



ASBTE NEWS

DECEMBER 2015

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From the President,

With 2015 rapidly coming to a close, the ASBTE and its members will all be looking forward to a relaxing summer break over the New Year period and have their sights set on a successful 2016. It will be an exciting year as once again it is time for biomaterials scientists from all over the globe to gather for a World Congress. The World Biomaterials Congress is held every 4 years, and in 2016 it will be held in Montreal, Canada from May 17-22nd (www.wbc2016.org). This means of course that there will be no Annual ASBTE Conference for 2016, however, as always we are expecting a large contingent of ASBTE members to attend WBC2016. We already have a large number of "New Frontier Symposia" organised by ASBTE members selected in the scientific programme (see below) – congratulations to all those involved. Over 3500 abstracts have been submitted to the conference and I expect there will be a very large ASBTE contingent at the meeting. I urge all of you – especially students and emerging career researchers – to apply for the ASBTE Conference Travel Grants by Dec 14th to assist with travel to WBC (see Travel Grant info or visit www.asbte.org/#!awards/c1nf9). This is one of

Membership Rates: Full Member (Calendar Year) \$80; Student Member (Calendar Year) \$40. Membership forms are available at www.asbte.org

The last time Canada hosted the WBC was in 1996 in Toronto, and so the Montreal meeting represents a 20 year anniversary for our Canadian colleagues. As some of you may know, the location for the 2020 World Biomaterials Congress has already been decided and will be in Glasgow, Scotland. This decision was made at the previous WBC in Chengdu, China in 2012 from a selection of global biomaterials societies making up the International Union of Societies for Biomaterials Science and Engineering (IUSBSE) who submitted bids to host. In 2015, calls were also made for those IUSBSE societies that wished to submit bids to host the 2024 WBC. Some of you (slightly older members) may recall that the ASBTE (or ASB in those days) successfully hosted the 2004 WBC in Sydney – many attendees saying it was one of the best World Congresses ever. With 2024 being the 20 year anniversary of the first WBC hosted in Australasia, and with the ever increasing growth and reputation for research excellence in biomaterials science in Australasia, the ASBTE decided to put forward a bid to host in 2024. After a rigorous internal selection and review process, Melbourne has been decided as the location and a brief announcement was recently made at the 2015 European Society for Biomaterials (ESB) meeting in September in Poland. We learned that so far Japan, Korea and the USA are also submitting bids to host the 2024 meeting. A special sub-committee within ASBTE has already been assembled in order to prepare the bid. Full applications are due in early 2016 with the final decisions made at the WBC2016 in Montreal. Please wish us luck in this process. We will keep you updated where possible and look forward to all your support.

The seven WBC2016 “New Frontier Symposia” that were awarded to ASBTE members:

1. Convergence of biomaterials science & additive biomanufacturing – a global perspective
Symposium Chairs: Takayoshi Nakano, Dietmar Hutmacher
2. Emerging molecular strategies for the prevention of device infections
Symposium Chairs: Helmut Thissen, L'Hocine Yahia, Hans Griesser
3. LegoLUNG - building blocks for lung matrix and tissue assemblies
Symposium Chairs: Wojciech Chrzanowski, Sam J. Wadsworth, Janete Burgess
4. Living bioelectronics: Enabling communication on the nanoscale
Symposium Chairs: Rylie Green, Róisín Owens, Laura Poole-Warren, Penny Martens
5. Neuroengineering: biomaterials-based approaches for modulating the neural microenvironment
Symposium Chairs: Sarah Stabenfeldt, David Nisbet, Shelly Sakiyama-Elbert, Xiaosong Gu, Abhay Pandit
6. Recombinant proteins as emerging biomaterials
Symposium Chairs: John Ramshaw, Larry Unsworth, Jerome Werkmeister
7. Bioelectrical field: from petri dish to tissue regeneration
Symposium Chairs: Ze Zhang, Simon Moulton, Mahmoud Rouabhia

Finally, many thanks to all ASBTE members for all your support throughout 2015. Personally I would like to thank the ASBTE Exec Committee for all their hard work, time and effort. I would like to wish you all a restful and safe holiday period and look forward to seeing you all in 2016.

