



Newsletter

of the *European Society for Artificial Organs*

Letter from the President

ESAO Newsletter
August 2017

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Edited by:

Sunny Eloot

Dear Members of European Society for Artificial Organs,

I am very glad to present you here the next Newsletter of our society that was kindly edited by our Secretary General Sunny Eloot.

As you know, we will have elections this year again for the Board of Governors where two positions are available. Two **Board Governors** Gerardo Catapano and Marek Darowski will finish their terms and leave the Board. We are very grateful for their very active work as Board Governors. Moreover, Gerard Catapano organised the XLI annual Congress of ESAO in Rome, which was a great success. We hope that they will remain active members of our society and look forward to successfully cooperating with them. Also our **Past President** and current ESAO Editor of the International Journal of Artificial Organs, Bernd Stegmayr, will finish his service and leave the Board after many years of excellent work as Board Governor and President. I would like to express my deepest gratitude to Bernd for his immense contribution to the development of our society, and I am quite confident that he will remain an active member, particularly in his function as Chair of the Working Group Apheresis.

As ESAO President, I was invited by Prof J Chen, the Chair of the Artificial Organs Branch of **Chinese Biomedical Engineering Society**, to give a talk during their annual congress in Beijing in April 2017 (see photo). The Chinese colleagues expressed their serious interest to cooperate closer with ESAO and to participate more actively in ESAO Congresses. We have already several registrations from Chinese colleagues for the upcoming ESAO Congress in Vienna and plan to have a special symposium organised by them during the 2018 congress in Madrid.



During the ESAO Congress in Vienna, Cécile Legallais will become the **next President of our society!** Therefore, I take this opportunity to thank all of you for your continued support of our society. I think that we made together some move to increase the visibility of ESAO by a better representation in social media like LinkedIn and Facebook, but also by an improved website, which is now continuously updated to inform you about the latest news. We had more attendance of our congresses during the past years, which also contributed to an increased number of members that is now close to 500! I should also mention the very active and successful work of **yESAO** with the previous and current chairs Simon Sonntag, Tom Verbelen, Marc Müller and Alessandra Molteni who have been and are highly committed to make yESAO an

active component of our society attracting many new young members, which represents a cornerstone of the future development of our society.

This successful work had also sound basis at our **ESAO office** in Krems with Anita Aichinger as our Secretary. I thank also all Board Governors, Chairs of Working Groups and our Corporate Members, with Ares Menon as Chair, for the continuing support. Finally, my special thanks go to Sunny Eloit – our Secretary General, who supported me greatly in the preparation and execution of the regular Board meetings and General Assembly of our society and many other activities including the release of this Newsletter.

It was a pleasure to me to serve you and the society as President during the past two years hoping that I fulfilled most expectations of those who voted for me. I am looking forward to seeing you during the next congress of the ESAO in Vienna!

With warm regards

Thomas Groth, President

Letter from the President Elect

Dear Members of European Society for Artificial Organs,

It is a great pleasure and honour, in this fourth issue of the ESAO Newsletter, to introduce myself as President Elect, becoming President at the end of our upcoming congress in Vienna. I could say that I am a “child of ESAO”, since I attended my first congress in Vienna (already!) in autumn 1991. The loop is closed ! At that time, I was PhD student at the Université de Technologie de Compiègne, under the supervision of Prof. Michel Jaffrin, a former ESAO governor.

After an engineering degree in Fluid Mechanics, I joined his laboratory “Biomechanics and Medical Devices” and got the chance to work with our regretted Prof. Jan Wojcicki who was spending a sabbatical in Compiègne. I got the “Artificial Organs” virus, and have been working on therapeutic plasmapheresis, haemodialysis and haemodiafiltration (e.g. with Prof. Gerardo Catapano), bioartificial pancreas (with Prof. G. Reach) and finally bioartificial liver (more specifically now with my colleagues of Centre Hépatobiliaire at Hopital Paul Brousse in Villejuif, and also with Prof. Dimitrios Stamatialis at the University of Twente).

I have been involved since many years in the life of our society (as ESAO governor, then General Secretary, but also organising the 36th ESAO congress at Compiègne in 2009). I hope some of you still remember this very nice middle age castle in the forest for the gala diner !

