ISEM 2023 GENOA

THE 16TH CONGRESS OF THE INTERNATIONAL SOCIETY FOR EXPERIMENTAL MICROSURGERY

FRANCESCO BOCCARDO President of the Congress

22ND-24TH JUNE 2023

www.isem-genoa2023.com



Dear Colleagues and Friends

I am very pleased and honored to invite you to Genoa for the 16th Congress of the International Society for Experimental Microsurgery (ISEM), which will be held from 22nd to 24th June 2023. On the Gulf of Genoa in the Ligurian Sea, Genoa has historically been one of the most important ports on the Mediterranean. Genoa was the Capital of one of the most powerful Maritime Republics for over seven centuries, from the 11th century to 1797. It was also nicknamed la Superba ("The Proud One") by Petrarch due to its glories on the seas and impressive landmarks. The historical center, also known as old town, of Genoa is one of the largest and most-densely populated in Europe. Part of it was also inscribed on the World Heritage List (UNESCO) in 2006 as Genoa: Le Strade Nuove and the system of the Palazzi dei Rolli. Genoa's historical city centre is also known for its narrow lanes and streets that the locals call "caruggi". Genoa is also home to the University of Genoa, which has a history going back to the 15th century, when it was known as Genuense Athenaeum. The city's rich cultural history in art, music and cuisine allowed it to become the 2004 European Capital of Culture. The city also hosts the Italian Institute of Technology (IIT), which was established in 2003 jointly by the Italian Ministry of Education, Universities and Research and the Italian Minister of Economy and Finance, to promote excellence in basic and applied research. The main fields of research of the Institute are Neuroscience, Robotics, Nanotechnology, Drug discovery. Our Society is mainly devoted to experimental and clinical researches mainly focused on microsurgery and we all well know that "Experiment is the sole judge of scientific truth" (Richard P. Feynman).

The topics will include New advances in lymphology and lymphatic microsurgery, Newly developed experimental models, Bioengineering and regenerative medicine, Advances in organ and tissue transplantations, Genetic and molecular processes, Technological biomedical innovations, Simulation systems, Nanomaterials, Robotic microsurgery, New technologies in general surgery and surgical specialties, Clinical and translational microsurgery, Training and education in microsurgery, Lymphedema patient associations in Europe and in the World. Together with the Scientific Committee, I will work to organize a scientific program rich of novelties, multidisciplinary contributions, debates between renowned experts and participants coming from all over the world, dynamic and interactive sessions, giving to the youngest researchers an opportunity to actively participate in the heart of the congress, presenting their own contributions and draw inspirations for their daily scientific activities. Our effort will be focused to put specialists from different surgical and medical disciplines together because we are firmly convinced that it is through the interdisciplinary collaboration that the highest peaks can be reached. Joining the 16th ISEM Congress you will have the opportunity to enjoy our city as well and there will be also wonderful convivial occasions to be all together and share moments of relaxation and harmony. Looking forward to meeting plenty of you in Genoa.

The Congress President Francesco Boccardo

ISEM CURRENT COUNCIL (2021-2023)

Past Presidents:

Masumi Nozawa, MD (Japan), Honorary President

Amulf Thiede, MD (Germany)

Giuseppe Mazzoni, MD (USA)

Teruho Kajimoto, MD (Japan)

Robert Zhong, MD, PhD (Canada)

Antonio Di Cataldo, MD, PhD (Italy)

Shiguang Qian, MD, PhD (USA)

Heinz Jochen Gassel, MD, PhD (Germany)

Corradino Campisi, MD, PhD (Italy)

Eiji Kobayashi, MD, PhD (Japan)

Edna F.S. Montero, MD, PhD (Brazil)

Huifang Chen, MD, PhD (Canada)

Norbert Nemeth , MD, PhD (Hungary)

ISEM Scientific Committee:

President: Rene Tolba (Germany)

Francesco Boccardo (Italy)

Eliano Bonnacorsi (Belgium)

Corradino Campisi (Italy)

IrenMiko (Hungary)

Shinji Uemoto (Japan)

Pablo Stringa (Argentina)

HaoWang (China)

Feng Zhang (USA)

Councillors:

Yelena Akelina (USA)

Michael Axelsson (Sweden)

Corrado Campisi (Italy)

Zoltan Czigany (Germany)

Sara Dessalvi (Italy)

Mats Hellström (Sweden)

Francisco Hernandez-Oliveros (Spain)

Atsunori Nakao (Japan)

Alex Nistor (Romania)

