

PROGRAM



17th Conference of the European
Society for Clinical Hemorheology
and Microcirculation

ESCHM 2013

PÉCS, HUNGARY

6-9 JULY 2013



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SCIENTIFIC PROGRAM

Saturday, 6 July 2013

14:00–20:00 Registration

19:00– Welcome reception

Sunday, 7 July 2013

08:30–09:00 **Opening ceremony** **Room 1**

09:00–09:45 **Plenary lecture L1** **Room 1**

F. Jung: Microcirculation in patients with arterial hypertension
Chairperson/laudation: *D. Clevert*

09:45–10:00 **Coffee break**

10:00–11:30 **Symposium S1 (International Society for Clinical Haemorheology)** **Room 1**

Blood rheology, from bench to bedside. Part I: Blood rheology closer to the bench
Chairpersons: *G.B. Nash, O.K. Baskurt*

S1-1 *T. Alexy¹, N.A. Finn¹, M. Weber¹, C.D. Searles^{1,2}: The role of shear-sensitive endothelial miRNAs in atherosclerosis*

¹ Division of Cardiology, Emory University School of Medicine, Atlanta, GA, USA

² Atlanta Veterans Administration Medical Center, Atlanta, GA, USA

S1-2 *E. Meram¹, B.D. Yilmaz¹, C. Bas¹, N. Atac¹, O. Yalcin¹, H.J. Meiselman², O.K. Baskurt¹: Shear stress-induced improvement in red blood cell deformability*

¹ Koc University, School of Medicine, Istanbul, Turkey

² Department of Physiology and Biophysics, Keck School of Medicine, Los Angeles, CA, USA

S1-3 *B.M. Cooke: A family of novel kinases that alter the rheological properties of malaria-infected red blood cells*

Monash University, Melbourne, Australia

S1-4 *N.T. Luu, G.E. Rainger, C.D. Buckley, P.N. Newsome, J. Frampton, G.B. Nash: Mesenchymal stem cells – delivery to endothelial monolayers and effects on leukocyte recruitment*

College of Medical and Dental Sciences, University of Birmingham, Birmingham, United Kingdom

10:00–11:30 **Symposium S2 (Hungarian Society of Haemorheology)** **Room 2**

Hemorheological properties of inflammatory processes

Chairpersons: *L. Bogar, E. Roth*

S2-1 *N. Nemeth, I. Furka, I. Miko: What may happen with hemorheological parameters during ischemia-reperfusion? An overview of experimental data*

Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary

S2-2 *M. Kurthy¹, E. Arato², G. Jancso¹, L. Sinay¹, J. Lantos¹, Zs. Miklos¹, E. Ranczinger¹, T. Nagy^{1,2}, P. Hardy^{1,2}, V. Kovacs¹, Sz. Javor^{1,2}, Zs. Verzar³, E. Roth¹: Reperfusion injuries in peripheral vascular diseases*

¹ Department of Surgical Research and Techniques, University of Pecs, Pecs, Hungary

² Department of Vascular Surgery, University of Pecs, Pecs, Hungary

³ Department of Anaesthesia and Intensive Care, University of Pecs, Pecs, Hungary

S2-3 *L. Bogar, L. Szelig: Septic shock*

Department of Anaesthesia and Intensive Care, University of Pecs, Pecs, Hungary

S2-4 *B. Sandor, K. Biro, A. Toth, I. Juricskay, A. Varga, M. Rabai, J. Papp, K. Toth, P. Szakaly: Aspirin resistance after kidney transplantation*

^{1st} Department of Medicine, University of Pecs, Pecs, Hungary

10:00–11:30

Free communications F1

Room 3

Hemorheological aspects of physical training

Chairpersons: *J. F. Brun, T. Higgins*

F1-1 *C. Cobbold¹, M. Baker¹, R. Adams², T. Higgins¹: Inter-individual variation in predictors of CVD risk following high intensity interval training*

¹ Cardiff University, Cardiff, United Kingdom

² Cardiff Metropolitan University, Cardiff, United Kingdom

F1-2 *J.F Brun¹, E. Varlet-Marie², E.R. Mauverger¹, C. Fedou¹, M. Pollatz¹: Hemorheologic effects of low intensity endurance training in type 2 diabetic patients: a pilot study*

¹ INSERM U1046, Montpellier, France

² Universite Perpignan Via Domitia, Laboratoire Performance, Santé, Altitude, Perpignan, France

F1-3 *J.F. Brun¹, E. Varlet-Marie², G. Chevance¹, M. Pollatz¹, C. Fedou¹, E.R. Mauverger¹: Versatility of 'hemorheologic fitness' according to exercise intensity: emphasis on the "healthy primitive lifestyle"*

¹ INSERM U1046, Montpellier, France

² Universite Perpignan Via Domitia, Laboratoire Performance, Santé, Altitude, Perpignan, France

F1-4 *M. Skedina: Prognostic significance of the blood flow dynamics in the microcirculatory bloodstream for the assess of body reserves during load tests SSC RF-IBMP of RAS, Moscow, Russian Federation*

F1-5 *M. Simmonds¹, P. Connes², S. Sabapathy¹: Heavy-intensity cycling does not alter red blood cell deformability*

¹ Griffith University, Gold Coast, Australia

² Universite des Antilles et de la Guyane, Pointe-a Pitre, Guadeloupe, France

F1-6 *T. Higgins¹, S.A. Evans², C. Cobbold¹, M. Baker¹, R. Adams²: The effect of a high intensity interval training intervention on physiological predictors of cardiovascular risk*

¹ Cardiff University, Cardiff, United Kingdom

² Cardiff Metropolitan University, Cardiff, United Kingdom

11:45–12:30

Plenary lecture L2

G. Caimi: Erythrocyte and polymorphonuclear leukocyte rheology in diabetes mellitus

Chairperson/laudation: *S. Forconi*

12:30–14:00

Lunch

14:00–15:30

Symposium S3 (German Society for Clinical Microcirculation and Hemorheology) Room 1

Interaction of blood cells

Chairpersons: *F. Jung, L. Prantl*

- S3-1 *R.P. Franke¹, T. Scharnweber², R. Fuhrmann³, C. Mrowietz⁴, F. Jung¹*: Effect of radiographic contrast media (Iodixanol, Iopromid) on the spectrin/band3-network of the membrane skeleton of erythrocytes

