

XXXI. CONGRESS – ESAO 2004
September 8th - 11th, 2004 WARSAW, POLAND

*Under
Honorary Patronage of:*

***Minister of Scientific Research and Information
Technology***

President of the Polish Academy of Sciences

President of the City of Warsaw

Dear Colleagues and Friends,

It is our great pleasure and privilege to welcome you in Warsaw for the XXXI ESAO Congress.

The beginning of the new century is usually related to the introduction of new ideas and new technological visions. Therefore, motto of the XXXI Congress of ESAO is "Towards Medical Technology of the Future".

Four Plenary Lectures: "Cell transplantation as possible future technology in regenerative medicine", "Genotyping for prediction and understanding of outcomes of the patients with renal diseases", "Clinical needs for heart support" and "Current status of the artificial pancreas" will be delivered by worldwide recognized scientists each day of the Congress.

Two hundred and eighty nine abstracts on important clinical, engineering and basic research topics have been selected for presentation by the ESAO Scientific Committee. There are 124 oral presentations, which will be delivered during 21 sessions, and 165 poster presentations, which will be discussed in 14 chaired sessions.

Our Congress offers also 10 symposia to be attended:

- **The traditional ESAO Corporate Members lunch symposium: "New Therapeutic Tools with a Potential for Clinical Benefits",**
- **Six sponsored by industry symposia: "Fluid and Sodium Transport in Peritoneal Dialysis", "Cardiac Assist Devices: From Development to Clinical Application" as well as "Cardiac Assist Devices. Towards Destination Therapy", "Anticoagulation", "Liver Support" and finally "Diabetes Treatment. How to Prevent Hyperglycemia",**
- **Three symposia organized by ESAO Working Groups, which will be held just before (Pre - Congress Heart Support Working Group Symposium) and during the Congress (Uremic Toxins and Apheresis Working Group).**

Opening ceremony will be organized in the Porczynski Gallery. We hope that the mixture of culture and science will form a very special beginning of our gathering.

The main part of the Congress will take place at the premises of the Institute of Biocybernetics and Biomedical Engineering and the International Center of Biocybernetics, Polish Academy of Sciences, the biggest biomedical engineering research center in Poland. Our Institute is located in the so-called "Ochota Campus" comprising several research institutes and hospitals devoted to medicine, life sciences and bioengineering. The scenery of Congress venue should help to create a unique scientific atmosphere for the Congress.

Of course, ESAO Congress is not only science. We invite all of you for fun, for sightseeing, and for witnessing, at the first hand, Warsaw's real transformation into one of Europe's most thriving cities.

We hope that our meeting in Warsaw will result in many presentations of realistic ideas, which will give not only a hope but will lead to efficient substitution or regeneration of the lost functions of the organism.

Sincerely yours,

Jan Maria Wojcicki

Congress President

Dear Colleagues and Friends,

I have the pleasure to invite and welcome you all to the 31st Congress of the European Society for Artificial Organs (ESAO) which takes place from September 8th till 11th in Warsaw, Poland. This Congress was realized thanks to the many efforts of the local organizers, and especially of the Congress President, Jan Wojcicki, and of Andrzej Werynski.

We live an exciting period in the area of Artificial Organs, which is reflected by the Congress themes, which contain next to classical topics such as artificial heart, liver and kidney- new recent highlights such as Bioartificial Organs, Hybrid Artificial Organs, Cell and Gene Therapy and Organ Regeneration. Linked to the organizer's interest, also a lot of attention is paid to modelling and simulation. While considering the subjects there is an interesting balance between biomaterial aspects, mathematics, biochemistry, biology and proper artificial organs.

As usual, we are delighted to have many contributions from industry as well, thus helping to fulfil one of the main aims of the meeting, i.e. of offering a platform where industry and science meet.

We are also grateful for the ample contribution of the Society's Work Groups, on Heart Support, Liver Support, Apheresis and Adsorption, Regenerative Medicine and Uremic Toxins.

All this will happen in a convivial atmosphere whereby the location in Warsaw and the known friendliness and hospitality of the Polish can only be an additional asset.

We hope you will all be present and will contribute to the success of the meeting, which traditionally is considered as one of the highlights in the year.

Your sincerely,

R. C. Vanholder
President
European Society for Artificial Organs

INTERNATIONAL SCIENTIFIC ADVISORY BOARD

Albisser, M. (USA)	Klonoff, D. (USA)	Sakai, K. (JP)
Affeld, K. (DE)	Kokot, F. (PL)	Salzsieder, E. (DE)
Ash, S. (USA)	Kolff, W. (USA)	Shichiri, M. (JP)
Agishi, T. (JP)	Ledebo, I. (SE)	Schima, H. (AT)
Atsumi, K. (JP)	Loisance, D. (FR)	Stefoni, S. (IT)
Bader, A. (DE)	Losert, U. (AT)	Stegmayr, B. (SE)
Bartlett, R. (USA)	Lysaght, M. (USA)	Takatani, S. (JP)
Baurmeister, U. (DE)	Malchesky, P. (USA)	Tibell, A. (SE)
Bonomini, V. (IT)	Mann, H. (DE)	Tsuchiya, K. (JP)
Del Canizo, J. (SP)	Massi-Benedetti, M. (IT)	Umezu, M. (JP)
Courtney, J. (UK)	Mitamura, Y. (JP)	v. Sengbusch, G. (DE)
Darowski, M. (PL)	Mottaghy, K. (DE)	Vanholder, R. (BE)
Falkenhagen, D. (AT)	Meyns, B. (BE)	Verdonck, P. (BE)
Giardino, R. (IT)	Nitta, S. (JP)	Vienken, J. (DE)
Gomez, E. (SP)	Nose, Y. (USA)	Walpoth, B. H. (CH)
Imachi, K. (JP)	Pallotti, G. (IT)	Ward, R. (USA)
Ivanovich, P. (USA)	Polenakovic, M. (MK)	Werynski, A. (PL)
Jaffrin, M. (FR)	Rakhorst, G. (NL)	Wiecek, A. (PL)
Klinkmann, H. (DE)	Religa, Z. (PL)	Wojcicki, J. M. (PL)
Kawamura, A. (JP)	Reul, H. (DE)	Yada, I. (JP)
Kawiak, J. (PL)	Rutkowski, B. (PL)	

CONGRESS ORGANIZING COMMITTEE

Congress President

Jan M. Wojcicki

Honorary Congress President

Maciej Nalecz

Program Chairmen

Andrzej Werynski and Jan M. Wojcicki

THE LOCAL ORGANIZING COMMITTEE

Piotr Ladyzynski - **Chairman**

Piotr Foltynski, Karolina Musial, Anna Ciechanowska,
Stanislawa Sabalinska, Krystyna Deszczynska,
Ewa Dudzinska-Chycko, Dariusz Pisarski

CONGRESS SECRETARIAT

“CONGRESS-OR”
Congress & Tourism Bureau
47 Zurawia Street Apt. 304
00-680 Warsaw, Poland
Phone/Fax: (+ 48 22) 621-31-16; 628-45-48
Contact person: Longina Foltynska
E-mail: l.foltynska@congressor.com.pl

SCIENTIFIC SECRETARIAT

Prof. Jan M. Wojcicki
Institute of Biocybernetics and Biomedical Engineering
Polish Academy of Sciences
4 Trojdena Street, 02-109 Warsaw, Poland
Tel: (0-4822) 658 28 75
Fax: (0-4822) 659 70 30
<http://www.ibib.waw.pl/esao2004>
e-mail: esao2004@ibib.waw.pl

CONGRESS VENUE

Institute of Biocybernetics and Biomedical Engineering
and the International Centre of Biocybernetics,
Polish Academy of Sciences,
4 Trojdena Street., Warsaw, Poland.

DATE OF THE CONGRESS

Wednesday, September 8th, 2004, 13:00 – 18:50
Thursday, September 9th, 2004, 08:30 – 18:30
Friday, September 10th, 2004, 08:30 – 17:30
Saturday, September 11th, 2004, 08:30 – 13:00

REGISTRATION TIME

Wednesday: 10:00 – 17:00
Thursday: 07:30 – 19:30
Friday: 08:00 – 18:00
Saturday: 08:00 – 16:00

CONGRESS LANGUAGE

The official language of the congress is English

CONGRESS WEBSITE

<http://www.ibib.waw.pl/esao2004>

CONGRESS SOCIAL EVENTS

Wednesday, September 8th, 2004, 19:00 – 22:00

Welcome Reception in the Porczynski Gallery

A chance to meet old friends and make new ones at Welcome Reception cocktail held at the Porczyński Gallery. Get together event will start just after opening ceremony.

Friday, September 10th, 2004, 18:00 – 23:00

Festive Dinner in a beautiful Mazovian Castle

This will be the great occasion to talk in a nice atmosphere of how much has been discussed and learned. Cold and hot dishes, drinks and entertainment will be provided. The event will take place at a genuine Polish castle with an over 500-year history. Castle is situated on a hill, overlooking Narew River, it borders the Biala Forest.

Departure from Congress site at 18:00, return at around 23:00 straight to your hotels.
Price: **45 Euro** per person

Saturday, September 11th, 2004, 13:30 – 14:30

Farewell Lunch in the Exhibition Hall

SCIENTIFIC AWARDS

ESAO Membrana Award: The Annual ESAO Congress “Membrana” Award (5000 Euro) is the most prominent award of the ESAO. It is aimed at encouraging young scientists (younger than 38 years) working in the relevant fields of the artificial organ research.

Poster Awards: Three poster awards (500, 300 and 200 Euro) will be given to the authors of the best posters selected by a jury at the meeting.

ESAO Innovation Awards: Two awards (500 Euro each) are dedicated to the most innovative work presented. The decision will be made by a jury based on abstracts and presentations.

ESAO INFO

President: R. Vanholder, Belgium
President - Elect: G. Rakhorst, The Netherlands
President - Past: D. Falkenhagen, Austria
General Secretary: H. Schima, Austria
Treasurer: J. Vienken, Germany

Honorary President: H. Klinkmann, Germany
Honorary Board Members: V. Bonomini, Italy
S. Stefoni, Italy

ESAO Governors:

A. Bader, Germany
I. Ledebø, Sweden
U. Losert, Austria
H. Mann, Germany
A. Meyns, Belgium
K. Mottaghy, Germany
G. Palotti, Italy

M. Polenakovic, R. Macedonia
H. Reul, Germany
H. Schima, Austria
B. Stegmayr, Sweden
B.H. Walpoth, Switzerland
J. M. Wojcicki, Poland

Chairmen of the ESAO Working Groups:

Heart Support: J.F. del Canizo, Spain
Liver Support: I.M. Sauer, Germany
Apheresis and Adsorption: B. Stegmayr, Sweden
Regenerative Medicine: A. Bader, Germany
Uremic Toxins: R. Vanholder, Belgium

ESAO Corporate Members

SAXONIA MEDICAL	MEMBRANA	GENZYME	FRESENIUS MEDICAL CARE
GAMBRO	BAXTER	INTRA-VASC	ROCHE
NIPRO	AMGEN	BELLCO	

Chairman of the Corporate Member Committee: I. Ledebø, Sweden

ESAO Office (Mrs. A. Aichinger):

Center for Biomedical Technology
Dr. Karl Dorrek St 30, A 3500 Krems, Austria
E-mail: esao@donau-uni.ac.at, Homepage: <http://www.esao.org>

ESAO Office for Eastern Europe (Prof. Jan M. Wojcicki):

Institute of Biocybernetics and Biomedical Engineering PAS,
4 Trojdena St, 02-109 Warsaw, Poland
E-mail: Jan.Wojcicki@ibib.waw.pl

General Assembly ESAO 2004

The ESAO General Assembly (for ESAO members only) will be held on Friday, September 10th, 2004, 17:00 – 17:30 in the Lecture Hall A.

