



Newsletter

of the European Society for Artificial Organs

Letter from the President

ESAO Newsletter
August 2020

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Edited by:
Pedro M. Baptista

Dear Members of the European Society for Artificial Organs,

I am very glad to present the 9th issue of the ESAO Newsletter, which was edited by **Pedro Baptista**, Deputy Secretary General of ESAO. I encourage you to read the entire Newsletter.

This year, ESAO activities started with the **Winter School** on "*Materials, Surfaces & Cells: Science & Technology for Bio Artificial Organs and Tissue Engineering*", which was held in a charming Leucorea, Lutherstadt Wittenberg (Germany) from 26th till 29th of February, 2020. The Winter School 2020 was organised by ESAO together with the Fraunhofer Institute for Microstructure of Materials & Systems Halle and Martin Luther University Halle-Wittenberg. This event gathered together 9 ESAO members, 6 from yESAO, and 33 students. Twenty invited speakers from 10 countries delivered lectures and students presented 30 posters. I would like to take this opportunity to thank **Thomas Groth, Nuno Neves, Viktoria Weber** and their team for organising this important event.

The first half of 2020 will be remembered as a period marked by the outbreak of the COVID-19 pandemic. The COVID-19 pandemic has affected our lives in many different ways. It also forced us to modify some ESAO activities planned for the second half of the year.

Ashraf Khir, the ESAO 2020 Congress President in conjunction with the ESAO Executive Committee made the difficult but required decision to **postpone ESAO 2020 Congress to 2021**. We have taken this decision with a heavy heart, knowing how important the annual conference is for our Society. However, with growing infection rates, lockdowns and travel bans in most countries, we had no other choice.

In this difficult time, we are all the more grateful to those who submitted abstracts for the ESAO 2020 Congress. To honour the efforts of the authors and provide ESAO members with the latest research in the field of artificial organs and related areas, both the ESAO Executive Committee and the 2020 Congress Organisers decided to publish the abstracts as originally planned. You will find all the accepted abstract, that had been submitted for the ESAO 2020 Congress, in the Special (July) Issue of the *International Journal of Artificial Organs* (IJAO).

The **ESAO Congress in 2021** has been tentatively scheduled from 8th to 11th of September 2021. Please mark these dates in your diaries to meet other members of the artificial organs community during the ESAO 2021 Congress, **either physically** at Brunel University London as planned, **or virtually online**, if the pandemic is not resolved.

Despite the pandemic, most ESAO activities are carried out as in previous years, which demonstrates the vitality and flexibility of our Society.

The yESAO group very quickly adopted to the new reality and decided to hold a virtual conference using modern communication platforms. A digital online yESAO, the "Cloudy-yESAO" will take place between 7th and 11th of September 2020.

Please visit www.cloudyesao.eu or contact: yesao@esao.org for details. The yESAO has also evaluated applications and selected winners of the yESAO Exchange Award 2020.

Viktoria Weber, President Elect of ESAO who is also chairing the ESAO Awards Committee finished collecting applications for the ESAO-SAGE-Research Award 2020 and ESAO-PhD Award 2020 on 31st of July. Now, the applications are being carefully evaluated to select the winners. I am grateful to SAGE Publishing for sponsoring the ESAO-SAGE-Research Award this year, despite the fact that the ESAO Congress has been postponed.

