



<http://europeanshockociety.org/>  
<https://www.facebook.com/europeanshock/>

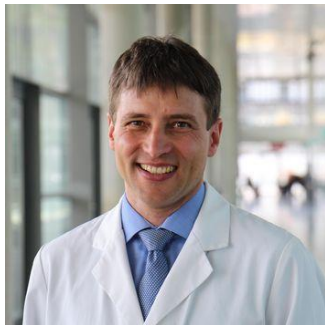
## Contents

Message from the ESS President.....	2
Update ESS Congress 2019, Chania.....	3
Update on the « Personalized Randomized Trial of Validation and Restoration of Immune Dysfunction in Severe Infections and Sepsis » (PROVIDE) trial.....	7
The challenge of host biomarkers for the diagnosis of sepsis and infection.....	8
European Society of Intensive Care Medicine 31st Annual Congress, Paris.....	12
Report from the SepsEast 2018 Meeting.....	13
Introducing ESS research groups: From macro- and microcirculations to cellular energetics: the Surgical Research Group in Szeged.....	14
Journal Club: What is new in shock/sepsis research?.....	16
Upcoming events.....	17
The Executive Committee of the ESS .....	20
Invitation to publish in Shock®.....	24
ESS Membership.....	25
Last words about the ESS newsletter.....	26
ESS Membership application form.....	27



[back to contents](#)

## Message from the ESS President



Dear Colleagues, members, students and friends of the ESS,

*“The important thing is to not stop questioning. Curiosity has its own reason for existing”.* For me, this quote by Albert Einstein (born in Ulm, near my university), reflects an integral spirit of our society. With an unbridled quest toward this very curiosity to question scientific dogmas, challenge clinical paradigms, practices and opinions, we, individually as well as collectively, strive for a better world.

Our current newsletter has been emblematic of that effort. One example is the recent Wiggers-Bernard Conference on sepsis modeling that brought together a superb team of scientists that critically discussed the current scientific practices and created a set of guidelines for pre-clinical sepsis (see the article by its coordinator, Marcin Osuchowski). Another great example of the above mentioned quest is the ongoing PROVIDE trial (coordinated by our president-elect Evangelos Giamarellos-Bourboulis) that incorporates an individual treatment approach as its key design element; see the preliminary report below.

Questioning is thus, invariably, a predominating motif of our upcoming **ESS congress in Chania in October 8<sup>th</sup>-12<sup>th</sup> 2019**. We encourage our members, especially our juniors, to embrace this exercise of challenging shock research on multiple levels through relentless questioning and inquiry. The ESS congress, together with the IFSS and Hellenic Institute for Study of Sepsis, will offer a uniquely targeted content, foster a high level of scientific dialogue and provide a splendidly relaxing environment for social interaction. In lieu of the traditional “lecture” format, the ESS/IFSS congress will rely on the Socratic concept as a central platform for exchanging scientific information and stimulating critical thinking. At this conference, attendees should not just listen; they shall actively engage with presenters and peers, contributing to the dynamic exchanges during which, science thrives and evolves the most vigorously. I am therefore, looking very much forward to welcoming you at Chania in October 2019!

We are continually in search of dedicated ESS members and new members who appreciate the common efforts of our lively society and are ready to invest some of their time to support it. **Please continue to encourage your junior and senior peers to join our society.**

At the end of 2018, I would like to thank each member for her/his dedication and time spent on supporting our activities. My special thanks go to the executive committee including Inge Bauer (our secretary) and Marcin Osuchowski (our treasurer) for their continuous support.

May this season bring you the blessings of peace, joy, hope and happiness!

Enjoy reading our newsletter.

Best wishes,

Markus Huber-Lang  
President of ESS

[back to contents](#)

## Update ESS Congress 2019, Chania



The program of the 2019 joint ESS/IFSS Congress in Chania, Crete, will cover multiple shock/sepsis research topics of the highest scientific impact.

The synopsis of the planned scientific and social events:

### Tuesday 08<sup>th</sup> October 2019

#### *The ESS Fall School on “Hemorrhagic Shock”*

For junior ESS members and students, we organize another iteration of the ESS Fall School, this time we focus on hemorrhagic shock (HS). Eminent experts in the HS field will walk the attendees through the first definition of Shock, complex clinical picture (including hands-on activities) to pre-clinical modeling of HS.

#### **Reception Dinner**

Attendees will be registering for the main congress event and a **common reception dinner will be organized** for all attendees, as an opportunity to encourage scientific and personal bonding in a relaxing atmosphere of a local Greek tavern.

### Wednesday 09<sup>th</sup> October 2019

#### *“Hippocrates meets Sokrates” - Novum*

This year, we organize a “Hot Topic Debate Platform” to discuss the latest and hottest scientific reports. Both clinicians and basic scientists are welcome/encouraged to participate.

#### *“Get the clinicians back to research” joint ESS/ECTES meeting - Novum*

Participation of clinician is encouraged at this **joint ESS/ECTES session** by presenting cutting edge translational research.

#### **Poster sessions**

This year, we provide the **prime time** (late morning) for all poster presentations. There are no overlapping sessions/events scheduled at the time of the poster presentations. This will enable the participants to get involved in one-to-one discussions with experts and peers. As in the past, all posters will be presented in thematic blocks and scored by designated judges – a great chance to win an award!

#### **Dinner**

To continue scientific discussions, develop personal relationship or simply unwind and share some laughs, an informal dinner will be organized for all attendees at a local tavern.

## **Thursday 10<sup>th</sup> October 2019**

A series of joint sessions between IFSS and various shock societies is scheduled on that day. Best speakers from around the world are teamed up for those session blocks. Not only original research but also topics inherent to various national/geographical areas will be covered.

### ***Guided Poster Tours - Novum***

The latest addition to our 2019 meeting: **guided poster tours** for **small student groups** of the ESS Fall School led by senior scientists will be arranged (prior registration is required as the participation is limited), to discuss the latest discoveries on the selected topics.



### ***Olympus Session***

The key junior-oriented event of each ESS congress: the **European New Investigator Award Competition** (ENIAC). This well-attended session highlights the best science performed in the labs across the European continent; it is simultaneously very stressful (i.e. to the top five competitors) and enjoyable (to the audience). ENIAC is a coveted award that ensures a respectable scientific recognition to the winner(s) (not mentioning a decent cash award).

### ***Chania City Tour & Dinner - Novum***

In the afternoon, all attendees will have an opportunity to take part in a **guided tour** through the ancient Greek quarters in the city of Chania. The tour will be followed by dinner at a local fish restaurant. Definitely recommendable!