Antonio Pesce (Italy)

Stefano Puleo (Italy)

Yinghua Tian (Switzerland)

Rene Tolba (Germany)

Shinji Uemoto (Japan) Jianguang Xu (China)

ISEM Educational Committee:

President: Antonio Di Cataldo (Italy)

Yelena Akelina (USA)

Michael Axelsson (Sweden)

Alberto Ballestin (Spain)

Ryosuke Gabata (Japan)

Mats Hellström (Sweden)

Mihai Ionac (Romania)

Natalia Lausada (Argentina)

Eiji Kobayashi (Japan)

Edna F. S. Montero (Brazil)

Norbert Nemeth (Hungary)

Stefano Puleo (Italy)

Congress President
Francesco Boccardo

Scientific Coordinator Sara Dessalvi

Congress Secretariat

Pro.Forma Srl Via A. Rimassa, 37/2 16129 Genoa Mobile +39 353 3485662 e-mail info@pro-forma.org



FACULTY

Akelina Yelena (USA)

Amore Miguel (Argentina)

Azam Muhammad Adeel (Pakistan)

Ballestín Alberto (France)

Bellini Carlo (Italy)

Boccardo Francesco (Italy)

Campisi Corradino (Italy)

Campisi Corrado (Italy)

Cannavale Teresa (Italy)

Cestari Marina (Italy)

Cornacchia Chiara (Italy)

Costantino Angelita (Italy)

Depaoli Francesca (Italy)

Dessalvi Sara (Italy)

Di Cataldo Antonio (Italy)

Dimakakos Evangelos (Greece)

Dor Frank (Unite Kingdom)

Fregatti Piero (Italy)

Friedman Daniele (Italy)

Gabata Ryosuke (Japan)

Gambella Lino (Italy)

Gunalan Ajay (India)

Hellström Mats (Sweden)

Kobayashi Eiji (Japan)

Koskinopoulou Maria (Greece)

Lausada Natalia (Argentina)

Leonardo De Mattos (Brasil)

Li Shunlei (China)

Li Wei (China))

Luca Toni (Italy)

Macciò Alberto (Italy)

Menichini Giulio (Italy)

Michelini Sandro (Italy)

Montero Edna (Brasil)

Murelli Federica (Italy)

Németh Norbert (Hungary)

Oltean Mihai (Sweden)

Pesce Antonio (Italy)

Puleo Stefano (Italy)

Roccatello Dario (Italy)

Romano Devon (Italy)

Stasi Elodie (Italy)

Stringa Pablo (Argentina)

Tolba Rene H (Germany)

Vellone Valerio (Italy)

Villa Giuseppe (Italy)

Yagi Shintaro (Japan)

Zhang Zheng Jenny (USA)



INSTITUTIONAL ACKNOWLEDGEMENTS

University of Genoa University Hospital San Martino

International Society of Lymphology European Society of Lymphology Italian Lymphoedema Framework

Regione Liguria Comune di Genova Ordine Provinciale dei Medici Chirurghi e degli Odontoiatri della Provincia di Genova



EXHIBITORS

The Organizers are grateful to all contributors that have supported the congress:















































CONGRESS VENUE

Palazzo Ducale (The Doge's Palace) Piazza Giacomo Matteotti, 9 16123 Genoa

palazzoducale.genova.it

The Doge's Palace is a historical building in Genoa. Once the home of the Doges of Genoa, it is now a museum and a centre for cultural events and arts exhibitions.

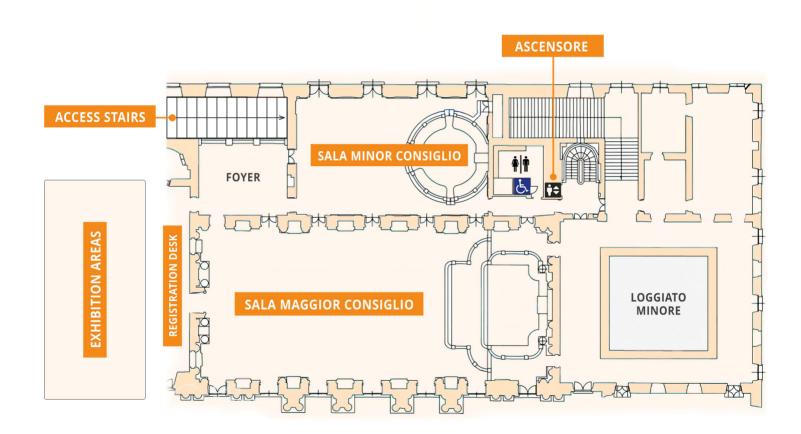
It is also possible to enter Palazzo Ducale from Piazza De Ferrari, that is the main square of Genoa; located in the heart of the city, it represents the commercial, financial and economic hub, as well as being the main reference point for the most important events of city life.







