

Joint Meeting
The European Society for Clinical Hemorheology and Microcirculation
The International Society for Clinical Hemorheology
The International Society of Biorheology
Krakow, Poland
July 2-6, 2018

Scientific Program

Monday, July 2nd

12.00–18.00 **Registration**

18.00–19.30 **Opening Ceremony**

20.00–21.30 **Welcome Reception**

Tuesday, July 3rd

9.00–10.00 **ESCHM Plenary Lecture (L1)**

Chair: Jean-Frédéric Brun

Lecture: Philippe Connes

*Blood rheology: From exercise responses to sickle cell disease
pathophysiology*

10.00–10.30 **Coffee Break**

10.30–12.00 **Symposia S1–S3/Free Communications O1–O2**

S1: VESSELS AND HEMORHEOLOGY

Chairs: Kalman Toth and Norbert Nemeth

S1-1 Hemorheological parameters and mortality in critically ill patients

Beata Csiszar, Kinga Totsimon, Peter Kenyeres, Kalman Toth, Zsolt Marton

S1-2 Leukocyte antisedimentation rate (LAR) and pituitary adenylate cyclase-activated polypeptid (PACAP) in polytrauma and burn victims. A preliminary study

Csaba Loibl, Csaba Csontos, Livia Szelig, Lajos Bogar, Patricia Kovacs, Andrea Pankaczi, Szilard Rendeki, Martin Rozanovic, Marianna Matancic, Timea Nemeth, Beata Lelesz, Jozsef Nemeth, Attila Miseta, Dora Reglodi, Andrea Tamas

S1-3 Do ABO and Rh blood groups influence hemorheological parameters in vascular patients?

- Katalin Koltai, Dóra Endrei, Gábor Késmárky, Katalin Biró, Zsolt Márton Pécs, Gergely Fehér, Dávid Kovács, Imre Boncz, Antal Tibold, Kálmán Tóth*
- S1-4 Applications of finite element analysis in clinical hemorheology
Peter Varga, Sz. Javor, G. Jancso, A. Gedei, P Maroti, G. Balazs University of Debrecen Hungary
- S1-5 Effects of ischemia-reperfusion and various surgical preconditioning maneuvers on micro-rheological and microcirculatory parameters
Norbert Nemeth, Gabor Varga, Balazs Szabo, Csaba Korei, Bela Turchanyi, Katalin Peto
- S1-6 Renal ischemia-reperfusion-induced micro-rheological and microcirculatory alterations and their influenceability by remote organ ischemic preconditioning
Gabor Varga, Kitti Nagy, Noemi Pal, Gabor Nadubinszky, Balazs Szabo, Bence Tanczos, Viktoria Somogyi, Adam Deak, Katalin Peto, Norbert Nemeth
- S2: PLATELET ADHESION**
Chairs: Shinya Goto and Terumitsu Hasebe
- S2-1 Biologically validated model of platelet adhesion under blood flow conditions
Shinya Goto
- S2-2 Glycoprotein distribution of surface-induced platelet activation on medical materials by electron microscopy technology
Masamitsu Nakayama, Terumitsu Hasebe, Shunto Maegawa, Kenta Bito, Tomohiro Matsumoto, Tetsuya Suzuki
- S2-3 Hemorheological effects of mechanical stress on whole blood of patients with prosthetic heart valve failure
Toru Maruyama, Chiharu Yoshida, Kei Irie, Shohei Moriyama, Taku Yokoyama, Mitsuhiro Fukata, Takeshi Arita, Keita Odashiro, Koichi Akashi
- S2-4 Platelet adhesion studies of implantable long-term use Fontan pump biomaterials
Bryan Good, Clare McHugh, Keefe Manning, William Weiss, Chris Siedlecki
- S2-5: Development of hemocompatible materials for blood contacting devices by physical and chemical surface modification
Terumitsu Hasebe, Masamitsu Nakayama, Shunto Maegawa, Kenta Bito, Tomohiro Matsumoto, Tetsuya Suzuki
- S3: ADVANCES IN HEMORHEOLOGICAL MEASUREMENTS-1**
Chairs: Sehyun Shin and Sung Yang
- S3-1 Holotomography techniques for imaging 3D label-free imaging of cells and tissues
Yong Keun Park
- S3-2 A microfluidic device for simultaneous measurement of blood viscosity, hematocrit, and deformability
Byung Jun Kim, Sung Yang
- S3-3 Deformability measurement of continuous soft particles by lattice Boltzmann method and its applications to rheological flow characteristics
Joon-Sang Lee

- S3-4 A microfluidic platelet assaying device for function test and antiplatelet response test
Sehyun Shin

O1: CELLULAR RHEOLOGY AND BIOPHYSICS

Chair: Peter Butler

- O1-1 Albumin solder covalently bound to a biodegradable polymer membrane: New approach to improve binding strength in laser tissue soldering
Andrea Nies, Bernhard Hiebl
- O1-2 Circumferential alignment of smooth muscle cells in micro-tube environment
Yang Jin, Linhong Deng
- O1-3 Subhaemolytic mechanical trauma increases RBC aggregation by altering cell electrochemistry
Antony McNamee, Geoff Tansley, Michael Simmonds
- O1-4 Subhaemolytic mechanical damage alters erythrocyte behavior in subsequent low-shear flows
Antony McNamee, Geoff Tansley, Michael Simmonds
- O1-5 Ultrafast imaging of cell elasticity with optical microelastography
Guy Cloutier, Grasland-Mongrain, Ali Zorgani, Shoma Nakagawa, Simon Bernard, Lia Gomes Paim, Greg FitzHarris, Stefan Catheline
- O1-6 The effects of substrate stiffness on HUVEC adhesion with THP-1 cells and molecules associated with adhesion
Yan Wenhua Zhang Tian, Zhang Kang, Qiu Juhui, Wang Guixue

O2: CLINICAL HEMORHEOLOGY

Chair: Jean-Frédéric Brun

- O2-1 Pilot clinical study of quantitative ultrasound spectroscopy measurements of erythrocyte aggregation within superficial veins of 50 volunteers
Guy Cloutier, Boris Chayer, Louise Allard, Julian Garcia-Duitama
- O2-2 Rapid clinical assessment of the sublingual microcirculation – Visual scoring using microVAS in comparison to standard semi-automated analysis
Joel Sardinha, Christian Lehmann
- O2-3 L-cysteine improves blood fluidity that has been impaired by acetaldehyde
Ippo Otoyama, Tatsushi Kimura, Hironobu Hamada, Kiyokazu Sekikawa, Michinori Kamikawa, Teruki Kajiwara, Fumiya Aizawa, Yoshinobu Sato, Haruchi Namba
- O2-4 Hemorheological studies in a group of patients with Waldenström's macroglobulinemia
Anna Marcinkowska-Gapińska, Piotr Kowal, Włodzimierz Liebert
- O2-5 Adora2b receptor activation mediates flap protection from ischemia/reperfusion injury
Pinar Ulker, Ozlenen Ozkan, Matteo Amoroso, Mutay Aslan, Filiz Ozcan, Ibrahim Bassorgun, Omer Ozkan
- O2-6 Purinergic regulation of erythrocyte enzyme activity