Tim Woodfield

ASBTE President

ASBTE Travel Grants and Awards Information

2016 ASBTE Lab Travel

The ASBTE will fund one or more Travel Grants of up to a total of \$4,000 for international or local travel during 2016 for postgraduate research students and early-career researchers.

Major objectives of the grants are to provide;

- the opportunity to travel to other institutions to develop new collaborations or enhance existing collaborations;
- increased access to equipment and/or expertise that is not available in their own institutions; and
- the opportunity to interact with groups outside their specific discipline area or culture.

Deadline for applications 14th December 2015

2016 Conference Travel

The ASBTE will fund conference travel awards of up to \$700 each to assist selected post-graduate research students and early-career researchers to attend the [2016 World Biomaterials Congress](#), 17-26 May 2016 in Montreal, Canada.

For more details refer to <http://www.asbte.org/#!awards/c1nf9>

Deadline for applications 14th December 2015

2016 Award for Research Excellence

The Committee of The ASBTE invites nominations for the ASBTE AWARD for Research Excellence 2016. This award recognizes a member of ASBTE who has made a significant contribution to the discipline of biomaterials and/or tissue engineering.

For more details on the nomination process and selection criteria please visit <http://www.asbte.org/#!awards/c1nf9>

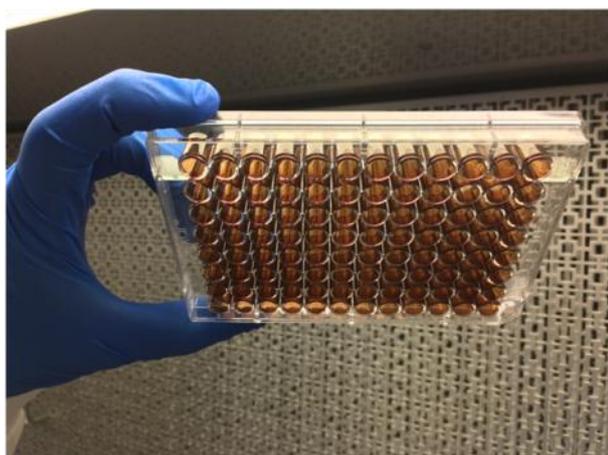
The deadline for nominations is 31st of December 2015

Spotlight on Science

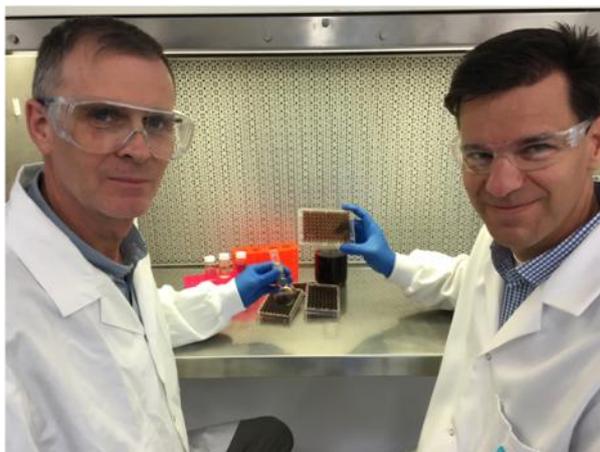
Prebiotic chemistry inspired biomedical device coatings

H. Thissen, A. Kogler, M. Salwiczek, C.D. Easton, Y. Qu, T. Lithgow, R.A. Evans, *Prebiotic chemistry inspired polymer coatings for biomedical and material science applications*, NPG Asia Materials **7** (2015) e225.

Prebiotic chemistry is the study of the molecules associated with the origin of life. In this context, HCN derived polymers have been studied for many years as possible sources for the precursors of proteins and nucleic acids. However, the application of these polymers in the field of materials science and in particular in biomaterials science has not been reported. In the study published in NPG Asia Materials this month, the team from CSIRO and Monash University has investigated the spontaneous polymerisation of the HCN trimer aminomalnonitrile in aqueous solutions as a very simple but versatile one-step coating method. The results suggest that these coatings can be deposited on a broad range of materials and that they are highly suitable for biomedical applications. For example, high mammalian cell attachment was observed on the biocompatible coatings while the electroless deposition of silver resulted in effective antimicrobial coatings. In addition, the nitrogen-rich coating chemistry allowed the covalent immobilization of compounds carrying suitable complementary functional groups both during coating formation and via secondary immobilization reactions. Based on the extraordinarily simple coating process, the versatility and the effectiveness of the prebiotic chemistry inspired coatings, it is expected that these will be translated into a number of biomedical applications *in vitro* and *in vivo*.