## **Friday 11<sup>th</sup> October 2019**

### ***Shock research from the Mediterranean - Novum***



We are proud to feature the **Hellenic Institute for Study on Sepsis**, chaired by our president-elect Evangelos Giamarellos-Bourboulis; this session will present regional, cutting-edge research on systemic inflammation, sepsis and

shock. Non-Greek attendees are also warmly welcome!

### ***Russian Shock SSSR - Novum***

A parallel session to the joint ESS/IFSS sessions is scheduled for Russian Shock SSSR. This session has been organized to enable Russian scientists/clinicians to present their work in their native language (a simultaneous translation into English will be provided).

### ***Collaborative Shock Research - Novum***

This afternoon session will cover the ongoing **European Collaborative Shock Research** efforts. The session will feature several active international /intra-European shock research groups and provide an update on their collaborative works.

### ***Past – Present – Future of Shock research - Novum***

The scientific program of the ESS/IFSS congress will close with a series of stimulating talks addressing the evolving premise of shock research and feature a discussion about “*quo vadis shock research*”.

### ***Farewell Dinner***

Our closing social event: an opportunity to **actively** enjoy **Greek folk dance** to bid farewell to all attendees and participants of the congress! It is a deserving activity for all young and younger participants; do not miss this chance to stretch your legs (and hands!) after several days of occupying chairs in various seminar rooms! You will not regret it – we guarantee it.

### **Saturday 12<sup>th</sup> October 2019**

Using the momentum of a scientifically-charged atmosphere, the ESS congress will be followed by the 2<sup>nd</sup> iteration of **Wiggers-Bernard Initiative on Sepsis Modeling** (by invitation only) organized by the Ludwig-Boltzmann Institute (and coordinated by Marcin Osuchowski). Pre-and clinical sepsis experts will discuss future directions of animal sepsis modeling with the ultimate goal of improving translational reliability of animal-based research.

### **Miscellaneous**

The ESS/IFSS congress is logistically supported by the **Aegean Conferences (AC)**. The AC mission is to empower scientists to organize and participate in conferences that offer a uniquely targeted content, foster a high level of scientific dialogue and provide an informal environment for social interaction. In accordance to the AC **Socrates concept**, all attendees interact without observing the hierarchical structure (e.g. common shared space for all meals; unrestricted social event participation) and unprejudiced discussions/scientific exchange across all levels is encouraged.

### **Of note**

**Multiple Poster Awards and Travel Awards** will be granted (sponsored by ESS, IFSS, and Aegean Conferences).

If you have any suggestions, please feel free to contact the ESS board any time.

Please save the date and we are looking very forward to welcoming you in Chania!



Drafted by  
Markus Huber-Lang

[back to contents](#)





# ESS / IFSS Meeting 2019

in Chania, Crete, Greece  
08th – 12th October



Time	08.10.2019 Tuesday	09.10.2019 Wednesday	10.10.2019 Thursday	11.10.2019 Friday	12.10.2019 Saturday
07:00-08:00	Breakfast Main Restaurant (all)	Breakfast Main Restaurant (all)	Breakfast Main Restaurant (all)	Breakfast Main Restaurant (all)	Breakfast Main Restaurant (all)
08:00-09:00	Welcome by ESS/IFSS Presidents What Apolito reveals: Innate Immune Response to Trauma/HS	Asclepius in Shock: Novel Therapies in Trauma/Sepsis (IFSS - Japan Shock)	Precision Modeling Hellenic Sepsis Meeting in greece engl. transl. Organization: E. Giamarellos-B.	Departure (all)	Wiggers Bernard Sepsis Modelling 2.0 Seminar Room
09:00-10:00	Coffee Break/Poster Viewing Promethius' bestowment: Novel Pathomechanisms in Trauma/HS	Influencing Parameters: Obesity & Aging (IFSS - US Shock)	Hermes: Sepsis/Trauma around the World (IFSS - Latin-America)		
10:00-11:00					
11:00-12:00					
12:00-13:00	Summer School Lunch (for Students only)	Lunch/ Informal Discussions (all)	Lunch/ Informal Discussions (all)	Lunch/ Informal Discussions (all)	(by invitation only)
13:00-14:00	Summer School Hemorrhagic Shock Lecture & Hands-on	IFSS Board Meeting IFSS Board Meeting	Students Poster Tours What is new in HS? MODS?	ESS General Assembly Bauer, MHL, EGB	Lunch (Wiggers Bernard only)
14:00-15:00	Conference Center (only for juniors)	Clinical Relevance? Modeling Trauma/Sepsis Wiggers Bernard 2.0 Report Coffee Break/Poster Viewing Hippocrates meets Plato: "Get the Clinicians back to Shock Research" Long term effects of Trauma/Sepsis (ESS - ECTES)	Olympus meeting: European New Investigator Award Competition Guided City Tour Chania Museum Visit	IFSS - Russian Shock SSSR in russian engl. transl.	Wiggers Bernard Sepsis Modelling 2.0 Seminar Room
15:00-16:00					
16:00-17:00					
17:00-18:00					
18:00-19:00	Registration ESS/IFSS				
19:00-20:00	ESS Board Meeting				
20:00-21:00	Hotel Lobby	Bus Transfer			
21:00-22:00	Welcome ESS / IFSS Reception Dinner Hotel	Common Dinner/Informal Discussions Local Greek Restaurant	Common Dinner/Informal Discussions Local Greek Restaurant	Awards/Farewell Dinner / Awards Hotel	
22:00-23:00	(all)	(all)	(all)	(all)	

## **Update on the « Personalized Randomized Trial of Validation and Restoration of Immune Dysfunction in Severe Infections and Sepsis » (PROVIDE) trial**

The PROVIDE trial (ClinicalTrials.gov registration NCT03332225) is the first clinical trial aiming to assess the impact of immunotherapy according to personalized needs of the patient. The trial is sponsored by the Hellenic Institute for the Study of Sepsis and it is under the auspices of the European Shock Society. The trial has been running since December 2017 at 11 study sites in Greece (EudraCT 2017-002171-26; approval by the National Ethics Committee 78/17; approval by the National Organization for Medicines IS 75-17). In October 2018, the study was amended to open at three more sites so that the current count includes 14 participants (four departments of Internal Medicine and 10 Intensive Care Units).