TIMETABLE

Wednesday, September 8th

Time of the Day	
10:00 – 17:00	<p align="center">REGISTRATION Central Reception <i>located in the Congress venue at the Institute of Biocybernetics and Biomedical Engineering PAS</i></p>
13:00 – 16:00	<p align="center">PRE – CONGRESS HEART SUPPORT WORKING GROUP SYMPOSIUM (Hall B)</p>
17:00 – 17:20	<p align="center">OPENING CEREMONY Porczynski Gallery</p>
17:20 – 18:00	<p align="center">PLENARY LECTURE T. Siminiak, <i>Poland</i>: “Cell transplantation as possible future technology in regenerative medicine”</p>
18:00 – 18:20	<p align="center">Membrana Award</p>
18:20 – 18:50	<p align="center">Concert</p>
19:00 – 22:00	<p align="center">WELCOME RECEPTION Porczynski Gallery</p>

Thursday, September 9th

Time of the Day	Hall A	Hall B	Hall C
8:30 – 10:00	Session I Artificial Kidney and Dialysis. Clinical Aspects (presentations: 1-6)	Session II Cardiac Assist Devices I (presentations: 7 – 12)	Session III Biomaterials I (presentations: 13 – 18)
10:05 – 10:45	PLENARY LECTURE B. Lindholm, Sweden: “Genotyping for prediction and understanding of outcomes of the patients with renal diseases” (Hall A)		
10:45 – 11:00	<i>Coffee Break</i>		
11:00 – 12:30	Session IV Artificial Kidney and Dialysis. Experimental Aspects (presentations: 19 – 24)	Session V Total Artificial Heart (presentations: 25 – 30)	Session VI Biomaterials II (presentations: 31 – 36)
12:30 – 12:45	Lunch Break		
12:45 – 13:45	<div style="border: 1px solid black; padding: 10px; text-align: center;"> New therapeutic tools with a potential for clinical benefits <i>Corporate Member’s Lunch Symposium</i> (Hall A) </div>		
13:45 – 14:00	<i>Lunch Break</i>		
14:00 – 15:30	How to Prevent and Treat Fluid and Sodium Overload in Peritoneal Dialysis Patients <i>Sponsored Symposium</i>	Cardiac Assist Devices: From Development to Clinical Application <i>Sponsored Symposium</i>	Anticoagulation <i>Sponsored Symposium</i>
15:30 – 17:00	POSTER SESSIONS (Exhibition Hall) Sessions: Artificial Kidney and Dialysis. Experimental and Technical Aspects, Cardiac Assist Devices I, Biomaterials, Fluid Dynamics, Cell Therapy, Modeling and Simulation I, Miscellaneous I		
17:00 – 18:30	Session VII Artificial Kidney and Dialysis. Peritoneal Dialysis (presentations: 37 – 42)	Session VIII Cardiac Assist Devices II (presentations: 43 – 48)	Session IX Fluid Dynamics (presentations: 49 – 54)

Friday, September 10th

Time of the Day	Hall A	Hall B	Hall C			
8:30 – 10:00	<p>Session X</p> <p>Modeling and Simulation</p> <p>(presentations: 55 – 60)</p>	<p>Session XI</p> <p>Tissue Engineering. Methodology</p> <p>(presentations: 61 – 66)</p>	<p>Session XII</p> <p>Artificial Lung, Gas Exchange and Respiratory Systems</p> <p>(presentations: 67 – 72)</p>			
10:05 – 10:45	<p>PLENARY LECTURE</p> <p>A. Meyns, Belgium: “Clinical needs for heart support” (Hall A)</p>					
10:45 – 11:00	<p><i>Coffee Break</i></p>					
11:00 – 12:30	<p>Session XIII</p> <p>Artificial Kidney and Dialysis. Technical Aspects</p> <p>(presentations: 73 – 78)</p>	<p>Session XIV</p> <p>Tissue Engineering. Clinical Applications</p> <p>(presentations: 79 – 84)</p>	<p>Session XV</p> <p>Artificial Sensory Organs and Miscellaneous</p> <p>(presentations: 85 – 90)</p>			
12:30 – 12:45	<p><i>Lunch Break</i></p>					
12:45 – 13:45	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;"> <p>Uremic Toxins I</p> <p>Working Group <i>Lunch Symposium</i></p> <p>(12:45 - 13:40)</p> </td> <td style="width: 33%; text-align: center;"> <p>Lunch Session XVI</p> <p>Intensive Care and Monitoring of AO-Recipients</p> <p>(presentations: 91 – 94)</p> </td> <td style="width: 33%; text-align: center;"> <p>Liver Support</p> <p>Sponsored</p> <p><i>Lunch Symposium</i></p> </td> </tr> </table>			<p>Uremic Toxins I</p> <p>Working Group <i>Lunch Symposium</i></p> <p>(12:45 - 13:40)</p>	<p>Lunch Session XVI</p> <p>Intensive Care and Monitoring of AO-Recipients</p> <p>(presentations: 91 – 94)</p>	<p>Liver Support</p> <p>Sponsored</p> <p><i>Lunch Symposium</i></p>
<p>Uremic Toxins I</p> <p>Working Group <i>Lunch Symposium</i></p> <p>(12:45 - 13:40)</p>	<p>Lunch Session XVI</p> <p>Intensive Care and Monitoring of AO-Recipients</p> <p>(presentations: 91 – 94)</p>	<p>Liver Support</p> <p>Sponsored</p> <p><i>Lunch Symposium</i></p>				
13:45 – 14:00	<p><i>Lunch Break</i></p>					
14:00 – 15:30	<p>Uremic Toxins II</p> <p>Working Group Symposium II</p> <p>(13:50 - 15:30)</p>	<p>Cardiac assist devices: from development to clinical application</p> <p>Sponsored Symposium</p>	<p>Session XVII</p> <p>Liver Support</p> <p>(presentations: 95 – 100)</p>			
15:30 – 17:00	<p>POSTER SESSIONS (Exhibition Hall)</p> <p>Sessions: Artificial Kidney and Dialysis. Clinical Aspects of Hemodialysis and Peritoneal Dialysis, Total Artificial Heart, Cardiac Assist Devices II, Modeling and Simulation II, Tissue Engineering and Immunomodulation, Artificial Lung & Gas Exchange and Respiratory Systems, Miscellaneous II</p>					
17:00 – 17:30	<p>GENERAL ASSEMBLY (Hall A)</p>					
18:00 – 23:00	<p>FESTIVE DINNER Mazovian Castle in Pultusk</p>					

Saturday, September 11th

Time of the Day	Hall A	Hall B	Hall C
8:30 – 10:00	Session XVIII Apheresis (presentations: 101-106)	Session XIX Cell Therapy (presentations: 107-112)	Session XX Artificial Bioartificial Pancreas and Diabetes Treatment (presentations: 113-118)
10:05 – 10:45	PLENARY LECTURE D. Klonoff, USA: “Current status of the artificial pancreas” (Hall A)		
10:45 – 11:00	<i>Coffee Break</i>		
11:00 – 12:30	Apheresis Working Group Symposium	Session XXI Heart Valves, Tissue Engineering and Regenerative Medicine (presentations:119–124)	Diabetes Treatment: How to Prevent Hyperglycemia Sponsored Symposium
12:30 – 13:00	SUMMARY OF THE CONGRESS AND CLOSING CEREMONY (Hall A)		
13:00 – 14:30	FAREWELL LUNCH (Exhibition Hall)		

SCIENTIFIC PROGRAM

September 8th, 2004

REGISTRATION

Wednesday, 10:00 - 17:00

Central Reception

PRE – SYMPOSIUM

Wednesday, 13:00 - 16:00

Lecture Hall B

HEART SUPPORT WORKING GROUP SYMPOSIUM

Chair: *J. F. del Cañizo (Madrid, Spain), K. Affeld (Berlin, Germany)*

Presentations:

- 13:00 State of the art of the Berlin electrohydraulic VAD
K. Affeld (Berlin, Germany)
- 13:15 Technical and clinical experiences with rotary pumps in Vienna
H. Schima (Vienna, Austria)
- 13:30 Current projects in Leuven
B. Meyns (Leuven, Belgium)
- 13:45 Recent blood pump developments at the Helmholtz-Institute for Biomedical Engineering, Aachen Germany
H. Reul (Aachen, Germany)
- 14:00 Research activity at the cardiovascular engineering group of IFC – CNR. A family of new circulatory models: development and first applications to mechanical circulatory support
G. Ferrari (Rome, Italy)
- 14:15 Animal experiments with the PUCA-organ perfusion pump
Y.J. Gu (Groningen, The Netherlands)
- 14:30 State of the art of the vacuum powered tubular pump
J. F. del Cañizo (Madrid, Spain)
- 14:45 Initial out-of-hospital experience with syncardia-cardiowest total artificial heart
A. El Banayosy (Bad Oynhausen, Germany)
- 15:00 Safety and efficiency of ECG-triggered muscular counterpulsation for hemodynamic improvement of cardiac function
B. Walpoth (Geneva, Switzerland)
- 15:15 Round table discussion
- 16:00 End of the session

17:00 WELCOME ADDRESSES

Plenary lecture I

Chair: *R. Vanholder (Gent, Belgium), J.M. Wojcicki (Warsaw, Poland)*

17:20 Cell transplantation as possible future technology in regenerative medicine

T. Siminiak (Poznan, Poland)

18:00 Membrana award

18:20 Concert

September 9th, 2004**Artificial Kidney and Dialysis. Clinical Aspects**

Chair: *S. Stefoni (Bologna, Italy), F. Kokot (Katowice, Poland)*

Presentations:

- 1** 08:30 A prospective, randomized study of high cut off hemofiltration in septic patients with acute renal failure
S. Morgera, M. Haase, T. Kuß, H.-H. Neumayer (Berlin, Germany)
- 2** 08:45 Effect of different treatment modalities on genomic damage of end-stage renal failure patients
K. Kobras, N. Schupp, K. Nerlich, M. Adelhardt, U. Bahner, J. Vienken, A. Heidland, H. Stopper (Würzburg, Germany)
- 3** 09:00 Use of profiler in hypotensive patients: 8 months follow-up
L. Coli, G. Cianciolo, G. Donati, M.L. Soverini, O. Baraldi, B. Fosco, S. Cristino, G. Emiliani, M. Tancredi, M. Ursino, M. Fusaroli, G. Marinangeli, S. Stefoni (Bologna, Italy)
- 4** 09:15 Reciprocal association of plasma adiponectin and serum C-reactive protein concentration in hemodialysis patients with end-stage chronic kidney diseases (ESKD) – a follow up
W. Ignacy, J. Chudek, M. Adamczak, T. Funahashi, Y. Matsuzawa, F. Kokot, A. Wiecek (Katowice, Poland)
- 5** 09:30 N-Methyl-2-Pyridone-5-Carboxamide (2PY) and N-Methyl-4-Pyridone-5-Carboxamide (4PY) correlate with oxidative stress markers in patients with chronic renal failure
P. Rutkowski, E. Slominska, E. Aleksandrowicz, M. Szolkiewicz, J. Swierczynski, B. Rutkowski (Gdansk, Poland)
- 6** 09:45 Inflammation and vascular access: FAV vs. CVC vs. PTFE
G. Cianciolo, L. Coli, L.C. Borgnino, M.L. Cappuccilli, S. Cristino, B. Fosco, A. Falaschini, O. Baraldi, M.L. Soverini, F. Grammatico, S. Stefoni (Bologna, Italy)

Cardiac Assist Devices I

Chair: *B. Meyns (Leuven, Belgium), G. Wieselthaler, (Vienna Austria)*

Presentations:

- | | | |
|-----------|-------|--|
| 7 | 08:30 | The study of the high efficiency motor for the undulation pump artificial heart
<i>I. Saito, T. Chinzei, Y. Abe, T. Isoyama, S. Mochizuki, T. Ono, S. Arai, H. Miura, F. Sato, H. Matsuki, K. Imachi (Tokyo, Japan)</i> |
| 8 | 08:45 | CentriMag® - promising initial clinical experiences with a new bearing-less centrifugal pump for ECMO
<i>J.P. Mueller, K. Dasse, S. Kent, G. Zund, M.I. Turina, M.L. Lachat (Zurich, Switzerland)</i> |
| 9 | 09:00 | Effects of pulsatile extracorporeal life support on the coronary artery blood flow
<i>H.S. Son, Y.H. Fang, Z. Hwang, C.M. Hwang, B.G. Min, K. Sun (Seoul, Korea)</i> |
| 10 | 09:15 | Compact, electromechanical pulsatile and non-pulsatile VAD systems
<i>S. Takatani, K. Ohuchi, H. Hoshi, H. Kataoka, T. Yasuda, H. Arai, T. Sakamoto, M. Nakamura, T. Shinshi, A. Shimokobe (Tokyo, Japan)</i> |
| 11 | 09:30 | A magnetic fluid seal installed in a delta-stream pump
<i>Y. Mitamura, T. Sekine, T. Yano, H. Reul, S. Murabayashi, I. Nishimura, R. Yozu, E. Okamoto (Sapporo, Japan)</i> |
| 12 | 09:45 | MicroVAD: ultra-small axial pump for long term cardiac assist
<i>W. Kerkhoffs, O. Schumacher, B. Meyns, H. Reul (Aachen, Germany)</i> |

Biomaterials I

Chair: *J. Vienken (Bad Homburg, Germany), D. De Wachter (Gent, Belgium)*

Presentations:

- | | | |
|-----------|-------|--|
| 13 | 08:30 | A novel methodology for pre-screening anti-thrombogenicity of artificial organs under physiologically identical pulsatile environments
<i>K. Iwasaki, Y. Takeuchi, W. Saeki, M. Umezu, K. Ishihara, K. Imachi (Tokyo, Japan)</i> |
| 14 | 08:45 | New biodegradable materials for cardiovascular tissue engineering
<i>B.H. Walpoth, M. Cikirikcioglu, K. Djebaili, E. Khabiri, P. Buchler, J.C. Pache, A. Kalangos, G. Bowlin (Geneva, Switzerland)</i> |
| 15 | 09:00 | Development of sutureless connecting system for implantation of small caliber vascular prostheses
<i>Y. Nakayama, M. Nishida, K. Kanda, Y. Nemoto, Y. Okamoto (Osaka, Japan)</i> |
| 16 | 09:15 | Development of an endothelial cell culture model for studies on vascular pathophysiology in sepsis
<i>E. Rossmannith, A. Ciechanowska, S. Sabalinska, D. Schwanzer-Pfeiffer, C. Wojciechowski, J. Hartmann, K. Hellevuo, A. Chwojnowski, P. Foltynski, D. Falkenhagen, J.M. Wojcicki (Krems, Austria)</i> |