Pinar Ulker, Nur Özen, Günel Abdullayeva, Sadi Köksoy, Nazmi Yaraş, Filiz Basrali

13.00–14.00 **Poiseuille Gold Medal Award (L2)**

Ceremony and Lecture

Laudatio: Herbert H Lipowsky

Lecture: Axel R Pries

Microvascular hemodynamics: System properties

14.15–15.45 **Symposia S4-S7/Free Communications O3**

S4: GLYCOCALYX – ITS STRUCTURE AND FUNCTION

Chairs: John Tarbell and Hans Vink

S4-1 Multilayer structures of the endothelial glycocalyx: barrier functions versus red cell hemodynamics

FitzRoy Curry

S4-2 Endothelial Surface Glycocalyx (ESG) components and ultra-structures revealed by Stochastic Optical Reconstruction Microscopy (STORM)

Jie Fan, Yi Sun, Yifan Xia, John Tarbell, Bingmei Fu

S4-3 *In vivo* studies of the enzymatic degradation and structure of the endothelial glycocalyx

Herbert Lipowsky

S4-4 The endothelial glycocalyx and control of microvascular flow and perfused capillary density

Hans Vink

S5: NOVEL MECHANISMS REGULATING BLOOD CELL RHEOLOGY

Chairs: Brian Cooke and Tamas Alexy

S5-1 Interaction of mesenchymal stem cells with platelets: Aid to targeting to tissue or thrombotic risk?

Lozan Sheriff, Asma Alanazi, Lewis Ward, Julie Rayes, Mohammed Alassiri, Steve Watson, Gerard Nash

S5-2 Malaria and babesiosis: Same rheopathobiology but different molecular mechanisms

Brian Cooke

S5-3 Form and function: erythrocyte responses to supra-physiological shears and circulatory support

Michael Simmonds

S5-4 Blood rheology, arterial stiffness, and clinical complications in diabetic patients with and without sickle-cell trait

Sarah Skinner, Mor Diaw, Maimouna Ndour Mbaye, Brigitte Ranque, Philomène Lopez, Malick Ndour, Fatou Gueye, Demba Diedhiou, Djiby Sow, Saliou Diop, Abdoulaye Samb, Vincent Pialoux, Philippe Connes

- S5-5 The importance of hemorheology in the design of continuous flow left ventricular assist devices
Tamas Alexy
- S6: ADVANCES IN HEMORHEOLOGICAL MEASUREMENTS-2**
Chairs: Sehyun Shin and Sung Yang
- S6-1 Optical study of red blood cells interactions in vitro mediated by different plasma components
Alexander Priezzhev, Alexey Semenov, Andrei Lugovtsov, Kisung Lee, Christian Wagner
- S6-2 Effect of integrin glycoproteins inhibition on specific adsorption of cells adhesion macromolecules on red blood cell membrane: A microrheologic study
Alexey Semenov, Andrei Lugovtsov, Kisung Lee, Alexei Myravyev, Sehyu Shin, Evgeny Shirshin, Alexander Priezzhev
- S6-3 Electrochemical impedance spectroscopy of blood for blood aggregation, sedimentation, and hematocrit
Alexander Zhanov, Sung Yang
- S6-4 Comparison of critical shear stress in RheoScan and adhesion force between RBCs measured in optical tweezer
Sehyun Shin, Hoyoon Lee, Kisung Lee, Alexander Priezzhev
- S7: HEMORHEOLOGY AND BLOOD COAGULATION**
Chairs: Ursula Windberger and Resia Pretorius
- S7-1 Stress sweep tests on whole blood clots
Ursula Windberger
- S7-2 The novel discovery of amyloid formation in fibrin(open) and how it affects hemorheology and blood coagulation
Etheresia Pretorius
- S7-3 Multiscale mechanics of fibrin networks
Cristina Martinez-Torres
- S7-4 Study of blood clotting mechanism by rheological and electrorheological methods
Nadia Antonova, Ivan Ivanov
- S7-5 Influence of polymeric nanoparticles on the kinetics of coagulation of conserved blood
Nadya Todorova, Nadia Antonova
- S7-6 What are conditions defining blood clot properties in some disorders
Eugene Roitman, Alla Shabalina, Marine Tanashyan, Irina Kolesnikova
- O3: ENDOTHELIAL FUNCTION AND SHEAR STRESS**
Chairs: Markos Klonizakis and Guixue Wang
- O3-1 Arrangement and morphology of endothelial cells under the mechanical microenvironment changes after vascular stent implantation
Tieying Yin, Yuzhen Ren, Ruolin Du, Yuhua Huang, Yazhou Wang, Guixue Wang

- O3-2 Blood Flow Regulates Zebrafish CVP Angiogenesis by Inducing ERK5 Signaling
Guixue Wang
- O3-3 The role of Id1 in oscillatory shear stress-mediated endothelial lipid uptake
Kang Zhang, Yidan Chen, Guixue Wang
- O3-4 Effect of DNA methyltransferase 1 in oscillatory shear stress-induced atherosclerotic vulnerable plaque formation
Lu Huang, Desha Luo, Yuanhang Zhou, Kang Zhang, Juhui Qiu, Guixue Wang
- O3-5 The influence of hemodynamic changes on proliferation and adhesion of endothelial progenitor cells
Jinxuan Wang, Li Xiao, Daming Sun, Yiming Zheng, Tieying Yin, Guixue Wang
- O3-6 Short term effects of the Mediterranean Diet in human microvascular function – comparison between older and younger healthy, sedentary adults
Yingshan Liu, Marianne Milner, Markos Klonizakis

16.15–17.45 Symposia S8-S12

S8: GLYCOCALYX – ITS DIVERSITY

Chair: Herbert Lipowsky

- S8-1 Surface glycocalyx mediates tumor cell metastasis
Henry Qazi, Heriberto Moran, Limary Cancel, Mariya Mayer, Lance Munn, John Tarbell
- S8-2 Visualization of heparan sulfate proteoglycans in the glycocalyx and the perivascular space of 3-dimensional perfusable microvascular networks in microfluidic devices
Sebastian Beyer, Anna Blocki, Roger D. Kamm
- S8-3 Integrin-mediated adhesion is lipid bilayer and glycocalyx dependent
Seoyoung Son, Joseph Moroney, Peter Butler
- S8-4 Coupled dynamics of blood flow and endothelial glycocalyx: A large-scale molecular dynamics study
Xi Zhuo Jiang, Kai H. Luo, Yiannis Ventikos