The trial has a unique design; inclusion criteria are not limited to clinical characteristics but they take into consideration the immune state of the patient. To this end, adult patients with septic shock (by the Sepsis-3 classification) due to lung infection (CAP, HAP and VAP) or primary bacteremia or acute cholangitis are screened for eligibility using two consecutive measurements of ferritin and of HLA-DR/CD14 co-expression. Those with ferritin above 4,420 ng/ml are classified into macrophage-activation syndrome (MAS) and those with ferritin below 4,420 ng/ml but HLA-DR/CD14 less than 30% are classified into sepsis-induced immunosuppression. Enrolled patients are randomized through double-blind, double-dummy approach into the immunotherapy arm or the standard-of-care arm. Patients assigned into the immunotherapy arm receive treatment with either intravenous anakinra (targeting MAS) or subcutaneous recombinant IFN $\gamma$  (targeting immunosuppression). Patients assigned into the standard-of-care arm receive intravenous and subcutaneous placebo treatment. Main exclusion criteria are primary and secondary immunodeficiencies and solid and hematologic malignancies.

The PROVIDE trial is a real challenge for all participating investigators and for personnel who works in the central study lab. The challenge consists on the development of one high-level collaboration network having rapid exchange of information as the main goal so that patient screening is facilitated. This targets fast transportation of screening samples to the central lab, rapid processing and fast feedback report of blind information for allocation into treatment arm. Until November 14 2018, 166 patients under vasopressors were screened for eligibility; sixty-two patients were excluded due to study exclusion criteria and blood was sampled for immune state classification from 104 patients; 21 patients are enrolled in the study.



*Members of the Hellenic Sepsis Study Group*

Evangelos Giamarellos-Bourboulis

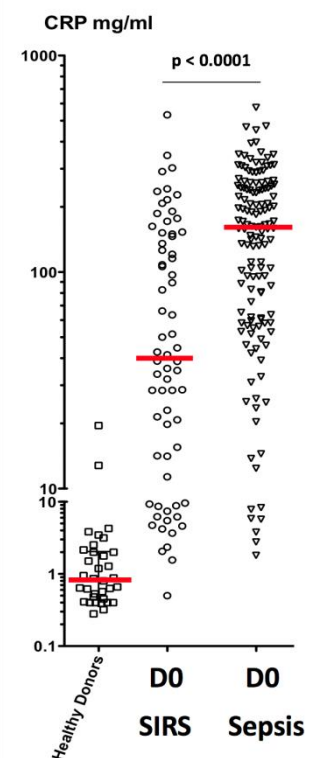
## The challenge of host biomarkers for the diagnosis of sepsis and infection



Biomarkers able to help the physicians to diagnose the presence of an infection (or sepsis) as early as possible, remain highly desired. Over 46,000 scientific papers relate to the quest for such biomarkers. Out of the hundreds of studied biomarkers, most of the reports show a significant difference ( $p < 0.05$ ) between infected patients and controls (1). However, a marked overlap between the individual values obtained from different groups of patients (i.e. inadequate specificity and/or sensitivity) does not support their routine use in clinical practice (2) (see below an example – data from the CAPTAIN study). The same is true for the most popular one (the only one), namely,

procalcitonin (PCT) (3). The analysis of the cytokine storm mirrors the severity of the infection. The levels of certain biomarkers correlate with clinical scores (4-6) and those biomarkers have been proposed as markers of prognosis/outcome that can distinguish survivors *versus* non-survivors (7,8). Similar outcome-predictive claims can be made for markers of endothelial cell activation (9) as well as the intensity of thrombocytopenia (10), lymphopenia (11) and the number of circulating immature granulocytes (12). In addition to the proteomic approach, other analytes such as cell surface markers, micro-RNAs, metabolites and mRNAs have been investigated. Among the most promising cell surface markers, let us mention CD64 on neutrophils (13), and HLA DR (14) and CX3CR1 (15) on monocytes. However, a recent study revealed that no combination of leukocyte surface biomarkers has a predictive validity for the diagnosis of sepsis among patients with suspected acute infection (16). It is generally agreed that a magic marker does not exist and new trends favor a hunt for the appropriate combination of biomarkers. This is exemplified in the transcriptomic analysis where promising association of certain genes could help to discriminate subsets of patients and allow the diagnosis of sepsis (19-21). Similarly,

metabolomic studies demonstrated the usefulness of measuring several metabolites for an accurate diagnosis of sepsis (22-24). In terms of proteomic, a recent study suggested that measurements of TRAIL, CXCL10 and CRP could help discriminating bacterial *versus* viral infections (25). The combinations of plasma and cell surface markers such as CRP and CD64 (26) or PCT, sTREM-1 and CD64 (27) have also led to efficient scoring system allowing identification of septic patients. Unfortunately, our own work that examined 53 various





biomarkers (plasma proteins, mRNAs, surface markers) has failed to define any marker combinations able to distinguish patients who had developed sepsis in the intensive care unit (ICU) (28). This negative finding most probably reflects the difficulty in finding specific markers of infection within a huge inflammatory background. In contrast, however, a similar approach in the emergency department could be more promising (ClinicalTrials.gov, NCT02707718).

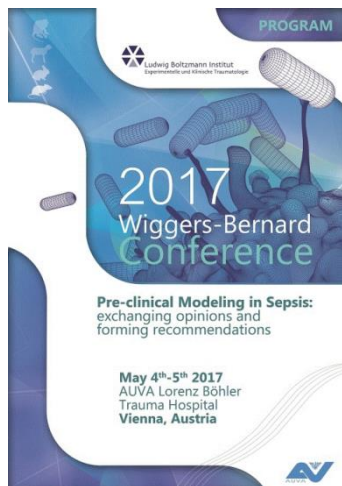
Most interesting is also the recent technological progress and new tools such as microfluidic that are now proposed as diagnostic support. Most promising reports have investigated cell surface markers with the microfluidic (29,30), and the neutrophil motility investigated by such devices reached 97% sensitivity & 98% specificity (31). Other methods, for example detection of microbial markers with molecular approaches are also under investigation (32). Of note, a meta-analysis of the sepi-fast test (Roche) revealed 68.8% sensitivity [range : 25.6 – 95.2] and a 85.2% specificity [range : 50 – 98.7]. Excessive sensitivity of a test can be, however, misleading. A recent report on the next-generation DNA sequencing (NGS) technology - based 16S ribosomal RNA amplicon sequencing combined with Genome Search Toolkit, showed positive readouts in samples from healthy people (33).

To conclude, many promising measurements are now available, however, they still need to be validated depending of the studied population (neonates, infants, children, adults, elderlies) the type of infection (viral, fungal, parasitic, bacterial) and the site of infection. While certain combination of biomarkers could help to identify infected patients among people with fever of an unknown origin, the key challenge remains: to quickly and precisely identify patients with sepsis among patients suffering from various severe inflammatory disorders.

