Existing and Emerging Approaches in Regenerative Medicine

Conference Program

October 7-9, 2016
Amsterdam, Netherlands
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www.cellsmusculoskeletal.com
Invitation to Attend CELLS | Musculoskeletal 2016
A Letter from our Conference Co-Chairmen

Please join your colleagues from the around the world for the second Annual CELLS | Musculoskeletal conference in Amsterdam, October 7 - 9, 2016. We are proud to co-host this year’s Conference with the prestigious VU University Medical Center Amsterdam. Attendees from last year’s Conference praised the balanced program of current cell science and clinical utility, the high quality faculty and presentations, the interactive format and the social events. This year builds upon that successful format, and is designed for orthopedic surgeons, rheumatologists, traumatologists, physiatrists, cell scientists and all other healthcare professionals interested in musculoskeletal indications.

International clinical and scientific thought leaders will address, in an engaging and interactive manner, current regenerative medicine science, regulatory issues and clinical practice affecting bone, cartilage, bone marrow, soft-tissue and muscle. The Conference will include high quality multimedia presentations of specific procedures, an overview of emerging trends, and discussions of the revenue and operational considerations involved in establishing a successful regenerative medicine practice.

Whether you are a practicing clinician intrigued by the potential for predictable and better outcomes from modern regenerative medicine, or a cell scientist focusing on the latest trends in translating this dynamic field to musculoskeletal pathologies, you will find tremendous value in the program sessions, networking opportunities and real-world utility offered by CELLS | Musculoskeletal 2016. We look forward to seeing to you in Amsterdam.

With Regards,

Peter Johnson, M.D. and Christian Jorgensen, M.D., Ph.D.
Conference Co-Chairmen

Peter Johnson, M.D.
Christian Jorgensen, M.D., Ph.D.
CELLS | Musculoskeletal 2016
Official Clinical Partner

https://www.vumc.com/

We extend our sincere gratitude to the Maxillofacial department, who has been involved in the planning of this international event from its infancy.

Additional Event Partners

**Isokinetic**
The Isokinetic Medical Group is an internationally recognised leader in the fields of sports injury treatment, orthopaedic rehabilitation and research with over 25 years’ experience successfully treating patients. Using our own treatment model, we ensure that each of the 10,000 patients we see every year receive the very best quality of care possible.

**Amsterdam Rheumatology and Immunology Center (ARC)**
The ARC is a collaboration between AMC, Reade and VUMC wherein rheumatologic research and education at these three organizations has been brought together in one Organization. The Amsterdam Rheumatology and Immunology Center (ARC) is a transparent organisation with excellent facilities to the diagnosis and treatment of rheumatic diseases by combining high-quality scientific research and education.

**Galeazzi Hospital (Milan)**
The I.R.C.C.S was founded in 1963. The Galeazzi Orthopedic Institute in Milan had been the first hospital for orthopedic admissions in the Lombardy Region with 3300 prosthetic surgeries a year and 1000 interventions of spinal arthrodesis, we are the center of reference in the diseases of the locomotive system. Accredited with the National Health System (NHS), we are a center of excellence in clinical and pre – clinical biomedical research.

**IFATS**
We are the official leading source for information regarding adipose biology and related technology. IFATS current scientific areas of interest relate to facilitating the development of treatments for excess body fat, the generation of new fat tissue for reconstruction after cancer or birth-related defects and the use of adipose tissue as a source of mesenchymal stem cells that have the potential to regenerate and repair different body tissues.

**Beauty Through Science**
The BTS - Beauty through Science - meeting has established itself a one of the most renown and appreciated aesthetic medical meetings in the world. In its first years it was a only an aesthetic surgical meeting but gradually changed into inclusion of non-surgical sessions. In 2015 we established the “New BTS meeting” which included 2 parallel meetings; one non-surgical and one surgical. The response to this was overwhelming and a much appreciated and successful change. Therefore, we continue with this format.

**Termis**
To accomplish its mission, the Society brings together the international community of persons engaged or interested in the field of tissue engineering and regenerative medicine and promotes education and research within the field of tissue engineering and regenerative medicine through regular meetings, publications and other forms of communication. The Society also serves as an international forum to promote the informed discussion of challenges and therapeutic benefits of the application of tissue engineering and regenerative medicine technologies.

