



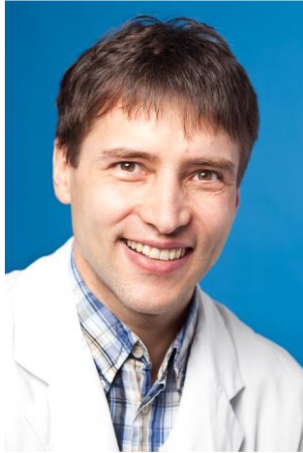
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Message from the ESS President



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

Thanks to Jean-Marc Cavaillon, our past-president, all of us experienced a great and memorable ESS meeting at the *Institut Pasteur* in Paris in September 2017. With sepsis in the focus, it was the perfect timing, perfect location and perfect hosting: precisely on the World Sepsis Day, the first ESS summer school on sepsis was realized; all the meetings took place in the heart of the historic institute, where Louis Pasteur as pioneer of sepsis research acted, and of special note, Jean-Marc Cavaillon was a wonderful host taking care of all details in person. Furthermore, scientists and clinicians from more than 30 nations attended the congress of our society, covering 15 scientific hot topics this time. I want to especially thank all the chairpersons, speakers and audience for their valuable contributions and inspiring discussions. Unforgettable was also the Gala Dinner aboard “Le River Palace” along the scenic river Seine. All the ESS members with their past, present and future efforts in shock research in one boat heading to the same direction – what a picture, what symbolic power for our future directions!

At the end of the meeting it became obvious that such a splendid meeting is more than pure scientific exchange and inspiration: it is also about crossing borders, better international understanding and significant contribution to peace worldwide symbolized by the olive branch handed over to Jean-Marc Cavaillon.

Now I have the honor to continue these multidimensional efforts of the ESS, which I am looking very forward to, because I know that a great supportive team is around me on the common “ESS boat”: especially our General Secretary, Inge Bauer, with her great experience in keeping the course; our treasurer, Marcin Osuchowski, who tries hard to strengthen our risky thin financial walls; our stormproof past-president Jean-Marc Cavaillon with his always very helpful advice; and our president-elect, Evangelos J. Giamarellos-Bourboulis whom I cordially welcome for the exciting journey to come. Our “ESS boat” is also strongly supported by our elected councilors, Stefanie Flohé, Artem N. Kuzovlev, Marc Maegele, Tomasz Skirecki, Andrea Szabó and by our auditors Sina Coldewey and Mihály Boros, and furthermore by Borna Relja and Fabienne Venet as councilors appointed by the president. With this great team on the “ESS boat” I am sure that we can closely meet and interact with our international families, the Shock Society USA, JSS, FSS, BSS, CSS, and SSSR. Together with our treasurer I also want to recruit new dedicated members, and address specifically our junior researchers. Furthermore, I have the impression that our society will benefit from opening more to the mediterranean countries and therefore I am glad, that the General Assembly voted for E. J. Giamarellos-Bourboulis from Athens as the future president. In line, we will organize the next meeting in Greece together with the IFSS and our shock family members. As a trained trauma surgeon, one topic is also of importance for me: we need to get (more) clinicians back to high impact shock research. We will address this topic specifically at the next meeting by extra sessions.



Concluding, I am looking very much forward to serve the ESS together with a great team to become a valuable and visible society for each member and all related countries heading to help the patients in shock. Furthermore, I want you to save the date for our next meeting in Chania, Crete, Greece from 08th-12th October 2019 including a summer school on hemorrhagic shock.

Wishing you the happiness of good (ESS) friends,
The joy of a wonderful family,
And the spirit of the holiday season,
And all the best for the year to come.

Markus Huber-Lang

Message from the ESS Past-President



Dear Colleagues, dear members of the ESS, dear friends,

It has been a great honor to be the president of the European Shock Society for these past two years. Events don't happen just by chance, and I have to pay tribute to few people to whom I owe so much. In my case for this position, I am indebted to the ESS members who elected me, but more precisely to two friends, two past-presidents of the ESS, Soheyl Bahrami and Heinz Redl, who found the words to convince me to accept this task while we were attending the 7th Congress of the International Federation of Shock Societies joint with the 35th Annual Conference on Shock in Miami (Florida), on June 2012. As well, a career can be greatly influenced because you have friends who have been supporting you at the right moment at the right place. In my case, Irshad Chaudry, Shock Editor, has been among those, thanks to his strong and warm endorsement, while my institution was requesting for advices to offer me the opportunity to head a laboratory. A career is achieved thank to key encounters. In my case, the major one occurred in the late 80', when Jean Carlet, an intensive care doctor agreed to collaborate, and allowed me to initiate my first works on sepsis patients with Carlos Muñoz, a post-doc from Chile.