1. Parlato & Cavaillon, *Methods Mol Biol* 2015, 1237, 149-211
2. Pierrakos and Vincent. *Crit Care*, 2010, 14: R15
3. Tang et al. *Lancet infect. Dis.* 2007, 7, 210-7
4. Liu et al. *Inter J infect Dis* 2015, 40, 135
5. Zhang & Zhang *Open Life Sci* 2018, 13, 42-47
6. Almansa et al. *Sci Reports* 2018, 8, 11999
7. Marty et al. *Crit Care Med.* 1994, 22, 673-79
8. Rodriguez-Gaspar et al. *Cytokine* 2001, 15, 232
9. Sun et al. *Int J Clin Exp Med* 2016, 9, 21368-77
10. Claushuis et al. *Blood* 2016, 127: 3062-72
11. Drewry et al. *Shock* 2014, 42: 383-91
12. Daix et al. *Chest* 2018, 154, 617-627
13. Livaditi et al. *Cytokine* 2006, 36, 283
14. Monneret *Int. Care Med.* 2006, 32: 1175-83
15. Pachot et al. *J. Immunol.* 2008, 180, 6421-29
16. Shankar-Hari et al. *intensive Care Med* 2018 in press
17. Correia et al. *Front. Immunol.* 2017, 8, 118
18. Wang et al. *Plos One* 2012, 7, e38885
19. Bauer et al. *EBioMedicine* 2016, 6: 114-25
20. McHugh et al. *Plos Med.* 2015, 12: e1001916
21. Miller et al. *Am J Respir Crit Care Med.* 2018,198: 903-913
22. Mickiewicz et al. *Crit Care* 2015, 19: 11
23. Kauppi et al. *Plos One* 2016, 11: e0147670
24. Mickiewicz et al. *Sci Reports* 2018, 8: 16606
25. Oved et al. *Plos One* 2015, 10: e0120012
26. Dimoula et al. *Clin Infect Dis* 2014, 58: 820-9
27. Gibot et al. *Am J Resp Crit Care Med* 2012, 186, 67-71
28. Parlato et al. *Intensive Care Med.* 2018, 44, 1061-1070
29. Hassan et al. *Nature Comm.* 2017, 8: 15949
30. Zhang et al. *Analyt Chem* 2018, 90: 7204-11
31. Ellett et al. *Nature Biomed Engin.* 2018, 2: 207-14
32. Sinha et al. *Clin Microb. Rev.* 2018, 31: e00089-17
33. Watanabe et al. *Plos One* 2018, 13: e0202049

Jean-Marc Cavaillon

## International Expert Consensus Guidelines for Pre-Clinical Sepsis Studies Published



In May 2017, with support of AUVA and Lorenz-Böhler Trauma Hospital, our Ludwig Boltzmann Institute for Experimental and Clinical Traumatology (LBI) hosted a Wiggers-Bernard Conference entitled: “*Pre-clinical Modeling in Sepsis: exchanging opinions and forming recommendations*”. Over the period of three days (May 3-5), we had a privilege to host the crème de la crème of international experts (31 participants from 13 different countries) in clinical and pre-clinical sepsis. The conference was organized with the goal to identify the limitations of pre-clinical sepsis modeling and to formulate basic guidelines that would enhance the translational value of findings originating from those models. The conference was preceded by a significant preparatory workload; we conducted a literature review of the 260 most highly

cited scientific articles on sepsis models published between 2003 and 2012 to gain insight into their strengths and weaknesses and to identify the key modeling areas to be discussed. We chose six specific thematic working groups to effectively streamline the workload: 1) Study design, 2) Humane modeling, 3) Infection types, 4) Organ failure/dysfunction, 5) Fluid resuscitation and 6) Antimicrobial therapy endpoints. The two conference days we had spent together in Vienna were very intense as we drafted a list of guideline points. The guidelines were then refined into the so called “*Minimum Quality Threshold in Pre-Clinical Sepsis Studies*” (MQTiPSS). Overall, we agreed on formulating/releasing the total of 29 recommendation and consideration points. The final outcome of our teamwork includes an open-access Executive Summary (simultaneously co-published in Shock, Infection and Intensive Care Medicine Experimental journals; PMID:30106875, 30225655, 30112605) to support its wide dissemination as well as three full-size papers (Parts 1-3; PMID:30106874; 30106873; 29923896) that provide details to the guideline points (to be published in the January issue of Shock).

Although the MQTiPSS has not received an official endorsement from relevant professional societies, we received plenty of support from those societies to disseminate the MQTiPSS worldwide. Four Shock societies (the US, Japanese, Chinese and European Shock Society), Deutsche



*Gala dinner at the Kunsthistorisches*

Sepsis-Gesellschaft, European Society of Intensive Care Medicine (ESICM) and Latin American Sepsis Institute sent blast emails to their members and/or posted website notes. Additionally, thanks to ESICM (<https://www.esicm.org/ictv-icmx-article-alert-pre-clinical-sepsis->

[guidelines/](#)), a short animation movie was produced to describe the entire concept in an approachable layman terms supported by a podcast and icTV (coming soon) interview.

We strongly believe that the Wiggers-Bernard initiative has been a needed and positive step in the right direction. We also very much hope that MQTiPSS guideline points will be recognized as “best practices” and scientists will chose to implement them in their experimental works in order to enhance standardization across pre-clinical models of sepsis. The ultimate goal of the MQTiPSS is to improve translation of pre-clinical findings into clinics. We sincerely thank all those who have been supporting us in above effort either by action and/or encouraging words.

Marcin Osuchowski, coordinator of the Wiggers-Bernard Initiative

## European Society of Intensive Care Medicine 31st Annual Congress, Paris



In October 2018, thousands of European (and beyond) critical care physicians, nurses and researches met in Paris to participate at the ESICM annual congress. Leaving the numbers aside, it was a huge conference with multiple concomitant sessions and impressive industry booths. The strength of this particular congress seems to be a good balance between the talks given by the prominent researchers in the field and the ones based on the submitted

abstracts. This selection strategy gave a great opportunity to listen to people with less known names but with interesting ideas and/or research to present. The topic covered all aspects of the current emergency and critical care medicine so it is pointless to refer to any specific topic. However, it is definitely worth to mention the vigorous pro-con discussion at the session dedicated to the new *sepsis bundles*. The joint session with the International Sepsis Forum provided an interesting talk from Marvin Singer who raised a stirring question whether all sepsis patients could be saved. Additionally, John Marshall gave an inspiring talk about the past and current concepts of sepsis. Experimental research topics were mainly gathered in separate sessions coordinated by the *Intensive Care Medicine Experimental* (ICMx) team and constituted an interesting mixture of good translational works as well as basic science on pathophysiology of various critical care conditions.

