TERMIS Newsletter Volume XVII, Issue II & III

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Fri, Oct 7, 2022 at 11:51 AM

*inter*Link

Linking the international community of tissue engineers and regenerative medicine scientists

Upcoming Events & Deadlines

2022 TERMIS Events

- October
  - 2022 TERMIS-AP Conference in Jeju, South Korea: October 5-8
  - Jensen Tissue Engineering Award Nominations Due: October 17, 2022
  - 2023 TERMIS-AM Awards Program - Nominations Due: October 17, 2022
- November
  - Interested in hosting a TERMIS-EU Conference? The TERMIS-EU is accepting applications to host the 2026 conference. Proposals are due: 1st November 2022.
  - 10th AST-TERMIS Webinar: November 28th at 4:00 PM EST / 1:00 PM PST
    - Our speakers are: Dr. Eiji Kobayashi and Dr. Dietmar Hutmacher
- December
  - 2023 TERMIS-EU Awards Program - Nominations Due: 1st December 2022

2023 TERMIS Conferences: Save-the-Dates

2023 TERMIS-EU Conference in Manchester, United Kingdom: 28th - 31st March

2023 TERMIS-AM Conference in Boston, MA: April 11th - 14th

2023 TERMIS-AP Conference in Shatin, Hong Kong: October 17th - 20th

Letter from the President

Dear TERMIS Members,

It is remarkable to think that we are reaching the near of end of 2022. After two years of virtual meetings, TERMIS is happy to welcome our members back to in person conferences.

I am pleased to thank and congratulate Prof. Wojciech Święszkowski and Prof. Zygmunt Pojda as conference co-chairs of the 2022 TERMIS-EU conference that was conducted in Krakow, Poland. This meeting at the end of June was well attended by 830 people and was our first in-person conference. If you would like to see an overview of the highlights from the EU 2022 conference, take a moment to view this video.

I am also delighted that TERMIS-AM held their first in-person conference in Toronto, ON, Canada in mid-July. TERMIS-AM welcomed our attendees with a land acknowledgment and traditional Indigenous prayer to open the conference. Conference co-chairs Carlos Aguilar, PhD, Penney Gilbert, PhD and Alison McGuigan, PhD welcomed 596 attendees who were clearly excited to participate in great science and networking.

TERMIS-AP 2022 will run from October 5-8 in Jeju, South Korea. The co-chairs have worked hard to make this an outstanding meeting. The theme for the conference is a 'New Chapter of Future Regenerative Medicine'. The final program is available to view online. Co-chairs Prof. Gun-il Im, Prof. Moon Suk Kim and Prof. Byung-Soo Kim, with all of the TERMIS-AP executive look forward to welcoming you to Jeju!

SAVE-THE-DATE 2023 Conferences

• TERMIS-EU: 28th – 31st March in Manchester, UK

• TERMIS-AM: April 11 – 14 in Boston, MA

• TERMIS-AP: October 13 – 16 in Shatin, Hong Kong

I would like to again ask you, as a member of TERMIS, to feel free to reach out to me if you have any suggestions for additional benefits that TERMIS could offer to our members. The Society continues to thrive because of you, and we would like to maximize the opportunities that most benefit you.

Thank you for your continued support of TERMIS.
Sincerely,
Tony Weiss
TERMIS President

Members Only Portal

TERMIS Members Portal

Wondering what your TERMIS membership number is?

Missed a webinar and would like to view the recording?

Access the TERMIS Membership Portal Today.

Our membership portal enables our members to access

- the official journal of TERMIS, *Tissue Engineering, Parts A, B and C*, published by Mary Ann Liebert, Inc.;
- the Springer Updateable Book Series Chapters;
- your membership profile;
- the TERMIS Community Forum and Social Community (search for members, interact, etc.)
- the recordings of the various webinars TERMIS has conducted over the last year;
- and more.

Need assistance accessing the membership portal. Please reach out to swilburn@termis.org.