PALAZZO DUCALE



REGISTRATION

The registration desk is located at the entrance of Sala Maggior Consiglio and will be open during the Conference.

Services available at the registration desk:

- Registration (pre-registered participants and on-site registrations)
- Faculty's Registration
- Congress kit and Tickets for Social Events
- General Information

For registration fees, read on the congress website:

www.isem-genoa2023.org





GENERAL INFORMATION

Official Language: The official language of the Congress is English and there will be no simultaneous translation during the Scientific Sessions

Badges: Personal name badges will be available at the Congress Registration Desk and will be worn at all times during the Congress Scientific Sessions

Lunch and Coffee Breaks: They will be served in the Exhibition Areas in order to be able to have enough time to visit the company stands

Certificate of Attendance: All registered participants will receive a Certificate of Attendance that will be available at the registration desk on the last day of the Congress

Liability and Insurance: The organizers will assume no liability for injuries or losses of any nature incurred by participants and accompanying persons, or for damage, loss or theft of their personal properties during the congress. Participants are advised to have their own health, travel and personal insurances.

Exhibition Area: All delegates are invited to visit the Exhibition Area at the same floor of the Sala del Maggior Consiglio.

Mobile phones: Please make sure your mobile phone and other electronic devices are off before accessing scientific sessions.

Public Transportation in Genoa: Tickets can be purchased from newsstands or from tobacconists. You can buy single tickets or turist tickets, just visit the following website: www.visitgenoa.it/en/public-transports

GUIDELINES FOR SPEAKERS AND CHAIRMEN

Slide Center: The slide center is located at the end of Sala del Maggior Consiglio and will be open from Thursday, June 22 for the whole duration of the congress. Speakers are invited to use the PowerPoint program for Windows and deliver the material on a USB pen drive to the slide center at least 2 hours before the talk. If the presentation is scheduled early in the morning, please deliver it the day before. It will not be possible to connect personal laptops.

Time Slots (for Speakers and Chairmen): Keynote Lectures will last 13 min plus 2 for discussion; Oral Presentations 8 minutes plus 2 for discussion. There will be a countdown timer visible from both the speaker and the chairman. If the speaker uses all 15 (keynote lectures) or 10 minutes (oral presentations) for the talk, there will be no time for discussion at the end of his/her presentation and the next presentation will be introduced. If there is time at the end of the session, the missing questions can be asked.



OPENING CEREMONY AND WELCOME COCKTAIL

The **Opening Ceremony**, at 19.00 at Sala del Maggior Consiglio, a violin and piano concert

The **Welcome Cocktail**, at 19.45 at the «Le Terrazze del Ducale», on the terrace of Palazzo Ducale, with a beautiful view over the city.



GALA DINNER

June 23, 2023 Gala Dinner, at 20.30 **Palazzo Pallavicino** (Piazza Fontane Marose, 2)

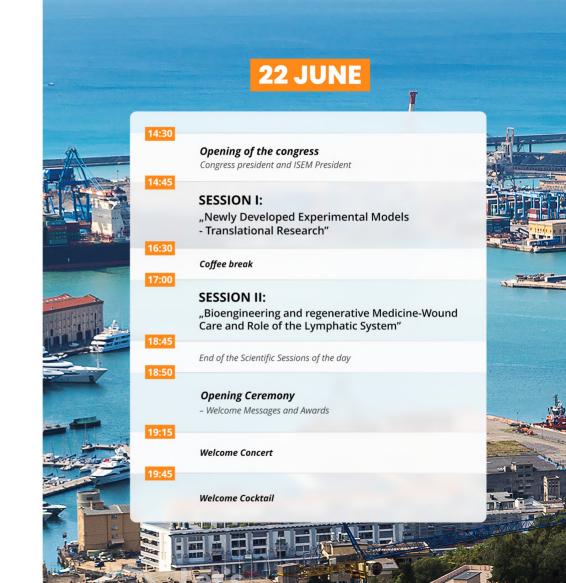
Palazzo Interiano Pallavicino, is one of the three buildings located in Piazza Fontane Marose included in the list of 42 UNESCO World Heritage Sites.