Succeeding Eddy Neugebauer who had offered the "Deutsche Qualität" to the ESS, was not an easy task. Thus, the "French touch" I could provide was only a set of dreams, hoping some could become reality. Thankfully, the German quality was maintained by our General Secretary, Inge Bauer who has been amazingly supportive and of great help during these two years to maintain ESS afloat in accordance with our bylaws. These two years have also been rendered far easier thanks to Marcin Osuchowski, our treasurer who has always been extremely encouraging, offering me a trustable friendship. Among my tasks, I aimed to provide an enriched Newsletter published on a frequent timing, to boost the number of members, to maintain ESS visibility via its WEB site (thank you so much, Andreas Spittler for your work), to allow ESS visibility via social networks (thank you Thomas Skirecki for the facebook site), to rebuilt the historical basis of our Society (Thank you Andrea Szabó for your great help), and to offer to the Society a plaque that will be transmitted from the past-president to the new one, to formalize the presidency. Some of the dreams were more or less achieved, but I am pretty sure, that ESS, in the hand of our new president, Markus Huber-Lang, will continue to grow and prosper.

Organizing the 17th congress of the European Shock Society in Paris, has been a major challenge, particularly, since it was the very first time since its creation, that the ESS congress was hold in France. Thanks to the help of the international advisory board and the national one (Djlillali Annane, Karim Asehnoune, Fabrice Chrétien, Benoît Misset, Fabienne Tamion, and Fabienne Venet), we set up a very attractive program with some of the world leaders in the field. Amazingly, despite we had not the means to reimburse their air ticket, most, if not all invited speakers agreed to join us. It was decided to hold our Congress with the partnership of the International Sepsis Forum, and to organize sessions in common with our Sister Societies, the US Shock Society and the Chinese Shock Society. We also organized for the first time together with Markus Huber-Lang, the first ESS summer school on sepsis, taking advantage of the World Sepsis Day. The budget of a meeting cannot be balanced without the help of sponsors, and I wish to thank Marc Maegele, who as President of the Cologne Congress (2015), introduced me to CSL Behring, which agreed to be our Gold Sponsor. Special thanks also go to our silver sponsors, BioMerieux and BioRad, and our other supportive companies

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(Fresenius Medical Care, MSD, LPS-BioSciences, Thermo scientific, Miltenyi Biotec) and Institut Pasteur. Finally, I would like to point out that it was a great honor to have our congress opened by Prof. Benoît Vallet, General Director for Health (France). As a former intensivist, he was particularly close to our concerns. With 302 attending participants from 32 countries, the Paris meeting has illustrated the good vitality of our Society.



The 17th Congress of the ESS has gathered 302 participants



A plaque to commemorate the past presidents of ESS was created and transmitted by Jean-Marc Cavaillon (the "new Past-President") to Markus Huber-Lang, the new ESS President

In his closing remarks, Markus Huber-Lang offered me an olive branch (with other enjoyable items such as a bottle of Greek wine), while on the screen there was a dove of peace. Not only these symbols were reminding us that our next congress will be held in Crete (Greece), but for me those symbols were of great meaning. As I already quoted him, in our last Newsletter, Louis Pasteur stated: "Science has no borders because knowledge belongs to humanity". We, as members of ESS, are gathered independently of our country, with a common faith in Science, convinced that knowledge should be shared in a peaceful manner. But we lived in a terrifying world; since the fall of Berlin wall in 1989, new walls have been built and raised

between people, threats due to terrorism are increasingly frequent, killing and wounding thousands of innocent people worldwide. We, as scientists and physicians, are (should be) the guarantors of a better world, and if there is a fight, it is that against obscurantism, for a better and wider education. As Elie Metchnikoff stated: *“Any ideal that may be capable of uniting mankind in some religion of the future must be based on scientific principles, and if, as we are told, it is impossible to live without faith then that faith can only be faith in the power of science”* and we should be its ambassadors.

To close, I wish the best for our Society, and I am most optimistic with its present in the hand of Markus Huber-Lang, and its future in the hand of our president-elect, Evangelos Giamarellos-Bourboulis.



The new ESS president

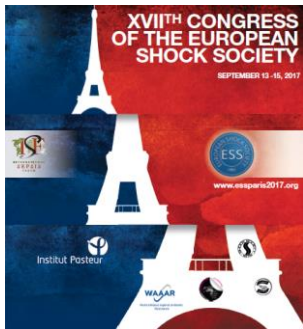


The president-elect of ESS

Jean-Marc Cavaillon

Message from the ESS General Secretary

Dear ESS members,



First, I would like to express my sincere thanks to the organizers of the XVII. Congress of The European Shock Society (September 13-15, 2017), most notably Jean-Marc Cavaillon (President 2016-2017) and his national organizing committee! For the first time since the foundation of the ESS in 1983, the congress was held in France (Paris, *Institut Pasteur*). The ESS congress was held in partnership with the annual symposium of the International Sepsis Forum (Sepsis 2017: September 11-12, 2017). 302 participants enjoyed exciting oral sessions and poster walks with cutting edge scientific presentations in a fantastic environment.

Students coming from different labs from our council members as well as members from the ESS executive committee volunteered to report on selected sessions that they attended (see pages 16-20).



*ESS president and past-presidents visibly enjoying the dinner cruise on the river Seine
(from left to right: Soheyl Bahrami, Uwe Brückner, Christoph Thiemermann, Jean-Marc Cavaillon, Markus Huber-Lang, Heinz Redl, Edmund Neugebauer)*

Besides scientific exchange, there was much more to enjoy: The dinner cruise on the river Seine was certainly a highlight and an exceptional special experience. Besides the enjoyment of the extraordinary French cuisine, the Polo Brass Band created a fantastic atmosphere (they already welcomed us at the pier) that everybody -including the new President, the new Past-President and his predecessors- really enjoyed.