- 17 09:30 Impact of sterilisation methods on tissue engineered vascular prosthesis
K. Djebaili, M. Cikirikcioglu, P. Buchler, E. Khabiri, S. Karaca, J.C. Pache, A. Kalangos, G. Bowlin, B.H. Walpoth (Geneva, Switzerland)
- 18 09:45 Evaluation of cardiac adhesions after pericardial substitution by laser-treated silicone (ITS) membrane
S. Amanpour, H. Mirzadeh, S.H. Ahmadi, S.H. Mirkhani (Tehran, Iran)

Plenary Lecture II **Thursday, 10:05 - 10:45** **Lecture Hall A**

Chair: *D. Falkenhagen (Krems, Austria), H. Klinkmann (Rostock, Germany)*
Genotyping for prediction and understanding of outcomes of the patients with renal diseases
B. Lindholm (Huddinge, Sweden)

10:45 Coffee break

Session IV **Thursday, 11:00 - 12:30** **Lecture Hall A**

Artificial Kidney and Dialysis. Experimental Aspects

Chair: *A. Kawamura (Sapporo, Japan), I. Ledebo (Lund, Sweden)*

Invited Speaker:

- 19 11:00 Contemporary hemodialyser technology: from macro-module design to membrane nanostructure
C. Ronco (Vicenza, Italy)

Presentations:

- 20 11:15 Optimization of dialyzer efficiency using a three-dimensional numerical model
S. Eloot, J. Vierendeels, P. Verdonck (Gent, Belgium)
- 21 11:30 Saliva excretion of N-Methyl-2-Pyridone-5-Carboxamide (2PY) correlate with kidney function in patients with chronic renal failure
P. Rutkowski, E. Slominska, J. Ochocinska, M. Lukaszewska, M. Szolkiewicz, B. Kochanska, J. Swierczynski, B. Rutkowski (Gdansk, Poland)
- 22 11:45 Sevelamer hydrochloride (Renagel®) adsorbs the uremic compound indoxyl sulfate
R. De Smet, F. Thermote, N. Lameire, R. Vanholder (Gent, Belgium)
- 23 12:00 A new method for the assessment of the effective dry weight for dialysis patients
G. Casagrande, U. Teatini, F. Miglietta, M.L. Costantino (Milan, Italy)
- 24 12:15 Real-time hemodynamic evaluation of kidney grafts by experimental model of ischemia and hypothermic preservation: computerized design
I. Berenguer, G. Pedemonte, D. Subirá, R. Cabello, D. Rodríguez-Martínez, C. Hernández Fernández, J.F. Del Cañizo, E. Lledó-García (Madrid, Spain)

Total Artificial Heart

Chair: Z. Religa (Warsaw, Poland), H. Reul (Aachen, Germany)

Presentations:

- 25** 11:00 Status of artificial hearts in Japan: R/D and clinical aspects
S. Takatani (Tokyo, Japan)
- 26** 11:15 Construction of implanted electrohydraulic autonomous artificial heart
V. Shumakov, A. Shubladze, D. Shumakov, V. Tolpekin, A. Drobishev, N. Kilasev, S. Kulikow, V. Ganin, O. Romenov (Moscow, Russia)
- 27** 11:30 Studies of blood damage in the blood related mechanical devices: literature review
X. Song, S.W. Day, H.G. Wood, D.B. Olsen (Charlottesville, USA)
- 28** 11:45 Flow measurements in the chamber of a pulsatile left ventricular assist device with particle image velocimetry (PIV)
T. Schmid, W. Schiller, A. Mittelschulte, D. Liepsch, B. Laschka, G. Hirzinger, A. Welz (Wessling, Germany)
- 29** 12:00 Artificial baroreflex and fluctuations in rotary blood pump
T. Yambe, Y. Abe, M. Yoshizawa, Y. Shiraishi, K. Sekine, K. Imachi, S. Nitta (Sendai, Japan)
- 30** 12:15 Progress in the multi-institutional cooperative project to develop an implantable ventricular assist system
K. Imachi, Y. Mitamura, T. Yambe, T. Matsuda, E. Okamoto, M. Umezu, I. Nemoto, A. Mimaki (Tokyo, Japan)

Biomaterials II

Chair: R. Giardino (Bologna, Italy), S. Rosinski (Warsaw, Poland)

Presentations:

- 31** 11:00 Bionic percutaneous lead with a renewable air-implant interface
K. Affeld, U. Kertzscher, M. Scheckel, T. Timmel, J. Torres-Sierra, A. Suplie, S. Artinger, Ch. Grosse-Siestrup, M. Bagheri (Berlin, Germany)
- 32** 11:15 Biodegradable hydrogel 3D-matrix for bioartificial tissues
J.V. Porunova, N.V. Perova, N.A. Onischenko, V.I. Sevastianov (Moscow, Russia)
- 33** 11:30 Biomaterial surface characteristics and bone implant osteointegration in osteoporotic bone
M. Fini, G. Giavaresi, V. Borsari, M. Tschon, R. Giardino (Bologna, Italy)
- 34** 11:45 Hydroxyapatite-Carbohydrate ceramics as carriers for living cells
E.A. Krylova, A.A. Ivanov, S.E. Krylov, P.V. Nefedov, V.S. Repin, D.V. Golgstein, A.A. Pulin, T.H. Fathudinov, N.A. Bazhanov (Moscow, Russia)
- 35** 12:00 Estimation of mass exclusion limits of microcapsules by a new method of determination of molecular transfer cut-off (MTCO)
S. Rosinski, D. Lewinska, M. Wojcik, G. Orive, J.L. Pedraz, A. Werynski (Warsaw, Poland)

- 36** 12:15 Lyophilized (freeze dried) bovine pericardium valve prosthesis – an innovative preservation method with superior features
M.J. Maizato, M.L. Silva, S.A. Hayashida, A.A. Leirner (Sao Paulo, Brazil)
- 12:45 *Lunch break*

**Corporate Member's
Lunch Symposium**

Thursday, 12:45 - 13:45

Lecture Hall A

New therapeutic tools with a potential for clinical benefits

Chair: *I. Ledebo (Lund, Sweden), R. Vanholder (Gent, Belgium)*

- 12:45 New PD solutions and global biocompatibility
J. Divino, Baxter Healthcare (Brussels, Belgium)
- 13:00 Information management – linking tools in hemodialysis
K. Martins, Saxonia Medical (Radeberg, Germany)
- 13:15 Technical advances in highly convective therapies
H–D. Lemke, Membrana Clinical and Scientific Affairs (Obernburg, Germany)
- 13:30 The pathway from mono- to multi-functional separation devices in renal care
M. Storr, Gambro Corporate Research (Hechingen, Germany)
- 13:45 Liver failure therapy, a challenge for the nephrologist
J. Vienken, Fresenius Medical Care (Bad Homburg, Germany)

Sponsored Symposium

Thursday, 14:00 - 15:30

Lecture Hall A

How to prevent and treat fluid and sodium overload in peritoneal dialysis patients

Chair: *B. Lindholm (Huddinge, Sweden), Z. Wankowicz (Warsaw, Poland)*

- 14:00 Causes and implications of fluid and sodium overload in peritoneal dialysis patients
Z. Wankowicz (Warsaw, Poland)
- 14:20 Kinetic description of fluid and sodium transport with different PD solutions
A. Werynski (Warsaw, Poland)
- 14:40 Simulation of fluid and sodium transport with icodextrin solution
E. Vonesh (Round Lake, USA)
- 15:00 Clinical experience of fluid and sodium removal with icodextrin solution
J. Divino (Brussels, Belgium)
- 15:20 *Discussion*

Symposium sponsored by Baxter

Cardiac assist devices: from development to clinical application

Chair: *H. Reul (Aachen, Germany), G. Rakhorst (Groningen, Netherlands)*

- 14:00 Current status of Japanese cardiac assist programs
S. Takatani (Tokyo, Japan)
- 14:20 Optimization of IABP drivers: new algorithms for mechanical assist during arrhythmias
J. Schreuder (Maastricht, Netherlands)
- 14:40 Clinical experiences with a physiological control for rotary pumps
H. Schima (Vienna, Austria)
- 15:00 First clinical trial with the ventrassist centrifugal pump
J. Woodard (Sidney, Australia)
- 15:20 Discussion

Symposium sponsored by: Arrow, MicroMed Tech. and Ventra Cor

Anticoagulation

Chair: *D. Falkenhagen (Krems, Austria), K. Mottaghy (Aachen, Germany)*

- 14:00 Biocompatibility – studies of citrate vs. heparin anticoagulation
K. Opatrny (Plzen, Czech)
- 14:20 Citrate anticoagulation in acute liver failure
L. Kramer (Vienna, Austria)
- 14:40 Introduction in anticoagulation technologies in extracorporeal circulation
D. Falkenhagen (Krems, Austria)
- 15:00 Use of thrombin inhibitors in extracorporeal treatment
R.D. Frank (Aachen, Germany)
- 15:20 Discussion

Symposium sponsored by Fresenius Medical Care

Artificial Kidney and Dialysis. Peritoneal Dialysis

Chair: *R. Vanholder (Gent, Belgium), B. Rutkowski (Gdansk, Poland)*

Presentations:

- 37** 17:00 Transport of amino acids in peritoneal dialysis with amino acid-based solution
A. Olszowska, J. Waniewski, A. Werynski, B. Anderstam, B. Lindholm, Z. Wankowicz (Warsaw, Poland)
- 38** 17:15 Fractional solute removal (FSR) and equivalent urea clearance (EKR): a comparative analysis of dialysis adequacy indexes
M. Debowska, J. Waniewski, A. Werynski, B. Lindholm (Warsaw, Poland)
- 39** 17:30 Effect of adrenaline on the electrophysiological profile of the isolated visceral sheep peritoneum
I. Stefanidis, S. Zarogiannis, C. Hatzoglou, V. Liakopoulos, V. Ikononov, H. Mann, K. Gourgoulianis, P.A. Molyvdas (Larissa, Greece)
- 40** 17:45 The loss of catheter locking solution is influenced by density and viscosity of the solution
H-D. Polaschegg (Köstenberg, Austria)
- 41** 18:00 High glucose PD solutions induced morphological changes in peritoneum by TGF- β /Smad signaling pathway *in vivo*
Q. Yao, K. Pawlaczyk, M. Kuzlan-Pawlaczyk, E. Rodríguez Ayala, A. Styszynski, J. Axelsson, J.Q. Qian, A. Breborowicz, O. Heimbürger, P. Stenvinkel, B. Lindholm (Stockholm, Sweden)
- 42** 18:15 Factors of dialysis solution changing peritoneal transport of gentamicin *in vitro*
B. Szary, T. Grzelak, K. Czyzewska (Poznan, Poland)

Cardiac Assist Devices II

Chair: *U. Losert (Vienna, Austria), J.F. del Cañizo (Madrid, Spain)*

Presentations:

- 43** 17:00 The close loop pneumatic supply system of POLPDU-402 driving unit for POLVAD heart assist pumps
M. Gawlikowski, Z. Giebultowicz, R. Kustosz, M. Darlak (Zabrze, Poland)
- 44** 17:15 Suction control for the INCOR axial flow blood pump – clinical results
A. Arndt, P. Nüsser, K. Graichen, J. Müller (Berlin, Germany)
- 45** 17:30 Innovative bearing concepts for an implantable rotary blood pump
M. Akdis, M. Martin, H. Reul (Aachen, Germany)
- 46** 17:45 Hemodynamic effect of the left or right ventricular assistance by a mechanical myocardial assist system
Y. Shiraishi, T. Yambe, K. Sekine, T. Yamaguchi, S. Shibata, Y. Saijo, M. Watanabe, J. Nagatoshi, H. Aoki, S. Ito, M. Umezu, S. Tanaka, E. Okamoto, D. Ogawa, P. Olegario, M. Yoshizawa, Q. Wang, X. Duan, H. Liu, F. Sato, T. Tanaka, S. Nitta, K. Tabayashi, H. Sasada (Sendai, Japan)

- 47 18:00 Investigation of different unloading conditions during pulsatile left ventricular assistance
M. Vollkron, L. Huber, G. Wieselthaler, E. Wolner, H. Schima (Vienna, Austria)
- 48 18:15 Continuous-flow type left ventricular assist device: the risk of impeding ventricular relaxation and dilatation
F. Miyawaki, D. Satoh, Y. Takano, S. Takahashi, M. Hamasaki (Saitama, Japan)

Session IX

Thursday, 17:00 - 18:30

Lecture Hall C

Fluid Dynamics

Chair: *K. Affeld (Berlin, Germany), J. Waniewski (Warsaw, Poland)*

Presentations:

- 49 17:00 Development of a mathematical model to estimate hemolysis in a rotary blood pump
A. Arvand, M. Hormes, H. Reul (Aachen, Germany)
- 50 17:15 Spatial and temporal resolution of the wall shear flow: a tool for artificial organs design
P. Debaene, U. Kertzscher, L. Goubergrits, K. Affeld (Berlin, Germany)
- 51 17:30 Comparison of three clinically used blood flowmeters in an artificial circulatory system
M. Cikirikcioglu, K. Djebaili, E. Khabiri, A. Kalangos, B.H. Walpoth (Geneva, Switzerland)
- 52 17:45 Total cavopulmonary connections: anastomosis shape and its influence on flow structures
M. Grigioni, C. Daniele, C. Del Gaudio, U. Morbiducci, G. D'Avenio, D. Di Meo, M. Abbate, V. Barbaro (Rome, Italy)
- 53 18:00 Fluid structure interaction of blood flow through stented arteries
N. Filipovic, M. Kojic, M. Krstic (Kragujevac, Serbia and Montenegro)
- 54 18:15 Predicting ATS open PIVOT™ heart valve performance with computational fluid dynamics
K. Dumont, J. Vierendeels, P. Segers, G. Van Nooten, P.R. Verdonck (Gent, Belgium)

September 10th, 2004

Session X

Friday, 08:30 - 10:00

Lecture Hall A

Modeling and Simulation

Chair: A. Werynski (Warsaw, Poland), G. Palotti (Bologna, Italy)

Presentations:

- 55** 08:30 Computer simulations of blood flow in different variants of a systemic-to-pulmonary shunt
J. Waniewski, W. Kurowska, J.K. Mizerski, A. Trykozko, K. Nowinski, G. Brzezinska-Rajsyzs, T. Kosciesza (Warsaw, Poland)
- 56** 08:45 Development of a new anastomotic design for femorodistal ePTFE bypass grafting: results of a CFD study
U. Krueger, J. Zanow, M. Petzold, K. Petzold, J. A. Gómez León, U. Lorenz, H. Scholz (Berlin, Germany)
- 57** 09:00 Development of a coronary mock simulator to evaluate an effectiveness of coronary artery bypass grafting anastomosis
M. Umezu, J. Kawai, J. Suehiro, H. Niinami, M. Arita, Y. Shiraishi, K. Iwasaki (Tokyo, Japan)
- 58** 09:15 Performance analysis of the Niagara hemodialysis catheter in a right heart model using computational fluid dynamics (CFD)
G. Mareels, D.S. De Wachter, P.R. Verdonck (Gent, Belgium)
- 59** 09:30 A mathematical model of hydrostatic pressure-driven convection in tissue surrounding the peritoneal cavity during dialysis
J. Stachowska-Pietka, J. Waniewski, M.F. Flessner (Warsaw, Poland)
- 60** 09:45 The muscle control system model with feedback from a muscle spindle
A. Kasinski, P. Kaczmarek, F. Ponulak (Poznan, Poland)

Session XI

Friday, 08:30 - 10:00

Lecture Hall B

Tissue Engineering. Methodology

Chair: A. Bader (Leipzig, Germany), C. Legallais (Compiègne, France)

Presentations:

- 61** 08:30 Cultivation and differentiation of stem cells to different cellular types *in vitro*
L. Lukash, D. Bazika, N. Belyaeva, O. Pidpala, O. Kovalenko, S. Vasilovskaya, A. Yazhishina, I. Votyakova, G. Matsuka (Kiev, Ukraine)
- 62** 08:45 Replacement of sera for cell culture purposes: a survey with up to date product guide 2004
E. Falkner, H. Schöffl, H. Appl, C. Eder, K. Macfelda, U. Losert, W. Pfaller (Vienna, Austria)
- 63** 09:00 Behavior of ES cells under hemodynamic forces *in vivo*: ES cell-incorporated hybrid vascular grafts
K. Kanda, Y. Nakayama, H. Ito, J. Yamashita, Y. Nemoto (Kyoto, Japan)

- 64 09:15 Hydrodynamic pressure load of intervertebral disc cells induces matrix synthesis
C. Grottko, S. Gokorsch, P. Czermak (Giessen, Germany)
- 65 09:30 Comparison of different cell-seeding methods onto 3D-collagen scaffolds for tissue engineering
M. Kuberka, I. Bernemann, G. Rau, B. Glasmacher (Aachen, Germany)
- 66 09:45 Biocompatibility evaluation of biodegradable perforated polyurethane (BPP) scaffolds for repairing of chondral defects
H. Mirzadeh, M.A. Mohagheghi, S. Amanpour, H. Mirkhani, Sh. Rabbani (Tehran, Iran)

Session XII

Friday, 08:30 - 10:00

Lecture Hall C

Artificial Lung & Gas Exchange and Respiratory Systems

Chair: *K. Mottaghy (Aachen, Germany), M. Darowski (Warsaw, Poland)*

Presentations:

- 67 08:30 A new model lung for hydraulic testing of total liquid ventilation circuits
G.B. Fiore, R. Vismara, C. Corno, P. Bagnoli, M.L. Costantino (Milan, Italy)
- 68 08:45 Preliminary histological results of repeated induced collapse of rabbit airways during total liquid ventilation
P. Bagnoli, S. Tredici, J.L. Bull, D.O. Brant, K. Johnson, M.L. Costantino, R.B. Hirschl (Turin, Italy)
- 69 09:00 Optimization of the endotracheal tube form in order to reduce airway resistance and work of breathing
B. Stankiewicz, M. Darowski, J. Glapinski, M. Michnikowski (Warsaw, Poland)
- 70 09:15 *Ex vivo* evaluation of a new extracorporeal lung assist device: NovaLung® membrane oxygenator
D. Jegger, J-P. Revelly, J. Horisberger, Y. Boone, I. Seigneul, M. Jachertz, L.K. von Segesser (Lausanne, Switzerland)
- 71 09:30 E.C.M.O. system with non occlusive pulsatile pump
D. Rodríguez-Martínez, I. Berenguer, M. Sánchez Luna, B. Bernardo, J F Del Cañizo (Madrid, Spain)
- 72 09:45 New fiber configuration for intravenous gas exchange
G.F. Cattaneo, H. Reul (Aachen, Germany)

Plenary Lecture III

Friday, 10:05 - 10:45

Lecture Hall A

Chair: *G. Rakhorst (Groningen, The Netherlands), H. Schima (Vienna, Austria)*

Clinical needs for heart support

A. Meyns (Leuven, Belgium)

Artificial Kidney and Dialysis. Technical Aspects

Chair: *H. Mann (Aachen, Germany), V. Bonomini (Bologna, Italy)*

Presentations:

- 73** 11:00 No-needle blood access device for chronic dialysis
A. Kawamura, J. Iida, A. Ikeda, H. Egawa, I. Tsuda, H. Sakata, T. Horie, T. Tamaki, J. Meguro, K. Kukita, M. Yonekawa, H. Matumoto (Sapporo, Japan)
- 74** 11:15 Mechanisms of enhanced removal of protein bound uremic toxins by super flux cellulose triacetate membranes: a crossover prospective analysis
R. De Smet, M.A. Waterloos, A.Dhondt, N. Lameire, R. Vanholder (Gent, Belgium)
- 75** 11:30 Genomic damage and content of free and protein-bound ages in end stage renal failure: influence of different dialysis modalities
N. Schupp, N. Ahmed, P. Thornalley, K. Nerlich, J. Braun, J. Vienken, A. Heidland, H. Stopper (Würzburg, Germany)
- 76** 11:45 Experimental simulation of the hemodynamics in a PTFE graft with needle access
I. Van Tricht, D.S. De Wachter, J.H. Tordoir, P.R. Verdonck (Gent, Belgium)
- 77** 12:00 Role of HFR on-line technique on thiols metabolism
G. Splendiani, S. De Angelis, M. Ferrannini, M. Dessì, C. Cortese (Rome, Italy)
- 78** 12:15 Inadequate representativity of urea for the kinetics of other uremic solutes: the case of the guanidines
S. Eloot, R. De Smet, A. Torremans, D. De Wachter, B. Marescau, P.P. De Deyn, P. Verdonck, R. Vanholder (Gent, Belgium)

Tissue Engineering. Clinical Applications

Chair: *J. Kawiak (Warsaw, Poland), J. Vienken, (Bad Homburg, Germany)*

Presentations:

- 79** 11:00 The chick chorioallantoic membrane (CAM) as a testing environment for meniscus tissue engineering constructs
C. Eder, E. Falkner, M. Mickel, G. Brand, R. Dorotka, S. Nehrer, U.M. Losert, (Vienna, Austria)
- 80** 11:15 Micro-CT examination of bone formation following sinus grafting with autogenous bone-derived cells in minipigs: preliminary findings
G. Fuerst, S. Tangl, R. Gruber, A. Gahleitner, F. Sanroman, G. Watzek (Vienna, Austria)
- 81** 11:30 Optimization of the process of valve leaflet acellularization
P. Wilczek, T. Rusin, A. Baranska, Z. Religa (Zabrze, Poland)
- 82** 11:45 Engineering of adipose tissue for breast reconstruction: an important step towards human application
J.H. Dolderer, M.W. Findlay, J. Cooper-White, E.W. Thompson, N. Trost, O. Hennessy, A. Penington, W.A. Morrison (Melbourne, Australia)

- 83** 12:00 Experimental study on artificial esophagus using chitin scaffold
Y. Horj, K. Sekine, Y. Shiraishi, T. Yambe (Sendai, Japan)
- 84** 12:15 Are decellularized porcine pulmonary valve conduits as good as human pulmonary homografts - results of mechanical testing
G. Seebacher, C. Reindl, M. Stoiber, E. Rieder, M T. Kasimir, E. Wolner, G. Weigel, P. Simon, H. Schima (Vienna, Austria)

Session XV

Friday, 11:00 - 12:30

Lecture Hall C

Artificial Sensory Organs and Miscellaneous

Chair: *G. Rakhorst (Groningen, The Netherlands), H. Skarzynski (Nadarzyn, Poland)*

Presentations:

- 85** 11:00 Electroacoustic stimulation in patients with partial deafness
H. Skarzynski, B. Wilson, A. Lorens, A. Piotrowska (Nadarzyn, Poland)
- 86** 11:15 "Artificial vestibule" based on own CREx modeling
M. Pokora (Warsaw, Poland)
- 87** 11:30 Study of thigh pain in cementless total hip arthroplasty
R. Shimizu, T. Nakamura, I. Nishimura, T. Matsuno, Y. Mitamura (Sapporo, Japan)
- 88** 11:45 Chronicle®: an implantable hemodynamic monitor for ambulatory measurement of cardiac function for the management of congestive heart failure
P.A. Grandjean, T. Bennett, R. Taepke, Y. Verboven (Maastricht, The Netherlands)
- 89** 12:00 A Lab-On-A-Chip type microdialysis-based system
D.G. Pijanowska, A.J. Sprenkels, W. Olthuis, P. Bergveld (Warsaw, Poland)
- 90** 12:15 Morphological and immunological aspects of the extracorporeal donor's pork spleen hemoperfusion in the course of psoriasis treatment
V.N. Korol (Kiev, Ukraine)

Working Group Lunch Symposium Friday, 12:45 - 13:40

Lecture Hall A

Uremic toxins I

Chair: *R. Vanholder (Gent, Belgium)*

- 12:45 Introduction
R. Vanholder (Gent, Belgium)
- 13:00 New uremic toxins at play in vascular damage and deterioration of renal function
J. Jankowski (Berlin, Germany)
- 13:20 New insights in oxidative stress in uremic patients
Z. Massy (Amiens, France)

Intensive Care and Monitoring of AO-Recipients

Chair: *B. H. Walpoth (Geneva, Switzerland), V. Ramlow (Rostock, Germany)*

Presentations:

- 91** 12:45 Laser Doppler vibrometry in non contact monitoring of the heart beat
L. Scalise, U. Morbiducci, S. Pirani, M. Grigioni (Ancona, Italy)
- 92** 13:00 Non-invasive monitoring of oxygen saturation for artificial organ recipient with Bluetooth communication
J.W. Park, J.S. Kim, M.S. Ryu, K.S. Park (Seoul, Korea)
- 93** 13:15 Damage of abdominal organs during cardiopulmonary bypass: bioincompatibility or malperfusion?
A.M. Morariu, W. van Oeveren, B.G. Leof, P.W. Boonstra, G. Rakhorst (Groningen, The Netherlands)
- 94** 13:30 Progress of Polish cardiobot – RobIn Heart 0,1 & 2 tests results comparison
Z. Nawrat, P. Kostka, L. Podsedkowski, K. Mianowski, P. Wroblewski, Z. Malota, Z. Religa (Zabrze, Poland)