**The Orthobiologic Institute**
The Orthobiologic Institute (TOBI) provides a world-class annual conference to share the latest research and best practices in orthobiologic regenerative medicine - Live, online, and recorded.
We recognize our event sponsors for their contributions to this year’s event.

**GID | Gold Sponsor**

*Website: [http://thegidgroup.com/](http://thegidgroup.com/)*

The GID Group, Inc. is the leading global provider of products and methods to process regenerative cells and adult stem cells from fat (adipose) and bone tissues. Our technology separates and concentrates the regenerative fraction of cells from the tissues in real-time in the operating room, enabling therapeutic application in a single surgical treatment. GID uses a deep science-based approach to “cell-based therapies” based on use of regenerative cells, alone or in combination with various tissue scaffolds/matrices.”

**Lipogems | Gold Sponsor**

*Website: [http://www.lipogems.eu/](http://www.lipogems.eu/)*

The “Lipogems® system” is a sterile medical device intended for the closed-loop processing of lipoaspirate adipose tissue for autologous fat tissue transplantation. The device is intended for use in different therapeutic areas where natural tissue regeneration and wound healing is required. The Lipogems® system progressively reduces the size of adipose tissue clusters, preserving intact stromal vascular niches, while eliminating the pro-inflammatory oily and blood residues. The technique is gentle and intra-operatively provides micro-fragmented fat in a short time, through a minimal manipulation, without expansion and/or enzymatic treatment.

**Ranfac | Gold Sponsor**

*Website: [http://www.ranfac.com/](http://www.ranfac.com/)*

Ranfac Corp.® is a medical device manufacturer based in the greater Boston, MA area and the manufacturer of the MARROW CELLUTION™ system. The patent pending technology overcomes the limitations of a traditional bone marrow needle by allowing the user to aspirate in a measured and controlled manner over a large geography inside the marrow space, while restricting peripheral blood infiltration. The result is a bone marrow harvest that is so rich in key stem and progenitor cells that the aspirate no longer has to be manipulated through centrifugation prior to application.

**Boston Biolife | Bronze Sponsor**

*Website: [http://www.bostonbiolife.com/](http://www.bostonbiolife.com/)*

Boston BioLife is a leading organization that provides cutting edge workshops that specialize in educational programs in the life sciences technologies for physicians and scientists interested in learning regenerative medicine. Our mission is to offer a “boutique style” forum, in which, we facilitate the understanding of emerging life sciences technologies by scientists and healthcare providers in a position to make an impact on people’s lives. Boston BioLife is proud to introduce companies and innovations that may not otherwise be recognized and to provide scientific studies and background that ensures validation. Boston BioLife also creates workshops, trainings, hands-on courses, and/or lectures that are individualized for specific companies looking to create an event specific to their educational ideas and insight for their targeted audience. These events may be facilitated in any location, large or small, in any medical market. Boston BioLife’s services include, but are not limited to; faculty and attendee recruitment, cadavers, live patient, equipment rentals, continuing medical education credits (CME), venue selection, audio visual, featured events, event web design, mailings, registration, on site management and meeting facilitation.

**EmCyte | Bronze Sponsor**

*Website: [http://www.emcyte.com/](http://www.emcyte.com/)*

EmCyte Corporation has become a leader in autologous cellular biologics with the GenesisCS Component Concentrating Systems. These systems provide patients with the best opportunity for rapid recovery and provide practitioners with the most advanced clinical point of care experience. These systems are developed to meet every clinical requirement, giving the physician a better clinical choice. These devices have been independently reviewed for 2015 and show to produce buffycoat concentrations of 6x to greater than 10x baseline in 7mLs, with yields ranging from 70% to greater than 90%.