¹ Institute of Biomaterial Science and Berlin-Brandenburg Centre for Regenerative Therapies, Ulm, Germany

² Institute for Biological Interfaces, Karlsruhe Institute of Technology, Karlsruhe, Germany

³ Department of Biomaterials, University of Ulm, ZBMT, Ulm, Germany

⁴ Institute for Heart and Circulation Research, Hamburg, Germany

- S3-2 *L. Prantl*: A co-culture model of adipose-derived stem cells, fibroblasts and endothelial cells

HZG Teltow, Teltow, Germany

- S3-3 *T. Roch, S. Schmidt, K. Kratz, N. Ma, A. Lendlein*: The influence of polymer substrates differing in their chemical structure on survival, proliferation, and activation of primary human B cells

Institute of Biomaterial Science, Helmholtz-Zentrum Geesthacht GmbH, Teltow, Germany

- S3-4 *W. Wang¹, K. Kratz^{1,2}, X. Xu¹, Z. Li¹, F. Jung^{1,2}, N. Ma^{1,2}, A. Lendlein^{1,2}*: Interaction of human mesenchymal stem cells with soft hydrophobic poly(n-butyl acrylate) networks with elastic moduli comparable to arteries

¹ Institute of Biomaterial Science and Berlin-Brandenburg Centre for Regenerative Therapies, Helmholtz-Zentrum Geesthacht, Teltow, Germany

² Helmholtz Virtual Institute – Multifunctional Biomaterials for Medicine, Teltow and Berlin, Germany

- S3-5 *S. Gehmert¹, S. Gehmert², X. Bai³, M. Loibl¹, A. Link⁴, S. Schremel⁵, L. Prantl⁶*: PDGF regulates migration of adipose tissue derived stem cells towards malignancy in a dose dependent fashion by PI3 signaling

¹ Applied Stem Cell Research Center, University Medical Center Regensburg, Regensburg, Germany

² Department of Obstetrics and Gynaecology, University Medical Center Regensburg, Regensburg, Germany

³ Department of Anesthesiology, The Medical College of Wisconsin, Milwaukee, WI, USA

⁴ Department of Internal Medicine, University of Magdeburg, Magdeburg, Germany

⁵ Department of Dermatology, University Medical Center Regensburg, Regensburg, Germany

⁶ Center of Plastic Surgery, University Medical Center Regensburg, Regensburg, Germany

- S3-6 *A. Kruger, A. Mayer, T. Roch, C. Schulz, F. Jung: Angiogenically stimulated intermediate monocytes maintain their proangiogenic and non-inflammatory phenotype in long time co-cultures with HUVEC*
HZG Teltow, Teltow, Germany

14:00–15:30

Symposium S4 (Korean national symposium)

Room 2

Clinical application of hemorheology in Korea

Chairpersons: *B.K. Lee, S. Shin*

- S4-1 *S.W. Kim¹, W.S. Lee¹, G.S. Mintz², N.J. Weissman³, S.W. Kim¹, C.J. Kim¹, S.W. Cho¹, H.S. Ryou¹, T.H. Kim¹: Computational analysis of wall shear stress at the distal left main coronary artery bifurcation*
¹ Chung-Ang University Hospital, Seoul, Korea
² Cardiovascular Research Foundation, New York, USA
³ Washington Hospital Center, Washington DC, USA
- S4-2 *D. Kim¹, D.J. Cho², Y.I. Cho³: Feasibility of tissue oxygen delivery index, a blood-viscosity-based new parameter for predicting outcome in peripheral arterial occlusive disease patients*
¹ Seoul Veterans Hospital, Seoul, Korea
² Rheovector LLC, Camden, NJ, USA
³ Drexel University, Philadelphia, PA, USA
- S4-3 *C.H. Lim, H.G. Chung, Y.H. Kim, S. Shin: In vitro effects of propofol on RBC aggregation, RBC deformability and platelet aggregation*
Korea University, Seoul, Korea
- S4-4 *J. Ha¹, S. Shin², J. Kim¹, Y. Lee¹, M.K. Kim¹, N.T. Woong¹, S.A. Kang¹, J. Park¹, B.K. Lee¹, C.W. Ahn¹, K.R. Kim¹: Hemorheological measurement system (Rheoscan) for medical use in diabetic angiopathy*
¹ Yonsei University, Seoul, Korea
² Korea University, Seoul, Korea
- S4-5 *S. Shin¹, A. Karimi¹, H. Jeon¹, C.S. Lim¹, B.K. Lee², M. Jo², S.H. Song¹: Microfluidic measurements of hemorheological properties: Critical stress and yield stress*
¹ Korea University, Seoul, Korea
² Yonsei University, Seoul, Korea
- S4-6 *B.K. Lee¹, M. Jo¹, A. Karimi², S. Shin²: Critical Shear Stress in stabilized patients of acute coronary syndrome and stable angina*
¹ Yonsei University Medical College, Seoul, Korea
² Korea University, Seoul, Korea

14:00–15:30

Free communications F2

Room 3

Hemorheology in clinical practice I

Chairpersons: *O.I. Ajayi, O. Yalcin*

- F2-1 *O.I. Ajayi, W.O. Usunobun, E. Ofofwe: Differential rheology of ABO blood group system*
Department of Physiology, University of Benin, Benin City, Nigeria