During the dinner cruise, we had spectacular views on many attractions of the lovely city of Paris, like the Tour Eiffel, beautiful Seine bridges, le Louvre and many more.



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Furthermore, all participants had the opportunity to visit the Pasteur Museum.



Soheyl Bahrami, Jean-Marc Cavaillon and Edmund Neugebauer (from left) in front of the tomb of Louis Pasteur

In this newsletter, you will find the minutes of the general assembly (September 15, 2017) (see pages 30-33). Important topics have been addressed. Furthermore, new elections took place.

Please let me express my warmest thanks to the outgoing ESS board members: I would like to cordially thank **Edmund Neugebauer, Cologne and Neuruppin, Germany** for his outstanding work over the last 6 years as President-Elect, President and Past-President and his further continuing great support. **Andreas Spittler, Vienna, Austria**, for his excellent work as a councilor over the last 4 years. During his term, Andreas highly participated in all matters of the ESS. His main task was to take care of the maintenance of the ESS website. Dear Andreas, we all are very glad that you volunteered to further support us with the maintenance of the website-thank you! Many thanks go to **Emanuela Esposito, Messina, Italy** for her support during the last 4 years.

A hearty welcome to our newly elected board members: **Evangelos Giamarellos-Bourboulis, Athens, Greece** (President-Elect), **Stefanie Flohé, Essen, Germany** and **Tomasz Skirecki, Warsaw, Poland** (elected councilors), as well as **Borna Relja, Frankfurt, Germany** and **Fabienne Venet, Lyon, France** (presidential councilors; appointed by Markus Huber-Lang). We all are very happy that **Andrea Szabó, Szeged, Hungary** volunteered to serve for a second term and was re-elected as a councilor: among other tasks she is the one who reminds us to send our contributions to the newsletter and she takes care of the cumbersome editing process. **Sina Coldewey, Jena, Germany** and **Mihály Boros, Szeged, Hungary** were -for the second time- re-elected as auditors of the European Shock Society. We are very grateful for their willingness to further actively support and promote our society.

During the general assembly, **Marc Maegele, Cologne, Germany** was nominated as the new ESS representative (successor of Arthur Schultz, Vienna, Austria) within The **European Medical Education Initiative for Advanced Bleeding Care in Trauma (ABC-Trauma)** (Chairs: Rolf Rossaint, Aachen, Germany and Donat R. Spahn, Zürich, Switzerland; <http://advancedbleedingcare.org/>).



Last, but not least, I would like to kindly remind you to pay your membership fee (if you have not already done so) for 2018-2019. There are many advantages of being a member of the ESS like reduced congress fees (European and US Shock Society), reduced fee for the journal SHOCK, regular newsletters with update on all important ESS events and activities, e-mail notifications with update on important issues related to shock, trauma and sepsis and the chance to build scientific networks. I would like to encourage you to support us by convincing your colleagues to join the ESS to strengthen the society.

Dear ESS members, many thanks to all of you for the ongoing support of YOUR European Shock Society-keep it up!

I wish you all a wonderful holiday season and a peaceful, happy, healthy and successful New Year 2018.

Yours,

Inge Bauer

The Treasurer's Corner



Hello dear ESS team,

Another ESS congress under our belt; my treasurer-operational experience has been steadily accumulating. My first thought about the Paris congress: it was d.mn spectacular! My second thought about the Paris congress: Ooops, I had to deplete our ESS funds yet again (for Travel Awards etc.). Participating in the organization of a congress only every two years does not allow me to develop a proper habit of acceptance for the money outflow. I know that TAs are great and in line with the ESS mission; I just do not like to see those numbers on the ESS account going down – a quiet psychological drama of your otherwise sane treasurer...

So how does the Paris meeting look from the ruthless financial perspective? Fortunately, it did not break our financial back. We are in the process of figuring out all our costs. Once done, I will let you know whether we have a (im)perfect zero balance or there will some reverse money inflow (I hope!). There is one major change that has been implemented at the Paris congress and you need to be aware of it:

The ESS council together with the ESS president have decided to collect membership fees separately of the registration fee for the biennial congresses.

I will not delineate all the reasons (my T's Corner is too small for that) behind this decision, instead I will briefly explain its consequences. They are simple: if you are an ESS member and fail to pay the membership on time, you make the life of the ESS (and the treasurer) much harder. You might have noticed that I already sent you two reminders; many of you have actually responded and wired the money. Thank you very much, folks – much appreciated. To accrue on the generally positive pre-Xmas mood, I am going to send another reminder just before Christmas; please do not ignore it. If you remain unreactive, in the New Year 2018, I will unleash the electronic fury in the form of army of artificial bots (for now still dormant) that will completely clog your communication accounts (no, not really, I am not that hostile).

We, the ESS council, are happy to welcome some new ESS members on board, who have joined us either during or after the Paris congress. This is a good sign and we will be doing our best to support this trend. Sure, I care to see that membership money flowing in; but I care so much more to see the ESS crowd grow with new enthusiastic faces. Almost forgot, the honorable, double-ESS member, Peter R. continues to pay his ESS membership fee twice a year. Anyone cares to beat it?!

Merry Christmas everyone!