S9: MOLECULAR AND MECHANICAL MARKERS OF VARIOUS PATHOLOGIES

Chair: Małgorzata Lekka

- S9-1 Early stage of essential hypertension monitoring
Kvetoslava Burda, Magdalena Kaczmarska, Maria Fornal, Franz Messerli, Jozef Korecki, Tomasz Grodzicki
- S9-2 Label-free methods in diagnostics and prognostics of malignant melanoma
Tomasz Kobiela
- S9-3 Advanced vibrational imaging techniques to aid clinical research
Tomasz P. Wrobel, Paulina Koziol, Natalia Piergies, Ewa Pieta, Czesława Paluszkiewicz, Maria Fornal, Tomasz Grodzicki, Wojciech Kwiatek
- S9-4 Effect of dietary carotenoids on erythrocytes from diabetic patients: A spectroscopic study

Joanna Fiedor, Mateusz Przetocki, Grzegorz Gajos, Józef Korecki, Kvetoslav Burda

S10: MIDAS MICROCIRCULATION MEETING (3M)

Chairs: Christian Lehmann and Vladimir Cerny

S10-1 Dynamic Contrast Enhanced Ultrasound (CEUS) of tissue transplants
Ernst Michael Jung, Sebastian Geis, Andreas Kehrer, Philipp Edmund Lamby, Lukas Prantl

S10-2 Assessment of glycocalyx
Vladimir Cerny

S10-3 Automated vs. visual video analyses – where is the future?
Christian Lehmann

S10-4 Is sodium a link between endothelial glycocalyx and microcirculation?
David Astapenko, Vladimir Cerny

S11: BEYOND RED CELL STIFFNESS

Chairs: Jean-Frédéric Brun and Carlota Saldanha

S11-1 RBC deformability: An exquisite homeostasis
Jean-Frédéric Brun, Emmanuelle Varlet-Marie

S11-2 Eryptosis or the death of a rigidified erythrocyte
Etheresia Pretorius

S11-3 Erythrocyte deformability under nitric oxide Influence
Carlota Saldanha, Ana Silva-Herdade

S11-4 The sickle cell: Far more than a rigid erythrocyte
Philippe Connes, Elie Nader, Nicolas Guillot, Romain Fort, Berenike Möckesch, Nathalie Lemonne, Sophie Antoine-Jonville, Céline Renoux, Philippe Joly, Vincent Pialoux, Marie-Dominique Hardy-Dessources, Marc Romana

S11-5 Signaling pathways in regulation of RBC microrheological properties by catecholamines
Irina Tikhomirova, Alexei Myravyov, Elena Petrochenko

S11-6 Complete dynamics of erythrocytes in shear flow: The story behind the term of deformability
Simon Mendez, Luca Lanotte, Johannes Mauer, Franck Nicoud, Gerhard Gompper, Dmitry Fedosov, Manouk Abkarian

S12: MACRO AND MICRO HEMORHEOLOGY IN VITRO AND IN VIVO

Chairs: Michael Simmonds and Jon Detterich

S12-1 The “tipping point” of mechanical stress on erythrocyte biology
Michael Simmonds

S12-2 Testing the sensitivity of red cell fragmentation and deformability measurements for shear-mediated mechanical damage
Özlem Yalcin, Ali Cenk Aksu, Elif Ugurel, Selcuk Surucu

- S12-3 Discussion about high shear stress induced erythrocyte's damage and lysis – Interpretation of hemolysis in cardiovascular devices based on our visualized erythrocytes' behaviors
Nobuo Watanabe, Takahiro Shimada, Nao Ikeda, Kousuke Igarashi
- S12-4 Mechanical sensitivity of blood in sickle patients on chronic blood transfusion – understanding erythrocyte exposure to chronic physiologic shear vs. chronic supra-physiologic but sub-hemolytic shear stress
Jon Detterich, Silvie Siriany, Derek Ponce, Michael Simmonds
- S12-5 Drag-reducing polymer effects on macro- and microcirculation
Marina Kameneva

Wednesday, July 4

9.00–10.00 **ISB Plenary Lecture (L3)**

Chair: Peter Butler

Lecture: Frank J.Gijsen

Biomechanics and atherosclerotic plaques progression

10.30–12.00 **Symposia S13-S15/Free Communications O4-O5**

S13: MICROCIRCULATION OF INNER ORGANS

Chairs: Ernst Michael Jung and Pamela Zengel

- S13-1 Critical analysis of CEUS examinations of the liver in an interdisciplinary ultrasound department
Franz Josef Putz, Anna Erlmeier, Niklas Verloh, Bernhard Banas, Christian Stroszczyński, Ernst Michael Jung
- S13-2 VTIQ and VTQ in combination with B-mode and color Doppler ultrasound improve classification of salivary gland tumors, especially for inexperienced physician
Pamela Zengel, Florian Notter, Dirk Andre Clevert
- S13-3 CEUS perfusion imaging after ablation treatment in patients with prostate cancer: First results
Isabel Wiesinger, Lukas Beyer, Philipp Wiggermann, Christian Stroszczyński, Ernst Michael Jung
- S13-4 Contrast-enhanced ultrasound (CEUS) and gallbladder diseases – a retrospective monocenter analysis of imaging findings with histopathological correlation
G. Negrão de Figueiredo, K. Mueller-Peltzer, P. Zengel, E. Gresser, J. Rübenthaler, D.A. Clevert, München
- S13-6 New horizons for kidney imaging: Dynamic microvascularization in contrast-enhanced ultrasound (CEUS)
Franz Josef Putz, Anna Erlmeier, Miriam Banas, Bernhard Banas, Ernst Michael Jung