**Tulip | Bronze Sponsor**

*Website: [http://www.tulipmedical.com/](http://www.tulipmedical.com/)*

Tulip has a 24-year track record developing devices for the harvesting and reinjection of fat. This dedication provides the basis for why Tulip is sought after around the world by leaders in the industry for adipose-related instruments. For doctors and researchers interested in fat, Tulip proves to be a valuable partner. Over the years, Tulip has made its mark on the world through advancing fat transfer instrumentation in unprecedented ways. As the inventor of the patented Syringe System, the patented SuperLuerLok™ hub, and the propriety CellFriendly™ technology, Tulip was the first company to develop fat transfer technology designed to preserve cells. Tulip has been rewarded for its focus with millions of Tulip products being used by surgeons, medical practitioners, and researchers around the world – more than any other brand. Whether it’s fresh fat used for body volumizing, microfat for facial volumizing, nanofat for superficial and scar improvement or Picofat™ for regeneration, Tulip instrumentation delivers the benefits of fat to millions.
CELLS | Musculoskeletal 2016
Event Structure and Objectives

CELLS | Musculoskeletal 2016 is designed for efficient and meaningful learning, professional networking and development of practical skills. Key elements include:

**Broad Professional Relevance**

The regenerative medicine science and procedures covered at the Conference are directly applicable to rheumatologists, orthopedic surgeons, sports medicine physicians, physiatrists, traumatologists and others treating musculoskeletal conditions.

**Science**

Understanding contemporary cell science is critical to achieving predictable and good patient outcomes. International experts will provide the practitioner with a solid foundation in the angiogenic, immuno-modulatory, reparative and proliferative effects of cells, platelets and factors.

**Clinical Utility**

Delegates will leave the event with a genuine understanding of how to deliver regulatorily-compliant, safe and efficacious regenerative medicine procedures in their everyday practice. Topics addressed will include tissue extraction, imaging, cell/tissue processing and characterization, cell product injection, data collection, technology platforms and others.

**Professional Networking**

The CELLS Conferences attract leading scientists and practitioners in the musculoskeletal field from around the world. Coffee breaks and social events have been planned to maximize the opportunity for valuable interactions among delegates and faculty.

**Cases, Multimedia, Engagement**

The Program includes multi-media presentations of live cases. It also recognizes that regenerative medicine is a dynamic and fast-growing field, and is structured to foster active discussion between faculty and delegates on topics of controversy.
CELLS | Musculoskeletal 2016
Program Schedule
For full session descriptions, please reference pages 10-20.

KEY: LECTURE  MULTIMEDIA PRESENTATION  DEBATE

FRIDAY, OCTOBER 7TH

Introduction & Core Concepts
12:30  Welcoming Remarks | Peter Johnson, M.D., Christian Jorgensen, M.D., Ph.D.
12:40  Keynote Address: Launching a Successful Regenerative Medicine Practice within the US | Jaime R. Garza, M.D., DDS, FACS
13:10  Common Themes in the Delivery of RMP’s in the Clinical Practice | Frank Barry, BSc., MSc., Ph.D.

COFFEE BREAK - 13:55

Cell Sources, Processing & Regulatory Pathways
14:25  Regenerative Medicine - Basic Foundational Concepts | Diego Correa, M.D., MSc., Ph.D.
15:05  Adipose Tissue Harvest | Jaime R. Garza, MD, DDS, FACS
15:20  Bone Marrow (BM) Aspirate | Philippe Hernigou, M.D., Ph.D.
15:35  Cell Characterization | Luc Sensebé, M.D., Ph.D.
15:55  Regulatory Considerations and Debate | Moderated by Julie G. Allickson, PhD
16:55  Sponsored Sessions: Cell Processing Devices and Systems
  Carlo Tremolada, M.D. from Lipogems | Microfractured adipose tissue in regenerative medicine: the Lipogems® device
  Severiano Dos Anjos Vilaboa, Ph.D. from GID | A Point-Of-Care Medical Device for Stromal Vascular Fraction Isolation
  Joseph Purita, M.D. from Ranfac Corp. | BMC Therapy with Marrow Cellution™: Aspirate to Application™

COCKTAIL HOUR - 17:55 | DINNER - 19:30

Join us at the historic five-star NH Collection Amsterdam Grand Hotel Krasnapolsky for a complimentary cocktail hour followed by a seated dinner. Clinical, technical and regulatory experts will address questions collected during the first day of the conference.
CELLS | Musculoskeletal 2016
Program Schedule

