



# Workshop Regenerative Medicine

NATO STO HFM-243

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**Berlin, Germany, May 19<sup>th</sup> - 21<sup>st</sup> 2014**

Preliminary Program





Monday, May 19<sup>th</sup> 2014

## Welcome and Opening Remarks

- 12:00 - 12:10 **Welcome from the Surgeon General Joint Medical Service, German Bundeswehr**  
**Patschke** (Koblenz, Germany)
- 12:10 - 12:20 **Presentation NATO-HFM-Panel and the purpose of the workshop – Future NATO STO activities**  
**Mees** (Koblenz, Germany)
- 12:20 - 12:30 **Welcome remarks from the chairman**  
**Scherer** (Fort Detrick, USA)
- 12:30 - 12:35 **Organizational remarks**  
**Willy** (Berlin, Germany)
- 12:35 - 12:40 **Break**

## Introductory Session I

Chairmen: **Weller** (Munich, Germany), **Scherer** (Fort Detrick, USA)

- 12:40 - 12:55 **Introduction to the US military research program**  
**Scherer** (Fort Detrick, USA)
- 12:55 - 13:10 **Bone loss and injury: What is the unique military need, and how best to impact a very crowded field?**  
**Pfister** (Fort Detrick, USA)
- 13:10 - 13:25 **Introduction to the Armed Forces Institute of Regenerative Medicine (AFIRM) by the consortium Co-Director**  
**Tuan** (Pittsburgh, USA)
- 13:25 - 13:35 **The Global Coalition e.V.**  
**Volk** (Berlin, Germany)
- 13:35 - 13:45 **ESTROT (European Society of Tissue Regeneration in Orthopaedic and Trauma) – perspective**  
**Calori** (Milan, Italy)
- 13:45 - 14:10 **Discussion**  
**All**
- 14:10 - 14:25 **Break**

## Open Questions and Future Perspectives

Chairmen: **Kohn** (New Jersey, USA), **Willy** (Berlin, Germany)

- 14:25 - 14:40 **Bone and muscle regeneration: Perspective and remaining challenges**  
**Duda** (Berlin, Germany)
- 14:40 - 14:55 **Novel strategies for the engineering of different tissues**  
**Reis** (Guimarães, Portugal)
- 14:55 - 15:10 **Stem cells for tissue regeneration: Hope, reality and future**  
**Tuan** (Pittsburgh, USA)
- 15:10 - 15:25 **How is clinical experience driving future therapies?**  
**Soria** (Sevilla, Spain)
- 15:25 - 15:55 **Discussion**  
**All**
- 15:55 - 16:25 **Break**

## Bone Defect Management I

Chairmen: **Boccaccini** (Erlangen, Germany), **Kollig** (Koblenz, Germany)

16:25 - 16:40	<b>Tools for healing of severe bone defects</b> <b>Bégué</b> (Clamart, France)
16:40 - 16:55	<b>Diamond concept for treatment of infected non unions</b> <b>Schmidmaier</b> (Heidelberg, Germany)
16:55 - 17:10	<b>From regeneration to substitution: Algorithm of treatment of non-unions and bone defects</b> <b>Calori</b> (Milan, Italy)
17:10 - 17:25	<b>Scientific and commercial considerations in the design of bioactive scaffolds for bone regeneration</b> <b>Kohn</b> (New Jersey, USA)
17:25 - 17:40	<b>Application of adult stem cells and biomimetic scaffolds for skeletal tissue engineering and regeneration</b> <b>Tuan</b> (Pittsburgh, USA)
17:40 - 19:00	<b>Discussion</b> <b>All &amp; Working groups</b>
20:00	<b>Dinner</b>



Tuesday, May 20<sup>th</sup> 2014

## Introductory Session II

Chairman: **Borchers** (Stuttgart, Germany)