As you know, we will have elections this year for the Secretary General, Treasures and the Board of Governors where four positions are available. **Pedro Baptista**, who has been a Deputy Secretary General and currently serves as Secretary General is a candidate for this position for 2021-2023. I hope you have positively evaluated Pedro's involvement in the activities of the Society so far, and you will vote for his candidacy for the next term. This year, **Ulrich Kertzsch** ends his second term as Treasurer. On my own behalf and on behalf of the Past Presidents of our Society, who cooperated with Ulli during the last 8 years, I thank him very much for his dedication, hard work and reliability, and I am confident that he will remain an active member of our Society in the years to come. The Executive Committee recommends **Tom Verbelen** as the Treasurer. I am sure that Tom's remarkable activity in ESAO gives you more than enough arguments to support his candidacy. This year is the last year of the first term as Governors for **Nuno Neves** and **Simon Sonntag**. I would like to thank them for their constant commitment and support, and I am very glad that they decided to run for the second term. There are also four new candidates for Governor positions: **Jan Schmitto**, **Michael Simmonds**, **Dimitrios Stamatialis** and **Krzysztof Zielinski**. Please get acquainted with presentations and achievements of all the candidates and give your vote to at most four of them. You will soon receive the ballot paper and CVs of all the candidates by mail. Because of the pandemic I strongly encourage you to vote by mail sending your filled in ballot paper to the ESAO Office in Krems.

Finally, I am pleased to inform you that **Thomas Groth** is now the Treasurer Secretary of IFAO and Co-Editor, Europe ESAO Representative in *Artificial Organs* journal.

Take very good care of yourselves, continue to stay safe and have a carefree summer holiday.

With my best personal regards,
Piotr Ładyżyński, ESAO President

ESAO Elections

The postponement of the ESAO Meeting 2020 in London, required us to run the ESAO Elections 2020 exclusively by mail vote. This year, there are four positions available for the Board of Governors (with 6 candidates available: Nuno Neves, Jan D. Schmitto, Michael J. Simmonds, Simon Sonntag, Dimitrios Stamatialis and Krzysztof Zielinski) and we have one candidate for Treasurer (Tom Verbelen, Belgium) and another one for Secretary General (Pedro Baptista, Spain).

Please take a look at their CVs with all the details, which were sent to you by mail by Anita Aichinger in late July.

More than ever, is it extremely important that all of you actively participate in this year's election and vote by mail with the ballot provided with the CVs of the candidates. Please do so until **October 15th 2020** by sending back your ballots by mail to Anita Aichinger.

Candidates for Governors of the Board of ESAO



Nuno Neves (Portugal) is an Associate Professor with Habilitation and Vice-President at the Research Institute I3Bs of the University of Minho in Portugal. He is also Vice-Director of the 3Bs Research Group – Biomaterials, Biodegradables and Biomimetics and he is running for his second term as a Governor of the Board. He is also Chair of the Working Group Tissue Engineering.

Jan D. Schmitto (Germany) is the Director of the Interdisciplinary Heart Failure Unit and Director of the Mechanical Circulatory Support and Active Cardiac Implantation Technologies Program at Hannover Medical School. He is also a Consultant at the Department of Cardiac, Thoracic, Transplantation and Vascular Surgery at Hannover Medical School, Germany.



Michael J. Simmonds (Australia) is a Group Leader at the Biorheology Research Laboratory at Griffith University in Queensland, Australia.

Simon J. Sonntag (Germany) is the Chief Executive Officer (CEO) and Co-founder at Virtonomy GmbH, Munich, Germany. He is also the Co-Chair of the Working Group Heart Support and member of the Board of Governors of ESAO since 2016. He is currently running for his second term.



Dimitrios Stamatialis (The Netherlands) is a Full Professor and Chair of (Bio)artificial Organs at Biomaterials Science and Technology Department, TechMed Institute of Biomedical Engineering and Technical Medicine at University of Twente, The Netherlands. He is the Chair of the Working Group Bioartificial Organs and he is running for his second term as Governor of the Board.

Krzysztof Zieliński (Poland) is an Assistant Professor and Head of the Laboratory for Diagnostics and Therapy of Cardiovascular-Respiratory System at the Nalecz Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences (IBBE PAS), Warsaw, Poland.



Candidate for Treasurer



Tom Verbelen (Belgium) is an Assistant Professor at Katholieke Universiteit Leuven (KU Leuven) and an Associate Head of Clinic and Supervisor of Cardiac Surgery at the University Hospital Leuven, Belgium. He is a Board Member of ESAO since 2018.