- F2-2 *A. Vardanyan¹, R. Mumladze¹, A. Badanyan¹, E. Roitman², D. Dolidze¹, M. Shieh¹*:
Alterations in hemocoagulation status in patients with deep vein thrombosis
¹ Russian Medical Academy of Postgraduate Education, Moscow, Russian Federation
² Federal Research and Clinical Center on Pediatric Hematology, Oncology and Immunology, Moscow, Russian Federation
- F2-3 *O. Yalcin¹, P.C. Johnson², P. Cabrales²*: **The effects of blood storage on microhemodynamics**
¹ Koc University School of Medicine, Istanbul, Turkey
² Bioengineering, University of California, San Diego, La Jolla, CA, USA
- F2-4 *P. Kenyeres, A. Miko, A. Toth, B. Sandor, R. Csalodi, O. Toth, Sz. Kosztolanyi, A. Szomor, A. Nagy*: **Hemorheological disturbances in patients with chronic myeloid neoplasms**
^{1st} Department of Medicine, University of Pecs, Pecs, Hungary
- F2-5 *W.O. Usunobun¹, J.E. Obarhua², B.C. Okereke¹, O.I. Ajayi¹*: **Evidence of thrombotic tendencies in Nigerians on injectable contraceptives**
¹ University Of Benin, Benin City, Nigeria
² Ambrose Alli University, Ekpoma, Nigeria
- F2-6 *A. Agha¹, M. Hornung¹, C. Stroszczyński², H.J. Schlitt¹, E.M. Jung²*: **Highly efficient localization of pathological gland(s) in primary hyperparathyroidism using contrast-enhanced ultrasonography (CEUS)**
¹ Klinik und Poliklinik für Chirurgie, Universitätsklinikum Regensburg, Regensburg, Germany
² Institut für Röntgendiagnostik, Universitätsklinikum Regensburg, Regensburg, Germany

15:30–15:45 **Coffee break**

15:45–16:30 **Plenary lecture L3**

Room 1

O.K. Baskurt: **Contribution of erythrocytes to the regulation of tissue perfusion**
Chairperson/laudation: *L. Bogar*

16:30–18:00 **Poster session**

Chairpersons: *B. Cooke, N. Nemeth*

- P-1 *E. Szel¹, G. Eros², P. Hartmann³, I. Nemeth¹, D. Degovics¹, Cs. Korponyai¹, S. Dikstein⁴, M. Boros³, K. Nagy⁵, L. Kemeny¹*: **Anti-irritant and anti-inflammatory effects of polyols in irritant contact dermatitis**
¹ Department of Dermatology and Allergology, University of Szeged, Szeged, Hungary
² Department of Dermatology and Allergology, Department of Oral Biology and Experimental Dental Research, Institute of Surgical Research, University of Szeged, Szeged, Hungary
³ Institute of Surgical Research, University of Szeged, Szeged, Hungary
⁴ Unit of Cell Pharmacology, School of Pharmacy, Faculty of Medicine, Hebrew University, Jerusalem, Israel
⁵ Department of Oral Surgery, University of Szeged, Szeged, Hungary

- P-2 *F. Kiss, Z. Klarik, E. Toth, K. Peto, I. Miko, N. Nemeth*: Investigation of erythrocyte aggregation properties of laboratory animal species by different methods: the importance of comparability and sensitivity
Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary
- P-3 *F. Kiss, Z. Klarik, E. Toth, E. Vanyolos, N. Nemeth*: The effect of centrifugation at various forces on red blood cell micro-rheological properties of blood samples taken from laboratory animals
Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary
- P-4 *N. Bedernjak¹, K. Zaletel¹, S. Gaberscek¹, H. Lenasi²*: Postocclusive reactive hyperaemia of skin microcirculation is altered in hyperthyroid patients
¹ Department of Nuclear Medicine, University Medical Centre Ljubljana, Slovenia
² Institute of Physiology, Medical Faculty, University of Ljubljana, Ljubljana, Slovenia
- P-5 *M. Grau, M. Kunkel, J. Wolf, N. Blameuser, W. Bloch*: Investigation of human red blood cell deformability and stability in males and females during a five-month research period
German Sports University Cologne, Cologne, Germany
- P-6 *M. Diaw¹, P. Connes², A. Samb¹, A.K. Sow¹, F.B. Sar¹, A. Ba¹, S. Diop³, N.D. Sall⁴, M.N. Niang¹, J. Tripette⁵*: Intraday blood rheological changes induced by Ramadan fasting in sickle cell trait carriers
¹ Laboratoire de Physiologie et Explorations fonctionnelles, FMPOS, UCAD, Dakar, Senegal
² Laboratoire ACTES (EA 3596), Département de physiologie Université des Antilles et de la Guyane, Pointe-a Pitre, Guadeloupe, France
³ Laboratoire d'hémato-immunologie, FMPOS, UCAD, Dakar, Senegal
⁴ Laboratoire de biochimie et de biologie moléculaire, FMPOS, UCAD, Dakar, Senegal
⁵ Department of Health Promotion and Exercise, National Institute of Health and Nutrition, Tokyo, Japan
- P-7 *N. Petrishchev¹, I.A. Mikhailova², O.S. Veselkina³*: The effect of N',N-substituted piperazines on the adrenoreactivity of the microcirculatory vessels
¹ I.P.Pavlov Federal Medical University, Saint Petersburg, Russian Federation
² V.A. Almazov Federal Heart, Blood and Endocrinology Centre, Saint Petersburg, Russian Federation
³ Vertex Ltd., Saint Petersburg, Russian Federation
- P-8 *B.C. Okereke, W.O. Usunobun, O.I. Ajayi*: Blood donation as a therapeutic exercise for lowering plasma lipids and improving hemorheology in Nigerians
Department of Physiology, University of Benin, Benin city, Nigeria
- P-9 *O. Gordeeva¹, V. Botvinyeva¹, O. Simonova¹, M. Soloshenko¹, O. Petrova²*: Study of platelet hemostasis and inflammation markers in chronic diseases in children
¹ FSBI "SCCH" RAMS, Moscow, Russian Federation
² CVC, Astrakhan, Russian Federation
- P-10 *S. Kawamura, M. Shibata*: Intravital observation of capillary angiogenesis during wound healing under different ambient oxygen conditions
Shibaura Institute of Technology, Saitama, Japan

