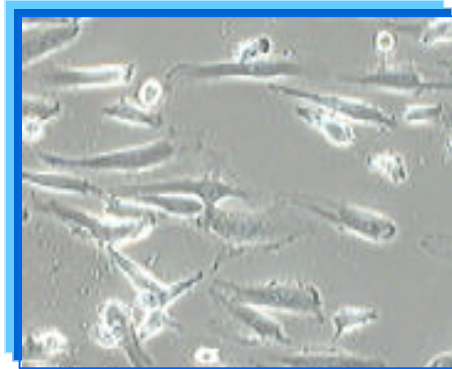


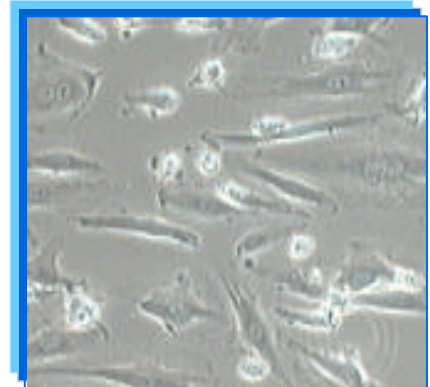
# *BioFluMeN*

*“Biological Fluid Mechanics Network”*



BioFluMeN - IV

*Aula Bovet – Viale Regina Elena 299*  
Istituto Superiore di Sanità



*“Innovative methods & techniques  
in the assessment of medical devices for the cardiovascular system”*

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Roma, 15 September 2005

ISTITUTO SUPERIORE DI SANITÀ

IV WORKSHOP BIOFLUMEN

“Biological Fluid Mechanics Network”

*Innovative methods & techniques in the assessment of  
medical devices for the cardiovascular system*

Roma, 15 September 2005

## BioFluMeN IV

*Innovative methods & techniques in the assessment of  
medical devices for the cardiovascular system*

Organized by  
ISTITUTO SUPERIORE DI SANITA'

The relevance of technological assessment of Medical Devices, and particularly those implanted in the circulatory system, calls for technological innovation both at the design and evaluation level. The IV BioFluMeN ("Biological Fluid Mechanics Network") Workshop is meant to contribute to the discussion of the potentialities of advanced techniques for the study of biomedical devices performances together with state of the art or future applications. The workshop will report issues related to the FP5 EU Project "SMART PIV"

15 September 2005

- 9.20 *Welcome address by the President of the ISS*  
**E. Garaci**
- 9.30 *Welcome address by the chief of the Technology and Health Department*  
**G. Zapponi**
- 9.40 *Presentation of the IV BioFluMeN Workshop*  
*New perspective for in vitro innovative methods & techniques*  
**M. Grigioni**

**I Session: Tissue engineering for innovative medical devices**

**Chairman: F. Rocco**

- 10.00 *Perspective of new Medical Devices by tissue engineering – A valve for the future?*  
**F. Rocco**
- 10.15 *Electric Cell-substrate Impedance Sensing*  
**P. Filippini**
- 10.30 *Acellularization of Native Specimen for vascular tissue engineering*  
**P. P. Parnigotto**
- 10.45 *Polymeric scaffolds for vascular tissue engineering*  
**M.T. Conconi**
- 11.00 *Cell culture on PCL scaffolds*  
**C. Del Gaudio**
- 11.15 *Break*

**II Session: Innovative methodologies in investigation and dissemination of medical devices performances**

**Chairman: F Lagasco**

- 12.00 *SMART PIV: 3-year EU project on fluid dynamics of Medical devices, relationship with Med Dev risk analysis*  
**M. Grigioni, F Lagasco**
- 12.15 *PIV measurements on biomedical devices within the Smart-PIV European Project*  
**M. Falchi**
- 12.30 *Development of an integrated system for the analysis of blood flow in artificial organs based on the comparison of PIV tests and CFD simulations*  
**D. Palmieri**
- 12.45 *3D PIV evaluation of a heart valve*  
**U. Morbiducci**

13.00 *3D PIV evaluation of a ventricular assist device*  
**G. D'Avenio**

13.15 *WEB service from Iss and Grid technology in disseminating fluid flow data*  
**M. Vescovi**