Liver support

Chair: *J. Vienken (Bad Homburg, Germany), I. Sauer (Berlin, Germany)*

- 12:45 Clinical application of liver support systems - status quo
I. Sauer (Berlin, Germany)
- 13:05 Which cells to be used as biocomponent in the bioartificial liver?
R.A.F.M. Chamuleau (Amsterdam, The Netherlands)
- 13:25 Clinical evaluation of liver support devices - finding the appropriate strategy
J. Wendon (London, England)

Symposium sponsored by Fresenius Medical Care

Uremic toxins II

Chair: *R. Vanholder (Gent, Belgium)*

- 13:50 Proteomics as a tool to analyse uremia
E. Weisinger (Mosaiques, Hannover, Germany)
- 14:10 Polyphenols as uremic toxins
A. Mahiout (Nipro Europe, Brussels, Belgium)

- 14:30 Renal amyloid disease
A. Argiles (Montpellier, France)
- 14:50 Glucose degradation products, ages and the peritoneal membrane
A. Jorres (Berlin, Germany)
- 15:10 Cytokines: actors or markers?
C. Tetta (Fresenius MC, Bad Homburg, Germany)

Sponsored Symposium

Friday, 14:00 - 15:30

Lecture Hall B

Cardiac Assist Devices: Towards Destination Therapy

Chair: G. Wieselthaler (Vienna, Austria), J. Long (SLC, USA)

- 14:00 Clinical experiences with the INCOR rotary pump
J. Mueller (Berlin, Germany)
- 14:20 Towards destination therapy: the us experience
J. Long (SLC, USA)
- 14:40 Towards destination therapy: experience in bad oynhausen
A. Banayosi (Bad Oynhausen;Germany)
- 15:00 A new regimen for long term anticoagulation
D. Loisanse (Paris, France)
- 15:20 Discussion

Symposium sponsored by: Arrow, Berlin-Heart, Thoratec and World-Heart

Session XVII

Friday, 14:00 - 15:30

Lecture Hall C

Liver Support

Chair: D. Falkenhagen (Krems, Austria), R. Chamuleau (Amsterdam, The Netherlands)

Invited Speaker:

- 14:00 Microsystems as tool for biartificial liver research
E. Gottwald (Karlsruhe, Germany)

Presentations:

- 95** 14:20 Microparticles in extracorporeal blood purification - a novel device for highly sensitive leakage detection
J. Hartmann, M. Brandl, F. Loth, C. Kendl, D. Falkenhagen (Krems, Austria)
- 96** 14:30 The Groningen portable hypothermic liver perfusion pump
A. van der Plaats, N.A. 't Hart, A.A. Bellekom, M.H.J. Maathuis, E.B. van der Houwen, H.S. Hofker, H.G.D. Leuvenink, G.J. Verkerke, P. Verdonck, R.J. Ploeg, G. Rakhorst (Groningen, The Netherlands)

- 97** 14:40 Bilirubin kinetics in extracorporeal liver support
A. Jung, P. Krisper, B. Haditsch, R. Stauber, H. Holzer, D. Schneditz (Graz, Austria)
- 98** 14:50 Dose finding studies and *in vitro* comparison of single pass albumin dialysis (SPAD) with MARS and CVVHDF
I. M. Sauer, M. Goetz, G. Walter, I. Steffen, U. Stumborg, E. Efimova, G. Pless, D. Kehr, D. Alekseev, J. C. Gerlach, P. Neuhaus (Berlin, Germany)
- 99** 15:00 Comparison between normothermic (37°C) and subnormothermic (15°C) transport temperatures in the AMC-bioartificial liver
P.P.C. Poyck, A.C.W.A. van Wijk, R. Hoekstra, T.M. van Gulik, R.A.F.M. Chamuleau (Amsterdam, The Netherlands)
- 100** 15:10 Diseased human organs explanted during transplant surgery as a potential cell source for cell based therapy concepts
D.C. Kehr, G. Pless, R. Schwartlander, E. Efimova, M. Liu, S. Roth, J.C. Gerlach, P. Neuhaus, I.M. Sauer (Berlin, Germany)

POSTER SESSIONS **Friday, 15:30 - 17:00** **Exhibition Hall**

GENERAL ASSEMBLY **Friday, 17:00 - 17:30** **Lecture Hall A**

FESTIVE DINNER **Friday, 18:00 - 23:00** **Mazovian Castle, Pultusk**

September 11th, 2004

Session XVIII

Saturday, 08:30 - 10:00

Lecture Hall A

Apheresis

Chair: *M. Polenakovic (Skopje, Macedonia), A. Wiecek (Poznan, Poland)*

Presentations:

- 101** 08:30 World Apheresis Registry- first data report
B. Stegmayr, J. Ptak, B. Wikström (Umea, Sweden)
- 102** 08:45 Development of an activated carbon-based system for combined plasmapheresis and adsorption in the treatment of sepsis
H.L.H. Owen, J.M. Courtney, E.M. Smith, C.A. Howell, S.R. Sandeman, G.J. Phillips, A.W. Lloyd, S.V. Mikhalovsky, S.R. Tennison, A.P. Rawlinson, J.D.S. Gaylor (Glasgow, Scotland, UK)
- 103** 09:00 Fibrinogen and LDL-apheresis in treatment of nonarteritic anterior ischemic optic neuropathy (NAION)
A. Ramunni, G. Giancipoli, S. Guerriero, A. Saracino, L. Lapenna, C. Sborgia, P. Coratelli (Bari, Italy)
- 104** 09:15 Specific microadsorbents for tumor necrosis factor α : influence of antibody immobilization conditions on performance and biocompatibility
V. Weber, I. Linsberger, F. Loth, M. Höyhty, D. Falkenhagen (Krems, Austria)
- 105** 09:30 *In-vitro* test of pulsatile blood flow effects on hemoperfusion
J.C. Lee, B.G. Min (Seoul, Korea)
- 106** 09:45 Usage of DNA-containing adsorbents for extracorporeal perfusion in patients with psoriasis
V.N. Korol, V.G. Kolyadenko, E.A. Snezhkova, V.G. Nikolaev, P.G. Zhminko, V.A. Amalyan, K.I. Bardakhivskaya (Kiev, Ukraine)

Session XIX

Saturday, 08:30 - 10:00

Lecture Hall B

Cell Therapy

Chair: *U. Losert (Vienna, Austria), J. Kawiak (Warsaw, Poland)*

Presentations:

- 107** 08:30 Preventing limbs amputation in dialysis patients with ischemic foot ulcers by peripheral blood stem cell (PBSC)
A. Kawamura, T. Horie, I. Tsuda, E. Imamura, A. Ikeda, H. Egawa, H. Sakata, T. Tamaki, J. Meguro, K. Kukita, M. Yonekawa (Sapporo, Japan)
- 108** 08:45 Usage of autologous serum instead of fetal calf serum (FCS): does it make a difference ?
C. Eder, E. Falkner, M. Mickel, G. Brand, R. Dorotka, S. Nehrer, U. M. Losert, (Vienna, Austria)
- 109** 09:00 Transfer of genetic information between the cells as the factor that accompanies cell therapy
V. Kordyum, S. Shpylova, O. Suhorada, T. Ruban, V. Andrienko, T. Titok, L. Likhacheva, O. Deryabina (Kiev, Ukraine)

- 110 09:15 Gene-therapeutic correction of dyslipoproteinemias
S. Novikova, O. Toporova, Iu. Kozel, V. Kordium (Kiev, Ukraine)
- 111 09:30 Testing of transgen delivery and biodistribution by PCR-analysis
I. Kozel, P. Morgunov, O. Toporova, D. Irodov, S. Novikova (Kiev, Ukraine)
- 112 09:45 Artificial cells for oral delivery of live bacterial cells as organ substitute: potentials and limitations
S. Prakash (Montreal, Quebec, Canada)

Session XX

Saturday, 08:30 - 10:00

Lecture Hall C

Artificial, Bioartificial Pancreas and Diabetes Treatment

Chair: *G. Catapano (Rende, Italy), P. Ladyzynski (Warsaw, Poland)*

Presentations:

- 113 08:30 Feasibility of closed-loop intraportal insulin infusion algorithm for an implantable artificial endocrine pancreas
K. Nishida, M. Sakakida, T. Sekigami, S. Shimoda, S. Ichimori, K. Ichinose, M. Shichiri, E. Araki (Kumamoto, Japan)
- 114 08:45 Improving safety in a closed loop system simulation of an artificial pancreas: the role of ketone bodies monitoring
V. Canonico, P.G. Fabietti, M. Orsini Federici, M. Massi Benedetti, E. Sarti (Perugia, Italy)
- 115 09:00 Home telecare system for newly diagnosed diabetic patients. Preliminary results of clinical efficacy evaluation
P. Ladyzynski, J.M. Wojcicki, J. Krzymien, P. Foltynski, K. Migalska-Musial, M. Tracz, W. Karnafel (Warsaw, Poland)
- 116 09:15 Factors influencing the insulin transport through the peritoneal membrane *in vitro*
T. Grzelak, B. Szary, K. Czyzewska (Poznan, Poland)
- 117 09:30 A finite elements model to optimise a hollow-fibers bioartificial pancreas
G. Casagrande, V. Borsani, A. Remuzzi, M.L. Costantino (Milan, Italy)
- 118 09:45 Isolation, purification and microencapsulation of xenogenic islet cells with sodium cellulose sulfate (NACS): a new method for creating a bioartificial pancreas
P. Stiegler, V. Stadlbauer, S. Schaffellner, O. Hauser, F. Iberer, K.H. Tscheliessnigg (Graz, Austria)

Plenary Lecture IV

Saturday, 10:05 - 10:45

Lecture Hall A

Chair: *M. Massi-Benedetti (Perugia, Italy), A. Tibell (Stockholm, Sweden)*

Current status of the artificial pancreas

D. Klonoff (San Francisco, USA)

10:45 – 11:00 *Coffee Break*

Apheresis

Chair: *B. Stegmayr (Umea, Sweden), H. Klinkmann (Rostock, Germany)*

- 11:00 Introduction
H. Klinkmann (Rostock, Germany)
- 11:15 World apheresis registry: recent data and where to find the site
B. Stegmayr (Umea, Sweden)
- 11:30 Immunoadsorption for the therapy of dilatative cardiomyopathy
R. Kunze (Berlin, Germany)
- 11:45 Rheumatoid arthritis: a new indication for leukocytapheresis
W. Ramlow (Rostock, Germany)
- 12:00 German guidelines for apheresis
H. Mann (Aachen, Germany)
- 12:15 Discussion and further planning
B. Stegmayr (Umea, Sweden), H. Klinkmann (Rostock, Germany)

Heart Valves, Tissue Engineering and Regenerative Medicine

Chair: *A. Bader (Leipzig, Germany), G. Rakhorst (Groningen, The Netherlands)*

Presentations:

- 119** 11:00 Nano technology for the artificial myocardium
T. Yambe, Y. Shiraishi, K. Sekine, Y. Hori, Y. Luo, S. Maruyama, T. Takagi, M. Esashi, Y. Haga, M. Yoshizawa, F. Sato, H. Matsuki, Y. Saijo, S. Nitta (Sendai, Japan)
- 120** 11:15 Mechanical and structural differences between acellular and native porcine aortic valves
T. Rusin, P. Wilczek, A.M. Baranska, Z. Religa (Zabrze, Poland)
- 121** 11:30 Additional regeneration therapy to severe failing heart supported with VAD for bridge to recovery
Y. Takewa, Y. Taenaka, E. Tatsumi, Y. Shirakawa, H. Naito, A. Homma, T. Mizuno, S. Kitamura, H. Takano (Osaka, Japan)
- 122** 11:45 Development of a completely decellularized and pre-cellularized functional porcine aortic valve
K. Iwasaki, S. Ozaki, T. Nakazawa, T. Kawai, Y. Imai, M. Ishihara, Y. Ohzeki, Y. Morimoto, M. Kikuchi, M. Umezu (Tokyo, Japan)
- 123** 12:00 Tissue engineering of heart valves: elimination of the alpha-Gal-epitope in decellularized porcine pulmonary conduits
M.T. Kasimir, E. Rieder, G. Seebacher, B. Winter, E. Eichmair, A. Nigisch, E. Wolner, G. Weigel, P. Simon (Vienna, Austria)

- 124 12:15 Gene therapy of advanced coronary artery disease with phVEGF165 in "no option patients"
P. Kolsut, M. Malecki, P. Zelazny, Z. Religa, P. Janik (Warsaw, Poland)

Sponsored Symposium Saturday, 11:00 - 12:30 Lecture Hall C

Diabetes treatment: How to prevent hyperglycemia

Chair: *D. Klonoff (San Francisco, USA), J.M. Wojcicki (Warsaw, Poland)*

- 11:00 Restoring beta-cell mass with glucagons-like peptide – 1 (GLP-1) – new therapeutic options for the type 2 diabetes
B. Gallwitz (Tubingen, Germany)
- 11:20 Islet transplantation – an update
A. Tibell (Stockholm, Sweden)
- 11:40 Technology, study results and device presentation of the first truly non-invasive continuous glucose monitor Pendra
T. W. Schrepher (Zurich, Switzerland)
- 12:00 Prevention of diabetic ketoacidosis in CSII treated patients
M. Massi-Benedetti (Perugia, Italy)
- 12:20 Discussion