- P-11 *T. Molnar¹, G. Pusch², B. Biri³, L. Nagy³, S. Keki³, Z. Illes²*: **Endothelial dysfunction representing by elevated asymmetric and symmetric dimethylarginine in acute ischemic cerebrovascular events**
¹ Department of Anesthesiology and Intensive Therapy, University of Pecs, Pecs, Hungary
² Department of Neurology, University of Pecs, Pecs, Hungary
³ Department of Applied Chemistry, University of Debrecen, Debrecen, Hungary
- P-12 *T. Whitehouse¹, M. Climstein¹, M. Simmonds²*: **Type 2 diabetes: acute effect of whole body vibration exercise on glycaemic control and hemorheology**
¹ Bond University, Gold Coast, Australia
² Griffith University, Gold Coast, Australia
- P-13 *W.H. Reinhart, S. Compagnoni*: **Influence of parenteral nutrition on blood rheology and platelet aggregation in vitro**
Kantonsspital Graubunden, Department of Internal Medicine, Chur, Switzerland
- P-14 *Z. Vamos¹, P. Cseplo¹, J. Papp², K. Toth², A. Koller¹*: **Acetylsalicylic acid, but not metamizol elicits dose-dependent contraction of isolated rat carotid arteries**
¹ Department of Anaesthesiology and Intensive Therapy, Department of Pathophysiology and Gerontology, University of Pecs, Pecs, Hungary
² 1st Department of Medicine, University of Pecs, Pecs, Hungary
- P-15 *Z. Vamos¹, P. Cseplo^{2,3}, J. Hamar², T. Molnar¹, A. Koller^{2,4}*: **Ca²⁺-binding protein-S100B elicits concentration-dependent relaxation of rat cerebral arteries**
¹ Department of Anesthesiology and Intensive Therapy, University of Pecs, Pecs, Hungary
² Department of Pathophysiology and Gerontology, University of Pecs, Pecs, Hungary, Hungarian National Ambulance Service, South-Danubian Region
³ Department of Pathophysiology and Gerontology, University of Pecs, Pecs, Hungary
⁴ Department of Physiology, New York Medical College, NY, USA, Department of Pathophysiology and Gerontology, University of Pecs, Pecs, Hungary
- P-16 *M. Kurthy, E. Ranczinger, E. Virag, Zs. Miklos, V. Kovacs, T. Nagy, P. Hardy, T. Veress, E. Roth, G. Jancso*: **Comparative evaluation of the effects of COX inhibitor drugs: Aspirin, Naproxen and Diclofenac on platelet aggregation induced by different inductors; an in vitro study**
Department of Surgical Research and Techniques, University of Pecs, Pecs, Hungary

17:00–18:00

Clinical Haemorheology and Microcirculation Editorial Board meeting

Room 3

19:00–

Concert and Gala Dinner in Zsolnay Cultural Quarter

Monday, 8 July 2013

08:30–09:30

Fahraeus Award Ceremony L4

Room 1

G.B. Nash: Cellular hemorheology: the importance of getting small cells through small gaps

Chairperson/laudation: *W.H. Reinhart*

09:30–09:45

Coffee break

09:45–11:30

Symposium S5 (Portuguese Society for Hemorheology and Microcirculation, Russian Society for Microcirculation and Hemorheology)

Room 1

The mechanisms of changes in blood cell microrheology and microcirculation: experiments and clinics

Chairpersons: *C. Saldanha, I. Tikhomirova*

S5-1 *C. Saldanha¹, J.P. Almeida², T. Freitas³: Signal transduction pathways in erythrocyte nitric oxide metabolism under high fibrinogen levels*

¹ Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal

² Centro Hospitalar Lisboa Norte, Lisbon, Portugal

³ Instituto de Bioquímica, Instituto de Medicina Molecular Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal

S5-2 *P. Napoleao¹, A. Calado², A. Morais³, P. Faustino⁴, A. Coelho⁴, J. Lavinha⁴, C. Saldanha²: Hemorheological parameters profile in children with sickle cell disease*

¹ Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal

² Instituto de Bioquímica Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal

³ Hospital de Santa Maria, Centro Hospitalar Lisboa Norte, Centro Académico de Medicina de Lisboa, Lisbon, Portugal

⁴ Departamento de Genética Humana, Instituto Nacional de Saúde Dr. Ricardo Jorge, Lisbon, Portugal

S5-3 *C. Saldanha¹, M.J. Santos¹, H. Canhao², L.M. Pedro³, J.F. Fernandes³, J.C. Silva⁴, J.E. Fonseca²: Erythrocyte nitric oxide association with low grade inflammation*

¹ Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa, Lisbon, Portugal

² Instituto de Medicina Molecular, Faculdade de Medicina da Universidade de Lisboa Reumatologia e Doenças Ósseas Metabólicas Hospital de Santa Maria, Portugal

³ Instituto Cardiovascular de Lisboa, Centro Académico de Medicina de Lisboa, Lisbon, Portugal

⁴ Departamento de Reumatologia, Hospital Garcia de Orta Portugal

S5-4 *S. Bulaeva, A.V. Muravyov, M.J. Miloradov, E.V. Uzikova: The study of elements of red blood cell signaling cascades as molecular targets for control of cell microrheology*
State Pedagogical University, Yaroslavl, Russian Federation

S5-5 *A. Akhapkina, P.V. Mikhailov, A.A. Muravyov, A.V. Stankevich, A.V. Muravyov*: The role of microcirculation and red blood cell microrheology in tissue perfusion: the study on the muscular exercise model
State Pedagogical University, Yaroslavl, Russian Federation

S5-6 *A. Oslyakova, I. Tikhomirova*: Regulation of peripheral blood flow in normals and in cardiac failure
Yaroslavl State Pedagogical University, Yaroslavl, Russian Federation

09:45–11:30

Symposium S6 (European Society of Cardiology Working Group on Coronary Pathophysiology and Microcirculation)

Room 3

Novel vascular mechanisms

Chairpersons: *A. Koller, L. Badimon*

S6-1 *M. Hecker*: The role of ultra-large von Willebrand factor multimers in endothelial cell-platelet-leukocyte interaction
Division of Cardiovascular Physiology, University of Heidelberg, Heidelberg, Germany

S6-2 *C. Wit¹, F. Kaiser¹, Z. Aherrahrou¹, D. Koesling², H. Schunkert³, J. Erdmann¹*: Regulation of vascular tone and platelet aggregation through the NO/sGC pathway: Alterations enhance the risk of myocardial infarction

¹ Universität Lübeck, Lübeck, Germany

² Ruhr-Universität Bochum, Bochum, Germany

³ Deutsches Herzzentrum München, München, Germany

S6-3 *D. Duncker, D. Merkus, O. Sorop*: Coronary microvascular dysfunction in porcine models of coronary artery disease
Erasmus University Medical Center, Rotterdam, Netherlands