SATURDAY, OCTOBER 8TH

MORNING COFFEE - 8:00

Existing Cellular Therapies for Bone Pathologies

8:30   Sectional Overview and Introduction
8:35   Bone Regeneration: Considerations | Massimo Dominici, M.D.
9:00   Bone Repair: current practice | Arnaud Scherberich, Ph.D.
9:25   Clinical Evidence Series: Bone Marrow for Avascular Necrosis of the Femoral Head | Philippe Hernigou, M.D., Ph.D.
9:55   Abstract Presentation
10:00  Panel Q/A

COFFEE BREAK - 10:10

Emerging Cellular Therapies for Bone Pathologies

10:40  Sectional Overview and Introduction
10:50  Clinical Evidence Series: Phase I/II trial of SVF for maxillary sinus floor one augmentation | Tymour Forouzanfar, M.D., DDS, Ph.D.
11:10  Towards a new generation of craniofacial reconstructions: 3d-printing combined with cellular therapy | Jan Wolff, M.D.
11:30  Striving for synergy: combining nanoparticle with 3D-printing to generate “smart” bioactive scaffolds | Marco Helder, Ph.D.
11:50  Abstract Presentation
11:55  Panel Q/A

LUNCH BREAK - 12:05

Existing Cellular Therapies for Articular Cartilage & Intervertebral Disc Pathologies

13:15  Sectional Overview and Introduction
13:20  OA & Post-traumatic OA (PTOA) in the radar for a regenerative therapeutic approach | Daniele Noël, Ph.D.
13:45  Clinical Evidence Series: OA: Clinical protocols using adult stem cells | Christian Jorgensen, M.D., Ph.D.
14:15  Abstract Gold Winner
14:20  Clinical Evidence Series: Cell transplantation in lumbar spine disc degeneration disease | Hans Meisel, M.D., Ph.D.
14:50  Panel Q/A
**CELLS | Musculoskeletal 2016**

**Program Schedule**

**SATURDAY, OCTOBER 8TH**

**COFFEE BREAK - 15:00**

### SATURDAY, OCTOBER 8TH

**Emerging Cellular Therapies for Articular Cartilage & Intervertebral Disc Pathologies**

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**CELLS Canal Cruise and Gala - 19:00**

Join your colleagues and faculty aboard an enchanting Canal Cruise and Gala. Take in the magically lit canals of Amsterdam, appreciate the breathtaking architecture and enjoy an exclusive and delicious fine dining experience from our luxury boat. A portion of the funds raised will be donated to a local medical nonprofit.
SUNDAY, OCTOBER 9TH

MORNING COFFEE - 8:30

Adjunct and Non-Cellular Therapies

9:00 Dental pulp Stem cells: dental and maxillofacial tissue engineering | Frédéric Cuisinier, Ph.D.
9:30 Adipose therapies for soft tissue reconstruction: clinical translation and regulatory issues | J. Peter Rubin, M.D.
10:00 Clinical Evidence Series: ASC, SVF, and Adipocyte Fractions from Adipose: Dose Relationships and Clinical Application | William W. Cimino, Ph.D.
10:30 Clinical Evidence Series: The role of stem cells in the treatment of large chondral articular defects with joint transplantation | Christian Krettek, M.D., FRACS, FRCSEd

COFFEE BREAK - 11:00

11:30 Clinical Evidence Series: Engineering the delivery of an optimal platelet-rich plasma composition for individualized care and treatment. | Peter Everts, Ph.D.
12:00 To PRP or not to PRP, that is the question. An endless debate | Peter Everts, Ph.D., Diego Correa, M.D., Ph.D.
12:30 Concluding Remarks: Putting It All Together | Michael P. Tierney, J.D.

EXPLORE AMSTERDAM

CELLS | Musculoskeletal 2016 finishes mid-day on Sunday, allowing our guests time to explore Amsterdam on their own or with their families.
Keynote Address: Launching a Successful Regenerative Medicine Practice within the US
Jaime R. Garza, MD, DDS, FACS
The process for translating several years’ clinical trial data involving autologous, adipose derived stromal vascular fraction cells for osteoarthritis of the knee into a private pay clinical approach.