Candidate for Secretary General

Pedro M. Baptista (Spain) is a Group Leader at the Health Research Institute of Aragon (IIS Aragon) and the founder of the Laboratory of Organ Bioengineering and Regenerative Medicine at the same institution in Zaragoza, Spain. He is also an Assistant Professor at the Biomedical and Aerospace Engineering Department at the Carlos III University of Madrid. He is a Board Member of ESAO since 2018.



ESAO Meeting 2020 in London postponed to 2021

Although disappointing that we will not meet this September for all the unfortunate COVID-19 reasons, we remain hopeful and positive and forward looking. To start with, our yESAO conference will take place virtually in the cloud this September – please visit: www.cloudyesao.eu and/or contact: yesao@esao.org.

Forward looking, we are resolved to hold the next annual ESAO congress in September 2021 (tentatively from September 8th until 11th) regardless, either physically at Brunel University London as planned, or virtually online, if the tide of COVID-19 continues to run against us. We will meet, regardless.

Ashraf Khir and Piotr Ładyżyński, on behalf of the Organizing and executive committees.

yESAO online congress 2020

Due to the difficult circumstances, this years' yESAO will take place in the cloud! A digital online yESAO congress; "Cloud-yESAO" will take place between the 7th and 12th of September 2020. The format will include traditional elements, such as scientific sessions and workshops, but with novel elements enabled by the online conference concept. All young investigators are invited to submit a contribution to gain the opportunity to present their work in the "first-ever-online" yESAO. Please visit www.cloudyesao.eu/submissions for more details. We also encourage young participants, who previously submitted their abstract to the ESAO 2020, to resubmit their content to the yESAO 2020 by August 15th, to gain the opportunity to present and discuss their work this September.

If you would like to participate or simply stay up to date on the Cloud-yESAO please register for free at www.cloudyesao.eu/register or write us an email at: yesao@esao.org.

While physical meetings are currently too uncertain and dangerous, we think it is especially important in these times to continue collaborating across borders, within the EU and globally, to

work towards our shared goals of restoration and discovery for all fellow humans. We also think that the current challenges harbour great potential for making these collaborations more efficient and sustainable without sacrificing the feeling of community and of course: fun with colleagues. We are looking forward to seeing you. Please let us know if you have any questions or comments. With best wishes from the yESAO,

Ben and Martin



Cloud-yESAO 2020

September 7-12

First fully digital yESAO! Be part of it!

This year everything is different, and so is yESAO. With the motto: “New Challenges Provide New Opportunities”, we have decided to not allow our annual meeting to be cancelled!

We invite all young researchers to join us and embark on this adventure together.

Highlights:

- Scientific exchange with fellow researchers in the field of artificial organs.
- Free registration for all yESAO members.
- Keynotes from academia and industry.
- Special Sessions on home office and artificial organs during crisis.
- Sessions on digital networking.

...All from the comfort of your own home or office.






Please visit cloudyesao.eu for more information, we hope to hear from you soon!

ESAO/TERMIS Winter School 2021 – Jaca (Spain)

Our next Winter School will be held in the town of Jaca, Spain the first capital of the Kingdom of Aragon and a skiing hotspot in the Pyrenees. The motto of next year's school is "***The Bionic Human: Biomaterials, (Bio)Artificial and Bioengineered Organs, and Cybernetics for the Future of Regenerative Medicine***" and will cover in a bottom-up approach the fundamentals in biomaterial science, stem cells and organoids that are making possible the creation and implantation of more complex structures like (bio)artificial and bioengineered organs, and cybernetic parts, enabling the future of regenerative medicine and the generation of Bionic Humans.

This is also the first Winter School co-organized by ESAO and TERMIS, bringing together the prowess and unique perspectives of these two societies into one single program, providing a broad view of regenerative medicine and implantable medical parts/devices/organs. There will be also a special session organized by KIDNEW, the Kidney Health Initiative and The European Kidney Health Alliance that will go in-depth into the need of new kidney dialysis innovations and implantable (bio)artificial kidneys.