S14: CELL MECHANICS AND CELL MECHANOBIOLOGY - 1

Chairs: Taiji Adachi and Yukiko Matsunaga

- S14-1 Effect of physical environment on cell migration using microchannel device
Toshiro Ohashi, Mazlee Bin Mazalan, Ma Ming, Jennifer H. Shin
- S14-2 Protein kinase C α translocation in endothelial cells in response to mechanical stimulus
Susumu Kudo, Toshihiro Sera, Masataka Arai
- S14-3 Hydrostatic pressure-induced DNA breaks in chondrocytes and its relationship with chromatin architecture
Koichiro Maki, Katsuko Furukawa, Takashi Ushida
- S14-4 In situ, fluorescence lifetime-based measurements of cell membrane micromechanics
Seoyoung Son, Hari Muddana, Changjin Huang, Sulin Zhang, Peter Butler
- S15: HEMODYNAMIC FUNCTIONALITY OF RED BLOOD CELLS IN BLOOD MICROCIRCULATION: EXPERIMENTS AND MODELING**
Chairs: Saul Yedgar and Ming Dao
- S15-1 Biomechanics of red cell diseases
Ming Dao
- S15-2 Microvascular blood flow peculiarities in cancer
Irina Tikhomirova, Yulia Malysheva, Nikolay Kislov, Mihail Ryabov
- S15-3 Shape and dynamics of red blood cells in microvessels
Johannes Mauer, Felix Reichel, Jochen Guck, Gerhard Gompper, Dmitry Fedosov
- S15-4 Hemodynamic functionality of transfused red blood cells in the microcirculation of blood recipients
Gregory Barshtein, Axel Pries, Neta Goldschmidt, Orly Zelig, Dan Arbell, Saul Yedgar
- S15-5 Red blood cell aggregate flow characteristics in bifurcating microchannels
Efstathios Kaliviotis, Joseph Sherwood, Stavroula Balabani
- O4: RED BLOOD CELL DEFORMABILITY**
Chairs: Edgar O'Rear and Philippe Connes
- O4-1 Beta-estradiol and ethinylestradiol enhance RBC deformability dependent on their blood concentration
Paulo Farber, Teresa Freitas, Carlota Saldanha, Ana Silva-Herdade
- O4-2 Dual mechanical characterization of red blood cells: Role of surface area, internal viscosity and membrane rigidity
Céline Renoux, Magali Faivre, Amel Bessaa, Philippe Joly, Philippe Connes
- O4-3 Proteomic analysis of the role of adenylyl cyclase-cAMP pathway in red blood cell mechanical response
Özlem Yalcin, Elif Ugurel
- O4-4 The oxygen scan: continuous measurement of red blood cell deformability with oxygen gradient ektacytometry to monitor disease severity and treatment effect in sickle cell disease

Minke Rab, Brigitte van Oirschot, Tesy Merkx, Annet van Wesel, Sisto Hendriks, Jan de Zoeten, Osheiza Abdulmalik, Martin Safo, Birgitta Versluijs, Roger Schutgens, Gerard Pasterkamp, Eduard van Beers, Richard van Wijk

O4-5 Nitric oxide regulates human erythrocyte deformability through adjusting band phosphorylation status in hypoxia

Yajin Zhao, Xiang Wang

O4-6 Hypoxia: The best stimulator that increases shear-induced response of red blood cells

Elif Ugurel, Ali Cenk Aksu, Senol Piskin, Özlem Yalcin

O5: FLOW VISUALIZATION AND MODELING

Chairs: Sung Yang and Efstathios Kaliviotis

O5-1 Velocity and erythrocyte aggregation characteristics for surface tension-driven flow of blood in rectangular microfluidic channels

Dimitris Pasias, Efstathios Kaliviotis

O5-2 A new approach of blood viscosity: Hemodynamic viscosity

Tilly Alexandre

O5-3 Evaluation and comparison of haemodynamic parameters of vascular end-to side anastomoses

Balazs Gasz, Peter Varga, Peter Maroti, Gabor Jancso

O5-4 Similarities in erythrocyte senescence and microfluidic high shear environment

Damage James Buerck, Dimitrios Papavassiliou, Trevor Snyder, David Schmidtke, Edgar O'Rear

O5-5 Investigation of bright collapsing ring by Lattice Boltzmann method

Young Woo Kim, Chan Soo Min, Joon Sang Lee

13.00–14.00 **ISCH Medal Award (L4)**

Ceremony and Lecture

Laudatio: Kalman Toth

Lecture: Brian M. Cooke

The rheopathobiology of malaria and babesiosis

14.15–15.45 **Symposia S16–S18/Free Communications O6**

S16: SPECIAL SYMPOSIUM TO CELEBRATE THE CENTENNIAL OF DISTINGUISHED PROFESSOR YUAN-CHENG B. FUNG (1)

Chairs: Linhong Deng and Li Yang

S16-1 Morphogenesis and mechanobiology of airway smooth muscle cells on 3D tubular micropatterns as mechanism of bronchial airway development

Linhong Deng, Yang Jin, Mingzhi Luo, Lei Liu, Jingjing Li

S16-2 Glycosylation is a strong molecular determinant of MUC5AC rheology in airway mucus at both single protein and bulk solution levels

Lei Liu, Mingzhi Luo, Yan Pan, Jingjing Li, Linhong

- S16-3 Dynamics of neutrophil transmigration mediated by beta-2 integrin via P- and E-selectins
Yan Zhang, Mian Long
- S16-5 Influence of different rhythms sound wave to serotonin concentration in rats hippocampus
Yang Ren, Zhidan Deng

S17: RHEOLOGY AND MICROCIRCULATION

Chairs: Lucas Prantl and Gerhard Pindur

- S17-1 Longitudinal analysis of thrombin generation biomarkers in venous thromboembolism
Gerhard Pindur, Aida Beye, Bernhard Stephan, Harald Helling
- S17-2 Comparison of PIRADS 3 lesions with histopathological findings after MRI-ultrasound fusion targeted biopsy of the prostate in a real-world setting
Boris Schlenker, Maria Apfelbeck, Christian G. Stief, Dirk-Andre Clevert
- S17-3 Does acoustic radiation force Elastography help to improve the diagnostic value of ultrasound in the preoperative characterization of tumors of the parotid gland?
Pamela Zengel, Florian Notter, Dirk Andre Clevert
- S17-4 Technologies for adipose stem cell isolation
L. Prantl, V. Brebant, S. Klein, A. Anker, C Strauss, O. Felthaus
- S17-5 Blood rheology in breast and gynecologic cancer patients at primary diagnosis and stage of cancer progression
O. Schelkunov, P. Tsikouras, R. Csorba, W. Rath, G-F. von Tempelhoff
- S17-6 First experiences with a clinical work-flow integrated CAM Assay in Patients with oral squamous cell carcinoma
P. Kauffmann, M. Troeltzsch, P. Brockmeyer, H. Bohnenberger, P. Stroebel, M. Manzke, R. Cordesmeier, H. Schliephake, L. Prantl, T. Aung

S18: NANOSTRUCTURES IN DISEASE AND HEALTH

Chairs: Květoslava Burda and Marek Cyrklaff

- S18-1 Malaria parasites, host-erythrocytes and blood circulation
Marek Cyrklaff
- S18-2 Polyhedrocytes in type 2 diabetes
Grzegorz Gajos, Aleksander Siniarski, Joanna Natorka, Michał Ząbczyk, Jakub Siudut, Aneta Undas
- S18-3 Differentiation between various melanomas based on biophysical characterization of their properties
Justyna Bobrowska, Joanna Pabijan, Kamil Awwsiuk, Jakub Rysz, Andrzej Budkowski, Małgorzata Lekka
- S18-4 Endothelial nanomechanics in vascular diseases – an ex vivo AFM nanoindentation study
Marta Targosz-Korecka, Magdalena Jaglarz, Katarzyna Małek-Ziętek, Stefan Chłopiczki, Marek Szymoński