www.palazzopallavicinogenova.it



ISEM 2023 GENOA

Conference Program





THURSDAY 22 – SALA MAGGIOR CONSIGLIO

14:30 OPENING OF THE CONGRESS

Congress President & ISEM President welcome
"In Memoriam Professor Istvan Furka (1935-2021)" – N Németh (Hungary)

14:50 SESSION I - "Newly Developed Experimental Models -Translational Research"

CHAIRMEN: N Németh (Hungary) – M Oltean (Sweden) – RH Tolba (Germany)

- **14:55** Investigation of factors influencing the regeneration of vascular anastomoses (Keynote) N Németh (Hungary)
- **15:10** 3R (Reduce, Replace Refine of Animal) Models in Teaching for Microsurgery (Keynote) RH Tolba (Germany)
- **15:25** Effects of multiorgan abdominal ischemic preconditioning on experimental kidney transplantation JC Abate, Ivanoff, N Arnal, M Machuca, R Papa-Gobbi, L Vecchio, P Stringa, N Lausada (Argentina)
- **15:35** Rat model of transplant of the abdominal rectus fascia (TxARF) J Moreira (Argentina)
- **15:45** Transplant vasculopathy characterization after aortic transplantation using a full mismatch between donor and recipient strains R Zahreddine (France)
- **15:55** Prospection of applied research for hydrogen therapy using pig models S Iwai, M Sano, E Kobayashi (Japan)
- **16:05** From bed-to-bench and back again: patient-derived intestinal organoids as avatars for personalized and regenerative medicine (Keynote) A Costantino (Italy)
- **16:15** Translational research: present and future (Keynote) T Luca, S Puleo (Italy)

16:30 COFFEE BREAK

THURSDAY 22 - SALA MAGGIOR CONSIGLIO

- 17:00 SESSION II "Bioengineering and Regenerative Medicine-Wound Care and Role of the Lymphatic System" CHAIRMEN: E Kobayashi (Japan) ZJ Zhang (USA) M Hellström (Sweden)
- **17:05** Bioengineering and Regenerative Medicine with the view points of experimental microsurgery (Keynote) E Kobayashi (Japan)
- 17:20 Bioengineered tissue transplantation for novel female infertility treatments (Keynote) M Hellström (Sweden)
- **17:35** An early assessment of bioengineered uterus tissue grafts used for partial uterus repair in the sheep model E Sehic (Sweden)
- **17:45** Effects of the intraoperative tissue desiccation and the administration of BGP-15 on microvascular anastomoses' regeneration in the rat LA Fazekas, L Dan, A Peto, D Handari, A Varga, B Barath, AA Matrai, CS Filler, T Juhasz, IK Bacskay, N Nemeth (Hungary)
- **17:55** Uterus bioengineering: the creation of an acellular primate uterus scaffold L De Miguel-Gomez, E Sehic, J Ahlstrom, M Oltean, M Brannstrom, M Hellstrom (Sweden)
- **18:05** New concepts in wound management and wound healing products (Keynote) T Cannavale e D Romano (Italy)
- **18:20** Targeting cell stress responses to mitigate tissue injury and promote regeneration (Keynote) ZJ Zhang (USA)

18:45 OPENING CEREMONY - Welcome Messages

City Hall, Region, University, Hospital, Regional Association of Physicians Announcement of "Sun Lee Award" and "Lars Erik Gelin Award" winners

19:00 WELCOME CONCERT – Ketevan Abiatari & Angelica Foschi

19:45 WELCOME COCKTAIL

08:30 SESSION III - "Advances in organ and tissue

CHAIRMEN: W Li (China) - M Oltean (Sweden) - S Yagi (Japan)

- **08:35** Biomarkers after organ transplantation: Recent developments and continuing needs (Keynote) M Oltean (Sweden)
- **08:50** Microsurgery and experimental solid organ transplantation (Keynote) P Stringa (Argentina)
- **09:05** Following-up blood flow, microcirculatory and micro-rheological alterations during the early wound healing phase of local and rotated musculocutaneous flaps in the rat G Kincses, AO Flasko, LA Fazekas, A Varga, AA Matrai, XL Nguyen, K Barabasi, N Nemeth
- **09:15** Road map for learning the mouse orthotopic liver transplantation technique K Tanaka (Japan)
- **09:25** Intestinal autophagy and apoptosis during static cold storage with and without luminal preservation J Bagge, A Casselbrant, M Hellström, M Oltean (Sweden)
- **09:35** Effect of mTOR inhibitor on liver regeneration after hepatectomy and partial liver transplantation M Hirata (Japan)
- **09:45** Clinical and experimental microsurgery in liver transplantation (Keynote) S Yagi (Japan)