Your treasurer,

Marcin Osuchowski

Congratulations to our new President-Elect

Evangelos Giamarellos-Bourboulis, PhD, MD



*Associate Professor of Internal Medicine,
National and Kapodistrian University of Athens,
Medical School, Athens, Greece*
egiamarel@med.uoa.gr

Evangelos Giamarellos-Bourboulis graduated from the University of Athens Medical School in 1994, where he also completed his PhD in 1998 entitled “The *in vitro* activity of polyunsaturated fatty acids on Gram-negative bacteria”. After completing his research fellowship, he specialised in internal medicine, immunology of infectious disease and HIV Medicine.

He is currently Associate Professor of Internal Medicine at Athens Medical School, and Associate Professor of Internal Medicine and Supervisor of the Immunology of Infectious Diseases Laboratory and Out-Patient Centre at ATTIKON University Hospital. His research interests include the pathogenesis of sepsis with emphasis on immunoparalysis, innate immunity and biological therapies in *hidradenitis suppurativa*, and *in vitro* activities and pharmacokinetic of antimicrobials and their interactions on multidrug- resistant species. He has published 321 peer-reviewed articles in international scientific journals, including 16 review articles and is an active investigator of numerous clinical trials. He has received 32 awards in Hellenic Congresses for studies on sepsis and seven awards at international congresses for studies on sepsis.

His interest for the ESS is coming from both his translation and clinical research in septic shock. More precisely, he has established two models, one in mice and another in rabbits, of multiple injuries and sterile shock where he is focusing on the modulation of the innate immune responses arising from former injury when a subsequent infection develops. He has conducted two clinical trials with the study of intravenous clarithromycin in sepsis populations showing survival benefit among the more severe cases with septic shock.

Congratulations to our new council members



Stefanie Flohé, PhD

Group Leader at the Department of Orthopedics and Trauma Surgery, University of Essen, Germany

I studied Biology at the University Bonn, Germany. For my Diploma thesis I moved to the Institute of Medical Microbiology, University Hospital Erlangen, and worked on the antigen presentation of epidermal Langerhans cells. Thereby, I learned how important dendritic cells are for the orchestration of immune responses especially against invading pathogens. I got stuck into dendritic cell research and continued my work on these cells during my PhD at the Center of Infectious Diseases, University Hospital Würzburg, where I investigated the use of dendritic cells as “live adjuvant” against Leishmania parasites. Thereafter, I spent two years as Post-Doc at the German Diabetes Research Center in Düsseldorf and examined the role of Heat Shock Proteins as Danger-associated Molecular Patterns in sterile inflammation and autoimmunity.

Inspired by my husband, a trauma surgeon, who frequently told me about the trauma patients suffering from SIRS and sepsis, I accepted the offer of a Group Leader position at the Department of Orthopedics and Trauma Surgery at the University Hospital Essen. Considering the importance of dendritic cells in the immune defense I started to investigate the modulation of these cells in the development of immunosuppression during polymicrobial sepsis using the CLP model. Our current hypothesis is that an altered differentiation of dendritic cells toward a dysfunctional phenotype in the bone marrow contributes to the enhanced susceptibility to secondary infections during sepsis. Together with the cooperation partners within the Research Training Group “Interaction of the Innate and Adaptive Immune System” of the German Research Foundation the mechanisms underlying the altered differentiation in the bone marrow are investigated. In parallel, I established another major



Stefanie Flohé (right) with some of her lab members

topic of my research group that is the role of natural killer cells in the development of posttraumatic immunosuppression. Diverse MD students are working on this topic and supported by the collaboration partners try to identify the molecular mechanisms that cause the deactivation of human natural killer cell function after major surgery as well as after severe trauma.

As new council member of the ESS I am looking forward to support the objective of the society and to contribute to the exchange of knowledge with other ESS members.

Stefanie Flohé

**Tomasz Skirecki, MD, PhD**

Head of the Laboratory of Flow Cytometry, Department of Anesthesiology and Intensive Care Unit, The Center of Postgraduate Medical Education, Warsaw, Poland

The first time I read about the European Shock Society was in 2013, just after graduation from the Medical University in Warsaw, then I joined my first ESS Congress in Vienna (thanks to the Travel Award) and I already knew that I found a society that I would love to join and support. Since then, I participated in each ESS Congress and I was honored to serve the Society as a Presidential Councilor since 2015, warmly invited by Jean-Marc Cavaillon. Then, this year I was granted with further trust by becoming elected as an ESS Councilor. I find this privilege challenging but also an opportunity to work with other people full of passion for shock research.

In my daily work, I am trying to combine a bedside work in anesthesia and intensive care with research work. Since my medical studies, I am vividly interested in the immune dysfunction in sepsis. My research work was focused on the disturbances of hematopoiesis during sepsis and establishment of the model of sepsis in the humanized mice. Also, I was granted by the Polish National Research Center to study the compartmentalization of the immune response in the lungs of septic patients. Currently, I am starting a project focused on the host-pathogen interaction in a two-hit model of *Acinetobacter baumannii* infection in the humanized mice. Even though the research work can be exhausting, it can be rewarding also thank to the people that I have a privilege to meet and cooperate with because of the science.

Besides work, I enjoy listening to music (especially live), traveling for a good cuisine (Italy is my #1) and sipping some nice wine with friends.