O6: RED BLOOD CELL AGGREGATION

Chairs: Dong-Guk Paeng and Norbert Nemeth

- O6-1 Alterations in RBC aggregation during incubation in glucose solution
Alicja Szotna-Chodór, Paulina Grychtal, Bronisław Grzegorzewski
- O6-2 Numerical study of red blood cell aggregation kinetics under sinusoidal pulsatile flow
Cheong-Ah Lee, Soohong Min, Minhoo Lee, Dong-Guk Paeng
- O6-3 Structure and stability of red blood cell aggregates in model flows
Thomas Podgorski, François Yaya, Gwennou Coupier, Daniel Flormann, Christian Wagner
- O6-4 Covalent immobilization of biomolecules on stent materials through mussel adhesive protein coating to promote cell adhesion
Yi Wang, Hualin Lan, Tieying Yin, Yazhou Wang, Guixue Wang
- O6-5 The changes of vascular mechanical properties of porcine coronary artery after stent implantation
Yinping Zhao, Lili Tan, Xiaojuan Zhang, Juhui Qiu, Guixue Wang

*Thursday, July 5th***9.00–10.00 ISCH Plenary Lecture (L5)**

Chair: Gerard Nash

Lecture: Sehyun Shin

*Microfluidic platelet function assays***10.30–12.00 Symposia S19-S23****S19: INTERACTION OF BLOOD CELLS/TISSUE ENGINEERING**

Chairs: Friedrich Jung and Anna Blocki

- S19-1 Long-term prognosis of coronary microvascular dysfunction
Remzi Anadol, Tommaso Gori
- S19-2 AD-MSCs change their morphology and secretion profile as a response to changes in substrates' elastic properties in combination with inflammatory stimuli
M. Papagrigorakes, N. Chirico, A. Blocki, A. Neffe, F. Jung, N. Ma, A. Lendlein
- S19-3 Thrombogenicity testing of polymers: Round-robin study to assess inter-center variability
Steffen Braune, Claudia Sperling, Manfred F. Maitz, Ulrich Steinseifer, Johanna Clauser, Bernhard Hiebl, Stefanie Krajewski, Hans P. Wendel, Friedrich Jung
- S19-4 The controversial origin of pericytes – implications for cell-based therapies
Anna Blocki, Sebastian Beyer, Friedrich Jung, Michael Raghunath
- S19-5 A facile way to achieve biomimetic laminin networks on substrates
Thanga Bhuvanesh, Rainhard Machatschek, Burkhard Schulz, Yan Nie, Nan Ma, Andreas Lendlein
- S19-6 Medical compression stockings reduce hypertension of nailfold capillaries at the toe of patients with chronic venous insufficiency

Michael Jünger, Anja Oelert, Manuela Kittel, Hermann Haase, Martin Hahn

S20: FLOW VISUALIZATION OF CARDIOVASCULAR DEVICES

Chairs: Keefe Manning and Ajit Yoganathan

S20-1 Visualization of cardiac flows: *In vitro*, *in vivo*, and *in silico* studies
Immanuel David Madukauwa-David, Vrishank Raghav, Prem A. Midha, Wahid Sadri, Phillip Trusty, Zhenglun Wei, Ajit Yoganathan

S20-3 Leveraging fluid dynamic measurements to improve cardiac device design
Keefe Manning

S20-4 Hemodynamics assessment of new transcatheter bi-caval valves in the interventional treatment of tricuspid regurgitation
Munirah Binte Ismail, Foad Kabinejadian, Yen Ngoc Nguyen, Hwa Liang Leo

S21: MACRO AND MICRORHEOLOGICAL BLOOD CHARACTERISTICS UNDER PHYSIOLOGICAL AND PATHOLOGICAL CONDITIONS

Chairs: Nadia Antonova and Eugene V. Roitman

S21-1 Analysis of the cutaneous blood flow responses and microvascular tone regulation in patients with type 2 diabetes mellitus. Relationship to rheological properties of blood
Nadia Antonova, Vasilka Paskova, Irena Velcheva, Nino Chaushev, Sergey Podtaev, Kirill Tsiberkin

S21-2 Relationship between rheological properties of blood and leukocyte adhesion under flow conditions in patients with type 2 diabetes mellitus
Anika Aleksandrova, Nadia Antonova, Alexei Muravyov, Ekaterina Uzikova

S21-3 Hemorheological disturbances as the thrombosis-developing factor
Eugene Roitman, Alla Shabalina, Marine Tanashyan, Irina Kolesnikova

S21-5 Local carotid stiffness in patients with cerebral small vessel disease. Relation to blood viscosity
Irena Velcheva, Nadia Antonova, Tsocho Kmetski, Galina Tsonevska, Anika Alexandrova

S22: THE GLYCOCALYX – ITS ROLE IN DISEASE

Chairs: John Tarbell and Hans Vink

S22-1 Role of the glycocalyx in atheroprotective vs. atheropermissive endothelium function
Eno Ebong, Ian Harding, Solomon Mensah, Ming Cheng, Ronodeep Mitra

S22-2 Loss of the retinal endothelial glycocalyx in diabetes
Norman R. Harris, Wendy Leskova, Haley Peace, Patsy R. Carter, Randa Eshaq

S22-3 Endothelial glycocalyx restoration by growth factors in diabetic kidney disease
Karen Onions, Sara Desideri, Nicola Buckner, Monica Gamez, Gavin Welsh, Andrew Salmon, Simon Satchell, Rebecca Foster

S22-4 Modification of renal macrophage signalling via MCP-1 inhibition reduces albuminuria in diabetic nephropathy

Bernard van den Berg, Margien Boels, Angela Koudijs, Cristina Avramut, Wendy Sol, Annemarie van Oeveren-Rietdijk, Hetty de Boer, Cees van Kooten, Dirk Eulberg, Johan Van der Vlag, Daphne IJpelaar, Ton Rabelink

S23: SPECIAL SYMPOSIUM TO CELEBRATE THE CENTENNIAL OF DISTINGUISHED PROFESSOR YUAN-CHENG B. FUNG (2)

Chairs: Linhong Deng and Li Yang

- S23-1 Investigation on energy characteristic of red blood cell deformability: A quantitative analysis of extending and retracting curves based on Atomic Force Microscopy
Dong Chen, Xiang Wang
- S23-3 Nitric oxide regulates human erythrocyte deformability through regulating band 3 phosphorylation status in hypoxia
Yajin Zhao, Xiang Wang
- S23-4 Development history, progress and future prospects of biorheology and biomechanics in Chongqing University
Wang Guixue
- S23-5 Zebrafish caudal vein formation is flow shear stress dependent
Lin Wen