S6-4 *L. Badimon, G. Mendieta, S. Cito, G. Vilahur*: Thrombus formation and hemorheology: computational fluid dynamics for modelling thrombus formation
Cardiovascular Research Center (ICCC-CSIC), CiberOBN-Institute Carlos III, Hospital de la Santa Creu i Sant Pau, Universitat Autònoma de Barcelona, Barcelona; and Department of Mechanical Engineering, University Rovira Virgili, Tarragona, Spain

S6-5 *A. Koller*: Regulation of wall shear stress in arterioles and venules: rules and exceptions
Department of Pathophysiology and Gerontology, Medical School and Szentagothai Research Centre, University of Pécs, Pécs, Hungary and Department of Physiology, New York Medical College, Valhalla, NY, USA

09:45–11:30

Free communications F3

Room 3

Methodology and basic research in hemorheology

Chairpersons: *M.R. Hardeman, B. Grzegorzewski*

F3-1 *B. Grzegorzewski, A. Szolna-Chodor, M. Bosek, A. Kempczynski*: Red blood cell aggregate size determination by measurements of the intensity of the coherent component of the scattered light
Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University, Bydgoszcz, Poland

- F3-2 *C. Wagner¹, P. Steffen¹, M. Brust¹, O. Aouane¹, T. Podgorski², G. Coupier², C. Misbah², L. Kaestner¹, I. Bernhard¹*: **Aggregation of red blood cells – from rouleau to clot formation**
¹ Saarland University, Saarbruecken, Germany
² CNRS, Grenoble, France
- F3-3 *L. Gehm¹, P. Ruef², N. Kuss³, J. Pöschl³*: **Factors influencing the determination of whole blood viscosity with the new LS 300 low shear rheometer**
¹ Sachverständigenbüro Rheologie, Althengstett, Germany
² Department of Pediatrics, SLK-Clinics, Am Gesundbrunnen, Heilbronn, Germany
³ Clinic of Neonatology, Department of Pediatrics, University of Heidelberg Im Neuenheimer Feld, Heidelberg, Germany
- F3-4 *M. Bosek, A. Kempczynski, B. Grzegorzewski*: **The dependence of velocity on the size of RBC aggregate**
 Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University, Bydgoszcz, Poland
- F3-5 *M. Grau¹, S. Pauly¹, J. Ali¹, K. Walpurgis², M. Thevis², W. Bloch¹, F. Suhr¹*: **RBC-NOS dependent S-Nitrosylation of cytoskeletal proteins improves RBC deformability**
¹ German Sports University Cologne, Molecular and Cellular Sports Medicine, Cologne, Germany
² German Sports University Cologne, Institute of Biochemistry, Cologne, Germany
- F3-6 *N. Nemeth, I. Furka, I. Miko*: **Experiences on teaching basics of hemorheology between 2003-2013 at the Department of Operative Techniques and Surgical Research in Debrecen, Hungary**
 Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary
- F3-7 *T. Tsuzuki*: **Prototyping the experimental setup for the deformability evaluation of a single red cell and its preliminary study**
 Shibaura Institute of Technology, Saitama, Japan

11:45–12:30

Plenary lecture L5

Room 1

H.H. Lipowsky: **The role of cell deformability in entrapment and flow retardation in the microvasculature**
 Chairperson/laudation: *Gerard B. Nash*

12:30–14:00

Lunch

12:30–14:00

ESCHM Advisory Board meeting

Room 2

14:00–15:30**Symposium S7 (German Society for Clinical Microcirculation and Hemorheology) Room 1***Clinical Microcirculation*Chairpersons: *E.M. Jung, D. Clevert*

- S7-1 *E.M. Jung¹, J. Rennert¹, M. Loss², S. Farkas², C. Stroszczynski¹, A. Agha²: Intraoperative contrast enhanced ultrasound (IO-CEUS) and color coded elastography (CCE) for characterization of liver lesion before surgical resection*
¹ Institut für Röntgendiagnostik, Universitätsklinikum Regensburg, Regensburg, Germany
² Klinik und Poliklinik für Chirurgie, Universitätsklinikum Regensburg, Regensburg, Germany
- S7-2 *D. Austen¹, C. Lehmann², M. Kelly², J. Zhou², K. Wafa², G.S. Robertson²: Effects of CB2 receptor inhibition on LPS-induced changes within the intestinal microcirculation in CNS injury-induced immune deficiency syndrome*
¹ University of Greifswald, Greifswald, Germany
² Dalhousie University, Halifax, Canada
- S7-3 *M. Hornung¹, E.M. Jung², M. Georgieva, H.J. Schlitt¹, C. Stroszczynski², A. Agha¹: Detection of microvascularization of thyroid carcinomas using linear high resolution contrast-enhanced ultrasonography (CEUS)*
¹ Klinik und Poliklinik für Chirurgie, Universitätsklinikum Regensburg, Regensburg, Germany
² Institut für Röntgendiagnostik, Universitätsklinikum Regensburg, Regensburg, Germany
- S7-4 *P.M. Paprottka¹, P. Zengel², C.C. Cyran¹, M. Ingrischi¹, K. Nikolaou¹, M.F. Reiser¹, D. Clevert¹: Evaluation of multimodality imaging using image fusion with ultrasound tissue elasticity imaging in an experimental animal model*
¹ Department of Clinical Radiology, University of Munich-Grosshadern Campus, Munich, Germany
² Department of Head and Neck, University of Munich-Grosshadern Campus, Munich, Germany
- S7-5 *C. Thalhammer, M. Augustoni, M. Husmann, V. Jacomella, R. Clemens, B. Amann-Vesti, S. Segerer: Acute effects of hemodialysis on central venous pressure, augmentation index and subendocardial viability index*
University Hospital Zurich, Clinic for Angiology, Zurich, Switzerland
- S7-6 *D. Rjosk-Dendorfer, M. Reiser, D. Clevert: Value of compression elastography in characterisation of breast fibroadenoma*
Department of Clinical Radiology, University of Munich-Grosshadern Campus, Munich, Germany