NOTE: If you have tried to reset your password and cannot find the email (check your SPAM), please note that emails through MemberClicks are from termis@memberclicks-mail.net.

Tissue Engineering, Parts A, B and C

The Official journal of TERMIS

Earlier this year, TERMIS announced that our partnership with Mary Ann Liebert, Inc., publishers of the journals *Tissue Engineering, Parts A, B and C* will continue to be the official journal of TERMIS.

What does this continued partnership mean for TERMIS members?

- All members will continue to receive free online access to *Tissue Engineering, Parts, A, B and C*;
- Submission fees to *Tissue Engineering, Parts A, B and C* will be waived for authors who are Society members in good standing beginning in 2022;
- Mary Ann Liebert, Inc. will establish a best article award to recognize an author or authors of an article, who have made important contributions in the field. The award of $1,000 USD will be issued at each TERMIS Chapter conference (AM, AP and EU) and one award will be issued at a TERMIS World Congress in the amount of $1,500 USD;
- All members will be entitled to a discounted flat fee Article Processing Charge (APC) of $2,000 USD for Open Access publication. This is a savings of 38% off the Publisher's APC rate;
- Conference abstracts for all TERMIS Chapter conferences (AM, AP and EU) as well as the World Congresses will be published online in *Tissue Engineering Part A*;
- Both TERMIS and the Publisher will continue to develop content for the Tissue Engineering Resource Center that includes helpful resources to members on topics including: "How to Write a Research Paper" and "How to Conduct a Fair Review". Please stay tuned to the TERMIS website, newsletter and email communications for updates. If you have any suggestions of relevant topics that should be addressed, please reach out to the Executive Administrator, Sarah Wilburn;
- During the TERMIS Chapter conferences and the World Congresses, Mary Ann Liebert, Inc., publishers will continue to organize in-person workshops that assist our members with navigating interviews, negotiating a startup package, how to write scientific manuscripts, and related activities.

TERMIS Conference Promotion

2022 TERMIS Winterschool

After a Covid-induced gap year and a two-months delay, the TERMIS Winterschool finally took place in March 2022 as ninth event in the internationally renowned series. Under strict Covid precautions, scientists were able to meet in beautiful Radstadt, Austria. The event was supported by the Society of the Advancement of Research in Shock and Tissue Regeneration and, of course, the Tissue Engineering and Regenerative Medicine International Society.

The event opened with an inspiring session on research “from bedside to bench” by political scientist Raffael Himmelsbach, co-director of the Ludwig Boltzmann Research Group: Senescence and Healing of Wounds (LBG SHoW). He talked about the translation of health issues into researchable problems and described translational concepts to avoid knowledge transfer becoming a one-way street from bench to

bedside. To illustrate, two clinicians joined the session to present their medical innovation needs.

In a session on advanced strategies, chaired by Andreas Teuschl-Woller, professor at the University of Applied Sciences Technikum Vienna, the speakers took a close look at cell-therapeutics. They discussed factors currently in the way of broad application and suggested alternative cell-based strategies to overcome the hurdles of implementation, cost-effectiveness and reliability. Afterwards, participants were asked to draft and present their own project idea including one of the described advanced strategies.

No event on regenerative medicine could be complete without a session devoted to extracellular vesicles. Chaired by Wolfgang Holnthoner, head of vascular biology research at LBI Trauma and current president of the Austrian Society, the symposium ignited an active discussion on different levels of this hot topic. Cellular senescence was in the spotlight in the following session, chaired by director of LBI Trauma Johannes Grillari and PI of LBG SHoW Mikołaj Ogrodnik. A session on Simulation, Artificial Intelligence and Imaging Computational methods, chaired by Paul Slezak, head of BioImaging at LBI Trauma, gave insights on the potential of these cutting edge techniques in biomedical applications while also shining lights on current challenges. Last but not least, Peter S. Zammit and Philipp Heher from King's College, London, chaired a session on the physiology and pathophysiology of striated muscle. They dealt critically with recent advances and current open questions and discussed the lack of adequate disease models for pre-clinical research.