I am very proud now to serve as President, and will do my best, with all of my colleagues in the board, and with all of you, to maintain our tradition of putting together engineers, scientists, clinicians, companies, around this large topic dealing with “repairing the body”. I will try to pursue the excellent work of my predecessors, and to strengthen the links with the civil society. As experts in this hot field, we have also to explain to the public how our research (whatever clinical, applied or fundamental) is contributing to the improvement of their quality of life.

With kind regards

Cécile Legallais, President Elect



Recent analyses of the scientific literature have proven that there is a current lack of knowledge about conformation details and significance of the **albumin molecule** regarding its performance as a molecular adsorber for toxins and medicinal drugs. Chemical modifications of the albumin molecule may occur as a consequence of pathological events, such as kidney or liver failure, or following preparational artifacts during its isolation and storage. One may conclude that albumin will, at least partly, lose its original functionality and thus, be unable to maintain its physiological tasks in the body. Since the stellar publication of Theodore Peters, entitled “All about albumin” in 1995, a series of publications have addressed the variability of the albumin molecule under pathological conditions. Such publications have opened new doors to the understanding of how **conformational changes** might interfere with physiological and even adverse clinical events. This is of major importance in light of treatments for kidney and liver failure, such as hemodialysis, peritoneal dialysis and liver support therapies.

The international expert group “**albunet**” was founded in 2016 by the members of ESAO, **Ulrich Baurmeister and Jörg Vienken**. Since then, albunet has attracted more members; it is open for scientists, independent of national or industrial origin and all ESAO members. The scope of this expert group is to study the behaviour of albumin *in vivo* and *in vitro*. Results will provide information on how to deal best with molecular changes of this interesting molecule under normal and pathological conditions and on how to optimise its impact on therapeutic interventions.



The **albunet mission** reads as follows:

Albunet defines a group of international experts with practical experience in biomedical science and proven clinical practice. Members come from both, academia and industry.

Albunet's activities focus on functional aspects of the albumin molecule under physiological conditions and in the disease state. Special focus is targeted to identify and optimise appropriate renal and liver replacement therapies, such as hemodialysis, albumin-dialysis and apheresis-treatments.

Albunet's goal is to deepen and spread the knowledge about the albumin molecule in the clinical and medical device community.

Albunet is seeking the collaboration of other European medical networks, such as EUTOX, SEPNET and HEPNET and further fosters the collaboration between its Albunet members and scientific research institutions.

Albunet's first public appearance was realised at the 43th Annual Meeting of the European Society for Artificial Organs (ESAO), held in Warsaw in September 2016.

The establishment of the **Albunet** Working Group has to be confirmed by the General Assembly of ESAO in Vienna, on September 8, 2017

Joerg Vienken & Ulrich Baurmeister, Chairmen of Albunet

Announcement ESAO Winter School 2018 - Semmering (Austria)

The next ESAO Winter School will be organised in Semmering, Austria, from January 25th to 27th, 2018, and will focus on **Therapeutic Apheresis and Cellular Therapies**. Following the tradition of former ESAO Winter Schools, the aim is to provide high level education and to foster the interaction between basic and applied science, by bringing together biomaterial scientists, engineers, and clinicians.

Tentative sessions will address Devices and Separation Techniques, Adsorbents and Biomaterials, Anticoagulation, Cellular Therapies and Extracellular Vesicles, as well as Clinical Outcome. Besides providing a state-of-the-art overview of the field, there will be plenty of time for discussion and networking in a relaxed atmosphere. PhD students and Postdocs are particularly encouraged to **submit abstracts** for a special “**poster and talk**” session.

The first announcement with details on the venue, registration, and topics is already online (www.esao.org/winterschool). The preliminary program will be soon available.



Scientific Committee:

Viktoria Weber (Krems, Austria)
Volker Witt (Vienna, Austria)
Michael B. Fischer (Krems, Austria)

Organising Committee

Anita Aichinger & Jens Hartmann (Krems, Austria)

Report on IFAO activities 2016-2017

The IFAO is the federation that is founded by the members of American Society of Artificial Internal Organs (ASAIO), the European Society for Artificial Organs (ESAO) and the Japanese Society of Artificial Organs (JSAO). Each society has three governors of whom one is the chairman and another the chairman elect. A non-voting secretary treasurer in addition is part of the board.