14:00–15:30**Symposium S8 (International Society for Clinical Haemorheology) Room 2***Blood rheology, from bench to bedside. Part II: Blood rheology closer to the bedside*Chairpersons: *B. Cooke, T. Alexy*

- S8-1 *M. Simmonds¹, N. Milne²: Hemorheology in the pre-diabetic and diabetic states*
¹ Griffith University, Gold Coast, Australia
² Bond University, Gold Coast, Australia

S8-2 *W.H. Reinhart, S.A. Reinhart, T. Schulzki: Erythrocyte alterations during blood storage*
Kantonsspital Graubünden, Department of Internal Medicine, Chur, Switzerland

S8-3 *P. Connes¹, M.D. Hardy-Dessources¹, N. Lemonne², Y. Lamarre¹, X. Waltz¹,
M. Etienne-Julan², M. Romana¹: Sick cell disease and blood rheology*
¹ UMR Inserm 665, Pointe à Pitre, Guadeloupe, France
² Unité Transversale de la Drépanocytose, Pointe à Pitre, Guadeloupe, France

S8-4 *N. Nemeth, I. Furka, F. Kiss, I. Miko: Application of osmotic gradient ektacytometry in
surgical research models*
Department of Operative Techniques and Surgical Research, Medical and Health Science
Center, University of Debrecen, Debrecen, Hungary

15:30–15:45 **Coffee break**

15:45–17:15 **Symposium S9 (Italian Society for Clinical Hemorheology and Microcirculation)** **Room 1**

Hemorheology and microcirculation in arterial hypertension

Chairpersons: *G. Caimi, S. Forconi*

S9-1 *A. Colantuoni, D. Lapi, N. Starita, S. D'Avanzo, M.P. Fantozzi: Changes in low frequency
components in arteriolar oscillations in experimental hypertension*
Department of Clinical Medicine and Surgery "Federico II" University Medical School,
Naples, Italy

S9-2 *R. Lo Presti, E. Hopps, G. Caimi: Hemorheological abnormalities in human arterial
hypertension*
University of Palermo, Palermo, Italy

S9-3 *T. Gori¹, S. Forconi²: Endothelial function in human arterial hypertension*
¹ University Medical Center Mainz, Mainz, Germany
² University of Siena, Siena, Italy

S9-4 *M. Rossi: Microvascular dysfunction in hypertensive patients: effects of
antihypertensive treatment*
Department of Clinical and Experimental Medicine, Pisa, Italy

15:45–17:15 **Symposium S10 (Turkish Society for Hemorheology)** **Room 2**

Hemorheological consequences of therapeutical applications

Chairpersons: *O.K. Baskurt, L. Bogar*

S10-1 *O.K. Baskurt¹, H.J. Meiselman²: Iatrogenic hyperviscosity and consequences*
¹ Koc University School of Medicine, Istanbul, Turkey
² University of Southern California, Keck School of Medicine, Los Angeles, CA, USA

S10-2 *S. Aydogan: Anesthetics and red blood cell rheology*
Erciyes University, Faculty of Medicine, Department of Physiology, Kayseri, Turkey

S10-3 *N.D. Falkmarken, O. Arihan, G. Ucar, S.Y. Ciftci: Serotonin, selective serotonin
reuptake inhibitors and hemorheology*
Hacettepe University Faculty of Medicine, Ankara, Turkey

S10-4 *O. Yalcin*¹, *H.J. Meiselman*², *O.K. Baskurt*¹: Artificial circulatory environment and blood mechanical trauma

¹ Koc University, School of Medicine, Istanbul, Turkey

² Department of Physiology and Biophysics, Keck School of Medicine, Los Angeles, CA, USA

18:30

Departure for the social program in Villány Winery Region

Tuesday, 9 July 2013

09:00–09:45

Plenary lecture L6

Room 1

A.V. Muravyov: Hemorheology and microcirculation: the mechanisms of interaction and co-ordination

Chairperson/laudation: *N. Antonova*

09:45–10:00

Coffee break

10:00–12:00

**Symposium S11 (Bulgarian Society of Biorheology,
Scientific Society of Clinical Hemostasiology)**

Room 1

Microrheology and microcirculation. From experiments to clinics

Chairpersons: *N. Antonova, I. Velcheva*

- S11-1 *N. Antonova*¹, *N. Koseva*², *A. Kowalczyk*³, *P. Riha*⁴, *I. Ivanov*¹: **Influence of polymeric nanoparticles on rheological and electrical properties of RBC suspensions**
¹ Institute of Mechanics and Biomechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria
² Institute of Polymers, Bulgarian Academy of Sciences, Sofia, Bulgaria
³ Centre of Polymer and Carbon Materials, Polish Academy of Sciences, Zabrze, Poland
⁴ Institute of Hydrodynamics, Academy of Sciences of the Czech Republic, Prague, Czech Republic
- S11-2 *I. Velcheva*¹, *Z. Stoyneva*², *N. Antonova*³, *P. Damianov*¹, *V. Kostova*³, *V. Dimitrova*²: **Skin hemodynamics and temperature oscillations in diabetic patients. Relation to blood rheology**
¹ University Hospital of Neurology and Psychiatry, Sofia, Bulgaria
² University Hospital St. Ivan Rilsky, Sofia, Bulgaria
³ Institute of Mechanics and Biomechanics, Sofia, Bulgaria
- S11-3 *E. Roitman, I. Kolesnikova, Y. Roumyantseva, L. Zharikova, M. Nureev, S. Roumyantsev, M. Andrianova, L. Ershova*: **Blood rheology in children with acute lymphoblastic leukemia in first remission after initial chemotherapy (pilot results)**
 Federal Research and Clinical Center on Pediatric Hematology, Oncology and Immunology, Moscow, Russian Federation
- S11-4 *N. Antonova*: **Role of the hemorheological investigations in diagnostic and methodology. Electrorheological method**
 Institute of Mechanics and Biomechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria
- S11-5 *N. Antonova*¹, *P. Tosheva*¹, *I. Velcheva*²: **Study of 3D blood flow and common carotid artery hemodynamics in the carotid artery bifurcation with stenosis**
¹ Institute of Mechanics and Biomechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria
² Dep. Neurology, University Hospital of Neurology and Psychiatry "St. Naum", Medical University, Sofia, Bulgaria