10:00 COFFEE BREAK

10:30 SESSION IV – "Ischemia-reperfusion in Microsurgery – Technological biomedical innovations" **CHAIRMEN:** A Ballestín (France) - S Puleo (Italy) - P Stringa (Argentina)

10:35 Microsurgical free tissue transfers, ischemia-reperfusion injury and how adjuvant therapies can improve the results (Keynote) – A Ballestín (France)

- **10:50** Beneficial effect of PACAP 1-38 and BGP-15 on ischemia-reperfusion injury of groin flaps in the rat AO Flasko, LA Fazekas, A Peto, A Varga, AA Matrai, WM Al-Smadi, D Reglodi, IK Bacskay, T Juhasz, N Nemeth (Hungary)
- **11:00** Optimizing machine perfusion protocols to enable ex-situ organ treatment D Dondossola (Italy)
- **11:10** Acute microcirculatory hemorheological and metabolic effects of severe renal ischemia-reperfusion and ischemic pre-conditioning in the rat DM Adorjan, L Fazekas, A Varga, AA Matrai, K Barabasi, K Peto, N Nemeth (Hungary)
- 11:20 Impact of postoperative ischemia after neuro-oncological resective surgery (Keynote) A Ballestín (France)

11:35 SESSION V – "Robotic Microsurgery and Artificial Intelligence (AI) Assisted Microsurgery" *CHAIRMEN: L De Mattos (Brazil) – F Boccardo (Italy)*

- **11:40** Transoral Laser Microsurgery Technologies: The past, the present and the future (Keynote) L De Mattos (Brazil)
- **11:55** Robotic Intravenous Access (Keynote) M Koskinopoulou (Greece)
- **12:10** Videomics of the Upper Aero-Digestive Tract (Keynote) MA Azam (Pakistan)
- **12:25** Novel Technologies for Microsurgery Robots (Keynote) A Gunalan (India)
- **12:40** Autonomous Robotic System for Laser Microsurgery (Keynote) S Li (China)
- **12:55** Protecting Users and Data through Zero Trust security solutions (Keynote) L Gambella (Italy)
- **13:10** Microsurgical robot experience: from pre-clinical studies to clinical cases (Keynote) G Menichini (Italy)

13:25 LUNCH - ISEM BOARD

14:30 SESSION VI - "Research and New Challenges in Lymphology and Lymphatic Microsurgery"

CHAIRMEN: M Amore (Argentina) – E Dimakakos (Greece) – S Michelini (Italy)

- **14:35** New concepts of genetics in Lymphology (Keynote) S Michelini (Italy)
- **14:50** Anatomical Researches in Lymphology (Keynote) M Amore (Argentina)
- **15:05** 3D Ultrasonography in Lymphology (Keynote) M Cestari (Italy)
- **15:20** Lymphatic system and the kidney: basic researches and clinical implications (Keynote) D Roccatello (Italy)
- **15:35** Clinical Lymphology (Keynote) E Dimakakos (Greece)
- **15:50** The Use of Fluorescence in Lymphatic Microsurgery (Keynote) S Dessalvi (Italy)
- **16:05** Research and New Challenges in Neonatal and Pediatric Lymphology (Keynote) C Bellini (Italy)
- **16:20** New educational challenges in Lymphology (Keynote) E Stasi (Italy)

16:35 COFFEE BREAK

17:05 SESSION VII - "Training and Education in Microsurgery"

CHAIRMEN: Y Akelina (USA) - E Montero (Brazil) - N Németh (Hungary)

- 17:10 The importance of Microsurgery in my surgical career (Keynote) A Di Cataldo (Italy)
- **17:25** News from Microsurgery Lab Columbia University; training more and more transplant surgeons! Virtual Micro course: Utopia and Reality? (Keynote) Y Akelina (USA)
- **17:40** General surgery and microsurgery education activities for Japanese Veterinary Students S Iwai, E Kobayashi (Japan)
- 17:50 Debrecen Medical Students' Surgery Club: an extracurricular manual skill development activity and a contest of basic microsurgical performance A Varga, NJ Nellamkhuzi, LA Fazekas, AA Matrai, T Lesznyak, E Vanyolos, N Nemeth (Hungary)
- **18:00** A learning curve for orthotopic liver transplant microsurgery in mice K Tanaka (Japan)
- **18:10** Virtual Reality in Microsurgery Training (Keynote) RH Tolba (Germany)
- **18:25** Microsurgery education and transplant model in small animals (Keynote) E Montero (Brazil)
- **18:40** Animal models and education in experimental microsurgery (Keynote) N Lausada (Argentina)