13.00–14.00 **Fahraeus Gold Medal Award (L6)**

Ceremony and Lecture

Laudatio: Nadia Antonova

Lecture: Carlota Saldanha

Multifunctional life of the erythrocyte

14.15–15.45 **Symposia S24-S26/Free Communications O7-O8**

S24: CLINICAL STUDIES IN HEMORHEOLOGY

Chairs: Byoung K. Lee and KyuChang Won

- S24-1 The role of hemorheologic changes in diabetic microvascular complications
Jun Sung Moon, Kyu Chang
- S24-2 RBC abnormalities presented with clinical diagnostic variables in sepsis
Choon Hak Lim, Jung Min Youn, Eun Gi Ko
- S24-3 Decrease myocardial perfusion associated with hemorheologic parameters in patients with type 2 Diabetes
Byoung Kwon Lee, Minhee Cho, Sehyun Shin
- S24-4 Erythrocyte aggregation and deformability as factors determining capillary blood flow in patients with arterial hypertension
Andrei Lugovtsov, Alexey Semenov, Yuri Gurfinkel, Petr Ermolinskiy, Anastasiya Maslyanitsina, Nikita Povalyayev, Larisa Dyachuk, Elena Pavlikova, Alexander Priezhev

S25: CLINICAL MICROCIRCULATION

Chairs: Dirk Andre Clevert and Isabel Wiesinger

- S25-1 Postoperative control of vascularized lymph node transfer (VLNT) for the treatment of extremity lymphedema: Ultrasound guided lymph node monitoring using contrast enhanced ultrasound (CEUS)
T. Aung, C. Taeger, S. Geis, A. Kehrer, L. Prantl, E.M. Jung
- S25-2 The Use of Indocyanine green (ICG) imaging technique in the groin lymphocele microsurgical resection
M. Ranieri, C.D. Taeger, S. Geis, S. Klein, P. Lamby, D. Schiltz, K. Pfister, L. Prantl, V. Hoegl, T. Aung
- S25-3 Significance of high-resolution Color-Duplex-Ultrasound (CDU) designing adipocutaneous, fasciocutaneous and chimeric perforator flaps
A. Kehrer, S. Geis, C. Taeger, N. Platz Batista da Silva, E.M. Jung, L. Prantl, V. Mandlik
- S25-4 Influence of systemic vasopressor drugs and fluid administration on microcirculation in free tissue transfer
A. M. Anker, L. Prantl, C. Strauss, V. Brébant, S. M. Klein
- S25-5 ICG-fluorescence-angiography – a new indication in revascularized digits and toes
C. Strauss, A. Anker, L. Prantl, N. Heine, C. Wenzel, S. Geis, T. Aung, V. Brébant
- S25-6 ICG-fluorescence-angiography in revascularized digits – first results of a standardized clinical study
C. Strauss, A. Anker, V. Brébant, L. Prantl, D. Schiltz, R. Kemper, S. Geis, T. Aung Regensburg, Germany

S26: RED BLOOD CELL NITRIC OXIDE/RHEOLOGY

Chairs: Michael Simmonds and Philippe Connes

- S26-1 Nitric oxide synthase activity at various levels and durations of shear stress
Michael Simmonds
- S26-2 Erythrocyte nitric oxide dependent of acetylcholinesterase receptor
Carlota Saldanha, Ana Silva-Herdade
- S26-3 Hydroxyurea therapy modulates sickle cell anemia red blood cell physiology by acting as a nitric oxide donor: Impact on RBC deformability, oxidative stress and nitric oxide synthase activity
Elie Nader, Marijke Grau, Romain Fort, Nicolas Guillot, Cyril Martin, Giovanna Cannas, Solène Poutrel, Arnaud Hot, Alexandra Gauthier, Wilhelm Bloch, Marc Romana, Philippe Connes
- S26-4 The multifaceted role of nitrite and the epigenetic nitric oxide donor, RRx-001 on erythrocyte deformability
Selma Cirrik, Özlem Yalcin

O7: DISEASE AND HEMORHEOLOGY

Chairs: Gerard Nash and Sajad Ahmadizad

- O7-1 Do changes in bone marrow pressure contribute to the egress of cells (RBC, reticul.) from bone marrow?
Zbigniew Dąbrowski, Anna Marchewka, Aneta Teległów, Maria Fornal
- O7-2 Platelet-derived extracellular vesicles promote the adhesion of flowing neutrophils to endothelial cells
Sahithi Kuravi, Paul Harrison, G.Ed Rainger, Gerard Nash
- O7-3 Morphological and metabolic abnormalities of erythrocytes as risk factors for Alzheimer's Disease
Francesco Misiti, Marco Girasole, Simone Dinarelli
- O7-4 Effects of two different high intensity interval training protocols on hemorheological variables in hypertensive patients
Sajad Ahmadizad, Mohammad Soltani, Neda Aghaei Bahmanbeglou
- O7-5 Sedentarity status as a regulator of the optimal hematocrit: Involvement of red cell deformability?
Jean-Frederic Brun, Emmanuelle Varlet-Marie, Bénédicte Marion, Céline Roques, Marlène Richou, Eric Raynaud de Mauverger
- O7-6 The effects of n-6 polyunsaturated free fatty acids dietary intake on hemorheology and endothelium-dependent microvascular function
Ines Drenjančević
- O8: BIORHEOLOGY AND BIOTECHNOLOGY-1**
Chair: Guixue Wang
- O8-1 Fabrication of gradient nanofibrous scaffold for interface tissue engineering
Li Yang, Peixing Chen, Yu Zhang
- O8-2 Tanshinone can inhibit inflammation and angiogenesis in several chondrocytic cells
Li Yang, Yu Zhang, Peixing Chen
- O8-3 The preliminary research of mechanical compress damage on neurons induced by hematoma
Wei Wang, Yin Yin, Jun Wang, Tieying Yin, Yazhou Wang, Guixue Wang
- O8-4 Hemodynamic analysis of cerebral aneurysms: Suggestions for surgical options
Shicheng He

Friday, July 6th

9.00–10.00 **Plenary Lectures in Tribute to Prof. Oguz Baskurt (L7)**

Chair: Jean-Frédéric Brun

Özlem Yalçın

Blood rheology as a determinant of blood flow: Physiological and clinical aspects

Jon Detterich

Red blood cell rheology and nitric oxide production: A scientist on the forefront

10.30–12.00 **Symposia S27-S29/Free Communications O9**

S27: CELL MECHANICS AND CELL MECHANOBIOLOGY – 2

Chairs: Toshiro Ohashi and Susumu Kudo

- S27-1 Effect of local tensile stress field on bone matrix and cell alignment: An in vitro study
Taiji Adachi, Kei-ichi Ishikawa, Junko Sunaga, and Yoshitaka Kameo
- S27-2 Blood vessel on a chip - 3D vs. 2D
Yukiko Matsunaga
- S27-3 Mechanotargeting of nanoparticles to atherogenic endothelium
Pouria Fattahi, Sulin Zhang, Justin Brown, Yin-Ting Yeh, Peter Butler
- S27-4 The roles of vessel pulsation and dilation in clearing extracellular waste from the brain
Ravi Kedarasetti, Bruce Gluckman, Patrick Drew, Francesco Costanzo