96 well plate coated with the novel chemistry (Image credit: CSIRO)



Richard Evans and Helmut Thissen from CSIRO (Image credit: CSIRO)

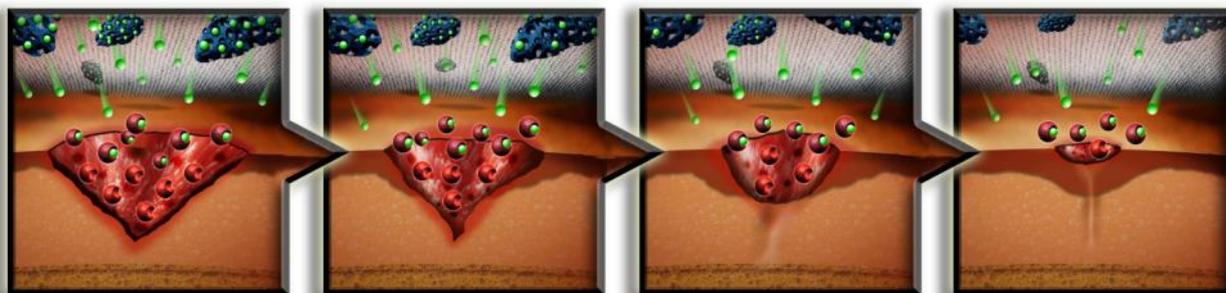
ASBTE Website www.asbte.org

Any member wishing to supply news items, links, PhD scholarships, job listings, or other relevant information to the **website** should contact the Executive Officer (Bryan.Coad@unisa.edu.au)

Spotlight on Science

A team of researchers from the Future Industries Institute based at UniSA, Mawson Lakes, are Finalists in the Health category of 'The Australian' Innovation Challenge 2015. The research is a collaborative effort between Dr. Chris Turner and Prof. Allison Cowin from Regenerative Medicine and Dr. Steven McInnes and Prof. Nico Voelcker of the ARC Centre of Excellence in Convergent Bio-Nano Science and Technology. The team has fabricated a drug delivery system based on porous silicon that can deliver therapeutic antibodies such as, Infliximab or Flightless neutralizing antibodies to chronic wounds to aid in wound healing. The team has patented their technology and demonstrated the ability of the porous silicon to protect the sensitive antibody payloads from degradation in the highly proteolytic wound environment. To vote for this work in the people's choice awards please head to <http://www.theaustralian.com.au/innovationchallenge>.

The authors would like to acknowledge the support of the Australian Government's Cooperative Research Centres Program.



Artist impression of a porous silicon based system delivering therapeutic antibodies to aid in wound healing.



AUSTRALIAN COLLOIDS STUDENT CONFERENCE 1-4 February, 2016

Organisation is well under way for the next Australian Colloids and Surface Science Student Conference, which will be held at the Kioloa Coastal campus, on the south coast of NSW, during the first week of February 2016. **A dedicated session on Biomaterials and Biointerfaces is planned** in collaboration with ASBTE. **ASBTE members receive a discounted registration** (contact Bryan Coad for the coupon number). The organising committee includes Chiara Neto and Liam Scarratt, Greg Warr and Saffron Bryant from Sydney Uni; and from ANU Vince Craig and Virginia Mazzini.

