavour to keep you up to date with all the various activities of the Society and keep you posted on upcoming conferences and events. If you have any questions regarding this newsletter or any other aspect of the Society as a whole, please don't hesitate to get in touch.

Contact us

The British Society for Nanomedicine (registered charity no. 1151497) is hosted at the University of Liverpool.

For queries or feedback please complete our online enquiry form or contact Nuala Keegan, the Secretary of the Society at:

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BSNM Conference 2016 Review - Natasha Lewis

On 11th and 12th August 2016 a group from CCE working with Dr Catherine Berry attended the young researchers meeting of the British Society Nanomedicine (BSNM) in Swansea. BSNM is a recently founded Society which is aiming to create a community of scientists in the UK for researchers working in the emerging field of nanomedicine, the application of technology at the nanoscale in healthcare. The most common nanomedicines are nanoparticles used to improve drug delivery, to a targeted site or to slow down drug release. This annual meeting is aimed at early career researchers and was the second event since the inaugural meeting in 2015.

The meeting was opened by the first keynote speaker, Professor Christopher Scott from Queen's University Belfast. He had a warning for all of us working in the field: despite the fact that nanomedicines (specifically antibody-drug conjugates) have the potential to be Ehrlich's 'magic bullet', being

able to target particular tissues without affecting others, the rate of success over the past few decades has been very slow. Only 2 targeted antibody-drug conjugates have been accepted by the FDA and one has since been withdrawn from the market. One of the problems is that the delivery of many nanomedicines are based on the 'leaky vasculature' of tumours, which is difficult to scale up to humans from mice. It is evident that more work needs to be done on improve delivery and reduce toxicity to bring more of these technologies to market.

The second keynote, Professor Andrew Owen from the University of Liverpool, emphasised the importance of understanding the complex pharmacokinetics of nanomedicines, incorporating both anatomical and molecular understanding. Solid drug nanoparticles, made directly of drugs, are eventually soluble and have the lowest regulatory barriers to use.

Nanocarriers, although our concept of them is tiny, are actually massive in terms of drugs, which brings its own benefits and drawbacks. He also said that oral delivery of medicines for chronic diseases is an unmet need for which nanomedicines could be useful. Ultimately, both clinical pull and technological push are needed to successfully develop a medicine. Many current nanomedicine candidates are not suitable for their intended purpose.

Many of the talks were aimed at improving nanomedicine technologies, using new structures and conjugates to deliver both novel and traditional drugs. It was a good opportunity to present our work in a relaxed environment with our contemporaries and without the pressure of interacting with high-level academics. We also had the opportunity to explore the Welsh beaches around Swansea which were beautiful.



ABSTRACT SUBMISSION DEADLINE EXTENDED
NEW SUBMISSION DEADLINE – 20th FEBRUARY 2017

Confirmation of selection for oral or poster presentation – **24th February**

Early Bird registration – **1st March**

Final registration deadline – **20th March**



The 2017 European Nanomedicine Meeting will be held at King's College in London on the 3rd and 4th April 2017. We have extended the abstract registration deadline for oral and poster presentations and encourage you to submit your abstract for consideration.

POSTER AND ORAL PRESENTATION PRIZES WILL BE AWARDED AT THE MEETING

Confirmed Speakers include: Nathalie Mignet (Paris), Yuri Volkov (Dublin), Mauro Ferrari (Houston), Maya Thanou (KCL), Tomasz Ciach (Warsaw), Michael Sperling (Münster), Cameron Alexander (Nottingham), Jorg Meisel (Halle), Patrick Boisseau (ETPN) and Alexandra Saxon (RCUK).

NanomedTAB-In sessions will take place on April 4th, from 09:00 to 16:00, in parallel to the meeting. If you feel that you have a Nanomedicine project ready to start translation to the market, please consider an application **before February 27th 2017** to the nanomedTAB at:

<http://nanomedtab.eu/?apply>

Register for the ENM meeting at the following link:

<http://www.britishsocietynanomedicine.org/enm-2017-conference1.html>

Our sponsors include:



BSNM Conference 2016 Award winner-Diana Leite

I had the opportunity to attend the British Society for Nanomedicine (BSNM) Annual Conference in Swansea, and I was positively surprised with the conference at all levels. A great organisation complemented with an amazing atmosphere of young researchers enthusiastically presenting novel research in the field of Nanomedicine, with exciting posters and talks, were the key ingredients of this successful event.

In this conference, I had the chance to give an oral presentation about my PhD project, which is focused on the delivery of cytotoxic drugs to brain tumours using peptide nanomaterials. In our group, we are interested on peptide amphiphiles that are able to self-assemble into stable nanofibers with the capability

to entrap brain impermeable drugs, permeate the blood-brain barrier and target a receptor overexpressed in the tumour cells.

I consider my PhD project quite exciting, and to be able to share it with all researchers at the BSNM conference that understand the meaning and relevance of Nanomedicine was really good. Winning the prize for Best Talk was an extraordinary feeling! I believe that everyone likes to feel appreciated and get a positive feedback when presenting their research, but to win this prize was beyond my expectations. I am truly glad that I attended the conference and gave an oral presentation. BSNM is a great conference to face the "fear of the stage".