Symposium sponsored by Novo Nordisk and Medtronic MiniMed

SUMMARY OF THE CONGRESS AND CLOSING CEREMONY Saturday 12:30 - 13:00 Lecture Hall A

Chair: *G. Rakhorst (Groningen, The Netherlands), J.M. Wojcicki (Warsaw, Poland)*

Farewell lunch Saturday 13:00 - 14:00 Exhibition Hall

POSTER SESSIONS

Thursday, September 9th, 2004

Chair: *B. H. Walpoth (Geneva, Switzerland)*

Session P-I

Thursday, 15:30 - 17:00

Exhibition Hall

Artificial Kidney and Dialysis. Experimental and Technical Aspects

- Chair: *B. Stegmayr (Umea, Sweden), Z. Wankowicz (Warsaw, Poland)*
- P1** Numerical analysis of blood and dialysate flow pattern in dialyzers
F. Kohori, K. Sakai (Tokyo, Japan)
- P2** Continuous veno-venous acetate-free biofiltration: a new technique of CRRT
C. Vitale, C. Bagnis, M. Marangella, A. Ramello (Torino, Italy)
- P3** Effect of surface modification on the biocompatibility of novel mesoporous carbons for the adsorption of middle molecules
D.J. Malik, G.L. Warwick, M. Venturi, K. Hellgardt, M. Streat, N. Hoenich (Loughborough, UK)
- P4** Computational modeling of cardiovascular response during hemodialysis
K.M. Lim, E.B. Shim, B.G. Min (Seoul, Korea)
- P5** Long-term outcomes of a vascular access surveillance (VAS) system
F. Lopot, B. Nejedlý, S. Sulková, J. Bláha (Praha, Czech Republic)
- P6** Impact of dialyzer flows and surface area on whole-body and dialyzer clearance of middle molecules
S. Eloot, J.Y. De Vos, F. De Vos, D. De Wachter, R. Hombrouckx, P. Verdonck (Gent, Belgium)
- P7** The usefulness of extended assessment of peritoneal transport kinetics of substance and water in peritoneal dialysis patients
D. Baczynski, S. Antosiewicz, J. Waniewski, M. Marciniak, Z. Wankowicz (Warsaw, Poland)
- P8** Comparison of correlation between traditional indices of nutritional status and bioelectrical impedance (BIA) parameters assessed before and after hemodialysis (HD) session
M. Jankowska, A. Debska-Slizien, M. Sulima-Gillow, B. Rutkowski (Gdansk, Poland)
- P9** Electron microscopic evaluation of the reused polysulfone dialysis membrane
Z. Zbrog, L. Klimek, A. Jander (Lodz, Poland)
- P10** Experimental study on the effect of pulsatile and non-pulsatile blood flow on ultrafiltration
K. Lee, B.G. Min (Seoul, Korea)
- P11** Numerical study of 3D unsteady blood flow in a femoral vein of hemodialysis
H.G. Yoon, E.B. Shim, B.G. Min (Seoul, Korea)
- P12** A variant of continuous flow PD in acute renal failure in children
J. Vande Walle, J. De Hoorne, R. Mael, A. Raes (Gent, Belgium)
- P13** Implantable catheter include SMA spring, controlled by inductive heater
J.H. Mun, J.C. Kim, S.W. Choi, K.H. Youn, B.G. Min (Seoul, Korea)
- P14** Anticoagulant-free dialysis efficient and safe with Polyflux[®] dialyzers
K. Wingren, M. Alquist (Lund, Sweden)

Cardiac Assist Devices I

- Chair: *A.A. Leirner (Sao Paulo, Brasil), Z. Nawrat (Zabrze, Poland)*
- P15** Lomakin-bearing for an implantable rotary blood pump
M. Akdis, M. Martin, H. Reul (Aachen, Germany)
- P16** An automatically driven displacement LVAD
B. Mussmann, T. Finocchiaro, H. Reul (Aachen, Germany)
- P17** Supporting effect of the implantable undulation pump ventricular assist device on ischemic heart failure
T. Yambe, Y. Shiraishi, Y. Abe, K. Imachi, I. Saito, S. Mochizuki, Y. Mitamura, M. Umezu, T. Matsuda, E. Okamoto, S. Nitta (Sendai, Japan)
- P18** Computation fluid dynamics (CFD) applications to rotary blood pump
X. Song, H.G. Wood, D.B. Olsen (Charlottesville, USA)
- P19** Development of design criteria for nutation pump
O. Sartori, L. Goubergrits, K. Affeld (Berlin, Germany)
- P20** Implanted artificial left ventricle
V. Tolpekin, N. Kulikov, D. Shumakov, O. Hrupachev, D. Sukhov, V. Morozov, N. Ignatova, I. Melemuka, E. Gasanov (Moscow, Russia)
- P21** Recent progress of moving-actuator type mechanical circulatory support systems
B.G. Min, J. Chung, K.W. Nam, J.C. Lee, Y.R. Rho, J.J. Lee, J.W. Park, S.W. Choi, J. Choi, C.M. Hwang, C.Y. Park, S.K. Park, H.S. Son, H. Kim, K. Sun (Seoul, Korea)
- P22** Design studies on a rotary blood pump with a hydromagnetically suspended rotor
M. Stoiber, C. Reindl, S. Eckhardt, L. Huber, H. Schmallegger, F. Raderer, R. Schistek, H. Schima (Vienna, Austria)
- P23** Tri-leaflet cardiac assist valve with a purge flow
T. Timmel, L. Goubergrits, K. Affeld (Berlin, Germany)

Biomaterials

- Chair: *D. Falkenhagen (Krems, Austria), A. Chwojnowski (Warsaw, Poland)*
- P24** Theoretical aspects of human serum albumin adsorption on spherical (SKN) and fibrous (CFA) carbon adsorbents
E. Eretsky, E. Eretskaya (Kiev, Ukraine)
- P25** High performance gene delivery polymeric vector: blocking of branch chains in star-shaped polymers
Y. Nakayama, C. Kakei, T. Masuda, M. Shiba, M. Ohira (Osaka, Japan)
- P26** Silicone breast prostheses – implants with date of expiration?
A. Janke, N. Unbehau, L. Kovacs, N. Pallua, B. Glasmacher (Aachen, Germany)
- P27** The influence of streptomycin on the structural properties of collagen-rich tissues
B. Cwalina, A. Turek, L. Pawlus-Lachecka, J. Nozynski, Z. Nawrat (Zabrze, Poland)

- P28** Ionomer cement use in long incudal process reconstruction
H. Skarzynski, M. Mrowka, P. Mlotkowska-Klimek, L. Sitarz (Nadarzyn, Poland)
- P29** Stainless steel with a negligible amount of nickel: an *in vitro* of branch chains application in the osteoporotic bone
M. Finj, G. Giavaresi, V. Bonazzi, R. Giardino, L. Rimondini, P. Torricelli, V. Borsari, R. Chiesa, A. Cigada (Bologna, Italy)
- P30** Some specialities of investigation of HSA adsorption on carbon fibrous materials (CFM)
E. Eretskaya, E. Eretsky (Kiev, Ukraine)
- P31** Nanocrystalline diamond coating at Ti6Al4V alloy
W. Okroj, L. Klimek, W. Jakubowski, I. Przybyszewska, M. Pirek, P. Komorowski, B. Walkowiak (Lodz, Poland)
- P32** Chemical surface modification of diamond powder particles
M. Pirek, B. Walkowiak (Lodz, Poland)
- P33** Corrosion and inflammatory response of biomaterials for stent manufacture
A. Guildford, S. Field, D. Teer, M. Santin, L. Mikhalovska, S. Mikhalovsky (Brighton, UK)
- P34** Dry test for determination of salicylates concentration in whole blood – preliminary tests
E. Lukowska, K. Dudzinski, A. Chwojnowski, C. Wojciechowski (Warsaw, Poland)
- P35** Natural vascular grafts treated by heparin containing coating
L.I. Volynetz, E.A. Nemets, A.V. Bel'kov, V.I. Sevastianov (Moscow, Russia)
- P36** Platelet activation: aggregation, ATP release and adhesion induced by biomaterial surface
E.A. Remeeva, E.A. Nemets, I.B. Rozanova, V.I. Sevastianov (Moscow, Russia)

Session P-IV

Thursday, 15:30 - 17:00

Exhibition Hall

Fluid Dynamics

- Chair: *K. Affeld (Berlin, Germany), J. Waniewski (Warsaw, Poland)*
- P37** Fluid dynamics of prosthetic heart valves: vortex tracking in the valsalva sinus by means of particle image velocimetry
M. Grigioni, C. Daniele, D. Di Meo, U. Morbiducci, G. D'Avenio, C. Del Gaudio, V. Barbaro (Rome, Italy)
- P38** PIV investigation in the hinge area of a novel bileaflet mechanical heart valve (HIA-BILEAFLET)
D. Medart, K. Hamilton, B. Wieneke, H. Reul (Aachen, Germany)
- P39** Stereo particle image velocimetry measurements of the flow field downstream of prosthetic heart valves
M. Grigioni, C. Daniele, D. Di Meo, G. D'Avenio, U. Morbiducci, C. Del Gaudio, V. Barbaro (Rome, Italy)
- P40** Development of dynamic particle image velocimetry toward the study of spatio-temporal dynamics of turbulent flow in artificial heart valves
T. Yagi, D. Ishikawa, T. Akutsu, K. Iwasaki, Y. Noguchi, M. Umezu (Tokyo, Japan)

- P41** Numerical simulation of dye washout in artificial heart valve flow
L. Goubergrits, T. Timmel, K. Affeld, Ch. Petz, D. Stalling (Berlin, Germany)
- P42** Time resolved high resolution PIV analysis of the flow field of bi-leaflet mechanical mitral prostheses
T. Akutsu, M. Fukuda (Yokohama, Japan)
- P43** Endothelium response to time dependent numerical simulation in a three-dimensional model of aortic arch
M. Grigioni, C. Daniele, C. Del Gaudio, U. Morbiducci, G. D'Avenio, M. Abbate, D. Di Meo, V. Barbaro (Rome, Italy)
- P44** Experimental flow studies in carotid artery models with and without stents
D. Liepsch, T. Schmid, G. Klügel, A. Sakurai, Y. H. Peng (Munich, Germany)
- P45** Turbulent viscous stress downstream of a prosthetic heart valve, measured with PIV
M. Grigioni, C. Daniele, D. Di Meo, G. D'Avenio, U. Morbiducci, C. Del Gaudio, V. Barbaro (Rome, Italy)
- P46** Numerical simulation of the turbulent flow field for a bileaflet mechanical heart valve in steady state conditions
M. Grigioni, C. Daniele, C. Del Gaudio, G. D'Avenio, U. Morbiducci, D. Di Meo, M. Abbate, V. Barbaro (Rome, Italy)
- P47** Computational analysis on performance of cannula with side holes: number and array of side holes
J.Y. Park, B.G. Min (Seoul, Korea)
- P48** *In vitro* flow field and sound study of bi-leaflet mechanical mitral prostheses
T. Akutsu, R. Imai, Y. Deguchi (Yokohama, Japan)

Session P-V

Thursday, 15:30 - 17:00

Exhibition Hall

Cell Therapy

- Chair: *U. Losert (Vienna, Austria), I. Sauer (Berlin, Germany)*
- P49** Human preproinsulin gene delivery into mammalian liver cells *in vivo*
O. Toporova, T. Titok, T. Ruban, O. Suhorada, D. Irodov, V. Kordyum (Kiev, Ukraine)
- P50** Transformation of mammalian cells during interaction of two partners consisting from different cells
O. Suhorada, T. Ruban, O. Deryabina, O. Toporova, V. Kordyum (Kiev, Ukraine)
- P51** Design of a new microcapsule membrane combining alginate, chitosan, polyethylene glycol and poly-L-lysine for cell transplantation
T. Haque, H. Chen, W. Ouyang, T. Metz, C. Martoni, S. Prakash (Montreal, Quebec, Canada)
- P52** Evaluation of the therapeutic effects of fetal human liver extracts in carbon tetrachloride-induced liver cirrhosis in rats
V.E. Ryabinin, E.L. Kurenkov, S.I. Grobovoy, E.E. Polevschikova, S.N. Krasnopeeva, A.M. Malysheva, P.N. Popkov (Chelyabinsk, Russia)
- P53** Interaction between mouse embryonic cells and CHO cells
V. Kordyum, S. Shpylova, V. Andrienko, T. Ruban, O. Suhorada, D. Irodov, O. Deryabina (Kiev, Ukraine)