**KEY FEATURES**

- Establishing and working with a team of excellence combining academic institution and private physician collaboration for all stages of cell therapy and research.
- Submissions of medical protocols to Institutional Review Board (IRB) and Texas Medical Board to achieve exemption status within unregulated cell therapy space.
- Implementation of a transparent approach, including: design and securement of informed patient consents, rigorous and digital collection of all patient data and follow-ups, and sharing of results with local IRB.
- Determinations of equipment, space, fair marketing and other cost requirements. Calculation of economically-viable cost per procedure, estimated patient flow.
- Early Results

Common Themes in the Delivery of RMP’s in the Clinical Practice
Frank Barry, BSc., MSc., Ph.D.
Importance of accurate diagnosis & disease staging. Autologous vs Allogeneic. Expansion vs immediate use. Cell viability, quantification and characterization. Issues with tissue extraction, processing, injection, point-of-care imaging, outcome(s) measurement. Data collection and maintenance. RMP’s for pre-hab and re-hab, adjunct and primary therapies.

Regenerative Medicine - Basic Foundational Concepts
Diego Correa, M.D., MSc., Ph.D.

Adipose Tissue Harvest
Jaime R. Garza, MD, DDS, FACS
Contemporary techniques (e.g.: Liposuction, Lipoaspirate). Tumescent solution, sedation. Issues of pressure, cell shear, sterility. Issues for the non-plastic surgeon.

Bone Marrow (BM) Aspirate
Philippe Hernigou, M.D., Ph.D.
Critical issues: number of ports, angulation, trochar pressure, sedation. Common practices and emerging techniques (e.g.: BM scooping, bone chips).
Cell Characterization

Mesenchymal stromal cells (MSCs) are used as medicinal product for diseases ranging from pathogenic autoimmune, alloimmune and inflammatory processes to organ and tissue repair. There are now clinically tested from early- to late-phase clinical trials. Despite different tissue origins and culture protocols, human MSCs products share fundamental mechanisms of action mediating their anti-inflammatory and tissue repair functionalities. MSCs products should not only be phenotypically identified, but functional markers of potency standardized and easily implemented have to be developed. This would satisfy both mechanistic research as well as development of release potency assays to meet Regulatory Authority requirements for conduct of advanced clinical studies and their registration.

In the presentation we will try to encompass the entire controls’ field, showing some standardized methods for cell characterization, but also some paths to potency assays for uses in inflammatory diseases and in regenerative medicine, and efforts for implementing registries.

Cell Characterization, examples of clinical characterization protocols, immunophenotypification, measuring viability, cell counting, endotoxins and sterility, data registries, GMP conditions.

Regulatory Considerations and Debate

Concepts of Minimal Manipulation (e.g.: Enzymatic digestion, Cell expansion, SVF vs ADSC), Essential function and Homologous use. Micronized Fat > “untouched” stem cell niche.

Sponsored Sessions: Cell Processing Devices and Systems

Leading industry manufacturers share concise presentations on their regenerative medicine products.

Microfractured adipose tissue in regenerative medicine: the Lipogems® device

The Lipogems® technology is an easy system designed to harvest, process and transfer a refined adipose tissue characterized by a great regenerative potential and optimal handling. By the aid of this new technology, and without the addition of enzymes or any other additives, fat tissue is gently micro-fragmented and washed from pro-inflammatory oil and blood residues. Throughout the overall procedure, the processed fat is only subjected to slight mechanical forces without detrimental effects on the integrity of the stromal vascular niche and the tissue itself. This innovative technology improves and optimizes adipose tissue natural properties. With a minimal manipulation technique, Lipogems® system yields a micro-fragmented autologous adipose tissue that behaves as a large-scale tool to supply damaged tissues with a regenerative environment. The availability of minimally manipulated products based upon adequate MSC content allows to shorten procedure timing and avoid regulatory constraints and to use them as autologous graft in one-step intervention. Lipogems® technology guarantees both these requirements in an easy, quick, disposable fat tissue transfer device and represents a very promising approach.
A point-of-care medical device for stromal vascular fraction isolation

*Severiano Dos Anjos Vilaboa, Ph.D. from GID*

The use of freshly isolated autologous cells for human clinical use is becoming very popular in the regenerative medicine field. This is a young and constantly changing field but we are continuously seeing clinical studies demonstrating the safety, efficacy and clinical significance of these cellular treatments. Adipose tissue has emerged as one of the most promising tissue sources for cell isolation and clinical use due to its relative abundance, easy harvesting and the high amount of mesenchymal stem cells that contains.