Among news from the clinical trials, it was interesting to learn about the results of the new immunoglobulin preparation (Trimodulin) trial in the community-acquired pneumonia that showed positive effects in a subgroup of patients with high CRP. Altogether, the meeting was a great platform for acquiring and exchanging the newest and “hot” knowledge in the field. Despite the lack of novel ground-breaking clinical trial results, participation in this event points out that we have been experiencing an interesting evolution in the approach to research and/or trials in critical care medicine.

Tomasz Skirecki



## Report from the SepsEast 2018 Meeting



The SepsEast Forum (<http://sepseast2018.com/>) was organized on November 15-17, 2018, by prof. Zsolt Molnár, head of the Institute of Anesthesiology and Intensive Therapy at University of Szeged, Hungary for the 4<sup>th</sup> time in Budapest. The name of this congress refers to sepsis, as central point of interest for the attending anesthesiologists and intensivists and also to the concept of bringing East and West closer together. The scientific content was guaranteed by 30 invited speakers, influential opinion leaders of the field. SepsEast was dedicated to Ignác Semmelweis,

Hungarian obstetrician-physician, the “savior of mothers” who was born 200 years ago. It should be noted that quite remarkably the registration for junior doctors (under the age of 29) was free of charge.

The Forum comprised of 14 symposia and 2 e-poster sessions. The importance of detection and modulation of organ dysfunction, timely assessment and balanced control of immune response as well as of individualized therapy during sepsis were emphasized in most of the symposia.

The attendees had chance to enjoy particularly entertaining lectures given by Didier Payen (“Time commands therapeutic interventions” - “Dysregulated host response”), Xavier Monet (“How to integrate hemodynamic variables to manage patients with septic shock” and “Weaning-induced cardiac dysfunction”) and the futuristic lecture by Jean-Louis Vincent (on “The future ICU”). Can Ince presented views on personalized medicine – which should include personalized physiology-based medicine in the future (not based only on the detection of biomarkers). He showed promising experimental results as well, such as senescent cell apoptosis as a target, and the role of previous physical activity of patients which is influenced by myokines (including IL-6) in the outcome of sepsis. He also gave a very clear talk on microcirculation as a target of resuscitation (as usual).

As for therapeutic issues, Vsevolod Kozkov (Russia) gave a lecture about therapeutic pitfalls (with the title of “Ten don’ts” of septic shock”) including dangers of fluid, vasopressor, alkalyzing therapy, immunoglobulins, steroids, hyperchloraemia (induced by saline), and early use of hemofiltration and albumin, and also about benefits of antibiotics which also enter the extravascular space. The congress president (prof. Molnár) presented his experiences with adjunctive therapies (such as immunoglobulins and cytokine adsorption with CytoSorb) and “restrictive” fluid management of patients with the ROSE approach (also preventing the degradation of glycocalyx). Modulation of the immunological changes and the benefits of epirubicin in modulating the immunological response during sepsis with neutrocytosis and those of interferon-gamma during the immunosuppression phase were presented by Didier Payen.



A loud and highly entertaining concert was closing the Forum. In the band called “OnCall” the congress president himself was the guitarist/singer while the head of the Department of Emergency Medicine of the same university secured the necessary rhythm as drummer.

Andrea Szabó

## Introducing ESS research groups: From macro- and microcirculations to cellular energetics: the Surgical Research Group in Szeged

### Introduction

The Institute for Surgical Research (ISR) was established in 1951 by Dr. Gabor Petri (an internationally-recognized Hungarian surgeon of that time) with the major aim to teach basic surgical techniques as part of the graduate medical curriculum. Another aim was to provide support for investigative clinical surgery with basic research facilities and accesses to in vivo models. In this respect, the institute was the first of its kind in Hungary with strongly acknowledged “translational” purposes. Of note, dr. Sándor Nagy, second director of the institute, was also among the founders of the European Shock Society in 1983.

### The Team

The current ISR director, prof. Mihály Boros served as a member of the Executive Committee of ESS and today he is one of the trustees, while assoc. prof. Andrea Szabó is a member of the ESS Executive Committee. Since its foundation, the ISR research programs are focused on a teamwork culture that integrates clinicians, full time surgical-scientists, PhD students and undergraduate medical students. Our students regularly participate at local and international congresses; many of them competitive award recipients (e.g. ESS and ESSR awards). In 2015, a new mentorship system was introduced at the University of Szeged, named after Albert Szent-Györgyi, a Nobel-prize laureate and former Dean of our Faculty. The goal of the Szeged Scientists Academy School is to support talented students who are willing to conduct high-level laboratory research incorporated into their regular curriculum. The students meet regularly (at least twice a year) with Nobel laureates discussing the new results during special workshops (see details at <http://www.nobel-szeged.hu/eng/index.php>). The mentoring and recruitment program was recently extended towards secondary school students; as of today, we work together with 4 medical and 2 secondary school students of the Academy.

### Main Research Groups and Topics

The *Mitochondrium* Group investigates the consequences of hypoxia/anoxia and inflammation (including arthritis and inflammatory bowel disease) at subcellular level using high resolution respirometry (Oroboros Instruments). Mitochondrial manifestations of injury are investigated in different organs (liver, kidney, bowels, heart and synovial membranes) in clinically-relevant animal models of ischemia/reperfusion, sepsis and autoimmune diseases.

[Back to Contents](#)

During the last decade, a particular interest was focused on the detection of hypoxia-induced oxido-reductive stress reactions and modulation of the consequences by exogenous methane administration in a variety of *in vivo* and *in vitro* models. (for potential cooperation please contact [hartmann.petra@med-u-szeged.hu](mailto:hartmann.petra@med-u-szeged.hu), [juhasz.laszlo@med.u-szeged.hu](mailto:juhasz.laszlo@med.u-szeged.hu))

The *Macrohemodynamics Group* focuses on different regulatory aspects of circulatory pathologies in animal models of human diseases. The main topics of interest are sepsis-induced alterations, cardiogenic shock and extracorporeal perfusion. Regarding sepsis, the consequences of complement cascade blockade, antagonism of endothelin and NMDA receptors, and goal-directed fluid therapy (with special emphasis on sepsis-induced glycocalyx degradation) are studied. The group has developed new models to investigate the pathomechanism of non-occlusive splanchnic ischemia (by pericardial tamponade in minipigs). The unwanted peripheral (kidney) consequences of extracorporeal perfusion (including ECMO) are also studied in large animals, more specifically, the therapeutic possibilities of complement C5a antagonism and administration of gaseous transmitters (e.g. methane) are examined. The available methodology includes complete hemodynamic monitoring including cardiac functions and perfusion of individual organs in mechanically ventilated and non-ventilated animal models. (for potential cooperation please contact [kaszaki.jozsef@med.u-szeged.hu](mailto:kaszaki.jozsef@med.u-szeged.hu), [varga.gabriella.1@med.u-szeged.hu](mailto:varga.gabriella.1@med.u-szeged.hu))