The organizing committee is managing to attract world-class speakers from Europe and other continents who will give talks on the state-of-the-art in these different fields. The meeting will also provide a nice platform for presentation of work of regular participants during two poster sessions with snacks and beverages, a get-together party as well as guided tours through the historical centre of the old town. The idea behind running the school in Jaca, is also to allow all the participants to enjoy winter sports with several ski stations within 20-30 minutes by bus or mountain snowed tracks. For this, there will be a 5 hour break every day (12:00-17:00).

The venue is at the University of Zaragoza Residence in Jaca, with 60 rooms with private bathroom, lecture halls and cafeteria, located near the train and bus station of Jaca, which can be easily reached from airports in Madrid or Barcelona. The Winter School will take place from February 24-27, 2021. Registration and poster abstract submission will be open starting November with reduced fees for yESAO and ESAO, and TERMIS members at our website <https://www.esao.org/events/winterschool/>.



We invite you heartily to join our next ESAO/TERMIS Winter School and hope to see you next year in Jaca! Please block your agendas!

With warm regards from the Scientific Committee,

Pedro M. Baptista, Cecile Legallais, Piotr Ladyzynski, Bart Spee, Gloria Gallego-Ferrer, Heinrich Schima, Martijn van Griensven, Zuzana Koci and Fokko Wiering.

Report on Working Group: Heart Support

The Working Group Heart Support is proud to announce the first joint ESAO-EUMS sessions @ the upcoming EUMS-2020 conference in Hannover from Dec. 2nd-5th, 2020.

Session 1: "The use of isolated RVADs"

The failing RV (Osama Soliman, Galway, Ireland)

Impella RP (Thorsten Siess, Abiomed)

Pro Tek Duo (LivaNova)

Clinical experiences with (oxy)RVADs (Roberto Lorusso, MUMC+)

RVAD's for pulmonary arterial hypertension (Tom Verbelen, KU Leuven)

Session 2: "VAD's for congenital heart disease (GUCh)"

Epidemiology of congenital heart disease (Bart Meyns, KU Leuven)

Experience with pediatric VADs (Daniel Medart, Berlin Heart)

VAD development for Fontan Circulation (Marcus Granegger, Vienna)

Animal model and pumping strategies in Fontan circulation (Joeri Van Puyvelde, KU Leuven)

VAD's for grown up congenital heart disease (GUCh) (Daniel Zimpfer, Vienna)).

Tom Verbelen and Simon Sonntag

EUTox working group has raised another Marie Skłodowska Curie grant!

The European Uremic Toxin Workgroup, **EUTox**, was successfully honored another **H2020-MSCA-ITN-ETN (860329)** project entitled: "System omics to unravel the gut-kidney axis in chronic kidney disease", **STRATEGY-CKD**.



In the following 36 months, **13 early-stage researchers will be trained** to translate novel knowledge and ideas in the field of the **Gut-Kidney Axis** into innovative research and therapeutic approaches.

Accumulation of specific **uremic toxins** is associated with an increased risk for cardiovascular disease (CVD) in CKD and depends on the balance between elimination by the kidneys, which progressively decreases during the course of CKD, and generation/adsorption at the side of the intestine. Addressing the **gut microbiota** and the **intestinal barrier** function to decrease circulating levels of **uremic toxins** with the aim to improve (cardiovascular) outcome of CKD patients, could be a cost effective alternative/complementary therapeutic approach which will be explored by this **multi-disciplinary consortium**. The project will focus on **phenotyping** samples from CKD patients by applying state-of-the-art **omic** (cultur-, microbi, peptid-, prote-, metabolomics) **approaches**. *In vitro* single cell, organ-on-a-chip, *ex vivo* intestinal biopsies and *in vivo* animal models will be used to study the **pathophysiology** of the gut-kidney axis in CKD and to provide **proof-of-concept** for the role of specific bacterial species and their contribution to generation of uremic profiles/toxins jeopardizing outcome of CKD patients. The microbiome and other different omic data sets will be **integrated by applying advanced bioinformatics and systems biology approaches** to identify potential therapeutic targets. And last but not least, specific **interventional strategies** will be explored, targeting uremic toxins levels and their effect on the (cardiovascular) outcome of CKD patients. The STRATEGY-CKD project will profit from the scientific and entrepreneurial expertise of the EUTox partners reinforced by partners with microbiome and bioinformatical skills and will build on previous and ongoing EU projects.