- 08:00 - 08:20 **The RESTOR program: Advanced reconstructive and regenerative strategies in response to a decade of combat**  
**Davis** (USA)
- 08:20 - 08:35 **Discussion**  
**All**
- 08:35 - 08:40 **Break**

## Bone Defect Management II

Chairmen: **Bégué** (Paris, France), **Schmidmaier** (Heidelberg, Germany)

- 08:40 - 08:55 **KN: Synthetic bone substitute that can duplicate the mechanical strength, elasticity and bioactivity of bone**  
**Zreiqat** (Sydney, Australia)
- 08:55 - 09:10 **Epigenetic changes of MSCs will improve osteogenic regeneration**  
**Nüssler** (Tuebingen, Germany)
- 09:10 - 09:25 **Negative impact of CD8+ effector T cells on bone fracture regeneration**  
**Schmidt-Bleek** (Berlin, Germany)
- 09:25 - 09:40 **Development of calcium phosphate based biomaterials for bone regeneration and their application in maxillofacial and orthopedic surgery**  
**Loca** (Riga, Latvia)
- 09:40 - 09:55 **Novel biomaterials with angiogenic potential (e.g. bioactive glasses) for bone regeneration**  
**Boccaccini** (Erlangen, Germany)
- 09:55 - 11:25 **Discussion**  
**All & Working groups**
- 11:25 - 12:25 **Break**

## Central and Peripheral Nerve Defects

Chairmen: **Feigal** (San Francisco, USA), **Vajkoczy** (Berlin, Germany)

- 12:25 - 12:40 **KN: Central and peripheral nerve defect treatment**  
**Feigal** (San Francisco, USA)
- 12:40 - 12:55 **Challenges of nerve regeneration**  
**Rosen** (Lebanon, USA)
- 12:55 - 13:10 **Stem cell therapy in spinal cord injury**  
**Özdemir** (Denizli, Turkey)
- 13:10 - 13:25 **Cell based therapies for cerebrovascular diseases and TBI**  
**Boltze** (Leipzig, Germany)
- 13:25 - 13:40 **Actual and future perspectives of ocular neuroregeneration and rescue**  
**Scott** (Birmingham, UK)
- 13:40 - 14:25 **Discussion**  
**All**
- 14:25 - 14:55 **Break**

## Soft Tissue Defect Management

Chairmen: **Schaser** (Berlin, Germany), **Pfister** (Fort Detrick, USA)

- 14:55 - 15:10     **Engineering of vascularized human implants and their first application**  
**Walles** (Wuerzburg, Germany)
- 15:10 - 15:25     **Novel extracellular matrix proteins for cardiovascular tissue regeneration - In vitro elastogenesis - deciphering the key for elastin fiber generation for engineering tissues and organs**  
**Schenke-Layland** (Stuttgart, Germany)
- 15:25 - 15:40     **Using of autologous cultured keratinocytes in coverage of large tissue defects**  
**Marinescu** (Bucharest, Romania)
- 15:40 - 15:55     **MSC as drug cells for cell therapy of burns**  
**Lataillade** (Clamart/Paris, France)
- 15:55 - 16:10     **Tissue engineering based strategies in tendon repair - Role of complement & influence of inflammation**  
**Schulze-Tanzil** (Berlin, Germany)
- 16:10 - 16:25     **Generation of cartilage for repairing joints damaged due to injury**  
**Feigal** (San Francisco, USA)
- 16:25 - 16:40     **Cell therapy in organ transplantation**  
**Soria** (Sevilla, Spain)
- 16:40 - 16:55     **New approach in the fight against bacterial infections**  
**De Vos** (Brussels, Belgium)
- 16:55 - 18:10     **Discussion**  
**All**
- 18:10 - 18:30     **Break**

## Nutritional Considerations

Chairmen: **Lataillade** (Paris, France), **Schenke-Layland** (Tübingen, Germany)