Central to every Winterschool is also the spirit of connection, of finding likeminded people and discussing new exciting research idea in a stimulating environment. May it be during the combined poster and wine-tasting session, in the spa area or on the slopes, participants' feedback highlighted the great value they have gained from extending their network. Finally, an impromptu course on cross-country skiing, held by Andreas Teuschl, as well as the traditional sledge race, helped bring the Austrian winter feeling, so long missed during the pandemic, back into everyone's heart.

Meetings Endorsed by TERMIS

TERMIS, an official endorser of the James W. Freston Single Topic Conference.

Editorial Committee Meet-the-Expert

Dental Regeneration and Tissue Engineering Downunder: Prof. Saso Ivanovski

Professor Saso Ivanovski is the Professor and Chair of Periodontology at the University of Queensland School of Dentistry in Brisbane, Australia, where he leads the specialist training program in Periodontics. He is also the Director of the Centre for Oral Regeneration, Reconstruction and Rehabilitation (COR3).

Saso graduated with BDSc (Honours) from the University of Queensland School of Dentistry in 1993. He subsequently completed a BDentSt research degree in 1995, following which he was awarded a National Health and Medical Research (NHMRC) postgraduate scholarship and commenced a PhD which was completed in 2000. This was followed by specialist training leading to the award of an MDSc in Periodontology in 2002. During his studies, Saso worked in a private practice, initially as a dentist (1994-2002), and subsequently as a specialist periodontist. Saso was a NHMRC postdoctoral fellow and a Senior Lecturer at the University of Queensland from 2003 to 2006. During this period, he was awarded a fellowship by the International Team for Implantology (ITI) and spent a year as a clinical research fellow at the Eastman Dental Institute in London. Upon his return from London in late 2004, Saso joined Dr Ken Nixon's practice and Brisbane City Periodontics and Implants was formally established in 2006.

In 2006, Saso was appointed the inaugural Chair and Professor of Periodontology at the Griffith University School of Dentistry and Oral Health, where he leads the specialist training program in periodontology. He served as Deputy Head of School Research and led the Regenerative Medicine Centre at the Griffith Health Institute, before moving back to the University of Queensland in 2017.

Saso is a fellow of the International Team for Implantology (ITI), International College of Dentists and the Academy of Dentistry International, and has served as federal president of the Australasian Osseointegration Society (AOS) and the Australian Society of Periodontology (ASP). He is currently a member of the Australian Dental Research Foundation (ADRF) and chair of the ADRF Research Advisory Committee. Saso has published over 200 papers and book chapters in the peer-reviewed international literature, has lectured extensively nationally and internationally and has been the recipient of numerous research grants and awards. He leads an internationally recognised research group with an interest in clinical implantology and periodontology, as well as the cellular and molecular aspects of osseointegration and periodontal regeneration.

Q: "What area(s) of TERM is your research group interested in?"

A: "I think the best way to answer that is to start with the clinical problem we are trying to address. We are focussing on the regeneration and reconstruction of the oro-dental region (and more broadly the cranio-facial area), particularly by investigating additive manufacturing (AF) in biofabrication. We focus on 3D printing and melt-electrospinning and writing for hard tissue structures and soft tissue interphases."

Q: "Tell us about one really exciting project your group is currently working on."

A: "The most exciting project for us at the moment is addressing a significant clinical problem, which is the vertical alveolar bone regeneration. When teeth are lost, the alveolar bone shrinks, and it is impossible to reconstruct and rehabilitate this area for the patient to regain function. In

order to do that, we need to grow new bone, which is essentially extra skeletal tissue, because the bone resorption that has occurred becomes a new baseline for the body. It is usually a significant vertical defect or a large volume (vertical plus horizontal) deficiency, which represents a major clinical challenge for us. Therefore, a key aspect of addressing this challenge is to use a scaffold as part of the TE paradigm, in order to create space for bone regeneration. These scaffolds are usually customised (i.e., personalised) for the individual patient. For this process, we obtain a 3D digital image using CT scans, design the scaffolds, and then use 3D printing of a medical-grade material (poly-caprolactone (PCL)), which is combined with hydroxyapatite. This has now been tested in a large number of animal models and is ready for translation. The way it is applied clinically is together with 'point of care' or bedside functionalisation with autologous materials (such as platelet rich fibrin)."