S28: RHEOLOGY AND MICROSTRUCTURE OF CELLULAR BLOOD FLOW

Chairs: Masako Sugihara-Seki and Ken-ichi Tsubota

- S28-1 Effect of internal viscosity on suspension rheology of red blood cells
Naoki Takeishi, Marco Rosti, Yohsuke Imai, Shigeo Wada, Luca Brandt
- S28-2 Hemolytic behavior of human red blood cells caused by osmotic pressure difference – Visualization of hemoglobin behavior by use of light absorption characteristics
Ryoko Otomo, Akihito Morita, Kiyoshi Bando
- S28-3 Effects of red blood cells on blood flow in micro vessel network: *In vitro* experiment and computer simulation
Ken-ichi Tsubota, Yuya Kodama, Ryoma Kanai
- S28-4 Capillary flow imaging with genetically-engineered red blood cells in the living animal brain
Yuika Kurihara, Takuma Sugashi, Kazuto Masamoto
- S28-5 Fluid dynamical study of preferential distributions of blood cell components in microchannel flows
Masako Sugihara-Seki, Nozomi Takinouchi, Tenki Onozawa, Junji Seki

S29: ROLE OF GASOTRANSMITTERS (NO, CO AND H₂S) IN BLOOD CELL FUNCTIONS AND THE MOLECULAR MECHANISMS OF THEIR MICRORHEOLOGY ALTERATIONS

Chairs: Carlota Saldanha and Eugene Roitman

- S29-1 Leukocytes as a link between inflammation and erythrocyte nitric oxide
Ana Silva-Herdade, Carlota Saldanha
- S29-2 Contribution of fibrinogen to erythrocyte scavenger nitric oxide
Carlota Saldanha
- S29-3 Role of nitrogen oxide and hydrogen sulfide as signaling molecules in the change of red blood cell microrheology in patients with type 2 diabetes mellitus
Svetlana Bulaeva, Alexei Muravyov, Irina Tikhomirova, Pavel Avdonin
- S29-4 Change of microrheological characteristics of erythrocytes under the influence of donors of gasotransmitters NO and H₂S: *In vitro* study

Yulia Malysheva, Alexei Muravyov

O9: BIORHEOLOGY AND BIOTECHNOLOGY-2

Chair: Jinxuan Wang

- O9-1 Proteomic analysis of ApoE^{-/-} mice with disturbed flow model
Li Tianhan, Wang Guixue
- O9-2 Effects of suspension state on the biological behavior of breast cancer cells
Yonggang Lv, Xiaomei Zhang, Ying Zhang, Ya Wang
- O9-3 Preliminary study of endothelial cell tight junction protein in response to different mechanical stimuli
Yazhou Wang, Desha Luo, Tieying Yin, Guixue Wang
- O9-4 PI3K-nos2b signaling is crucial for simulated microgravity-mediated angiogenesis in zebrafish CVP network
Daoxi Lei, Guixue Wang
- O9-5 Ferric iron, lipopolysaccharide and lipoteichoic acids can induce anomalous fibrin amyloid formation: An assessment with novel AmytrackerTM stains and thioflavin T
Martin Page, Douglas Kell, Etheresia Pretorius

13.00–14.30 **Symposia S30-S32**

S30: FROM RHEOLOGY TO MICROCIRCULATION: NEW INSIGHTS

Chairs: Gregorio Caimi and Antonio Colantuoni

- S30-1 Red blood cell rheology under different pathological conditions
Patrizia Caprari, Carlotta Bozzi, Sara Massimi, Loretta Diana
- S30-2 Role of hemorheological alterations in skin ulcers
Rosalina Lo Presti, Patrizia Caprari, Gregorio Caimi
- S30-3 Hemorheology in kidney disease
Francesco Fontana
- S30-4 Rat pial microvascular changes during brain hypoperfusion and reperfusion injury: Role of antioxidant substances
Martina Di Maro, Martina Chiurazzi, Dominga Lapi, Teresa Mastantuono, Laura Battiloro, Gilda Nasti, Antonio Colantuoni
- S30-5 Bridging the gap from basic microcirculation to the clinical world
Romeo Martini, Antonio Colantuoni

S31: CARDIOVASCULAR BIOMECHANICS FROM CELLS TO ORGANS

Chairs: Noriyuki Kataoka and Ryoko Otomo

- S31-1 Biorheology of bile
Minh Nguyen Ngoc, Hiromichi Obara, Kenji Shimokasa, Junfang Zhu
- S31-2 Electrical impedance spectroscopic technique for cancerous cell sensing by considering the extracellular fluid around cells

- Daisuke Kawashima, Songshi Li, Michiko Sugawara, Hiromichi Obara, Masahiro Takei*
- S31-3 Matrix metalloprotease production of vascular endothelial cells under extremely high wall shear stress condition
Naoya Sakamoto, Yuki Oyama, Yuta Horie, Masanori Nakamura, Naoyuki Kimura
- S31-4 Observation of microscopic elastic structure in arterial tissue by use of a scanning haptic microscope (SHM)
Takeshi Moriwaki, Sadao Omata, Yasuhide Nakayama
- S31-5 Ultrafast imaging of cell elasticity with optical microelastography
Guy Cloutier, Grasland-Mongrain, Ali Zorgani, Shoma Nakagawa, Simon Bernard, Lia Gomes Paim, Greg FitzHarris, Stefan Catheline
- S32: COMPUTATIONAL MODELS OF THROMBOSIS C**
Chairs: Keefe Manning and Shawn Shadden
- S32-1 The contact activation system in device-related thrombosis modeling
Rodrigo Méndez Rojano, Simon Mendez, Franck Nicoud
- S32-2 Development of a device-induced computational thrombosis model
Keefe Manning
- S32-3 Reduced-order computational modeling of thrombogenic potential in large arteries
Kirk Hansen, Shawn Shadden

POSTERS (P1-P36)