Joachim Jankowski and Pieter Evenepoel

IJAO Top 3 cited articles (July 2019-June 2020)

Experimental characterization and computational modeling of hydrogel cross-linking for bioprinting applications

(OnlineFirst: July 2019; Issue published: October 2019)

Times Cited: 4

Impact of preoperative extracorporeal life support on left ventricular assist device outcomes: A comparative study

(OnlineFirst: March 2019; Issue published: July 2019)

Times Cited: 4

Patient-specific design process and evaluation of a hip prosthesis femoral stem

(Online First: December 2018; Issue published: July 2019)

Times Cited: 4

IJAO Most read in the last 6 months (July 2019-June 2020)

Arteriovenous access in hemodialysis: A multidisciplinary perspective for future solutions

(OnlineFirst: May 2020; Issue published: n/a)

Views & downloads: 360

Extracorporeal membrane oxygenation without therapeutic anticoagulation in adults: A systematic review of the current literature

(OnlineFirst: Feb 2020; Issue published: n/a)

Views & downloads: 324

New bidirectional arterial perfusion device

(OnlineFirst: Feb 2020; Issue published July 2020)

Views & downloads: 264

ASAIO Top 3 cited articles (July 2019-June 2020)

Initial ELSO Guidance Document: ECMO for COVID-19 Patients with Severe Cardiopulmonary Failure

(Issue published: May 2020)

Times Cited: 20

Extracorporeal Membrane Oxygenation for Coronavirus Disease 2019 in Shanghai, China

(Issue published: May 2020)

Times Cited: 16

Venoarterial Extracorporeal Membrane Oxygenation With Concomitant Impella Versus Venoarterial Extracorporeal Membrane Oxygenation for Cardiogenic Shock

(Issue published: May 2020)

Times Cited: 11

The most popular ASAIO papers can be found on their website:
https://journals.lww.com/asaiojournal/pages/viewallmostpopulararticles.aspx?WT.mc_id=HPxADx20100319xMP.

Announcements



The poster features a scenic view of a stone fortress with a round tower, set against a backdrop of snow-capped mountains under a clear blue sky. The top of the poster includes logos for iis, Instituto de Investigación Sanitaria Aragón, Universidad Zaragoza, MCB, termis, and ESAO. A white text box on the right side contains the event details.

ESAO/TERMIS WINTER SCHOOL 2021
Jaca, Spain
February 24-27, 2021
www.esao.org; <https://termis.org>

The Bionic Human:
Biomaterials, (Bio)Artificial and Bioengineered Organs, and Cybernetics for the Future of Regenerative Medicine



The poster has a dark blue header with the TERMIS logo and event dates. Below this, it features logos for termis, FIRM, and yESAO. A large white box on the right contains the text 'Join our symposium'. Below this, a photo of Prof. Nuno Neves is shown next to his name and affiliation. A large orange box on the left contains the submission deadline. At the bottom, a QR code is provided for abstract submission.

TERMIS
MAY 31 - JUNE 4, 2021
6TH WORLD CONGRESS
MAASTRICHT
THE NETHERLANDS

Join our symposium
TERMIS-SYIS, FIRM AND YESAO AT TERMIS 2021

Submission deadline: September 1st 2020

Keynote:
Prof. Nuno Neves,
University of Minho

Covering topics:
tissue engineering,
regenerative medicine,
artificial organ technology,
regulatory and clinical translation

Submit your abstract via the TERMIS website and select the stream 'TERMIS-SYIS meets FIRM and yESAO: the next generation of research leaders'