



Next-Gen Regenerative Medicine & Tissue Engineering Conference

8th - 9th October 2018 | Frankfurt, Germany

Event Overview

Ethical and regulatory parameters lay a special emphasis on animal modeling to carry forward the researches over tissue engineering and organ transplantation. This is one of the major challenge being faced for the clinical applications of regenerative medicine.

The translational research promises to improve a structural shift in healthcare by focusing on the underlying causes of disease by repairing, replacing, or regenerating damaged cells in the body. The conference aims on the similar lines to assess these risks and benefits **of regenerative medicine through the application of cellular therapies, stem cells and biocompatible materials.**

MarketsandMarkets has put together a platform for the leading experts of industry to discuss strategies, technologies and innovations in tissue engineering & biomaterials, cellular therapies and diagnosis of regenerative medicines at the **Next-Gen Regenerative Medicine & Tissue Engineering Conference** scheduled to be held on **8th - 9th October 2018 at Frankfurt, Germany.**

Who should attend

From Pharmaceutical and Bio-pharmaceutical companies:

Senior Scientists/Principal Scientists/Project Leaders/Heads in:

- Gene/Cell therapy
- Molecular Biology
- Drug discovery
- Therapeutics
- Regenerative medicines
- Translational sciences
- Immunology
- Immuno-oncology

From Universities and Research institutes:

Professors/Assistant Professors/Researchers/Scientists/Principal Scientists/Engineers in:

- Tissue engineering
- Regenerative medicine
- Microfluidics
- Cancer therapy
- Nanotechnology
- Biomedical engineering
- Biochemical engineering
- Bio-molecular Engineering
- Bio-chemistry
- Stem cell
- Gene Therapy/Cell Therapy
- Immunology
- Immunotherapy

Key Highlights

- **Cell based** tissue engineering
- **Tissue-specific** biomarkers
- Tissue **scaffolding**
- Cell surface **profiling**
- Processing of **iPSC cells**
- **iPSC** derived **mesenchymal cells**
- **T-cell** identification and regulation
- **Regulatory and ethical issues** of regenerative medicines
- **Genetic models** for **neurodegenerative** disorders
- Organ **transplantation** and **regeneration**



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Advisory Committee



Alain Vertes
Managing Director, NxR
Biotechnologies GMBH,
Switzerland



Tiffany Rau
Senior Consultant,
Bioprocessing Technology
Consultants, USA



Francisco Vida Fayos
Director, Aastron
Biosciences, Spain

Expert Speaker



Alain Vertes,
Managing Director, NxR
Biotechnologies GMBH,
Switzerland



Gabriele Proetzel,
Director, Generative
Medicine, Takeda
Pharmaceuticals, USA



Wilfred T.V. Germeraad,
Chief Scientific Officer,
CiMaas BV, Netherlands



Philippe Henon,
President & Chief Scientific
Officer, CellProthera, France



Kevin Shakesheff,
Pro-Vice Chancellor, Faculty
of Science, University of
Nottingham, UK



Caghan Kizil,
Group Leader, DZNE
German Center for
Neurodegenerative Diseases,
Germany



Suwan N. Jayasinghe,
Professor, Bioengineering,
University College London, UK



Roland Klar,
Head of Regenerative Medicine,
Ludwig Maximilian University
of Munich, Germany



Yang (Ted) D. Teng,
Ph.D., M.D., Departments of
Physical Medicine & Rehabilitation
(PM&R) & Neurosurgery, Harvard
Medical School, Boston, MA, USA



James Adjaye,
Chair of Stem Cell Research
& Regenerative Medicine,
Director, Institute for Stem Cell
Research & Regenerative
Medicine, Germany



Alexander Sefian,
Director & Professor of
Nanotechnology &
Regenerative Medicine,
The London BioScience
Innovation Center, UK



Oliver Betz,
Director, Regenerative
Medicine, Ludwig-Maximilians
-University, of Munich,
Germany



Antonio Apicella,
Researcher, University of
Campania, Italy



Karl Maria Schumacher,
Global Program Director,
Novartis-Sanofi, Germany



Roland Hetzer,
Cardiac Surgeon,
Germany



Tiffany Rau,
Senior Consultant,
Bioprocessing
Technology Consultants, USA



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Day 1, Monday, 8th October 2018