- P54** Effect of cryoconservation on the oxygen uptake of human erythrocytes under shear flow conditions
N.J. Dickgreber, I. Heschel, V. Radvan, G. Rau, K. Mottaghy (Magdeburg, Germany)
- P55** The influence of encapsulation and of cryopreservation on porcine islets of Langerhans function in culture
J. Kinasiewicz, M. Sabat, E. Godlewska, T. Orłowski (Warsaw, Poland)
- P56** Temperature control of the shape memory alloy switching connector of implantable catheter
S.W. Choi, K.H. Youn, J.C. Kim, J.H. Mun, J.C. Lee, B.G. Min (Seoul, Korea)
- P57** Design inductive heater for SMA (shape memorial alloy) controlled implantable catheter
K.H. Youn, S.W. Choi, J.H. Mun, J.C. Kim, J.C. Lee, B.G. Min (Seoul, Korea)
- P58** Evaluation of the biocompatibility of the hollow fibre membranes for biotechnological applications by survival analysis of *E.coli* encapsulated within
L.H. Granicka, M. Wdowiak, A. Kosek, S. Swiezewski, D. Wasilewska, E. Jankowska, A. Werynski, J. Kawiak (Warsaw, Poland)
- P59** Increasing bead density in the fluidized bed bioartificial liver
R. Baudoin, B. David, C. Legallais (Compiègne, France)
- P60** Two-liquid droplet electrostatic formation technique for microencapsulation of living cells
D. Lewinska, S. Rosinski, J. Bukowski, A. Werynski (Warsaw, Poland)

Session P-VI

Thursday, 15:30 - 17:00

Exhibition Hall

Modeling and Simulations I

- Chair: *A. Werynski (Warsaw, Poland), G. Ferrari (Roma, Italy)*
- P61** The decision of an accelerated coefficient using Weibull distribution on T-PLS
H. Choi, C.Y. Park, B.G. Min (Seoul, Korea)
- P62** A steady-state model of a single nephron considering the hormones effects
J.C. Kim, B.G. Min (Seoul, Korea)
- P63** A pulsatile systemic arterial model for training physicians in interventional therapies
P. Segers, L. Delaporte, H. Buyl, H. Lambert, P. Verdonck (Gent, Belgium)
- P64** Effects of recurrent inhibition on motoneuron synchronization - simulation study
F. Ponulak, (Poznan, Poland)
- P65** Solution of the FPE describing diffusion in alveoli
G. Pallotti, P. Pettazzoni, M. Mattina, M. Nichelatti, I. Barbieri (Bologna, Italy)
- P66** A novel model of the circulation (electro-hydr numerical): merging of physically different functional modules
M. Kozarski, G. Ferrari, K. Gorczynska, K. Palko, A. Tokarz, C. De Lazzari, G. Tosti, M. Darowski (Warsaw, Poland)
- P67** A family of circulatory models developed to analyze and predict physiopathological events
G. Ferrari, C. De Lazzari, M. Darowski, M. Kozarski, K. Gorczynska, G. Tosti (Rome, Italy)
- P68** Virtual respiratory system verification: comparative study of real and simulated results of diagnosis of patients in different clinical states
T. Golczewski, M. Darowski (Warsaw, Poland)

- P69** User interface for the previously built virtual respiratory system
M. Michnikowski, T. Golczewski, M. Guc (Warsaw, Poland)
- P70** Mathematical modelling of the airflow in the artificial airways
B. Kuraszkiewicz (Warsaw, Poland)

Session P-VII

Thursday, 15:30 - 17:00

Exhibition Hall

Miscellaneous I

- Chair: *P. S. Malchesky (Cleveland, USA), D.G. Pijanowska (Warsaw, Poland)*
- P71** Nadroparin and conventional heparin as a consecutive monotherapy for slowing down the progression of glomerulopathy in predialysis patients with renal impairment
Yu. B. Kovaliv (Lvov, Ukraine)
- P72** Diastolic and systolic function of left ventricle (LV) in end-stage renal disease patients undergoing renal transplantation
M. Dudziak, A. Debska-Slizien, B. Rutkowski (Gdansk, Poland)
- P73** Frequency of end-stage renal disease in survivors of acute tubular necrosis
H. Schiffli, S. Lang (Munich, Germany)
- P74** More accurate and stable endovascular stent-graft delivery using modified stabilizing system: secure delivery under hemodynamic conditions
K. Oka, K. Kanda, H. Yaku (Kyoto, Japan)
- P75** Comparison between the perioperative nursing standard procedure for vascular prosthesis implants and its application in two important Italian hospitals
M.G. Bernardi, F. Burrai, D. Cenerelli, M.P. Sarli (Bologna, Italy)
- P76** Therapeutic anticoagulant range after cardiac valve replacement in Japanese patients
T. Kudo, N. Konagai, H. Yano, S. Makimura, K. Nishida (Tokyo, Japan)
- P77** About robots, biological systems and artificial organs - mutual inspirations and progresses
Z. Nawrat (Zabrze, Poland)
- P78** The mechatronic endosurgery tools as a artificial hand of surgeon
Z. Nawrat, P. Kostka, Z. Malota, A. Kandora (Zabrze, Poland)
- P79** Control system of RobInHeart cardiac surgery robot. Towards more user friendly solutions
P. Kostka, Z. Nawrat, Z. Malota (Zabrze, Poland)
- P80** ELMECO-1 – expert system to support patient's decision
J. Pietka (Warsaw, Poland)
- P81** Acquisition and analysis of EMG signals during cycling for functional electro stimulation
R. Tosato, N. Petrone, E. Mattielli (Padova, Italy)
- P82** Mammographic ontology - conceptual model of the domain
T. Podsiadly-Marczykowska, A. Guzik (Warsaw, Poland)
- P83** Development of peristaltic artificial esophagus
K. Sekine, Y. Hori, Y. Shiraishi, Y. Saijoh, Q. Wang, X. Duan, H J. Liu, H. Matsuki, F. Satoh, T. Maeda, T. Yambe (Sendai, Japan)

POSTER SESSIONS

FRIDAY, September 10th, 2004

Chair:: B. Stegmayr (Umea, Sweden)

Session P-VIII

Friday, 15:30 - 17:00

Exhibition Hall

Artificial Kidney and Dialysis. Clinical Aspects of Hemodialysis and Peritoneal Dialysis

Chair: H. Mann (Aachen, Germany), L. Coli (Bologna, Italy)

- P84** Requirements of erythropoietin in adynamic bone disease of dialysis patients
A. Sikole, G. Spasovski, M. Polenakovic, K. Abendroth, R. Schmidt, P. Scigalla, H. Klinkmann (Skopje, Macedonia)
- P85** The association of frequent- and occasional intradialytic hypotension with survival: five-year follow-up
A. Tislér, K. Akócsi, I. Hárshgyi, G. Varga, S. Ferenczi, S. Görögh, M. Grosz, I. Kulcsár, J. Németh, J. Sámik, J. Szegedi, E. Tóth, Gy. Wágner, I. Kiss (Budapest, Hungary)
- P86** No benefit from atorvastatin for patients with severe chronic kidney disease: a randomised controlled endpoint study
B.G. Stegmayr, M. Brännström, S. Bucht, V. Crougneau, E. Dimeny, A. Ekspong, M. Eriksson, B. Granroth, K.C. Gröntoft, H. Hadimeri, B. Holmberg, B. Ingman, B. Isaksson, G. Johansson, K. Lindberger, L. Lundberg, L. Mikaelsson, E. Olausson, B. Persson, H. Stenlund, A.M. Wikdahl for the Nediat study group (Umea, Sweden)
- P87** Lipid abnormalities and effect of atorvastatin in hemodialysis (HD) patients
T. Ospanova, N. Kotulevich (Kharkov, Ukraine)
- P88** Dynamics of organic brain damage in hemodialysis patients
Z. Afeltowicz, M. Majkowicz, A. Debska-Slizien, M. Lichodziejewska-Niemierko, B. Rutkowski (Gdansk, Poland)
- P89** Hemostatic parameters as markers of endothelial injury in kidney diseased and hemodialysis patients
P. Dejanov, A. Oncevski, G. Spasovski, B. Dejanova (Skopje, R. Macedonia)
- P90** Renal osteodystrophy an evolving disorder: a follow up with three bone biopsies within 3 years of dialysis enrolment
G. Spasovski, A. Šikole, S. Gelev, J. Masin, T. Freemont, I. Webster, M. Gill, C. Jones, P. D'Haese, M. De Broe (Skopje, R. Macedonia)
- P91** Platelet function during ozonotherapy in chronically hemodialyzed patients
S. Lizakowski, L. Tylicki, B. Biedunkiewicz, T. Nieweglowski, A. Skibowska, A. Debska-Slizien, A. Chamienia, B. Rutkowski (Gdansk, Poland)
- P92** Renoprotective properties of low molecular weight heparins in predialysis and posttransplant patients with nephrotic proteinuria
Yu.B. Kovaliv, C. Braun (Lvov, Ukraine)
- P93** Diagnostics approach to asymptomatic coronary heart disease (CHD) in hemodialysis (HD) patients
B. Januszko-Giergielewicz, A. Debska-Slizien, J. Forfa, A. Calka, J. Gorny, K. Prochniewska, J. Kozak, K. Oniszczyk-Baczkiwicz (Olsztyn, Poland)

- P94** Natural killer (NK) cell activity and IL-6 serum levels are unaffected by ozonated autohemotherapy (O₃ AHT) in patients on maintenance hemodialysis (HD)
B. Biedunkiewicz, L. Tylicki, D. Rachon, T. Nieweglowski, A. Chamienia, A. Debska-Slizien, J. Mysliwska, B. Rutkowski (Gdansk, Poland)
- P95** Reduced circulating age levels and lower genomic damage in patients undergoing daily versus standard hemodialysis
E. Fragedaki, M. Nebel, N. Schupp, K. Sebekova, W. Völkel, A. Klassen, M. Pischetsrieder, M. Frischmann, T. Niwa, J. Vienken, A. Heidland, H. Stopper (Würzburg, Germany)
- P96** Platelets adenine nucleotide in renal diseases
P. Jagodzinski, S. Lizakowski, Z. Zdrojewski, R.T. Smolenski, B. Rutkowski (Gdansk, Poland)
- P97** How we treat diabetic patients on maintenance hemodialysis – country experience
M. Polenakovic, G.I. Nikolov, G. Petrovski, S. Pavleska, A. Shikole, R. Grozdanovski (Skopje, Macedonia)
- P98** Do we treat hypertension well in diabetic patients with end-stage renal disease and on maintenance hemodialysis
G.I. Nikolov, M. Polenakovic, G. Petrovski, S. Pavleska, A. Shikole, R. Grozdanovski (Skopje, R. Macedonia)
- P99** It seems to be good overweight on hemodialysis
S. Simic-Ogrizovic, M. Stosovic, N. Ninkovic, V. Ostric, Lj. Djukanovic (Belgrade, Serbia and Montenegro)
- P100** The impact of different factors on parathyroid hormone response in hemodialysis patients
S. Gelev, G. Spasovski, A. Šikole, R. Grozdanovski (Skopje, R. Macedonia)

Session P-IX

Friday, 15:30 - 17:00

Exhibition Hall

Total Artificial Heart

- Chair: *B. H. Walpoth (Geneva, Switzerland), H. Reul (Aachen, Germany)*
- P101** Development of the national cardiovascular center electrohydraulic totally implantable artificial heart
A. Homma, Y. Taenaka, E. Tatsumi, Y. Takewa, T. Kamimura, T. Mizuno, K. Shioya, H. S. Lee, T. Tsukiya, Y. Kakuta, N. Katagiri, H. Takano, S. Kitamura, K. Koshiji, H. Wakui, K. Tsuchimoto, H. Fukuda, K. Tsukahara (Osaka, Japan)
- P102** Thrombusformation and renal embolisation are dependent on placement of atrial cannula in a sheep model of atrio-aortal left ventricular assist device
J.D. Schmitto, H. Alekuzei, K. Steinke, C. Ballat, H. Doerge, O. Marseille, F.A. Schoendube (Goettingen, Germany)
- P103** Design of transcutaneous information transmission system for improvement of productivity
E. Okamoto, T. Makino, H. Asao, S. Tanaka, Y. Inoue, N. Watanabe, T. Nakamura, I. Saito, Y. Abe, T. Chinzei, T. Isoyama, S. Mochizuki, K. Imachi, Y. Mitamura (Sapporo, Japan)
- P104** Transcutaneous energy system for implantable artificial hearts
T. Schmid, R. Gruber, W. Schiller, D. Liepsch, G. Hirzinger, A. Welz (Wessling, Germany)

