

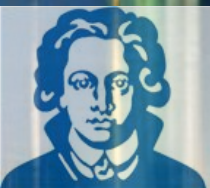
3<sup>rd</sup> ISMST

# Basic Research Meeting 2014

January 24 - 25



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hosted by

**Johann Wolfgang Goethe-University  
Frankfurt am Main, Germany**



# Scientific Program



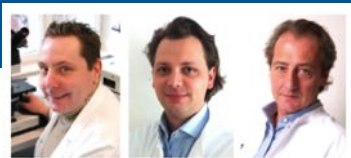
**Dear colleagues,**

Since the last ISMST Basic Research Meeting in 2012 we are getting closer and closer to reveal the exact shock wave mechanisms and we learn more details about the effects. This research field is developing fast and excitingly!

Let us add new pieces to the puzzle at the  
3<sup>rd</sup> ISMST Basic Research Meeting in 2014!

Patrick Paulus, Johannes Holfeld, Wolfgang Schaden

Organizing committee



**Organizing Faculty:**

Michael Grimm Can Tepeköylü Kai Zacharowski

## Venue

Johann Wolfgang-Goethe University Clinic, building no. 22

Theodor-Stern-Kai 7

60596 Frankfurt am Main, Germany

## Meeting fee (payment in cash or credit card)

Scientists, Physicians: Euro 250,-

Industry Members: Euro 450,-

## Media check

Please provide your presentation prior to your session as a PowerPoint file in the lecture hall.

# 3<sup>rd</sup> ISMST Basic Research Meeting

## Friday, January 24th

08:00 Registration

08:30 - 08:45 Opening words

**SESSION I** Chairmen: R. Thiele (Germany), W. Schaden (Austria)

08:45 - 09:15 **Keynote: Rei Ogawa** - Mechanobiological mechanisms of extracorporeal shock wave therapy and importance of mechanotherapy for wound healing and tissue regeneration (Tokyo, Japan)

09:15 - 09:25 **The effect of shock wave therapy in Striae Distensae**  
Mai Watanabe, H. Azuma, H. Hyakusoku, R. Ogawa (Tokyo, Japan)

09:25 - 09:55 Discussion

09:55 - 10:05 **A dry test bench for the measurement of unfocused / weakly focused pressure pulse sources ("Radial shock wave therapy" sources)**  
Friedrich Ueberle, A.J. Rad, M. Wilck (Hamburg, Germany)

10:15 - 10:25 **Field mapping of ballistic pressure pulse sources**  
Abtin Jamshidi Rad, F. Ueberle, S. Dittrich (Hamburg, Germany)

10:35 - 11:05 Coffee break

**SESSION II** Chairmen: M. De la Fuente (Germany), V. Auersperg (Austria)

11:05 - 11:20 **Vinzenz Auersperg** – Current physical shock wave parameters - a medical point of view (Steyr, Austria)

11:20 - 11:35 **Matias De la Fuente** – Current physical shock wave parameters - a technical point of view (Aachen, Germany)

11:35 - 12:30 **Round table with physicists** (moderator: Vinzenz Auersperg)

12:30 - 13:45 Lunch

# Scientific Program

## Friday, January 24th

**SESSION III** Chairmen: R. Ogawa (Japan), C. Tepeköylü (Austria)

13:45 - 14:15 **Keynote: Rainer Mittermayr** – Possible future directions of ESWT in wound healing and soft tissue regeneration (Vienna, Austria)

14:15 - 14:45 Discussion

14:45 - 15:15 **Keynote: Maria Cristina D'Agostino** – ESWT and bone turnover: Healing, regeneration, remodeling (Milan, Italy)

15:15 - 15:45 Discussion

15:45 - 15:55 **Wnt-signaling in shock waved induced bone regeneration**  
Marianne Koolen, O.P. van der Jagt, H. Jahr, N. Kops, W. Schaden, H. Weinans (Utrecht, The Netherlands)

16:05 - 16:35 Coffee break

**SESSION IV** Chairmen: M.C. D'Agostino (Italy), C. Leal (Colombia)

16:35 - 16:45 **ESWT for regeneration of spinal cord ischemia**  
Johannes Holfeld, C. Tepeköylü, D. Lobenwein, R. Kozaryn, E. Pechriggl, M. Bitsche, H. Fritsch, M. Grimm (Innsbruck, Austria)

16:55 - 17:05 **Anti-Tumor effects of combining extracorporeal shock waves and Doxorubicin-loaded nanobubbles in anaplastic thyroid cancer**  
Francesca Marano, M.G. Catalano, R. Cavalli R, O. Bosco, N. Fortunati, R. Frairia (Turin, Italy)

17:15 - 17:45 **Keynote: Johannes Holfeld** – Shock waves create the environment for regeneration: About the relation between inflammation and neovascularization (Innsbruck, Austria)