- P1 Effects of hypertrophy and strength weight training on resting levels and responses of hemorheological parameters to a single session of exercise
Fatholah Haval, Afshar Jafaria, Sajad Ahmadizad, Saeed Nikoukheslat
- P2 Modulation of erythrocyte mechanical function by calcium-calmodulin-protein kinase C
Ali Cenk AKSU, Yasemin AKSU, Dilan ATAR, Zeynep Busra Kısakurek, Elif Ugurel, Özlem Yalcin
- P3 Clinical relevance of hemodynamic viscosity measurement in vascular study
Tilly Alexandre
- P4 Analysis of seismocardiographic signals by the discrete Chebyshev transform
Mikhail Basarab, Natalya Konnova
- P5 Fetal growth retardation and oxygen delivery hemorheological predictors in hypertensive vs normotensive pregnant women
Jean-Frédéric Brun, Emmanuelle Varlet-Marie, Pierre Boulot, Bénédicte Marion, Céline Roques, Eric Raynaud de Mauverger
- P6 Leg electrical resistance predicts venous blood viscosity and hematocrit
Emmanuelle Varlet-Marie, Laurent Vachoud, Bénédicte Marion, Céline Roques, Marlène Richou, Eric Raynaud de Mauverger, Jean-Frédéric Brun
- P7 The transient hyperviscosity syndrome of labor and delivery shifts the hemorheological profile toward a lower ability to deliver oxygen to tissues

- Jean-Frédéric Brun, Pierre Boulot, Emmanuelle Varlet-Marie, Bénédicte Marion, Céline Roques, Eric Raynaud de Mauverger*
- P8 Studies of the chemically induced changes of the mechanical properties of murine RBCs with the use of Atomic Force Microscopy (AFM)
Katarzyna Bulat, Jakub Dybas, Aneta Blat, Mateusz Mardyla, Anna Rygula, Stefan Chłopicki, Małgorzata Baranska, Katarzyna M. Marzec
- P9 Investigation on energy characteristic of red blood cell deformability: A quantitative analysis of extending and retracting curves based on atomic force microscopy
Dong Chen, Xiang Wang
- P10 Measurement of glycocalyx volume: An unreliable biomarker
FitzRoy Curry, Charles Michel
- P12 Resonance Raman spectroscopy in detection and differentiation of various hemoglobin derivatives inside packed human red blood cells
Jakub Dybas, Małgorzata Baranska, Stefan Chłopicki, Katarzyna M. Marzec
- P13 Effects of different rehabilitation models on the elongation index of erythrocytes, study of activity of chosen erythrocyte enzymes, and the level of glutathione in elderly women
Katarzyna Filar-Mierzwa, Anna Marchewka, Zbigniew Dąbrowski, Paulina Aleksander-Szymanowicz
- P14 Effects of whole body vibration training on hemorheological blood indicators in young healthy women
Halina Gattner, Justyna Adamiak, Magdalena Kepińska, Anna Piotrowska, Olga Czerwińska-Ledwig, Sylwia Mętel, Wanda Pilch
- P15 Evaluation of vascular effects of photodynamic therapy in skin microcirculation using different photosensitizers
Tatyana Grishacheva, Dinara Faizullina, Nickolay Petrishchev, Irina Mikhailova
- P16 Analysis of flow and thrombus development within PDMS channels of varying geometry
Tice Harkins, Jeremey Myslowski, Keefe Manning
- P17 Measurement of blood viscosity by measuring flows in microfluidic channel
Hyeonji Hong, Eunseop Yeom
- P18 Repeated whole body cryotherapy treatments does not cause changes in hemorheological parameters in healthy people
Magdalena Kepińska, Zbigniew Szyguta, Zbigniew Dąbrowski
- P20 Cell volume regulation via the calcium-activated potassium channel KCa3.1 contributes to red blood cell compliance under shear
Jan Lennart Kuck, Michael J. Simmonds
- P21 Effects of rowing on rheological properties of blood
Mateusz Mardyla, Aneta Teległów, Zbigniew Dąbrowski, Jakub Marchewka, Jacek Głodzik, Bartłomiej Ptaszek
- P22 Impaired deformability of erythrocytes in hypertensive rats and patients: Investigation by nickel mesh filtration technique
Toru Maruyama, Keita Odashiro, Takehiko Fujino, Shiro Mawatari
- P23 Determinants of sublethal trauma to red blood cells: Effects of shear rate at standardized shear stresses

- Jacob Turner, Antony McNamee, Jarod Horobin, Lennart Kuck, Kieran Richardson, Michael Simmonds*
- P24 Susceptibility to mechanical damage of density-fractionated red blood cells
Antony McNamee, Kieran Richardson, Lennart Kuck, Kai Robertson, Michael Simmonds
- P25 Clinical evaluation of laser Doppler flowmetry for diagnosis of microcirculatory disorders
Christof Mrowietz, R.P. Franke, G. Pindur, R. Sternitzky, F. Jung, U. Wolf
- P26 Erythrocytes aggregation index correlate with oxidative stress and hydrogen sulfide plasma concentration in diabetes mellitus
Agata Pietrzycka, Katarzyna Krzanowska, Przemysław Miarka, Władysław Sułowicz, Marcin Krzanowski
- P27 Effects of carboxylated multiwall carbon nanotubes on erythrocytes stability and functionality
Mateusz Przetocki, Józef Korecki, Grzegorz Gajos, Leszek Stobiński, Krzysztof Matlak, Kvetoslava Burda
- P28 Influence of different rhythms sound wave to serotonin concentration in rats hippocampus
Yang Ren, Zhidan Deng, Xiang Wang
- P29 Physical properties of erythrocytes improve in hemochromatosis patients with repeated venesection therapy
Kieran Richardson, Antony McNamee, Michael Simmonds
- P30 Experimental characterization of the embolus trapping efficiency of the U.S. FDA generic inferior vena cava filter
Joshua Riley, Nicole Price, Brent Craven, Kenneth Aycock, Keefe Manning
- P31 Effects of pentoxifylline on hemodynamic and hemorheological parameters in SHRs during arterial hypertension development
Alexander Shamanaev, Oleg Aliev, Anastasia Sidekhmenova, Anna Anischenko, Mark Plotnikov
- P32 Effect of cholesterol-rich diet on hematological and hemorheological parameters in rabbits
Bence Tanczos, Viktoria Somogyi, Mariann Bombicz, Bela Juhasz, Norbert Nemeth, Adam Deak
- P33 Changes in biochemical properties of the blood in winter swimmers
Aneta Teległów, Jakub Marchewka, Anna Marchewka, Zbigniew Dąbrowski, Bartłomiej Ptaszek, Mateusz Mardyla
- P34 The paraclinical evolution in diabetic hypertensive patients with increased abdominal circumference
Cornel Cezar Tudorica, Ana Maria Vintila, Stefan Dragos Tudorica, Mirela Gherghe
- P35 Alterations of red blood cell deformability and mechanical stability by heat-treatment on animal blood samples
Gabor Varga, Adam Attila Matrai, Balazs Szabo, Viktoria Somogyi, Barbara Barath, Bence Tanczos, Norbert Nemeth
- P36 Shear-dependency of the predicted ideal hematocrit

*Emmanuelle Varlet-Marie, Laurent Vachoud, Bénédicte Marion, Céline Roques,
Marlène Richou, Eric Raynaud de Mauverger, Jean-Frédéric Brun*