The mission of the **International Federation of Artificial Organs (IFAO)** is to increase and encourage knowledge and research on artificial organs, apheresis, tissue engineering, regenerative medicine and other related topics, to facilitate the international exchange of knowledge, and to provide education related to the improvement and optimal utilization of organ assist devices.

To fulfil this purpose, The Federation will arrange biennial congresses jointly with the Member Societies with special emphasis on international aspects and dissemination of knowledge into developing countries. The international peer reviewed journal **ARTIFICIAL ORGANS** is the "Official Journal of The Federation."

This year the biennial congress is held in conjunction with the ESAO in Vienna. Two years ago it was held in Chicago in conjunction with the ASAIO congress.

In the period 2016-2017, the IFAO governors and representatives participate and present also at intermediate society meetings such as:

ASAIO congress in San Francisco June 2016:

A 30 minutes session including:

- IFAO-1 Hemodialysis in Japan**
Kenichi Matsuda , Yamanashi, Japan (JSAO)
- IFAO-2 ESAO-Congress information Warsaw 2016**
Dimitrios Stamatialis, Enschede, Netherlands
- IFAO-3 IFAO and ESAO Joint Congress- September 2017**
Heinrich Schima, Vienna, Austria

ESAO congress in Warsaw September 2016

A 45 min session including:

- IFAO-1 Development of various autologous bioprosthetic grafts with a unique in-body tissue engineering**
Takewa Y, National Cerebral and Cardiovascular Center, Osaka, Japan
- IFAO-2 Why is survival on hemodialysis different in Japan, Europe and USA? Plausible options**
Stegmayr B, University Hospital of Northern Sweden, Umea, Sweden
- IFAO-3 Hemodialysis in Japan**
Matsuda K, University Yamanashi School of Medicine, Yamanashi, Japan

JSAO congress in Yonaga November 2016

A 2 hour session including:

- IFAO-1 Hemodialysis in Japan**
Kenichi Matsuda (JSAO)
- IFAO-2 Apheresis data from the World Apheresis Registry**
Bernd Stegmayr (University of Umeå, Sweden)
- IFAO-3 An evaluation of four modes of low-dose anticoagulation during hemodialysis**
Bernd Stegmayr (University of Umeå, Sweden)
- IFAO-4 New arterial cannula design for bidirectional peripheral perfusion**
Saad AbdelSayed (Research laboratory, Dpt of Cardiovascular Surgery)

ASAIO congress in Chicago June 2017

A 1 hour session including:

Chairs: Bernd Stegmayr (Umeå, Sweden) and Marvin Slepian (Tucson, AZ)

IFAO-1 Biomedical Application of Decellularized Tissues

Akio Kishida (Tokyo Medical and Dental University, Tokyo, Japan)

IFAO-2 Effectively Increasing Safety and Survival of VAD Patients

Heinrich Schima (University of Vienna, Vienna, Austria)

IFAO-3 Academia-Industry Collaboration for Medical Device Innovation Supported by Government Strategy in Japan

Yoshiyuki Taenaka (National Cerebral & Cardiovascular Ctr, Osaka, Japan)

A symposium is planned for the JSAO congress in Tokyo September 1-3, 2017. A joint program is under preparation with congress president Heinrich Schima for the **ESAO-IFAO biennial congress** to be held in **Vienna, September, 5-9, 2017**.

The amount of 25,000 USD has been transferred to the ESAO-IFAO Congress President Heinrich Schima to cover part of expenses for the joint congress. Travel costs for invited speakers from JSAO and ASAIO speakers will be partly covered and travel support (scholarship) to young investigators from JSAO and ASAIO and from other international locations except for local participants from Europe will be supported.

The membership invoices have been paid for 2016. New invoices for 2017 are under way. The amount to be paid has not changed from a yearly 2,500 USD. This represents for each member society a total of 15,000 USD/6 years. This amount is repaid to the congress organiser of the member society holding the joint IFAO meeting (every 6th year) with an additional 10,000 USD (total 25,000 USD), as outlined in our Policies for Operation.

Participation in scientific activities bridging knowledge over the continents is an important purpose of the IFAO.

Bernd Stegmayr, Chair of IFAO Board

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The banner features the ESAO logo (European Society for Artificial Organs) in the top left corner. The main text reads 'XLV ESAO Congress Madrid 2018' and '12-15 September'. On the right side, there is a stylized illustration of human organs (heart, lungs, liver) overlaid on a gear, with the text 'New organs for life' in white.