Details available at <https://colloid-oz.org.au/30acsssc/>

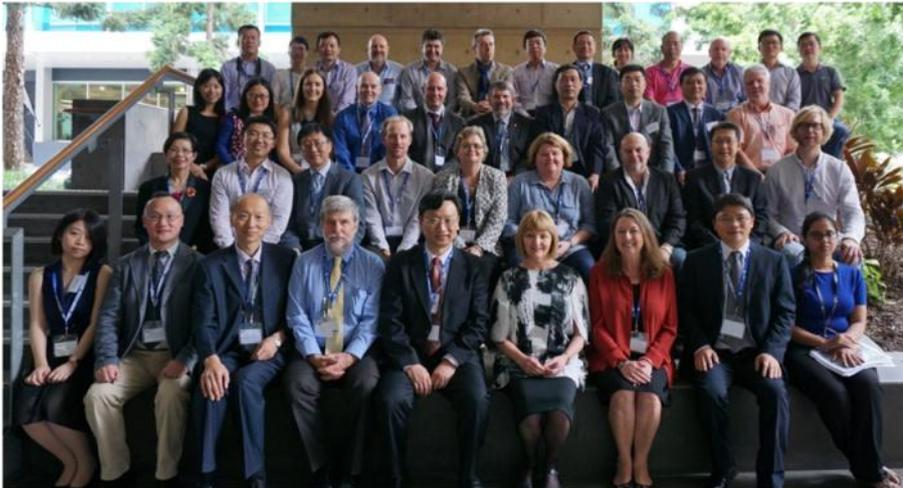


3rd ACCTERM Research Forum

Collaboration between China and Australia in the field of tissue engineering was further enhanced at the third annual research forum hosted by the Australia-China Centre for Tissue Engineering and Regenerative Medicine (ACCTERM), led by the Queensland University of Technology (QUT).

This year's Forum was held on 5th-7th of November at QUT Kelvin Grove Campus, Brisbane and Surfers Paradise in the city of the Gold Coast. The Forum brought together leading bio-material, tissue engineering and regenerative medicine scientists from QUT, Griffith University, and top universities and research institutes in China to share emerging science, exchange ideas, strengthen collaborative links and develop innovative research project concepts. Key Chinese partners represented at the Forum included Wuhan University, Sun Yat-sen University, Nanjing University, Shanghai Institute of Ceramics-Chinese Academy of Sciences, Shanghai Jiao Tong University and Huazhong University of Science and Technology, each of whom are leaders in specialist research areas.

QUT's Professor and Chair in Bone and Tissue Engineering, Yin Xiao who convened the forum, said China has become one of the world's leading science producers and has a long track record of close scientific cooperation with Australia. Significant expansions of the bilateral collaborative research networks have already occurred, indicating the strength of these ventures.



Participants at the 3rd ACCTERM research forum.

ASBTE on LinkedIn

The LinkedIn logo, featuring the word "Linked" in a bold, black, sans-serif font, followed by "in" in a white, lowercase, sans-serif font inside a blue square.

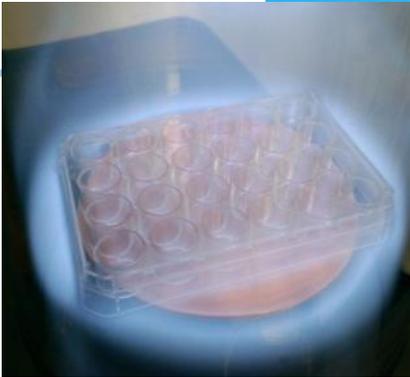
The ASBTE group on LinkedIn provides the latest news and discussions for society members.

If you are a LinkedIn member, search for "ASBTE - The Australasian Society for Biomaterials and Tissue Engineering" in groups and request to join the group. Or type in the following web address:

www.linkedin.com/groups?home=&gid=6512061

NEWS– Grants and Travel Awards

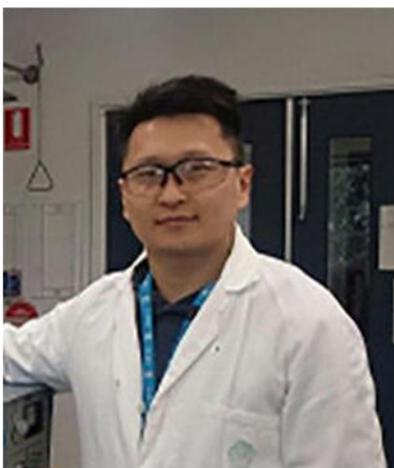
ARC Discovery Project



Order from Chaos: Plasma harnessed for biomaterial innovation

Professors Hans Griesser and Robert Short with Senior Research Fellows Bryan Coad and Andrew Michelmore at the University of South Australia were awarded an **ARC Discovery Project** entitled “Order from chaos: Rational design of biointerfacing plasma polymer coatings”. While rules-of-thumb exist for tailoring simple functionalised plasma polymers, detailed knowledge linking plasma processes to surface chemistry is lacking. The project aims to unravel physical and chemical plasma processes to enable retention of complex surface functional groups which are critical for subsequent surface processing. This will generate new understanding about plasma as a processing technology and will be used to produce a new generation of bio-interface platforms with relevance to biomaterials and tissue engineering and bio-diagnostics.