In this talk we present a novel CE-marked disposable medical device for stromal vascular fraction (SVF) isolation from human lipoaspirates. During the presentation we will show its overall design and associated procedure to isolate stromal cells from adipose in a sterile closed, fast and efficient way. We will report the performance and validation studies performed to characterize the cellular output focusing on: cell yield and viability, cellular characterization, sterility, etc

Furthermore, we are presenting briefly several clinical studies available on the scientific literature that support the use of this technology in the emerging field of autologous cellular therapies.

**BMC Therapy with Marrow Cellution™: Aspirate to Application™**

*Joseph Purita, M.D. from Ranfac Corp.*
Sectional Overview & Introduction
8:30-8:35
Peter Johnson, M.D.
Brief introduction of speakers, presentation focuses, overarching learning objectives.

Bone Regeneration: Considerations
8:35-9:00
Massimo Dominici, M.D.
We have been studying how mesenchymal stromal/stem cells (MSC) can be modified to target tumors becoming powerful tools for anti-cancer molecules delivery. Focusing on death ligands and their potential in inducing selective cancer death, we brought tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) variants to different cancer models and, in particular, to soft tissues and bone sarcomas that are still characterized by a poor prognosis. Armed adipose MSC targeted a variety of tumor lines and primary cancer cells in vitro and, when injected into a NOD/SCID model, localized into tumors mediating apoptosis without significant toxicities to normal tissues. We presume that empowering MSC by ex-vivo manipulations could generate novel therapeutical options for cancer patients further optimizing known capacities of MSC.

This work was made possible by the pivotal work of Giulia Grisendi Ph.D and Carlotta Spano Ph.D and in parts by grants from Ministero Università and Ministero Salute della Repubblica Italiana, ASEOP and by Associazione Italiana Ricerca Cancro (AIRC).

Bone Repair: Current Practice
9:00-9:25
Arnaud Scherberich, Ph.D.
Bone fracture repair is surgery to fix a broken bone using plates, nails, screws or pins. This lecture will introduce the physiological and biological mechanisms of bone healing, the current gold standards in bone repair strategies, the needs for bone augmentation and how various types of bone grafts (autologous/allogeneic/demineralized bone/bone substitutes) are used to allow for proper healing or to assist in the healing process.

Various cell-based strategies aim to overcome the limitations of standard bone grafts, like limited supply or functionality. This lecture will present the development of an advanced therapy medicinal product (ATMP) based on an intraoperative use of the stromal vascular fraction (SVF) of human adipose, containing mesenchymal and endothelial cells, to support bone repair with tissue harvest, cell isolation, seeding onto scaffolding material and implantation within 3-4 hours. Results from ectopic and orthotopic femoral osteosynthesis rodent models will be presented, validating bone formation and vasculogenesis by implanted cells. Finally, a translation of the concept into a first-in-man clinical trial (http://clinicaltrials.gov/show/NCT01532076), demonstrating safety, feasibility and providing proof-of-principle of biological functionality (i.e., bone formation) of the implanted graft will be communicated.

These studies propose an attractive strategy for streamlined, intraoperative, good-manufacturing practice (GMP)-free manufacturing of bone substitutes.
Clinical Evidence Series: Bone Marrow for Avascular Necrosis of the Femoral Head

9:25-9:55
Philippe Hernigou, M.D., Ph.D.
Overview of patient case(s) through all phases: diagnosis, treatment options, pre-op, tissue harvest, cell processing/characterization, injection, post-op, patient follow up, outcomes data. Featuring high quality video demonstrating foregoing processes.

Abstract Presentation
9:55-10:00

Panel Q/A
10:00-10:10
Moderated By Peter Johnson, M.D.
Concluding Remarks, Moderated Q/A Session with panel.