Q: "What expertise/connections would help accelerate this project?"

A: "It is a multidisciplinary approach and there is always a need to source different expertise for the successful translation of these constructs to the clinic. While we have the expertise for printing and design, as well as clinical expertise, the biggest challenge we are facing at the moment is probably meeting the regulatory requirements (TGA in Australia, as well as other regulatory bodies such as FDA and others depending on the individual jurisdictions). It is very important to understand compliance with ISO and essential principles of medical device manufacturing and the creation of a quality management system to support the in-house fabrication of these scaffolds. This is where partnering with industry is important as well, and overall integrating your innovation with the manufacturing process while complying with the regulatory requirements for translation to succeed."

Q: "Are you looking for new people to join your team (e.g., students, research scientists)? Either way, tell us one great thing about your group!"

A: "The key requirement for translation is for the research team to have a multidisciplinary profile, and we are always looking for new talented people to join the group. This multidisciplinary approach is a major strength of our program. The expertise in our team includes biomaterial scientists, cell biologists, clinicians, engineers, originating from various parts of the world, creating a very dynamic group and teamwork, at the same time with a clear understanding for everyone for what we are trying to achieve. A benefit of this group is that everyone brings their own expertise, and everyone is excited to contribute to something that is tangible, the translation of our research into human clinical use. There are definitely always opportunities for talented people to join this program, as students and postdocs, and to be trained in our team. In particular, to work on challenges regarding the polymer used for this approach. For instance, they may work on modifications of PCL and PCL-based biomaterials to meet our requirements for translation. Areas we are struggling with relate to the slow reabsorption rate of PCL and composite biomaterials for improved bioactivity, particularly with medical-grade composites of PCL with ceramics or other polymers that can be blended."

Q: "What is the biggest hurdle you're facing in your research/professional life? How can the TERMIS community help?"

A: "The regulatory environment is a challenge for clinical translation, but I also see this as an opportunity for collaboration between academia and industry. From our experience, keeping top people in academia is a challenge for continuity of knowledge. Losing expertise to industry is not necessarily negative, but having a pipeline for stability in academic staff remains a challenge. At least in Australia there is not too many examples of translational research in additive manufacturing and biofabrication, and industry could come onboard to better integrate academic institutions and the industry community, a forum is starting to happen but it is disconnected so far. For instance, we have Australian Research Council (ARC)-funded Research Centres and Hubs for industry, but having better integrated relationships between academia and industry for mutual benefit would be useful for successful clinical translation in particular."

Q: "What are you passionate about in the other aspects of your professional life, outside of research?"

A: "I am a practicing clinician, and I am passionate about clinical innovation and clinical excellence, which is complementary to what we do for optimal translation of our research.

I am also passionate about teaching. In particular at the School of Dentistry, where I teach Undergraduates, Postgraduates and Specialist Trainees about Biofabrication, Tissue engineering, Regenerative Medicine and Regenerative Dentistry. All this is targeted towards developing the next generation of “innovators” (not only researchers), given the variety of opportunities within and outside academia.

Outside of my professional life, I love to travel a lot (with my family, if possible), when I go to meetings and I try to combine this with engagement with the local communities to understand the culture. And of course, exploring the local cuisine is something I enjoy.”

For further enquiries, you may reach out to or learn more about Prof Saso Ivanovski via the email and links below:

Email: s.ivanovski@uq.edu.au

Centre page: https://dentistry.uq.edu.au/research/cor3

If you have content that you would like to include in the TERMIS newsletter, please reach out to Sarah Wilburn. We would love to highlight our members by including a piece on your lab, awards you may have received, etc.

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