- P105** Factors affecting stability of passive Maglev impeller in centrifugal pump
K.X. Qian, D.F. Wang, S. Topaz, P. Zeng, W.M. Ru, H.Y. Yuan, J.B. Zwischenberg (Zhenjiang, China)
- P106** Tests of hemolysis in a constant retrograde flow through mechanical heart valve prosthesis
A. Evdokimov, A. Drobishev, V. Tolpekin, E. Konisheva, G. Itkin (Penza, Russia)
- P107** Development of pneumatic blood pump for wearable ventricular assist device
C.M. Hwang, G.S. Jung, M.W. Jung, J.S. Kang, K.W. Nam, J.H. Jung, K.B. Lee, H.S. Son, K. Sun (Seoul, Korea)
- P108** Φ 25 mm outer diameter and 40 gram weight implantable aortic valvo-pump (IAVP) with sufficient hemodynamic capacity
K.X. Qian, D.F. Wang, S. Topaz, P. Zeng, W.M. Ru, H.Y. Yuan, J.B. Zwischenberg (Zhenjiang, China)
- P109** Development of an automatic pressure compensating system in wearable pneumatic ventricular assist device
M.W. Jung, C.M. Hwang, K.W. Nam, J. Chung, Y.D. Park, K.B. Lee, K. Sun (Seoul, Korea)
- P110** Failure mode and effects analysis and fault tree analysis for moving-actuator type artificial heart
J. Chung, J. Choi, K. Nam, C. Hwang, B. Min, K. Sun (Seoul, Korea)

Session P-X

Friday, 15:30 - 17:00

Exhibition Hall

Cardiac Assist Devices II

- Chair: *M. Umezu (Tokyo, Japan), J. F. del Cañizo (Madrid, Spain)*
- P111** Power spectral analysis of arterial pressure waves for evaluation of autonomic nervous system activity of patients with mechanical circulatory support
T. Tsutsui, T. Kuwabara, R. Takiya, O. Shigeta, Y. Sakakibara, Y. Sankai (Tsukuba, Japan)
- P112** A newly designed cannula for left ventricular bypass
T. Fujimoto, A. Yonekawa, M. Aruga, N. Kabei, M. Yoshida, M. Umezu (Tokyo, Japan)
- P113** Longterm efficacy of Actros DR/D & Therra DR in prevention of vasovagal syncope
D. Wojciechowski, K. Peczański, P. Sionek (Warsaw, Poland)
- P114** An experimental test-bed for evaluating feedback control schemes for ventricular assist devices
A. Ficola, S. Pagnottelli, P. Valigi, M. Zoppitelli (Perugia, Italy)
- P115** Acoustic method of noninvasive blood volume monitoring in POLVAD pump
M. Darlak, Z. Opilski, M. Gawlikowski, R. Kustosz, T. Pustelny (Zabrze, Poland)
- P116** Application of ball-milling method and RF-plasma treatment in ventricular assist device
K.H. Lee, S.H. Lee, H.S. Lee, B.G. Min (Seoul, Korea)
- P117** Supporting the abdominal organs during cardio-pulmonary bypass with the pulsatile organ perfusion pump
Y.J. Gu, T.L. de Kroon, W. van Oeveren, P.W. Boonstra, G. Rakhorst (Groningen, The Netherlands)

- P118** Flow estimation for pneumatic ventricular assist device with bellows mechanism
J.S. Kang, G.S. Jeong, M.W. Jung, C.M. Hwang, Y.D. Park, K.B. Lee, K. Sun (Seoul, Korea)
- P119** Wireless monitoring of a moving-actuator type extracorporeal VAD
K.W. Nam, J. Choi, J. Chung, B.G. Min (Seoul, Korea)

Session P-XI

Friday, 15:30 - 17:00

Exhibition Hall

Modeling and Simulations II

- Chair: *W. Torbicz (Warsaw, Poland), C. Legallais (Compiègne, France)*
- P120** CAE simulation of hemodynamics in artificial heart ventricle with moving membrane
V.V. Morozov, N.S. Sergevnina, A.B. Kosterin (Vladimir, Russia)
- P121** Hybrid test bench for evaluation of any device related to mechanical cardiac assistance
M. Arabia, F. Colacino, G.A. Danieli, F. Moscato, S. Nicosia, S. Pagnottelli, F. Piedimonte, P. Valigi (Rome, Italy)
- P122** IABP effects on hemodynamics and ventricular energetics: a computer model study
G. Ferrari, M. Kozarski, C. De Lazzari, M. Darowski, K. Gorczynska, G. Tosti (Rome, Italy)
- P123** A mock circulation for hemodynamic studies in biological specimens and its application to aortic prostheses
H. Schima, L. Huber, D. Zimpfer, M. Ehrlich, N. Simon-Kupelik, P. Simon (Vienna, Austria)
- P124** The physical and computer biological valve prostheses defects modelling
Z. Malota, Z. Nawrat, P. Kostka (Zabrze, Poland)
- P125** Numerical study of three dimensional unsteady blood flow in the sac of T-PLS with variation of pump rate
G.S. Jeong, H.J. Ko, H.C. Seong, E.B. Shim, B.G. Min, K. Sun (Seoul, Korea)
- P126** The problem of estimating left ventricle maximum elastance
M. Arabia, B. Borella, G. Danieli, E. Lucchi, S. Nicosia, P. Valigi (Perugia, Italy)
- P127** Modelling of cardiovascular system: development of a hybrid (numerical-hydraulic) model
G. Ferrari, M. Kozarski, C. De Lazzari, K. Gorczynska, M. Guaragno, G. Tosti, M. Darowski (Rome, Italy)
- P128** Educational applications of a hybrid (numerical-electrical) model: IABP assistance
G. Ferrari, M. Kozarski, C. De Lazzari, K. Gorczynska, M. Guaragno, G. Tosti, M. Darowski (Rome, Italy)
- P129** *In vitro* study of commercially available annuloplasty rings for mitral regurgitation
R. Noda, M. Arita, M. Okuda, H. Doi, K. Iwasaki, T. Tanaka, H. Kasegawa, M. Umezu (Tokyo, Japan)

Tissue Engineering and Immunomodulation

- Chair: *J. Kawiak (Warsaw, Poland), M. Lysaght (Providence, USA)*
- P130** Polyglycolide nonwovens as carrier matrices for periodontal cells
P. Buttler, U. Wiesemann, H.G. Gräber, C. Becker (Aachen, Germany)
- P131** Bioreactor system for mechanical pressure stimulation of autologous intervertebral disc and cartilage implants
C. Weber, S. Gokorsch, T. Wedler, P. Czermak (Giessen, Germany)
- P132** Urological tissue engineering with new textile cell carrier matrices and fibrin glue
C. Becker, U. Wiesemann, J. Profee, T. Läufer, G. Jakse (Aachen, Germany)
- P133** Hepatocyte microarray chip by using spherical multicellular aggregate (spheroid) culture
J. Fukuda, K. Nakazawa (Kitakyushu, Japan)
- P134** Implantation of tissue-engineered acellularized porcine pulmonary valves in the goat
W.G. Kim, J.H. Huh, J.M. Kim, J.W. Seo, J.K. Park (Seoul, Korea)
- P135** Engineered collagen-like polypeptide scaffolds controlling proliferation and differentiation of bone marrow stromal cells
M. Tanihara, K. Kajiwara, M. Osanai, M. Namekata, S. Ogata (Ikoma, Japan)
- P136** Influence of cells from different mouse embryonic tissues on adult animals
T. Titok, T. Gulko, T. Ruban, O. Suhorada, L. Likhacheva, O. Deryabina, V.Kordyum (Kiev, Ukraine)
- P137** The genetical polymorphism in the culture of human hemopoietic cells
L.L. Macewicz, L.L. Lukash, V.Yu. Chernenko, T.P. Kochubey, A.A. Elesichev, E.A. Klimenko, L.N. Gorban (Kiev, Ukraine)
- P138** Cardiac tissue engineering – performance of cardiac myocytes on different extracellular matrix components
K. Macfelda, B. Kapeller, E. Falkner, U.M. Losert (Vienna, Austria)
- P139** Modification of the chorionallantoic membran (CAM) testsystem: data interpretation at incubation day 10
E. Falkner, C. Eder, H. Appl, B. Kapeller, K. Macfelda, U. Losert, W. Pfaller, H. Schöffl (Vienna, Austria)
- P140** Trombogenicity of GBR devices
M. Kozakiewicz, W. Okroj, B. Walkowiak, L. Klimek, M. Lobos (Lodz, Poland)
- P141** Obtaining and characterization of single chain antibodies to certain epitope of human interferon $\alpha 2b$ molecule
P. Gilchuk, A. Yakovenko, O. Okunev, D. Irodov (Kiev, Ukraine)
- P142** Homologous albumin for experimental prevention of postoperative pericardial adhesions
E. Khabiri, K. Djebaili, M. Cikirikcioglu, J.C. Pache, D. Morel, A. Kalangos, B.H. Walpoth (Geneva, Switzerland)
- P143** Promotion of neurite outgrowth from fetal hippocampal cells by TNF receptor-derived peptide
K. Kajiwara, S. Ogata, M. Tanihara (Ikoma, Japan)

Artificial Lung & Gas Exchange and Respiratory Systems

- Chair: *M. Darowski (Warsaw, Poland), K. Mottaghy (Aachen, Germany)*
- P144** Pulmonary diffusion capacity in lung diseases
P. Pettazzoni, G. Pallotti, M. Mattina (Bologna, Italy)
- P145** Computer estimation of basic mechanical parameters of lungs using the extra added compliance method
K.J. Palko (Warsaw, Poland)
- P146** Control of ventilatory parameters for children during independent lung ventilation
J. Glapinski, M. Darowski, A. Rogalski, M. Luchetti, G. Marraro (Warsaw, Poland)
- P147** The mechanical properties of surfactant and the effects on the lung in the respiration
F. Albanesi, M. Mattina, G. Pallotti, P. Pettazzoni (Bologna, Italy)
- P148** Highly integrated extracorporeal membrane oxygenator with rotary blood pump – *in vitro* experiments
A. Strauß, G.F. Cattaneo, D. Henzler, H. Reul (Aachen, Germany)
- P149** Computational fluid dynamics (CFD) approach to estimate oxygen (O₂) transfer capacity of a new intravenous hollow fiber gas transfer device (IHFGTD)
J. Mallabiabarrena, G. Mucciolo, A. Mucciolo, S. Taub, L.K. von Segesser (Lausanne, Switzerland)
- P150** Non equilibrium O₂-dissociation curves (ODC): a new approach
A. Henseler, K. Mottaghy (Aachen, Germany)
- P151** *In vitro* continuous CO₂ removal with hydrophilic membranes from slowly flowing blood
P. Czermak, B. Razcuhn, M. Walz, G. Catapano (Rende, Italy)
- P152** Antioxidant status and copper metabolism in obstructive sleep apnea men qualified for CPAP therapy
E. Wysocka, S. Cofta, M. Zowczak-Drabarczyk, L. Torlinski (Poznan, Poland)

Miscellaneous II

- Chair: *H. Schima (Vienna, Austria), H. Skarzynski (Nadarzyn, Poland)*
- P153** Middle ear implant in sensorineural hearing loss
H. Skarzynski, A. Piotrowska, A. Lorens, A. Obrycka, M. Mrowka (Nadarzyn, Poland)
- P154** The bienzymatic biosensors for analysis of urea in biological fluids
T. Trybun, M. Maliszewska-Mazur, M. Dawgul, D.G. Pijanowska, W. Torbicz (Warsaw, Poland)
- P155** Methods of urease immobilisation for micro-analytical system fabrication
D.G. Pijanowska, E. Remiszewska, W. Torbicz (Warsaw, Poland)

- P156** Transdermal matrix delivery system of acetylsalicylic acid
A.A. Tihobaeva, E.O. Duplyakin, L.A. Salomatina, V.I. Sevastianov (Moscow, Russia)
- P157** Methodology of 3D biological data merging, processing and visualization
T. Kucharski, M. Kujawska (Warsaw, Poland)
- P158** Processing of biosignals using fractal and symbolic complexity methods
W. Klonowski, E. Olejarczyk, R. Stepien (Warsaw, Poland)
- P159** Extrapolation methods of start point for hybrid segmentation of microscopic images of living cells
W. Strojny, A. Korzynska (Warsaw, Poland)
- P160** Noninvasive monitoring of arterial blood volume using photo-plethysmography method with wireless Bluetooth
J.S. Kim, J.W. Seo, M.S. Ryu, K.S. Park (Seoul, Korea)
- P161** Intraaortic counterpulsation balloon pump (IABP) in elderly patients (clinico-immunological aspects)
V. Tolpekin, V. Suskova, D. Shumakov, L. Ermakova, A. Koldaeva, A. Narzikulov, V. Emets, I. Ludogovskaya-Melemuka (Moscow, Russia)
- P162** Evaluation of electronic scanning microscopy usefulness in vascular cannula wear recognition
L. Klimek, W. Machala (Lodz, Poland)
- P163** Sensory aids for EMG prosthetic hand by interference current stimulation
M. Yoshida, Y. Sasaki Terao, K. Yada (Osaka, Japan)
- P164** Regeneration of the peripheral nerve on an artificial nerve (biodegradable nerve guide tube)
T. Nakamura, S. Fukuda, A. Nakada, T. Kobayashi, S. Itoi, Y. Kishigame, K. Shigeno, S. Kanemaru, Y. Inada, T. Fujikawa, K. Endo (Kyoto, Japan)
- P165** World Apheresis Registry
B.G. Stegmayr, P. Ivanovich, J.M. Korach, G. Rock, R. Norda, W. Ramlow (Umea, Sweden)