- S11-6 *I. Ivanov¹, Y. Gluhcheva², E. Petrova², N. Antonova¹*: Hemorheological changes in rats after sodium nitrite intoxication
¹ Institute of Mechanics, Bulgarian Academy of Sciences, Sofia, Bulgaria
² Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences, Sofia, Bulgaria
- S11-7 *Y. Gluhcheva¹, J. Ivanova², D. Dimova¹, I. Ivanov³, E. Pavlova¹*: Influence of salinomycin and lead on some hematological parameters in female mice, subjected to subacute lead intoxication
¹ Institute of Experimental Morphology, Pathology and Anthropology with Museum – BAS, Sofia, Bulgaria
² Faculty of Medicine, Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria
³ Institute of Mechanics – BAS, Sofia, Bulgaria
- S11-8 *Y. Gluhcheva¹, I. Ivanov², E. Petrova¹, E. Pavlova¹, I. Vladov¹*: Effect of sodium nitrite on some hematological and hemorheological parameters in mice
¹ Institute of Experimental Morphology, Pathology and Anthropology with Museum – BAS, Sofia, Bulgaria
² Institute of Mechanics – BAS, Sofia, Bulgaria
- S11-9 *Y. Gluhcheva¹, E. Pavlova¹, I. Vladov¹, V. Atanasov², I. Ivanov³, J. Ivanova⁴, M. Mitewa²*: Cobalt(II) compounds and mouse hematology – an in vivo study
¹ Institute of Experimental Morphology, Pathology and Anthropology with Museum – BAS, Sofia, Bulgaria
² Faculty of Chemistry, Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria
³ Institute of Mechanics – BAS, Sofia, Bulgaria
⁴ Faculty of Medicine, Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria

10:00–12:00

Panel Discussion S12

Room 2

EPO or placEPO? Science versus practical experience?

Chairpersons: *M.R. Hardeman, O.K. Baskurt*

M.R. Hardeman: Introduction

Academic Medical Center, University of Amsterdam, the Netherlands

- S12-1 *H. Kuipers: Limits to human performance; is there still room for improvement?*

Department of Movement Science, University of Maastricht, the Netherlands

Presented by *M.R. Hardeman*

- S12-2 *P. Connes: How recombinant human erythropoietin (rHuEPO) administration increases exercise performance?*

UMR Inserm 665, Pointe a Pitre, Guadeloupe, France

- S12-3 *F. Jung: Erythropoetin, optimal hematocrit, and microcirculation*

Institute of Biomaterial Science and Berlin-Brandenburg Centre for Regenerative Therapies, Teltow, Germany

- S12-4 *T. Alexy: The pros and cons of erythropoietin use in the clinical practice*

Division of Cardiology, Emory University School of Medicine, Atlanta, GA, USA

O.K. Baskurt: Conclusive remarks

Koc University School of Medicine, Istanbul, Turkey

10:00–12:00

Free communications F4

Room 3

Hemorheology in clinical practice II

Chairpersons: *R. Adams, A.V. Muravyov*

- F4-1 *D. Degovics¹, G. Eros^{1,2}, P. Hartmann³, K. Gati¹, I.B. Nemeth¹, M. Czobel³, Cs. Korponyai¹, K. Nagy⁴, L. Kemeny¹*: **The effects of oxygen- and hydroxyproline-containing solutions on the healing of acute wounds**
¹ Department of Dermatology and Allergology, University of Szeged, Szeged, Hungary
² Department of Oral Biology and Experimental Dental Research, University of Szeged, Szeged, Hungary
³ Institute of Surgical Research, University of Szeged, Szeged, Hungary
⁴ Department of Oral Surgery, University of Szeged, Szeged, Hungary
- F4-2 *J.F. Brun¹, E. Varlet-Marie², C. Fedou¹, E.R. Mauverger¹*: **Is metabolically healthy obesity also hemorheologically healthy?**
¹ INSERM U1046, Montpellier, France
² Universite Perpignan Via Domitia, Laboratoire Performance, Santé, Altitude, Perpignan, France
- F4-3 *J.F. Brun¹, E. Varlet-Marie², E.R. Mauverger¹, C. Fedou¹*: **Are overall adiposity and abdominal adiposity separate or redundant determinants of blood viscosity?**
¹ INSERM U1046, Montpellier, France
² Universite Perpignan Via Domitia, Laboratoire Performance, Santé, Altitude, Perpignan, France
- F4-4 *M. Rossi¹, A. Stefanovska², G.M. Vezzoni¹, M. Pesce¹, B. Loggini³, F. Ghiara¹, G. Rossi⁴, F. Pingitore³, P. Barachini¹*: **Assessment of blood perfusion as possible tool in differentiating between benign skin naevi and malignant melanomas**
¹ Department of Clinical and Experimental Medicine, Pisa, Italy
² Physics Department, University of Lancaster, United Kingdom
³ Department of Translational Research and New Technologies in Medicine, University of Pisa, Pisa, Italy
⁴ Unit of Epidemiology and Biostatistics, Institute of Clinical Physiology, CNR of Pisa, Pisa, Italy
- F4-5 *M. Fornal, B. Wizner, M. Cwynar, J. Krolczyk, A. Kwater, R.A. Korbut, T. Grodzicki*: **Red blood cell distribution width (RDW) and MCHC as probes of target organ damage and inflammation component in newly diagnosed hypertension**
 Jagiellonian University Collegium Medicum, Krakow, Poland
- F4-6 *R. Adams¹, M. Melhuish¹, K. Morris¹, G. Sanki², J. Geen², O. Okosieme², R. Adams¹*: **Effect of glycated proteins on actin polymerisation in phagocytic leukocytes in type 2 diabetes**
¹ Cardiff Metropolitan University, Cardiff, United Kingdom
² Prince Charles Hospital, Queensland, Australia
- F4-7 *S. Bulaeva¹, A.V. Muravyov¹, A.V. Zamishlayev²*: **Microrheological mechanisms of blood fluidity alterations under type II diabetes**
¹ State Pedagogical University, Yaroslavl, Russian Federation
² State Medical Academy