The *Microcirculation Group* conducts examinations of the microcirculatory consequences of typical surgical scenarios in animal models and patients. Current research topics are ischemia/reperfusion syndromes (in animals: bowel, limb, liver, testis, urinary bladder, periosteum, synovial membrane; in humans: maxillofacial flaps) and sepsis (local and systemic inflammatory reactions in intra-abdominal sepsis in rodents and minipigs), with particular interest in the integrity of endothelial glycocalyx. We routinely employ traditional fluorescence intravital microscopy, orthogonal polarization spectral imaging, incident dark field imaging as well as confocal laser scanning microscopy and laser-Doppler flowmetry. (for potential cooperation please contact [szabo.andrea.exp@med.u-szeged.hu](mailto:szabo.andrea.exp@med.u-szeged.hu))



*Senior members of the Surgical Research Group of Szeged*

Andrea Szabó

## Journal Club: What is new in shock/sepsis research?

### Highlights of remarkable findings recently published in shock research

#### The “Master-Switch” in sepsis-induced immunoparalysis?

**Source:** Seeley JJ et al. Induction of innate immune memory via microRNA targeting of chromatin remodelling factors; Nature 2018, 559(7712):114-119 ([link to the paper](#))

**Main important messages:**

Sepsis is associated with the development of immunoparalysis that enhances the risk for secondary infections or for infection persistence. During immunoparalysis, the capacity of monocytes to respond to microbial stimulation with the secretion of inflammatory cytokines is abrogated. The mechanisms underlying this monocyte reprogramming are still incompletely understood. Previous studies have shown that there does not exist a single mediator (e.g. IL-10) that is responsible for the broad changes of the immune system. Rather, an upstream “Master-Switch” might turn off the expression of inflammatory genes in monocytes from septic patients. A study from J.J. Seeley et al. recently published in “Nature” sheds some light on this unresolved issue. Since LPS tolerance mimics some aspects of immunoparalysis during sepsis they initially investigated molecular changes in macrophages during LPS tolerance in vitro. Using diverse experimental approaches they discovered that the microRNAs miR-222 and miR-221 are highly expressed in tolerized macrophages and inhibit the transcription of inflammatory genes. miR-222 and miR-221 did not exert their suppressive effect through binding to the promoter of the inflammatory genes but instead to the promoter of *brg1*. BRG1 is the catalytic subunit of the SWI/SNF complex that mediates chromatin remodeling to enable the recruitment of transcription factors to the DNA of several inflammatory genes. Accordingly, in the absence of miR-222 and miR-221 there was enhanced recruitment of BRG1 and STAT transcription factors to the promoter of inflammatory genes and release of inflammatory cytokines. Using mir222/mir221 knockout mice the authors showed that miR-222 and miR-221 broadly suppressed inflammation and innate immune function. Most importantly with regard to the development of immunoparalysis mononuclear cells from septic patients expressed increased levels of miR-222 and miR-121 during sepsis that inversely correlated with the expression of BRG1 and that was associated with organ failure. Thus, the authors suggest that miR-222/miR-221 on the one hand protect from overwhelming inflammation (e.g. in LPS shock) and on the other hand mediate organ damage and mortality during sepsis. In my opinion, miR-122/miR-121 might represent a “Master-Switch” during sepsis and are worth to be evaluated as a therapeutic target in clinically relevant sepsis models.

**Written by:** Stefanie Flohe, Essen, Germany



## Upcoming events

**48<sup>th</sup> Critical Care Congress**  
February 17-20, 2019  
San Diego Convention Center  
San Diego, California, USA



<https://www.sccm.org/Education-Center/Annual-Congress>



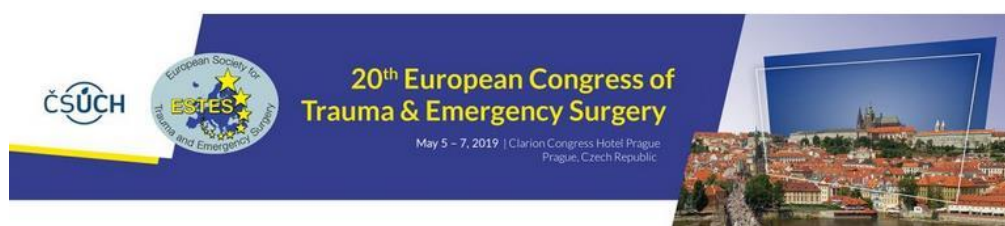
**39<sup>th</sup> International Symposium on Intensive Care and Emergency Medicine**

March 19-22, 2019

Brussels, Belgium

<https://www.intensive.org/1/main.asp>

**20<sup>th</sup> ESTES Congress 2019**  
May 5-7, 2019  
Prague, Czech Republic



<http://www.estesonline.org/estes-congress-2019/>



**Sepsis 2019**  
May 09-10, 2019  
Rio de Janeiro, Brazil

<http://internationalsepsisforum.com/activities/sepsis-20xx/>

**TERMIS European Chapter Meeting 2019**  
27th-31st May 2019  
Rhodes, Greece  
<https://www.termis.org/eu2019/>

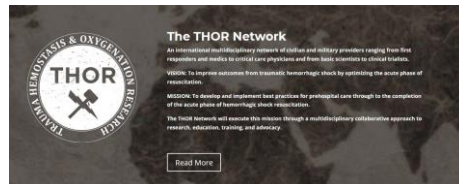


[Back to Contents](#)

**42<sup>nd</sup> Shock Society 2019 Annual Conference**, June 8-11, 2019  
(Co-located with the **39<sup>th</sup> SIS Annual Meeting**, June 5-8, 2019)  
Coronado, CA