2015 China-Australia Young Scientist Exchange Program

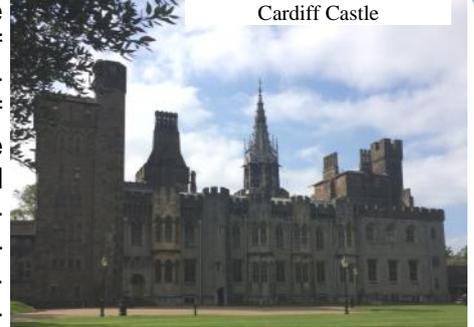


Dr Peng-Yuan (George) Wang, a postdoctoral research fellow at Swinburne University of Technology has been awarded a travel grant in the Australia-China Young Scientist Exchange Program by the Australian Academy of Technological Sciences and Engineering.

<http://www.swinburne.edu.au/media-centre/news/2015/10/young-researcher-heads-to-china-for-exchange-program-.html>

ASBTE Lab Travel Award - Dr Brooke Farrugia

Dr Brooke Farrugia is a postdoctoral researcher in the Graduate School of Biomedical Engineering at the University of New South Wales. She completed her Bachelor of Chemical Engineering, Masters of Biomedical Engineering at the University of New South Wales as well as her PhD where she investigated the use of polyurethane nanocomposites as biomaterials in blood contacting devices. Following her PhD she joined the Tissue Repair and Regeneration group at Queensland University of Technology where she focused her research on developing biomaterials, specifically 3D scaffolds for wound healing applications. Following her position at QUT she returned to UNSW where she joined the research group lead by Professor John Whitelock and Dr Megan Lord. Her current research focuses on developing biomimetic materials for wound healing. As part of her research into wound healing Dr Farrugia is also interested in investigating the host response to implanted materials.



Cardiff Castle

Dr Farrugia was awarded an ASBTE laboratory travel award to visit Professor Bruce Caterson at Cardiff University. Professor Bruce Caterson's research has focused on the production, development and use of monoclonal antibody (mAb) technologies for studies of connective tissue proteoglycan metabolism in health and disease. His research has focused on primarily understanding the molecular mechanisms of joint diseases osteoarthritis and rheumatoid arthritis. His laboratory has developed and characterised numerous mAbs that recognise both carbohydrate and protein epitopes and neopeptides that are present on proteoglycans in all connective tissues throughout the body. Many of these mAbs are now commercially available to researchers worldwide.

In an article published in *Biomaterials* Dr Farrugia demonstrated the infiltration of the inflammatory cell, mast cells as well as the expression of proteoglycans and their associated glycosaminoglycan, chondroitin sulphate, in response to different implanted materials. The structure of chondroitin sulphate that was present in response to the implanted materials was detected using an antibody developed by Professor Caterson and colleagues. Where this particular chondroitin sulphate structure was shown to be present in the negative controls within a particular population of cells, which have since been characterised as mast cells. Dr Farrugia's visit to Professor Caterson's laboratory allowed her to further characterise the unique chondroitin sulphate structure that is produced by mast cells using a library of monoclonal antibodies developed by Professor Caterson that are not commercially available. Understanding this particular chondroitin sulphate structure produced by mast cells will help to understand the functional role that mast cells play in response to implanted materials, particularly various cytokines that are released from these cells in an inflammatory response.



The spectacular view of Cardiff from Professor Caterson's laboratory

Dr Farrugia gratefully appreciates the support from ASBTE through the laboratory travel award. This travel award not only allowed her to continue her research into characterising structures produced by inflammatory cells but also strengthen international collaborations.

2015/16 Student Rep News

It's been a great year for biomaterials in science communication. I've been developing systems for controlled drug delivery from self-assembling peptide nanofibrous hydrogels and I just can't stop talking about it— and Australia keeps listening! I was awarded the people's choice prize at the Australian National FameLab competition in Perth and won the ANU Three Minute Thesis competition. You can watch my presentation at www.youtube.com/watch?v=XMB5CpvESK0. I hoping to take this exciting research to the rest of the world (and particularly my Canadian homeland) at the World Biomaterials Congress in 2016 in Montreal with everyone from the Laboratory of Advanced Biomaterials group here at the ANU.