I am looking forward to continuing the adventure in the ESS and I am open for new collaborations especially to work for the Society.

Tomasz Skirecki

Congratulations to our award winners (ESS Congress 2017)

Travel Awards (500 € each):

- Luis Henrique ANGENENDT DA COSTA (Ribeirao Preto, Brasil)
- Mouna BEN AZAIZ (Tunis, Tunisia)
- Xia FAN (Chongqing, China)
- Evdoxia KYRIAZOPOULOU (Athens, Greece)
- Andrea MÜLLEBNER (Vienna, Austria)
- Aleksandra SHALAEVA (Tashkent, Uzbekistan)
- Tiago R. VELHO (Lisboa, Portugal)
- Sura AL ZOUBI (London, United Kingdom) - ENIAC finalist
- Andreia LUIS (Vienna, Austria) - ENIAC finalist
- Hisatake MATSUMOTO (Amsterdam, The Netherlands) - ENIAC finalist
- Fabrice UHEL (Rennes, France, Amsterdam, The Netherlands) - ENIAC finalist
- Sabine VETTORAZZI (Ulm, Germany) - ENIAC finalist



The Travel awardees

Presidential ESS TA:

- Vladimir PISAREV (Moscow, Russia)

ENIAC Finalists:



The ENIAC finalists and winners between Marcin Osuchowski and Jean-Marc Cavaillon (from left to right): Jan Tuckermann (he presented Sabine Vettorazzis talk), Andreia Luis, Hisatake Matsumoto, Fabrice Uhel and Sura Al Zoubi

ENIAC Winners:

1st place (600 €): Fabrice UHEL (Rennes, France, Amsterdam, The Netherlands):
Early expansion of circulating granulocytic myeloid-derived suppressor cells predicts development of nosocomial infections in septic patients

2nd place (400 €): Andreia LUIS (Vienna, Austria):
Effect of Endoplasmic Reticulum Stress modulation on the severity of inflammatory response and organ injury caused by traumatic-hemorrhagic shock

3rd place (200 €): Hisatake MATSUMOTO (Amsterdam, The Netherlands):
Unraveling the role of HIVEP1 in innate immunity and sepsis



The new ESS President chatting with the ENIAC winner (Fabrice Uhel)

Poster Awards:

- Barbara ADAMIK (Wroclaw, Poland)
- Arian BAHRAMI (Vienna, Austria)
- Thomas DATZMANN (Ulm, Germany)
- Maximilian DENZINGER (Ulm, Germany)
- Nikolaus F. HOFMANN (Hamburg, Germany; Vienna, Austria)
- Evdoxia KYRIAZOPOULOU (Athens, Greece)
- Tomasz SKIRECKI (Warsaw, Poland)
- Martin WEPLER (Ulm, Germany)

Poster session and lunch break
And poster jury



The Günther Schlag Award:

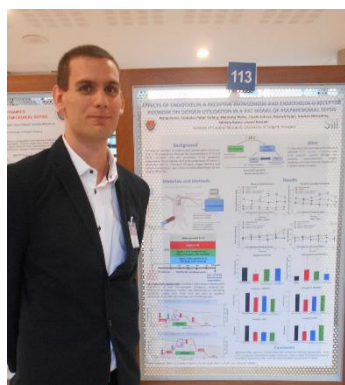
- Tomasz SKIRECKI (Warsaw, Poland)

Tomasz Skirecki (second from the left) with present and past-presidents of the ESS (from left to right: Heinz Redl, Soheyl Bahrami, Jean-Marc Cavaillon)

Reminiscences of the ESS Congress 2017

The satellite symposium “Immune profiling biomarkers for better patient stratification in the ICU” was organized on September 14th 2017 by bioMérieux with two major contributions by Fabienne Venet and Richard Hotchkiss. F. Venet focused on the expression of HLA-DR on CD14 cells through flow cytometry that measures both the percentage and the absolute number of HLA-DR molecules on circulating monocytes as an expression on sepsis-induced immunosuppression. She also analyzed the association between the gene expression of CD74 and final outcome. R. Hotchkiss presented the role of immunosuppression for the final outcome of the patient and how this is associated with the expression of the PD-1 molecule on T lymphocytes. He then analyzed the data from small-scale studies with the use of recombinant interferon-gamma and growth factors on the reversal of immunosuppression. He concluded with the presentation of the on-going anti-PD-1 trial.

Evangelos J. Giamarellos-Bourboulis
President-Elect of the ESS



Being a second-year PhD student in Hungary who works with animal models of sepsis, I enrolled and attended the **ESS Summer School** of the ESS 2017 Congress. It was particularly important for me, because I expected to receive the newest information on the methodology. I knew about the recent change of the definition of clinical sepsis so I was particularly interested in the consequences of all these modifications in the experimental laboratory. Like me, many junior researchers, PhD students were interested in this very first session of the Paris conference. The lectures started with a very dynamic and **interactive** presentation by Markus Huber-Lang (Ulm, Germany) with a focus on the problems of sepsis definitions and the complexity and difficulties of sepsis research. This was followed by the “**show time**” provided by Marcin Osuchowski (Vienna, Austria) which was very entertaining and very useful at the same time; other similarly important topics were discussed later, such as the coagulation and immunological aspects or novel therapeutic strategies (and targets) related to sepsis. I do think that I can incorporate many of these data and details into my research activities, I am convinced that such well-focussed sessions or workshops, which are dedicated to the practical experience of senior researchers would be of importance for the scientific career of my generation.