<http://shocksociety.org/Meetings.aspx>



**2019 RDCR SYMPOSIUM**

June 23-26, 2019

Bergen, Norway

<https://rdcr.org/>

**32nd European Annual Congress on Surgical Infections**

June 26-18, 2019

Dublin, Ireland

<http://sis-e.org/2019/>



**Weimar Sepsis Update 2019 - "Tribute to Translation"**

September 11-13, 2019

Weimar, Germany

<http://www.sepsis-gesellschaft.de/>

**19<sup>th</sup> ESOT Congress 2019**  
September 15-18, 2019  
Copenhagen, Denmark  
<https://www.esot.org/EDTCO/home>



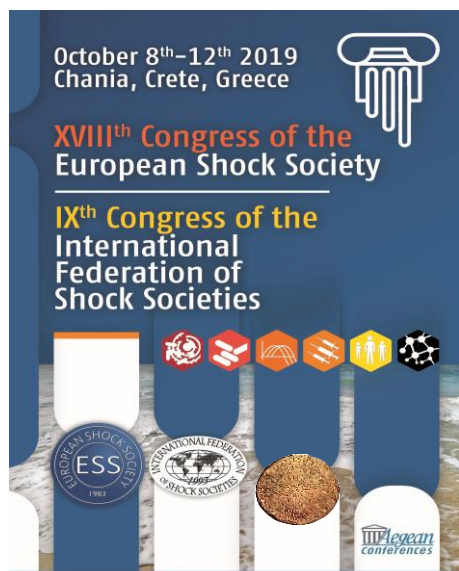
<https://www.esicm.org/events/32nd-annual-congress-berlin/>

**32<sup>nd</sup> ESICM-LIVES 2019**

September 28 –

October 2, 2019

Berlin, Germany



**18<sup>th</sup> ESS Congress/ 9<sup>th</sup> IFSS Congress**  
 October 8-10, 2019  
 Chania, Crete, Greece  
 Conference Center: Avra Imperial Hotel

<https://www.aegeanconferences.org/src/App/conferences/view/138>

**World Federation of Societies of  
 Intensive and Critical Care  
 Medicine: 14<sup>th</sup> World Congress**  
 October 14-18, 2019 Melbourne,  
 Australia



[http://www.world-critical-care.org/index.php?option=com\\_content&view=article&id=22&Itemid=29](http://www.world-critical-care.org/index.php?option=com_content&view=article&id=22&Itemid=29)

#### Future Meetings

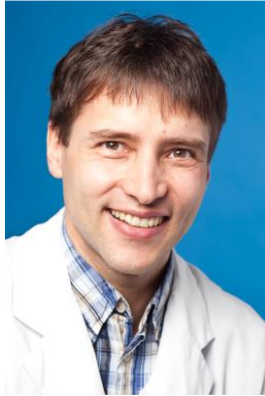


**43<sup>rd</sup> Annual Conference on Shock**  
 June 6 - 9, 2020  
 Toronto, Canada



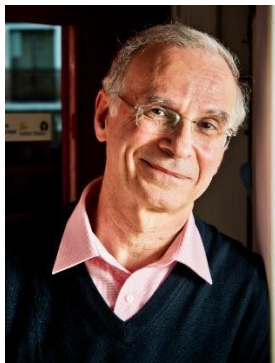
## The Executive Committee of the ESS

### The President:



Markus Huber-Lang, MD  
 Professor and Chair  
 Institute for Clinical and Experimental Trauma-Immunology  
 University Hospital of Ulm  
 Helmholtzstr. 8/1  
 89081 Ulm, Germany  
 Phone: +49-731-500-54801  
 Fax: +49-731-500-54718  
 e-mail: [markus.huber-lang@uniklinik-ulm.de](mailto:markus.huber-lang@uniklinik-ulm.de)

### The Past-President:



Jean- Marc Cavaillon, PhD, Dr.Sc.  
 Department of Infection and Epidemiology  
*Institut Pasteur*  
 25-28 rue du Docteur Roux  
 75015 Paris, France  
 Phone: +33 1 45 68 82 38  
 Fax: +33 1 40 61 30 42  
 e-mail: [jean-marc.cavaillon@pasteur.fr](mailto:jean-marc.cavaillon@pasteur.fr)

### The President-Elect: [elected 2017]



Evangelos J. Giamarellos-Bourboulis, MD, PhD  
 4th Department of Internal Medicine  
 ATTIKON University Hospital  
 1 Rimini Str  
 12462 Athens, Greece  
 Phone: +30 210 58 31 994  
 Fax: +30 210 53 26 446  
 e-mail: [egiamarel@med.uoa.gr](mailto:egiamarel@med.uoa.gr)



**The General Secretary:**

Inge Bauer, PhD  
 Dept of Anaesthesiology  
 Duesseldorf University Hospital  
 Moorenstraße 5  
 40225 Duesseldorf, Germany  
 Phone: +49 211 81 12053  
 Fax: +49 211 81 015 12053  
 e-mail: [Inge.Bauer@med.uni-duesseldorf.de](mailto:Inge.Bauer@med.uni-duesseldorf.de)

**The Treasurer:**

Marcin F. Osuchowski, DVM, PhD  
 Ludwig Boltzmann Institute for Experimental and Clinical Traumatology  
 Donaueschingenstrasse 13  
 1200 Vienna, Austria  
 Phone: +43-1-33110 469  
 Fax: +43-1-33110 460  
 e-mail: [marcin.osuchowski@trauma.lbg.ac.at](mailto:marcin.osuchowski@trauma.lbg.ac.at)

**The Elected Councillors:**

Stefanie Flohé, PhD  
 Essen University Hospital  
 Research Group Immunology Sepsis/Trauma  
 Dept. of Orthopaedics and Trauma Surgery  
 Virchowstr. 171  
 45147 Essen, Germany  
 Phone +49 201 / 723-4405  
 Fax : +49 201 / 723-5226  
 e-mail: [stefanie.flohe@uk-essen.de](mailto:stefanie.flohe@uk-essen.de)



Artem N. Kuzovlev, MD, PhD  
 V.A. Negovsky Research Institute of General Reanimatology of the  
 Russian Academy of Medical Sciences  
 25 Petrovka str., build. 2  
 107031 Moscow, Russia  
 Phone: +79261887641 (mob)  
 e-mail: [artem\\_kuzovlev@mail.ru](mailto:artem_kuzovlev@mail.ru)



Marc Maegele, MD  
 Department of Trauma and Orthopedic Surgery  
 Institute for Research in Operative Medicine (IFOM)  
 Cologne-Merheim Medical Center (CMMC), University of  
 Witten/Herdecke  
 Ostmerheimer Str. 200  
 51109 Cologne, Germany  
 Phone: +49 221/8907-13614  
 Fax: +49 221/8907-3085  
 e-mail: [Marc.Maegele@t-online.de](mailto:Marc.Maegele@t-online.de)



Tomasz Skirecki, MD, PhD  
 Department of Anesthesiology and Intensive Care  
 Laboratory of Flow Cytometry  
 The Center of Postgraduate Medical Education  
 Marymoczka 99/103  
 01-813 Warsaw, Poland  
 Phone: +48 693 990 700  
 e-mail: [tskirecki@gmail.com](mailto:tskirecki@gmail.com)