- F4-8 *S. Schafer, S. Muxel, A. Beutel, L. Himmrich, S.R. Bardeleben, J. Parker, S. Forconi, T. Munzel, T. Gori: Peripheral endothelial function predicts the presence of coronary atherosclerosis but not that of inducible ischemia*
Universitätsmedizin Mainz, Mainz, Germany

12:00–13:00 Lunch

13:00–14:30 Symposium S13 (International Society of Biorheology)

Room 1

Leukocyte interactions and thrombotic processes on the endothelial surface

Chairpersons: *M.B. Lawrence, H.H. Lipowsky*

- S13-1 *M.B. Lawrence, E.Y.H. Park, N. Brackett, A.R. Gear: Inhibition of P-selectin and P2Y12 receptors suppresses capture of flowing platelets by adherent monocytes*
University of Virginia, Charlottesville, USA
- S13-2 *M. King¹, W. Wang¹, T.G. Diacovo², J. Chen², J.B. Freund³: Simulation of platelet, thrombus and erythrocyte hydrodynamic interactions in a 3D arteriole with in vivo comparison*
¹ Cornell University, Ithaca, USA
² Columbia University, USA
³ University of Illinois at Urbana-Champaign, USA
- S13-3 *S. Neelamegham, N. Mondal, A. Buffone: Glycosyltransferases regulating human leukocyte adhesion to selectins*
State University of New York at Buffalo, Buffalo, USA
- S13-4 *S.I. Simon, N. Dixit, U. Schaff: Temporal and spatial cues that guide leukocyte emigration*
University of California, Davis, CA, USA
- S13-5 *H.H. Lipowsky, A. Lescanic: Protease mediation of leukocyte-endothelium adhesion, alterations in glycocalyx structure, and thrombus formation in post-capillary venules*
Penn State University, University Park, USA

13:00–14:30 Symposium S14 (Hungarian Society of Hemorheology)

Room 2

Hemorheological alterations in various cardiovascular diseases

Chairpersons: *K. Toth, G. Kesmarky*

- S14-1 *A. Toth¹, K. Totsimon¹, S. Szukits², E. Varady², B. Sandor¹, D. Botor¹, N. Vryzas¹, J. Papp¹, M. Rabai¹, P. Kenyeres¹, I. Juricskay¹, G. Kesmarky¹, I. Battyani², B. Sumegi³, K. Toth¹: Hemorheological parameters in ischemic heart disease*
¹ 1st Department of Medicine, University of Pecs, Pecs, Hungary
² Department of Radiology, University of Pecs, Pecs, Hungary
³ Department of Biochemistry and Medical Chemistry, University of Pecs, Pecs, Hungary
- S14-2 *B. Sandor, A. Toth, B. Mezey, M. Rabai, J. Papp, I. Juricskay, K. Toth, E. Szabados: Effect of physical activity in ischemic heart disease patients participating in a cardiological ambulatory rehabilitation program*
¹ 1st Department of Medicine, University of Pecs, Pecs, Hungary

S14-3 *L. Bajnok*: Hemorheological characteristics of metabolic syndromes
1st Department of Medicine, University of Pecs, Pecs, Hungary

S14-4 *G. Kesmarky, B. Sandor, A. Toth, K. Biro, K. Koltai, J. Papp, M. Rabai, K. Toth*: Peripheral vascular diseases: role of hemorheological factors
1st Department of Medicine University of Pecs, Pecs, Hungary

13:00–14:30

Free communications F5

Room 3

Hemorheology and vascular function

Chairpersons: *T. Gori, D. Kim*

F5-1 *D. Kim¹, J.H. Moh², Y.I. Cho³, D.J. Cho⁴, R.K. Banerjee⁵*: Influence of non-Newtonian viscosity of blood on microvascular impairment

¹ Seoul Veterans Hospital, Seoul, Korea

² Wonkwang University, Iksan, Korea

³ Drexel University, Philadelphia, PA, USA

⁴ Rheovector LLC, Camden, NJ, USA

⁵ University of Cincinnati, Cincinnati, OH, USA

F5-2 *N. Ma^{1,2}, K. Lutzow^{1,2}, K. Kratz^{1,2}, D. Furlani³, W. Li¹, W. Wang^{1,2}, E. Pittermann³, A. Neffe^{1,2}, T. Sauter^{1,2}, F. Jung^{1,2}, A. Lendlein^{1,2}*: A three-dimensional stem cell culture system by polyurethane scaffold material

¹ Institute of Biomaterial Science and Berlin-Brandenburg Centre for Regenerative Therapies, Helmholtz-Zentrum Geesthacht, Teltow, Germany

² Helmholtz Virtual Institute – Multifunctional Biomaterials for Medicine, Teltow and Berlin, Germany

³ Department of cardiac surgery, University of Rostock, Rostock, Germany

F5-3 *N. Nemeth¹, Cs. Toth², F. Kiss¹, Z. Klarik¹, E. Gergely¹, E. Toth¹, K. Peto¹, E. Vanyolos¹, I. Miko¹*: Following-up changes in red blood cell deformability and membrane stability in presence of PTFE graft implanted into the femoral artery in the canis

¹ Department of Operative Techniques and Surgical Research, Medical and Health Science Center, University of Debrecen, Debrecen, Hungary

² Kenezy Gyula County Hospital, Debrecen, Hungary

F5-4 *T. Gori¹, A.A. Shazly¹, M. Vosseler¹, S. Forconi², T. Munzel¹*: Circadian rhythms of macro and microvascular endothelial function

¹ Universitätsmedizin Mainz, Mainz, Germany

² Università degli Studi di Siena, Siena, Italy

F5-5 *T. Gori, A. Beutel, S. Schafer, S. Muxel, B. Schnorbus, T. Munzel*: Elevated oxidative stress parameters are associated with impaired flow-mediated dilation

University Medical Center Mainz, Mainz, Germany

F5-6 *T. Gori, S. Muxel, S. Schafer, F. Fasola, A. Beutel, J.D. Parker, T. Munzel*: Correlation between changes in blood flow and endothelial vasomotor responses measured by flow-mediated constriction and dilation

University Medical Center Mainz, Mainz, Germany

14:30–14:45

Closing remarks

Room 1



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