Attila Rutai (PhD student)
Institute of Surgical Research, University of Szeged, Hungary

Session 1 (**Revisiting sepsis definitions: impact and consequences**): “**Towards more ‘precise’ sepsis trials**”, talk given by Derek Angus (University of Pittsburgh, School of Medicine, United States)

Especially intriguing was the talk given by Mr. D. Angus concerning a more modern and flexible approach to clinical trials on sepsis, using the so-called platform trial method. Clinical trials on new therapeutic strategies pose tremendous challenges on the clinical scientists, as a plethora of different therapeutic interventions such as antibiotics, fluid resuscitation and new agents and their respective combinations have to be tested. Using this new approach, multiple treatments and combinations of different treatments can be evaluated simultaneously. Additionally, randomisation of patients is adapted to information gathered during the trial.

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Thus, patients can profit from recent findings on new therapies, while the trial is still running. Moreover new interventions or additional conditions could be added to the ongoing trial. Hopefully this new approach provides more efficient testing of new therapeutic strategies, so desperately needed for patients suffering from sepsis and septic shock.

Christian Braun

Institute for Clinical and Experimental Trauma-Immunology, University Hospital of Ulm,
Germany



Summary of Session 4 “Long-term consequences of trauma and sepsis”

The long-term consequences of traumatic brain injury by Lindsay Wilson (University of Stirling, Scotland, United Kingdom): Polytrauma is often associated with traumatic brain injury (TBI). Patients after TBI show increased mortality and late deterioration in functional status compared to a reference population even years later after the incident. Especially demographics, pre-injury factors (for example drug or alcohol abuse) and post-discharge

disability seem to play a crucial role in poor functional outcome. Therefore, it is important to classify TBI as a chronic, evolving and sometimes lifelong disorder.

The long-term consequences of traumatic injury-what matters and how to assess? by Edmund Neugebauer (Brandenburg Medical School & Universität Witten/Herdecke, Neuruppin and Cologne, Germany): Professor Neugebauer focused his speech on pain in trauma patients, as a main factor of evolving psychological problems like depression, anxiety or post-traumatic stress disorder (PTSD) often leading to social withdrawal. So, he demonstrated several studies showing that especially the combination of sufficient pain management and long-term psychotherapy after trauma results in reduced disorders and by this way in a better life-quality.

Long-term skeletal muscle dysfunction with mitochondrial damage in murine sepsis survivors by Hiroshi Saito (Department of Surgery, University of Kentucky, Lexington, United States): Clinical observations had revealed that severe sepsis is linked to chronic muscle weakness for years after hospital discharge. Therefore, Dr. Saito's group performed a murine model to investigate the underlying mechanisms of severe sepsis in skeletal muscle dysfunction. Analyses of biopsied muscles detected mitochondrial damage and dysfunction (for example reduced maximal ATP-phosphorylation or increased reactive oxygen species (ROS)). This may provide a possible explanation for post-sepsis muscle-dysfunction.

A positive and early fluid balance is associated with mortality in patients treated with extracorporeal life support: a retrospective study by Emmanuel Besnier (Anesthesiology and Critical Care, University Hospital, Rouen, France): Sepsis is highly associated with organ dysfunction (especially with cardiovascular heart failure) resulting in cardiogenic shock. In this case extracorporeal life support (ECLS), as a mechanical support of the cardiac performance, is mostly the last option to save the patient's life. This group performed a retrospective study to investigate the impact of fluid balance, as a key therapy during ECLS, on patients with cardiogenic shock treated with ECLS. The analyzed data showed that patients treated with higher amounts of fluid balance at day one after hospital admission had higher mortality rates (28 days) in comparison to patients who received lower fluid doses.

Taken together all speakers expressly emphasized that medical treatment of the patients does not end with the discharge from hospital, but more importantly, there is a huge need to optimally support the patients afterwards to avert disability and in turn to lower the economic

burden on the health care system. To further improve medical treatment of trauma patients there is an urgent need for research to deepen the understanding of the chronic consequences of trauma.

Jason-Alexander Hörauf

Trauma and Shock Research Group led by Borna Relja (Frankfurt, Germany)



"The session 'biomarkers of infection' was concentrated on the best approaches to predict the development of severe complications like e.g. sepsis. The diagnose of sepsis is not only limited by its diverse clinical presentation but also by the lack of reliable and simple (bio-)markers to identify sepsis also in non-specialized centers or pre-clinical environment. Tom van der Poll of the University of Amsterdam in the Netherlands started with the presentation about the now concluded MARS (Molecular Diagnosis and Risk Stratification of Sepsis) project. The results led to the identification of four major subtypes of septic patients with individual risk

parameters based on genetic and immune phenotype grading. They also led to the development of a blood test for bacterial resistance as well as tests to uncover if the systemic inflammation occurs due to an infection or not. A summary of findings can be accessed at (<http://www.ctmm.nl/en/downloads/projects-downloads/ctmm-mars-output-report>).