Andrea Szabó, MD, PhD  
 Institute of Surgical Research  
 University of Szeged  
 Szeged, Hungary  
 Szőkefalvi-Nagy B. u. 6.  
 H-6720 Szeged, Hungary  
 Phone: +36 62 545 106  
 Fax: +36 62 545 743  
 e-mail: [szabo.andrea.exp@med.u-szeged.hu](mailto:szabo.andrea.exp@med.u-szeged.hu)

#### The Editor-in-Chief of SHOCK®:



Irshad H. Chaudry, PhD  
 Dept of Surgery, University of Alabama-Birmingham  
 1530 3<sup>rd</sup> Avenue South  
 Birmingham, AL 35294-0012, USA  
 Phone: 001 205 975 0118  
 Fax: 001 205 975 0119  
 e-mail: [ichaudry@uabmc.edu](mailto:ichaudry@uabmc.edu)

## Councillors (appointed by the President)



Borna Relja, PhD  
 Dept. of Trauma, Hand- and Reconstructive Surgery  
 University Hospital Frankfurt  
 Goethe-University  
 Theodor-Stern-Kai 7  
 60590 Frankfurt am Main, Germany  
 Phone: +49 69 6301 84372  
 Fax: +49 69 6301 5854  
 e-mail: [info@bornarelja.com](mailto:info@bornarelja.com)



Fabienne Venet, PharmD, PhD  
 EA 7426 Physiopathology of Injury-Induced Immunosuppression - PI3  
 Immunology Laboratory, Hospices Civils de Lyon  
 Edouard Herriot Hospital  
 5 place d'Arsonval  
 69437 LYON Cedex 03, France  
 Phone: +33 4 72 11 95 46 / +33 4 72 11 97 46  
 Fax: +33 4 72 11 97 53  
 e-mail : [fabienne.venet@chu-lyon.fr](mailto:fabienne.venet@chu-lyon.fr)

## Auditors:

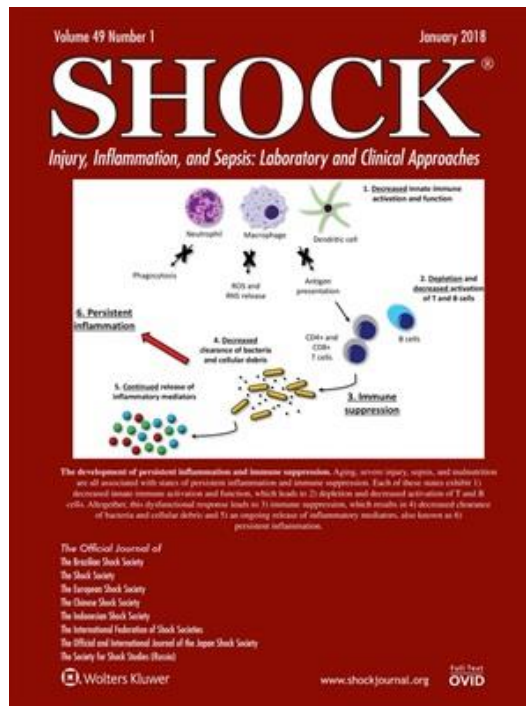


Sina M. Coldewey, MD, PhD  
 Dept. of Anaesthesiology and Intensive Care Medicine  
 University Hospital Jena  
 Erlanger Allee 101  
 D-07747 Jena  
 Phone: +49 3641 9323190  
 e-mail: [sina.coldewey@med.uni-jena.de](mailto:sina.coldewey@med.uni-jena.de)



Mihály Boros, MD, PhD, DSc  
 Institute of Surgical Research  
 University of Szeged  
 Szőkefalvi-Nagy B. u. 6.  
 H-6720 Szeged, Hungary  
 Phone: +36 62 545-102  
 e-mail: [boros.mihaly@med.u-szeged.hu](mailto:boros.mihaly@med.u-szeged.hu)

## Invitation to publish in Shock®



Shock is a monthly journal that publishes the results of investigations in the field of injury, inflammation and sepsis; of clinical and laboratory origin alike (current IF=3.005). It is the official Journal of all international Shock Societies, including ESS. Thanks to its efficient reviewing process, you will typically have your submitted paper reviewed within 15 days.

So do not hesitate, submit your next best results to SHOCK!

<http://www.editorialmanager.com/shock>.



## ESS Membership

Dear ESS members,  
please kindly pay your ESS membership for 2018/19. Currently, a fixed 2-year membership fee of EUR 100 for regular members and EUR 50 for student members applies.

We sincerely appreciate your contribution; please do not ignore this important commitment.  
We are happy to receive your funds at:

**European Shock Society**

**IBAN: AT13 1420 0200 1093 6552**

**BIC: EASYATW1**

*Please identify your transfer with your first/last name and a "full/student ESS membership fee" annotation.*

*Thank you!*

## Last words about the ESS newsletter



### **Dear present ESS member,**

If you like your ESS Winter Newsletter, please feel free to share it with your colleagues in the lab, department and/or institute. Perhaps, you could use this opportunity to suggest them to join us (a registration form can be found at the end of this Newsletter). Do not forget that we need you to keep improving our society so it stands proud and strong among other international Shock Societies.

This Newsletter, put together by your peers, belongs to you! We invite you to identify with it as members of the ESS. Moreover, we ask you to help us make it even better. Accordingly, we would be delighted to publish in our next issue any input you might be wishing to share with us (e.g. discussion on a given research/popular science topic, announce available positions in your lab, a contribution to the journal club corner, historical memories, comments about sepsis 3.0 etc.)

### **Dear past ESS member,**

Please do not forget to renew your membership. We need all colleagues, junior and senior alike, to enable the ESS to host in its ranks the best representatives of the European Shock research - at the bedside and/or at bench alike.



Markus Huber-Lang

## ESS Membership application form

(<http://www.europeanshockociety.org/register>)



### European Shock Society

#### Membership Application Form

Sign up online at [www.europeanshockociety.org/register](http://www.europeanshockociety.org/register)

Please post completed form to:

ESS General Secretary, Dept of Anaesthesiology, Heinrich Heine University Duesseldorf, Duesseldorf, Germany  
or fax to:

+49 211 81 015 12053

*Form fields shown in italics are optional*

Title	<input type="text"/>
First Name(s)	<input type="text"/>
Last Name	<input type="text"/>
<i>Researcher ID</i>	<input type="text"/>
Country	<input type="text"/>
Job Title	<input type="text"/>
Company/ Institution	<input type="text"/>
Email Address	<input type="text"/>
<i>Web Address</i>	<input type="text"/>
Phone No.	<input type="text"/>

*Area(s) of research interest:*

*Expertise and/or facilities:*

*Publications:*