08:00 Registration

08:55 Welcome note from MarketsandMarkets

09:00 Opening Remarks from the Chairman

Tissue Engineering and Biomaterials

09:10 **Clinical regenerative tissue medicine: In vitro regeneration using bioreactors and tissue regeneration tanks**

- Bone: regeneration through chaos – solutions to solving the animal translation enigma
- Solving the translation enigma – tissue and bioreactor models replacing in vivo systems
- The future: Regeneration tanks

Roland Klar, Head of Regenerative Medicine, **Ludwig Maximilian University of Munich, Germany**

09:40 **Novel materials to promote regeneration: Translation routes and problems**

- Synthetic materials can enhance the efficacy and safety of stem cell and regenerative drug therapies.
- Regenerative medicine products create new opportunities for materials-based products
- Platform technologies can unlock the potential of stem cell technologies

Kevin Shakesheff, Pro-Vice Chancellor, Faculty of Science, **University of Nottingham, UK**

10:10 **Solution Provider Presentation; Please contact at stein.abraham@marketsandmarkets.com**

10:40 **Morning Refreshments | Poster Presentations | One-to-One Networking**

11:25 **Tissue-specific biomarkers for noninvasively monitoring immunologic rejection of transplanted tissue**

Roland Hetzer, Cardiac Surgeon, **Germany**

11:55 **Direct tissue engineering approaches for regenerative biology and medicine**

- Three-dimensional cell expansion and culture
- Disease models
- Direct approaches for reconstructing a tissue

Suwan N. Jayasinghe, Professor, Bioengineering, **University College London, UK**

12:25 **Solution Provider Presentation; Please contact at stein.abraham@marketsandmarkets.com**

12:55 **Lunch | Poster Presentations | One-to-One Networking**

13:55 **Panel Discussion: Bio-clinical trials for tissue engineering based products**

- New strategies
- Pros and cons
- Applications

Cellular Therapies

14:25 **Method and practices to diversify cell-based products**

- Identify hurdles to market access for ATMPs
- Present a multi-dimensional framework for cell-based therapy versioning
- Discuss the case study of emerging mesenchymal stem cell-based therapeutics

Alain Vertes, Managing Director, **NxR Biotechnologies GMBH, Switzerland**

14:55 **Differentiating the human naive & primed embryonic stem cells (chromosomal analysis)**

15:25 **Cell surface profiling for identification of specific markers of human naive and primed pluripotent states**

Oliver Betz, Director, Regenerative Medicine, **Ludwig-Maximilians-University of Munich, Germany**

15:55 **Evening Refreshments | Poster Presentations | One-to-One Networking**

16:40 **Solution Provider Presentation; Please contact at stein.abraham@marketsandmarkets.com**

16:55 **The promise of induced pluripotent stem cells (iPSC) for cell therapy**

- iPSC designed for cell therapy - an overview
- Takeda's T-CiRA Program
- The future

Gabriele Proetzel, Director Regenerative Medicine, **Takeda Pharmaceutical Inc., USA**

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17:25 Induced pluripotent stem cell (iPSC) derived mesenchymal stem cells (iMSCs) are effective in restoring bilirubin levels in the Gunn rat model of human Crigler-Najjar syndrome 1

- Crigler-Najjar syndrome was first reported in 1952, where it was described as an inherited disorder causing jaundice and kernicterus in newborns. To date, phototherapy remains the standard treatment option to prevent the neurotoxic effects of increased bilirubin levels in newborn
- Gunn rats have a spontaneously developed mutation in the UGT1A1 gene, resulting in decreased glucuronidation and excretion of bilirubin which leads to hyperbilirubinemia. These rats serve as an animal model to study the etiology of Crigler-Najjar syndrome 1
- iPSC-derived MSCs injected into the spleen of partially hepatectomized Gunn rats differentiate into hepatocytes and reduce bilirubin levels
- iPSC-derived MSCs are an excellent alternative to liver-biopsy derived hepatocytes for the treatment of Crigler-Najjar syndrome 1 in the future