After that talk, Julien Textoris of BioMérieux stressed the importance of the classification of patients' immune status to reliably identify the high risk patients at presentation termed "Monitor the immune status to assess infectious risk". He showed data uncovering that the immune phenotype may be a marker of great underestimation when monitoring critically ill patients.

A next speaker, the president-elect of the ESS Evangelos Giamarellos-Bourboulis presented a german-greek cooperation project (196 german and 50 greek critically ill patients) to assess the differentiation of sepsis and SIRS patients using only seven alleles that transcribe important immune functions like IL-7 or MHC-2.

The concluding presentations of the session were given by Ryan Arnold of the Value Institute, Christiana Care Health Systems, Newark, United States, who also covered for his colleague Mr. Hoover. He presented interesting data about heparin-binding protein (HBP). In his study, an elevated HBP level was associated with a high risk of progression to shock within three days after administration to emergency department. However, he also presented data showing that the HBP levels have to be included in context of age as well as the body compartment that is infected to evaluate reliably the risk of shock progression.

In summary, we need to assess the patients' phenotype as well as his/her genotype to really understand the mechanisms that lead to sepsis and to be able to treat it accordingly.

Shinwan Kany

Trauma and Shock Research Group led by Borna Relja (Frankfurt, Germany)

The session **"New tracks for new therapies"** was chaired by Timothy Billiar and Vincenzo Cantaluppi, who acted in place of Claudio Ronco. It was a joined session with the US Shock Society.

First talk on new therapeutic strategies for hemorrhagic shock was given by Christoph Thiernemann. He presented encouraging results of using Artesunate in the setting of hemorrhagic shock and resuscitation. Interestingly, this drug has been common for malaria treatment for many years, and now was discovered to have protective effects on organ injury after hemorrhagic shock. Artesunate exerted potent anti-inflammatory and organ-protective effects via inhibiting the NF-kappaB pathway, and thereby reducing the expression of pro-inflammatory proteins/mediators.

The next speech was given by the chairman Timothy Billiar about strategies for stratification of trauma patients into those who will and who will not develop organ failure based on records. He proposed a new way of subdividing trauma patients' different phases of immune response in time cluster after trauma, and demanded to better understand mechanisms of immune response after trauma to develop more sufficient solutions.

The last presentation of the first part of this session was held by Vincenzo Cantaluppi, who went back to more sepsis-related topics and presented new results on extracorporeal removal of endotoxin. Here, he showed the long way from bench to bedside including in vitro and in vivo studies ending in the clinic application, and how the extracorporeal removal of endotoxin is applicable in animals as well as humans. Dr. Cantaluppi underlined the main finding for sepsis therapy was to more individualized treatment of patients.

The second part of this joined session was continued by Pierre-François Laterre reporting on new pathways to target for the treatment of septic shock, which is still challenging. The excessive response of the immune system requires modulations without being fully blocked by potential therapeutics, in order to restoring the late immune response. There are several ways to improve circulation, kidney function, reduce vascular leaks, capture damaging toxins, or modulate immune dysfunction which appears during septic shock. Capturing toxins like Pneumolysin and decreasing them to restore kidney function is a potential treatment. Selepressin as a selective V1a/V2 agonist blocker can reduce the vascular leak and support the circulation. Adrenomedullin is a vasodilator peptide hormone, predicting hemodynamic support requirement and mortality during sepsis, while anti-ADM treatment can improve circulation and kidney perfusion. Targeting immune suppression to reverse and ameliorate immune dysfunction during sepsis can be done with anti PD-L1 or IL-7. Also stem cell therapy was discussed to modulate the septic shock and restore the immune function.

Paul Wischmeyer provided a nice insight into the role of the microbiome in critical illness. The American Gut Project focusses on the microbiome which is changed during the stay at the ICU within only a few days. Here, a loss of diversity which leads to enhanced infection rates is observed. Actually, a great diversity is needed for a better health condition. Focusing on restoring the balance with probiotics, stool transplants or stool-pills in critically ill patients does affect and may help to improve health conditions.

Ping Wang gave a talk on the Milk Fat Globule-Epidermal growth factor VIII (MFG-E8) and inflammation. MFG-E8 also known as Lactadherin can recognise apoptosis and induce phagocytosis of those cells in a dose-dependent manner.

Another promising therapeutic strategy was introduced by Robin Jeannet reporting IL-7 to resolve low absolute lymphocyte counts in immunosuppressed septic patients (First in Sepsis trial). Moreover, the safety of IL-7 in lymphopenic septic patients was shown. IL-7 is able to induce CD4/CD8 and restore lymphocyte counts and may represent a new therapeutic approach as it is safe in this lethal disorder.

Niklas Franz and Scott Dieteren

Trauma and Shock Research Group led by Borna Relja (Frankfurt, Germany)

Novelty: ESS and IFSS Summer School on Sepsis (Paris, September 13-15, 2017)

Our past president, Jean-Marc Cavaillon, opened the ESS/IFSS summer school in Paris on the 13th September 2017. The school took place at the historic lecture hall of the Institut Pasteur Paris and therefore, Cavaillon started with an exciting historic journey along sepsis. He furthermore encouraged the students to actively participate in this teaching event as novelty in ESS history. The special teaching units were solely designed for our students and junior shock scientists and provided first insights in the enigma of sepsis. Thanks to the established researchers from whole Europe, different aspects of sepsis were covered by in part highly interactive lectures. The overall aim was to understand the pathophysiology rather than to know multiple facts about sepsis, as proposed by Albert Einstein: “Any fool can know. The point is to understand.”