17:45 - 18:15 Discussion

20:00 Dinner

## Saturday, January 25th

**SESSION I** Chairmen: H. Redl (Austria), R. Frairia (Italy)

08:30 - 09:00 **Keynote: Patrick Paulus** – Induction of angiogenesis with low energy extracorporeal shock waves: a toll-like receptor (TLR)-3 dependent mechanism (Frankfurt, Germany)

09:00 - 09:30 Discussion

09:30 - 09:40 **Epicardial shock wave therapy improves ventricular function in a porcine model of ischemic heart disease: New insights into angiogenesis induction**  
Daniela Lobenwein, D. Zimpfer, K. Albrecht-Schgoer, A. Stojadinovic, P. Paulus, J. Dumfarth, A. Thomas, C. Tepeköylü, R. Rosenhek, W. Schaden, R. Kirchmair, S. Aharinejad, M. Grimm, J. Holfeld (Innsbruck, Austria)

09:50 - 10:00 **Molecular changes after shock wave therapy in osteoarthritic knee in rats**  
Ching-Jen Wang (Kaohsiung, Taiwan)

10:10 - 10:40 Coffee break

**SESSION II** Chairmen: C.J. Wang (Taiwan), R. Mittermayr (Austria)

10:40 - 10:50 **In vitro extracorporeal shock wave treatment in adipose derived stem cells leads to enhanced stemness and preserves multipotency**  
Christina M.A.P. Schuh, A.H. Teuschl, A.M. Weihs, P. Heher, S. Wolbank, R. Mittermayr, D. Rünzler, H. Redl (Vienna, Austria)

11:00 - 11:10 **Gene expression profiles in human adipose derived stem cells after extracorporeal shock wave treatment: a preliminary study**  
Maria Graziella Catalano, F. Marano, L. Rinella, M. Fracalvieri, L. Berta, R. Frairia (Turin, Italy)

11:20 - 11:30 **Shock wave application to cell cultures**  
Johannes Holfeld, C. Tepeköylü, R. Kozaryn, W. Mathes, M. Grimm, P. Paulus (Innsbruck, Austria)

11:40 - 12:10 **Keynote: Can Tepeköylü** – Are shock waves a feasible technology to overcome challenges in tissue engineering? (Innsbruck, Austria)

12:10 - 12:40 Discussion

12:40 - 13:55 Lunch

# Scientific Program

## Saturday, January 25th

**SESSION III** Chairmen: P. Paulus (Germany), J. Holfeld (Austria)

- 14:00 - 14:20 **Keynote: Stefanie Dimmeler** – Shock waves improve cardiac cell therapy: Lessons from experimental studies (Frankfurt, Germany)
- 14:20 - 14:40 **Keynote: Andreas Zeiher** – Shock waves improve cardiac cell therapy: First insights from clinical trials (Frankfurt, Germany)
- 14:40 - 15:10 Discussion
- 15:10 - 15:20 **ESWT effects on human bone marrow stem cells and future applications**  
Frank Suhr, W. Bloch (Cologne, Germany)
- 15:30 - 15:40 **Shockwave treatment promotes proliferation via purinergic signaling coupled ERK1/2 pathway activation**  
Anna M. Weihs, C. Fuchs, A. Teuschl, H.H. Sitte, R. Mittermayr, H. Redl, D. Rünzler (Vienna, Austria)
- 15:50 – 16:00 **Tenogenic differentiation of human adipose derived stem cells by extracorporeal shock waves**  
Letizia Rinella, M.G. Catalano, R. Ferracini, L. Berta, R. Frairia (Turin, Italy)
- 16:10 - 16:40 Coffee break - VOTING FOR BEST ABSTRACT AWARD

**SESSION IV** Chairmen: W. Schaden (Austria), H. Kuderna (Austria)

- 16:40 - 17:10 **Guest lecture Alexander Popp: Biophotons - Photons from biologic systems**  
(Mannheim, Germany)
- 17:10 - 17:40 Discussion
- 17:40 - 18:00 **Best abstract award by the Secretary General of ISMST** (Markus Gleitz)
- 18:00 - 18:20 **Closing remarks and outlook to ISMST Congress 2014 in Milano, Italy**
- 20:00 Social Evening

## Social Program

**Dinner - Jan 24, 20:00**

**Restaurant “Druckwasserwerk”**

Our dinner will be held at the excellent Restaurant

“Druckwasserwerk” which has an impressive architecture being the last preserved building from the old harbor from 1886.



**Social Evening - Jan 25, 20:00**

**Typical local wine tavern**

You will experience a typical local wine tavern called “Äpplerkneipe” with traditional food and a very warm and homely atmosphere.

This evening will be on your own expenses. We kindly ask you to pre-register at the registration desk on-site.