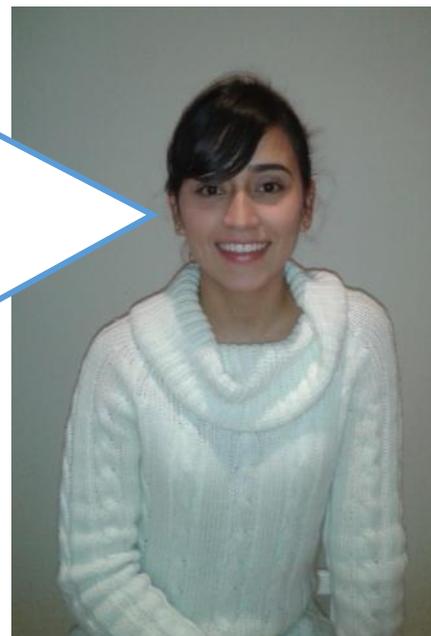
Kiara Bruggeman (ACT)



**Stephanie
Lamont-Friedrich (SA)**

It has been a very busy and exciting year! I have recently submitted my Honour's thesis, entitled 'An investigation of surface coatings that kill or prevent the spread of (medically-relevant) fungal pathogens', and given my Honour's presentation. I have applied for a PhD next year, and scholarship, through the Future Industries Institute, University of South Australia. I have recently been published for the first time, and have also been invited to publish my Honour's results. My first publication is entitled 'Surface coatings with covalently attached caspofungin are effective in eliminating fungal pathogens' and details the work undertaken during my 2014 Research Internship through Coad Laboratories, at the University of South Australia.

This year has been full of challenges and learning. I have been more involved in organic chemistry and I've learnt more about polymer chemistry, which has given me new skills and has brought many new ideas into my mind. I have finished the first year of my PhD, and as a requirement for the confirmation of my candidature I was asked to do a seminar. I was a little nervous about it, because that would be my first long talk in English (more than 30 minutes) involving interactions and questions from the audience. I practiced many times. I practiced with my supervisor, my husband, the mirror— I practiced a lot. The results of my practice and work during the first year of my PhD were reflected in a good presentation. I received good feedback and more importantly some good ideas to continue my journey. Now I feel that I achieved the first milestone in this process. I am going to my country to visit my family soon, so I am feeling excited and proud of myself because I finished that important part of my PhD. It looks like the next year is going to be full of exciting experiments and hopefully good results. I'll see you soon!



Lina Duque (VIC)



Christoph Meinert (QLD)

My name is Christoph Meinert and I am in the third year of my PhD under the supervision of A/Prof Travis Klein and Dr Karsten Schrobback at the Queensland University of Technology in Brisbane. My research is centred on articular cartilage tissue engineering - from the design and development of bioreactors to biomaterials and scaffolds for chondrocyte culture, it is all about improving functional issue regeneration. My personal highlight this year was the International Cartilage Repair Society World Congress in Chicago where I presented our newly developed mechanical stimulation bioreactor and enjoyed the privilege of meeting the all-stars in cartilage-related research. I am very excited about attending the upcoming World Biomaterials Congress in 2016 and hope to meet you there!

Who is your local student rep?

ACT	Kiara Bruggeman	kara.bruggeman@anu.edu.au
NSW	Sally Yunsun Kim	skim3542@uni.sydney.edu.au
VIC	Lina Duque	lina.duquesanchez@csiro.au
SA	Stephanie Lamont-Friedrich	lamsj005@mymail.unisa.edu.au.
QLD	Athena Brunt	athena.brunt@gmail.com
QLD	Christoph Meinert	christoph.meinert@qut.edu.au
NZ	Gabriella Brown	gabriella.brown@postgrad.otago.ac.nz