Prof. Dr. James Adjaye, Chair of Stem Cell Research and Regenerative Medicine, Director, **Institute for Stem Cell Research and Regenerative Medicine, Germany**

17:50 Closing Remarks by the Chair

18:00 End of Day 1

Supporting Associations:



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Day 2, Tuesday, 9th October 2018

08:15 Registration

08:55 Welcome note from MarketsandMarkets

09:00 Opening Remarks from the Chairman

09:10 Graphene-based nanocomposites are the next generation 3D scaffold for development human organs

- Functionalized GO used as a building block for nanocomposite materials
- The materials can be fabricated to human organs with the 3D printer or other fabrication methodologies
- The scaffold from these materials is functionalized with bioactive molecules and stem cells technology, so physiologically simulate the human organs
- The data for development of organs using these materials will be presented

Alexander Seflian, Director & Professor of Nanotechnology & Regenerative Medicine, **The London BioScience Innovation Center, UK**

09:40 Methods and compositions for the generation and maintenance of regulatory T cells

Karl Maria Schumacher, Global Program Director, **Novartis-Sanofi, Germany**

10:10 Developing dendritic cell vaccination for lung cancer

- CiMaas has developed a strongly activating proprietary dendritic cell maturation cocktail
- Such DC induce very strong Thelper cell, NK cell and CTL activation leading to tumor cell death
- CiMaas is developing a GMP production system to generate DC vaccines to be tested in Lung Cancer patients

Wilfred Germeraad, Chief Scientific Officer, **CiMaas, Netherlands**

10:40 Solution Provider Presentation; Please contact at stein.abraham@marketsandmarkets.com

11:10 Morning Refreshments | Poster Presentations | One-to-One Networking

11:55 Innovative regenerative medicines in the EU

12:25 Solution Provider Presentation; Please contact at stein.abraham@marketsandmarkets.com

12:40 Recovery Neurobiology of Injured Spinal Cord: Mechanisms Defined by Stem Cell-based

- A platform technology to determine therapeutic mechanisms of human mesenchymal stromal stem cells (hMSCs) and neural stem cells (hNSCs) in a dorsal root ganglion co-culture system and an intraspinal cord implantation model
- The tailored or functionalized polymer scaffolding augments hMSC and hNSC stemness, engraftment, and functional multipotency, respectively, resulting in robust motosensory improvement in adult rat spinal cord after injury
- "Recovery Neurobiology" – i.e., the injured spinal cord can deploy polysynaptic neural circuits different from normal adulthood pathways for post-injury improvement

Yang (Ted) D. Teng, Ph.D., M.D., Departments of Physical Medicine & Rehabilitation (PM&R) and Neurosurgery, **Harvard Medical School, Boston, MA, USA**

13:10 Lunch | Poster Presentations | One-to-One Networking

14:10 Solution Provider Presentation; Please contact at stein.abraham@marketsandmarkets.com

Diagnosis of Regenerative Medicines

14:25 Neural stem cell plasticity in health and Alzheimer's disease

- Neural stem cells cannot fulfill their neurogenic properties after neurodegenerative diseases
- Inducing the plasticity of neural stem cells could be a regenerative therapy option
- Zebrafish can efficiently regenerate its brain after neurodegeneration
- Mechanisms in adult fish brain could be harnessed for eliciting an induced regenerative outcome in mammalian brains

Caghan Kizil, Group Leader, **DZNE German Center for Neurodegenerative Diseases, Germany**

14:55 GMP production of autologous CD34+ cell grafts for regenerative medicine in myocardial infarction

- Right type of cells (CD34+ CSCs)
- Greatest amount possible of CD34+ cells contained in the graft (with a threshold value $\geq 10 \times 10^6$).
- The endo-cardiac route of injection, using the Helix@catheter, allowing a significantly better cell retention in the myocardium than the intra-coronary route.
- Stage of myocardial ischemia: myocardial infarct better responds to the therapy than post-ischemic chronic heart failure

Philippe Henon, President & Chief Scientific Officer, **CellProthera, France**

15:25 Animal testing through organoids (cancer organoids)

Tiffany Rau, Senior Consultant, **Bioprocessing Technology Consultants, USA**

15:55 Evening Refreshments & End of Conference