After introduction of the new sepsis definitions with onsite sepsis-simulation, and tips and tricks in sepsis modelling, the consequences on the coagulation system were taught. During the coffee break, a lively discussion developed including both juniors and seniors.

Thereafter, Jean-Marc Cavaillon explained what happens to the immune system during sepsis and covered established but also provoking hypotheses. For example, the wording of immune suppression during sepsis was challenged, and features of immune reprogramming introduced. Along the pathophysiological progress, the teaching topics focused then on multiple-organ-failure causes and consequences. Finally, “try and errors” of sepsis treatment were explained and innovative therapeutic strategies were presented, pointing to future scientific and clinical avenues.

Of note, this session was a joint session with the World Sepsis Day 2017 and therefore the topics had been chosen wisely.

Since this ESS summer school start was attended by more than 100 students from various nations, and an overall very positive feedback was given, the second summer school with hand on is planned at the beginning of the ESS/IFSS meeting 2019 in Chania, Crete. It will focus on the core of the ESS: Hemorrhagic Shock.

Credit belongs not only to all the active students but also to the dedicated teachers: Jean-Marc Cavaillon, Markus Huber-Lang, Marcin Osuchowski, Tom van der Poll, Didier Payen, and Christoph Thiemermann.

Seeing you at the ESS/IFSS summer school in Crete, 2019!

Markus Huber-Lang
President of ESS

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.
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Thank you!

Upcoming events



47th SCCM Congress
(Society of Critical Care Medicine):
February 25-28, 2018
(San Antonio, Texas, USA)

<http://www.sccm.org/Education-Center/Annual-Congress/Pages/default.aspx>

38th ISICEM Congress (International Symposium on Intensive Care and Emergency Medicine):
March 20-23, 2018 (Brussels, Belgium)
<http://www.intensive.org/>



ESTES 2018: 19th European Congress of Trauma & Emergency Surgery (European Society for Trauma & Emergency Surgery)
May 6-8, 2018 (Valencia, Spain)

<http://www.estesonline.org/estes-congress-2018/>

SIS-E 2018: Surgical Infection Society Europe:
June 7-9, 2018 (Athens, Greece)
<http://sis-e.org/wp/>



41st Annual Conference on SHOCK:

June 9-12, 2018 (Scottsdale, Arizona, USA)


<http://shocksociety.org/>
**RDCR-Symposium**

June 18-20, 2018 (Bergen, Norway)

<http://rdcr.org/>
2018 TERMIS World Congress: TERMIS (Tissue Engineering & Regenerative Medicine

International Society)

September 4-7, 2018

(Kyoto, Japan)

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& Regenerative Medicine Society
https://www.termis.org/meetings_worldcongress.php
**31st Annual Congress ESICM (European Society of Intensive Care Medicine):**

October 20-24, 2018 (Paris, France)

<https://www.esicm.org/events/31st-esicm-annual-congress-paris/>
42nd Annual Conference on SHOCK:

June 8-11, 2019 (Coronado, CA, USA)

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




18th ESS Congress/ 9th IFSS Congress
October 8-12, 2019 (Chania, Crete, Greece)

**World Federation of
Societies of Intensive and
Critical Care Medicine: 14th
World Congress:**

October 14-18, 2019
(Melbourne, Australia)

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

[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)





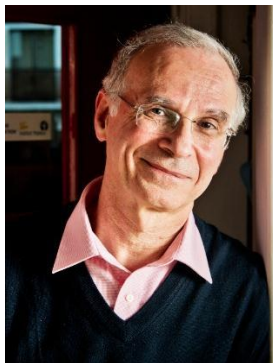
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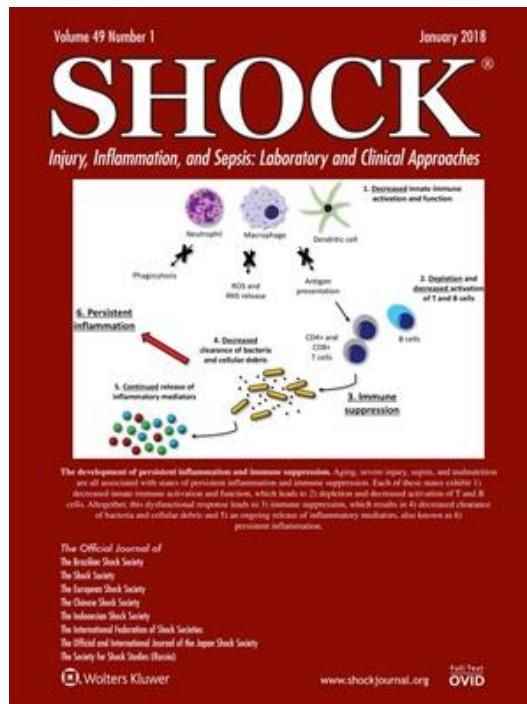


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Invitation to publish in Shock®



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=3.113). 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.

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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

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