- 18:30 - 18:45     **Nutrition – An important factor in regeneration**  
**Nüssler** (Tuebingen, Germany)
- 18:45 - 19:00     **The influence of glucose on transplanted cell survival**  
**Petite** (Paris, France)
- 19:00 - 19:30     **Discussion**  
**All**
- 20:00             **Dinner**



Wednesday, May 21<sup>st</sup> 2014

### Introductory Session III

Chairman: **Davis** (San Antonio, USA)

- 08:00 - 08:20 : **Mechanism of blast injuries and potential impact for regenerative medicine**  
**Watts** (UK)
- 08:20 - 08:40 : **Discussion**  
**All**
- 08:40 - 08:45 : **Break**

### Industrial, Regulatory and Socio-Political-Economic Issues

Chairmen: **Reis** (Guimarães, Portugal), **Volk** (Berlin, Germany)

- 08:45 - 09:00 : **Regulation and pharmaceuticalization of cellular therapies**  
**Soria** (Sevilla, Spain)
- 09:00 - 09:15 : **Socio-economic barriers to technology transfer in regenerative medicine: Can we translate regenerative breakthroughs into medical products?**  
**Kohn** (New Jersey, USA)
- 09:15 - 09:45 : **Discussion**  
**All**
- 09:45 - 10:05 : **Break**

### Regenerative Laboratory Techniques

Chairmen: **Tuan** (Pittsburgh, USA), **Duda** (Berlin, Germany)

- 10:05 - 10:20 : **Biofabrication strategies to develop novel scaffolds for regenerative medicine (biomaterials for cell printing)**  
**Boccaccini** (Erlangen, Germany)
- 10:20 - 10:35 : **Bioprinting and development of cell/matrix-based bioinks**  
**Borchers** (Stuttgart, Germany)
- 10:35 - 10:50 : **Technological developments for stem cell expansion and differentiation / biomaterial testing / cell based therapies and testing systems**  
**Charwat** (Vienna, Germany)
- 10:50 - 11:05 : **New modular system for generation of antigen-specific T-cells for adoptive therapy**  
**Volk** (Berlin, Germany)
- 11:05 - 11:20 : **Large animal modeling in regenerative medicine: application examples**  
**Boltze** (Leipzig, Germany)
- 11:20 - 12:05 : **Discussion**  
**All**
- 12:05 - 13:05 : **Break**

## Diagnostic Methods, Biomarkers and Monitoring Techniques

Chairmen: **Walles** (Wuerzburg, Germany), **Marinescu** (Bucharest, Romania)

- 13:05 - 13:20 **Biomarkers in regenerative therapy & Immune regeneration in critically ill patients - biomarkers for stratification of ICU patients into risk groups and reconstitution of „immunoparalysis“ by immunostimulation of sepsis patients**  
**Volk** (Berlin, Germany)
- 13:20 - 13:35 **Non-invasive optical tools for cell, tissue and organ monitoring**  
**Schenke-Layland** (Stuttgart, Germany)
- 13:35 - 13:50 **Imaging of decellularized and recellularized human dermal matrices by real time non invasive HD-OCT and RCM**  
**Draye** (Brussels, Belgium)
- 13:50 - 14:05 **Inflammatory signaling for bone regeneration**  
**Zreiqat** (Australia)
- 14:05 - 14:20 **Innovative, mobile and robust diagnosis of cerebrovascular disorders and brain monitoring**  
**Boltze** (Leipzig, Germany)
- 14:20 - 15:05 **Discussion**  
All
- 15:05 - 15:20 **Break**

## Closing Remarks

- 15:20 - 15:50 **Technical Evaluation Report**  
**Kohn** (New Jersey, USA)
- 15:50 - 16:05 **Initial thoughts from the workshop**  
**Willy** (Berlin, Germany)
- 16:05 - 16:35 **Discussion**  
All & comments
- 16:35 - 16:45 **Closing remarks**  
**Scherer** (Fort Detrick, USA / Berlin, Germany)

Transfer (Railway, Airport)



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