Spotlight on Conferences

Please check the Web to get further information and also details on due dates

Conference	Location	Dates	Website
 Keystone Symposia: Molecular and Cellular Basis of Growth and Regeneration	Beaver Run Resort, Breckenridge, Colorado, USA	January 10-14, 2016	https://www.keystonesymposia.org/index.cfm?e=Web.Meeting.Flyer&MeetingID=1385
 30 th Australian Colloid and Surface Science Student Conference 2016	ANU, at the Kioloa Coastal Campus, Kioloa, NSW, Australia	1-4 February, 2016	https://colloid-oz.org.au/30acsssc/
 Bones & Teeth (GRS): Building on Solid Foundations: From Mechanisms to Bone Tissue Repair  Bones & Teeth: Translating Local Tissue Interactions and Systemic Interplays into New Therapies for Bones and Teeth	Hotel Galvez Galveston, Texas, USA	February 13-14, 2016 February 14-19, 2016	https://www.grc.org/programs.aspx?id=15788 and https://www.grc.org/programs.aspx?id=15782
 Annual Conference and Expo on Biomaterials	London, UK	March 14-16, 2016	http://biomaterials.conferenceseries.com/
 BioNanoMed 2016 - Nanotechnology enables Personalized Medicine	Krems, Austria	April 6-8, 2016	http://www.bionanomed.at/
 BITERM2016	IIT Delhi, India	April 15-17, 2016	http://www.biterm2016.com/
 9th Symposium on Biologic Scaffolds for Regenerative Medicine	Silverado Resort, Napa Valley, California	April 28-30, 2016	http://www.mirm.pitt.edu/events/2016_Meetings/2016scaffoldssymposium/
 10th World Biomaterials Congress	Montreal, Canada	May 17-22, 2016	http://www.wbc2016.org
 The Scandinavian Society for Biomaterials - 9th Annual Meeting	Reykjavik University, Reykjavik, Iceland.	June 1-3, 2016	http://www.scsb.eu/reykjavik-2016.htm
 Swiss Society for Biomaterials - 22 nd Annual Meeting - Biomaterials in Translation	Zurich	June 9-10, 2016	http://ssbrm.ch/
 Matrix Biology Europe	Athens, Greece	June 11-14, 2016	http://www.mbe2016.upatras.gr

Spotlight on Conferences

 Science, Medicine and Industry Innovating for the Future. ASAIO 62nd Annual Conference	Hyatt Regency, San Francisco.	June 15- 18, 2016	https://asaio.com/annual-conference/sanfran-2016-62nd-annual-conference/
 9th European Elastin Meeting	Stuttgart, Germany	June 17- 19, 2016	http://www.elastin2016.com/
 TERMIS-EU Conference 2016	Uppsala, Sweden	June 28 - July 1, 2016	http://www.termis.org/meetings_europe.php
 Advances in Tissue Engineering 2016 - 24th Annual Short Course	Rice University, Houston, Texas	August 10 - 13, 2016	http://www.ruf.rice.edu/~mikosqr/papers/ATE/ate_2015.htm
 Biointerfaces International 2016 Zurich	University of Zurich	August 23- 25, 2016	http://www.biointerfaces.ch/international/2016/index.php
 2016 TERMIS-AP Conference	Tamsui Town of New Taipei City	September 3-7, 2016	http://www.termis.org/ap2016/
 Asian Polymer Association: Advanced Polymers, Biomaterials Bioengineering & Nano Drug Delivery	Sofitel L'Imperial, Flic-en-Flac, Mauritius	September 5-7, 2016	http://apa2016.com/welcome.html
 Alliance for Design and Application in Tissue Engineering - 6th Tissue Engineering Symposium	Stanford University, California	September 12-14, 2016	http://web.aeromech.usyd.edu.au/ADATE/TESymposium2016.html
Polish Society for Biomaterials "Biomaterials in Medicine and Veterinary Medicine"	Rytró, Poland	October 13-16, 2016	http://www.biomat.aqh.edu.pl/
 Biomaterials International 2016	Kenting, Taiwan.	October 30- November 3, 2016	http://biomaterials.havefun.tw/Welcome.htm
 2016 TERMIS-AM Conference	San Diego, CA	December 11-16, 2016	http://www.termis.org/chapters_am.php

ASBTE NEWS is a biannual newsletter that covers news from The Australasian Society for Biomaterials & Tissue Engineering. If you have a news item that you wish to be included please contact the editors.

Veronica Glattauer (veronica.glattauer@csiro.au) and David Nisbet (david.nisbet@anu.edu.au)