19:00 ISEM GENERAL ASSEMBLY

20:30 GALA DINNER - (Announcement of "Robert Zhong Award" and "Best Abstract Award" winners)

SATURDAY 24 – SALA MAGGIOR CONSIGLIO

08:30 SESSION VIII - "Translational Researches in Lymphology"

CHAIRMEN: C Campisi (Italy) - E Dimakakos (Greece) - A Macciò (Italy)

08:35 A long surgical career in Lymphology and Microsurgery (Keynote) – C Campisi (Italy)

08:50 Clinical implications of pathological anatomical findings in lymphology (Keynote) – V Vellone (Italy)

09:05 Update in Lymphatic Scintigraphy and the use of SPET-CT (Keynote) – G Villa (Italy)

09:20 Aligned nanofibrillar collagen scaffolds implantation (BioBridgeTM) after popliteal lymphnode excision in rabbits – JL Campos Sanchez (Spain)

09:30 From bench to bedside in microsurgical and mini-invasive treatment of lymphedema (Keynote) – CC Campisi (Italy)

09:45 Microsurgical prevention of arm lymphedema in ALD for breast cancer – P Fregatti, F Murelli, F Depaoli, C Cornacchia, D Friedman (Italy)

09:55 Patient with lymphedema: which possibilities of treatment nowadays based on translational researches? (Keynote) – F Boccardo (Italy)

10:10 SESSION IX - "The Official ISEM Journal European Surgical Research - Tips from the Editorial Board" *CHAIRMEN:* F Dor (United Kingdom), M Oltean (Sweden), RH Tolba (Germany)

10:15 Getting your paper published - an editor's perspective – F Dor (United Kingdom)

10:30 Piecing it together: practical tips on writing a manuscript – M Oltean (Sweden)

10:45 How to review a manuscript – RH Tolba (Germany)

SATURDAY 24 – SALA MAGGIOR CONSIGLIO

- 11:00 SESSION X Experimental models, Training, New technologies, Clinical and Translational Microsurgery *CHAIRMEN:* S Dessalvi (Italy) N Lausada (Argentina) R Gabata (Japan)
- **11:05** Routine use of ICG to enhance operative safety in emergency laparoscopic cholecystectomy: an observational prospective study A Pesce, N Fabbri, CV Feo (Italy)
- **11:15** Spatiotemporal transcriptomics analysis of central venous stenosis suggests TNF-alfa as a potential therapeutic target in CKD rats S Lotfollahzadeh (USA)
- **11:25** Our experience in establishing the rat liver transplantation model at Kanazawa University K Katano (Japan)
- **11:35** Hemodynamic, hemorheological and morphological comparison of various microsurgically created arterio-venous shunts as experimental heart failure models in rats LA Fazekas, B Bernat, B Barath, A Varga, AA Matrai, O Shaked, OP Fiebai, WM Al-Smadi, CS Filler, T Juhasz, D Priksz, B Juhasz, Z Szilvassy, N Nemeth (Hungary)
- **11:45** Microsurgical arterio-venous malformation model on the saphenous vessels in the rat WM Al-Smadi, LA Fazekas, A Varga, AA Matrai, S Aslan, B Bernat, AES Beqain, MQM Al-Khafaji, D Priksz, T Juhasz, Z Szilvassy, N Nemeth (Hungary)
- **11:55** Training for microsurgery and steps to clinical practice Role of ISEM Japan Chapter R Gabata (Japan)
- **12:05** Experimental microsurgery course oriented to solid organ transplantation N Lausada, RJ Serradilla, J Minneto, D Abaca, H Reijenstein, AA Moreno, P Stringa, G Zalazar, S Nahirñak, M Dip, C Raimondi, O Imventarza, OF Hernández (Argentina)
- **12:15** Brain death and intestinal transplantation: results of an experimental model in rats L Vecchio Dezillio, I Ivanoff Marinoff, JC Abate, M Rumbo, P Stringa, N Lausada (Argentina)
- **12:25** Regenerative technologies in skin lesions Human skin bioprinting systematic review J Jachimczyk, M Kołodziej, U Janiuk (Poland)

12:35 Final greetings - END OF THE CONGRESS



ISEM Board is pleased to invite you all to the next ISEM congress in two years!

Information can be acquired directly at this congress in Genoa.