Break

14.30 *Investigation of mechanical heart valves fluid dynamics by laser based measurement techniques*  
**L. Scalise**

14.45 *High temporal resolution investigation of prosthetic heart valves in vitro fluid dynamics*  
**M. Rossi**

15.00 *Estimating internal filtration in high-flux hemodialyzers: a semiempirical mathematical model*  
**G.B. Fiore**

15.15 *Automatic evaluation of carotid stenosis from Doppler echotomographic analysis*  
**E. Properzi**

15.30 *Helical flow: a flow signature for the identification of sites prone to atherogenesis?*  
**R. Ponzini**

15.45 *Mechanical approach for cardiac resynchronization by means of laser Doppler vibrometry*  
**M. De Melis**

### **III Session: Innovative Surgery**

**Chairman: V. Luisi**

16.00 *Computational fluid dynamics optimization of TCPC using clinical imaging*  
**L.Socci**

16.15 *In vitro and computational approaches in fluid dynamics of TCPC studies*  
**G. D'Avenio**

16.30 *New insight in hypoplastic ventricular patient*  
**A. Amodeo**

16.45 *A model for the in utero cardio surgery innovative technique*  
**A. Carotti**

17.00 *Preliminary results of atrioventricular valvular annuloplasty with resorbable ring in polydioxanone in pediatric age*  
**S. Albanese**

17.15 *Discussion*

18.00 *End of Workshop*

## **Speakers and chairmen**

- S. Albanese** – Bambino Gesù Pediatric Hospital, Rome
- A. Amodeo** – Bambino Gesù Pediatric Hospital, Rome
- A. Carotti** – Bambino Gesù Pediatric Hospital, Rome
- M.T. Conconi** – Department of Pharmaceutical Sciences, University of Padua, Italy
- G. D’Avenio** – Department of Technology and Health, I.S.S., Rome, Italy
- C. Del Gaudio** - Department of Technology and Health, I.S.S., Rome, Italy
- M. De Melis** - Department of Mechanical Engineering, University of Ancona, Italy
- M. Falchi** – Department of Mechanical and Aeronautical Engineering, University of Rome “La Sapienza”
- P. Filippini** – Department of Technology and Health, I.S.S., Rome, Italy
- G.B. Fiore** – Department of Bioengineering, Politecnico di Milano, Milano
- M. Grigioni** – Department of Technology and Health, I.S.S., Rome, Italy
- V. Luisi** – Paediatric Cardiac Surgery, Clinical Physiology Institute, CNR, Massa
- U. Morbiducci** – Department of Technology and Health, I.S.S., Rome, Italy
- D. Palmieri** – D’Appolonia S.p.A., Rome, Italy
- P. P. Parnigotto** – Department of Pharmaceutical Sciences, University of Padua, Italy
- R. Ponzini** – Department of Bioengineering, Politecnico di Milano, Milano, and CILEA, Milano
- E. Properzi**, - Department of Mechanical Engineering, University of Ancona, Italy
- F. Rocco** – Cardiovascular Department, University of Treviso, Italy
- G. Rossi** – Department of Industrial Engineering, University of Perugia, Italy
- L.Socci** - Department of Bioengineering, Politecnico di Milano, Milano
- L. Scalise** - Department of Mechanical Engineering, University of Ancona, Italy
- M. Vescovi** – RSI Italy

**Scientific Committee**

M. Grigioni, F. Lagasco, A. Amodeo, A. Carotti, V. Luisi

**Organizing Committee**

M. Grigioni

**Scientific Secretariat**

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**Organizing Secretariat**

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**General information****Workshop site**

Aula Bovet, Istituto Superiore di Sanità  
Viale Regina Elena 299 – 00161 Roma

**Potential audience**

The Workshop is especially meant for bioengineers and researchers in the field of the cardiovascular biomechanics and fluid dynamics, and is addressed also to cardiologists and cardiac surgeons

**Registration**

The participation in the Workshop is free.

For organisation issues please communicate your intention to participate to the Scientific Secretariat before Sept. 10, 2005

**Language**

The official language is Italian.

**Certificate of attendance**

At the end of the Workshop a certificate of attendance will be issued upon request.