BSNM annual conference award winners Shahd Abuhelal (l) and Diana Leite (r)

BSNM Conference 2016 Award winner-Shahd Abuhelal



BSNM annual conference award winners and judging panel

My doctoral research is focused on the development of a smart siRNA delivery system for breast cancer treatment. I'm developing novel particles to overcome the cancer cell barriers for effective gene targeted therapeutics delivery to be used *in vivo*. Cationic liposomes

are used as the basic formulation for the delivery systems, further modifications are applied by the involvement of pH responsive peptides and targeting moieties to form ternary complex. Florescence labels for siRNA and for lipidic part of the system are used to enable testing the cellular uptake and the particles tracking. Physicochemical characteristics of the particles were all tested and optimised. Stability, effectiveness and safety of the complexes were all tested *in vitro* and are being now optimised to be tested for *in vivo* use. Live imaging is going to be used to study the particles behaviour inside the body and to assess the efficacy of the system.

During the last BSNM meeting I had the chance to present some of my PhD research results and to share my research experience with other young researchers in the field. I was happy to attend the meeting which was small but fruitful and well organised. I was thrilled about winning the best poster prize during the meeting. It gave me more confidence about the quality of my work.

Journal of Interdisciplinary Nanomedicine



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WILEY

BSNM Sponsors Best Poster Prize at NANOMED16

The BSNM sponsored the best poster prize at the recent *International Conference on Nanotechnology in Medicine (NANOMED16)*, held at the Warsaw University of Life Sciences, Warsaw, Poland, 7th- 9th November 2016. Posters were scored by a panel of judges and the best poster prize was awarded to Ming Hsien Chan, from the Department of Chemistry, National Taiwan University, Taiwan, for his work on 'Near-infrared light mediated photodynamic therapy by upconversion nanoparticles with graphitic carbon nitride Quantum dots'



BSNM Conference 2016 Review - Peter Smyth

On the 11th and 12th of August this year, the 2nd annual young researchers meeting of the British Society Nanomedicine (BSNM) was held in Swansea. After thoroughly enjoying last years inaugural meeting in Liverpool it was with great expectations that several of our group from QUB embarked for the Welsh South coast. Having said this, our attendance at one stage was far from guaranteed, due to Europcars' lack of a car in the entirety of Wales and a SatNav route that took in some of the more scenic single track back roads between Cardiff airport and Swansea.

The journey however was well worth it with the conference itself allowing for the presentation of research in a relaxed environment via both oral presentations and

scientific posters. What was perhaps most striking was the range of areas covered and the overall standard of the research on display. Also of note was the quality of the lunches, bacon butties and the particularly salubrious chocolate brownies.

Over the course of the two days there was ample opportunity for scientific discussion and networking in a comfortable, informal setting allowing the dissemination of knowledge amongst our nanomedicine focused peers here in the UK. Further to this, thought provoking keynote speeches were delivered by Prof Chris Scott and Prof Andrew Owen which challenged the researchers present in relation to both actively targeting nanomedicines and the importance of understanding nanomedicine

pharmacokinetics respectively.

The conference also provided the chance to explore the surrounding area including the beautiful town of Mumbles with its bays and scenic views. Meanwhile, some downtime on Friday afternoon afforded the opportunity for a competitive if not high quality round of footgolf whilst in the evening, a trip into Swansea city center granted further time for networking/socializing.

On the whole the meeting was a great success and speaking personally, was incredibly beneficial in terms of the scientific knowledge and ideas I acquired. I look forward with anticipation to the next edition of the conference to be held, with us, at Queen's University Belfast in Summer 2017 where I know a warm Irish welcome will be waiting for all.



BSNM – Become a Member!

Becoming a member of the BSNM is the best way to stay across all aspects of the Society's activities and the progression of the nanomedicine field in general. Three distinct membership options are available; General, Scientific and Institutional, all of which will allow you to stay up to date and informed on the British nanomedicine scene. The application process is quick and easy, simply choose the membership option that's right for you and complete the online form at www.britishsocietynanomedicine.org/membership. For further details on the membership options available, see below.

General membership-We particularly welcome membership applications from the general public, teachers and students.

- Access the Society's website for breaking news on nanomedicine and its emerging applications
- Download materials for educational purposes

Scientific membership is open to anyone actively engaged in nanomedicine research holding a higher education degree in any related discipline.

- Access academic and industrial updates on nanomedical therapies, diagnostic tools, commercialization activities, IP issues, etc.
- Attend Society conferences, seminars and webinars
- Participate in an online forums
- Sponsor abstracts on the Society's website
- Receive information on funding opportunities, scientific conferences and activities of the Society
- Receive networking benefits, advertising opportunities and posting of positions
- Apply to become a member of the Society's Executive Group

Institutional membership is open to institutions with an interest in nanomedicine.

- Demonstrate an affiliation to the Society through the use of mutual hyperlinks
- Send representation to Society conferences and seminars
- Negotiate sponsorship and partnership opportunities
- The annual membership fee for institutional or corporate members is £50 per annum. This will be invoiced direct if the membership application is approved by the Trustees