Sectional Overview and Introduction
10:40-10:50
Marco Helder, Ph.D.
Bone reconstruction: personalized implants, the next generation, overarching learning objectives

Clinical Evidence Series: Phase I/II trial of SVF for maxillary sinus floor one augmentation
10:50-11:10
Tymour Forouzanfar, M.D., DDS, Ph.D.
Overview of VUMC trial on 10 cases: general principle sinus floor elevation procedure including current practice (autologous bone/bone substitutes), study design including in-patient controls, adipose tissue harvest, cell processing/characterization, augmentation surgery, dental implant surgery, biopsy evaluations for detailed evaluation of added value of SVF.

Towards a new generation of craniofacial reconstructions: 3d-printing combined with cellular therapy
11:10-11:30
Jan Wolff, M.D.
Overview of the steps from medical acquisition/reconstruction to image processing to additive manufacturing, pitfalls and solutions, surgical planning (3D skull models, sawing guides, finite element modeling), adipose tissue harvest, cell processing/characterization, 3d-printing of implants and cells, craniofacial reconstruction surgery, patient follow up outcome data.
Striving for synergy: combining nanoparticle with 3D-printing to generate “smart” bioactive scaffolds

11:30-11:50

Marco Helder, Ph.D.

Overview of nanoparticle technology for encapsulating small molecules and growth factors to create controlled release systems. Techniques for incorporating these in scaffolds using 3D-bioprinting. Added value of these “smart” scaffolds over “normal” scaffolds.

Abstract Presentation
11:50-11:55

Panel Q/A
11:55-12:05

Moderated by Marco Helder, Ph.D.

Concluding Remarks, Moderated Q/A Session with panel.

Sectional Overview & Introduction
13:15-13:20

Christian Jorgensen, M.D., Ph.D.

Brief introduction of speakers, presentation focuses, overarching learning objectives.

OA and Post-traumatic OA (PTOA) in the radar for a regenerative therapeutic approach

13:20-13:45

Daniele Noël, Ph.D.

Among osteo-articular diseases, osteoarthritis (OA) is the most common arthropathy and post-traumatic OA (PTOA) accounts for over 12% of the overall disease burden of OA. PTOA most commonly occurs following injury in ankle and knee joints and affects a disproportionally younger population of patients than other forms of OA. After joint trauma, there is a marked increase in inflammatory mediators that promote catabolic activity of cartilage. The early inflammatory phase, which is subsequently sustained at a lower level at later phases, is therefore a suitable target for prevention/treatment of PTOA. Mesenchymal stem cells, also known as mesenchymal progenitor or stromal cells (MSC), display regenerative and repair activities through the secretion of many trophic factors that influence tissue repair. Thanks to their anti-inflammatory properties, MSC represent a therapeutic option for a cell-based therapy targeting inflammation in PTOA. Current knowledges on their mechanism of action will be reviewed.

Clinical Evidence Series: OA: Clinical protocols using adult stem cells

13:45-14:15

Christian Jorgensen, M.D., Ph.D.


Abstract Gold Winner
14:15-14:20
Session Descriptions

SATURDAY, OCTOBER 8TH

Clinical Evidence Series: Cell transplantation in lumbar spine disc degeneration disease
14:20-14:50

Hans Meisel, M.D., Ph.D.

Introduction:
Low back pain is an extremely common symptom, affecting nearly three-quarters of the population sometime in their life. Given that disc herniation is thought to be an extension of progressive disc degeneration that attends the normal aging process, seeking an effective therapy that staves off disc degeneration has been considered a logical attempt to reduce back pain. The most apparent cellular and biochemical changes attributable to degeneration include a decrease in cell density in the disc that is accompanied by a reduction in synthesis of cartilage-specific extracellular matrix components. With this in mind, one therapeutic strategy would be to replace, regenerate, or augment the intervertebral disc cell population, with a goal of correcting matrix insufficiencies and restoring normal segment biomechanics. Biological restoration through the use of autologous disc chondrocyte transplantation offers a potential to achieve functional integration of disc metabolism and mechanics.

Methods:
We designed an animal study using the dog as our model to investigate this hypothesis by transplantation of autologous disc-derived chondrocytes into degenerated intervertebral discs. As a result we demonstrated that disc cells remained viable after transplantation; transplanted disc cells produced an extracellular matrix that contained components similar to normal intervertebral disc tissue; a statistically significant correlation between transplanting cells and retention of disc height could display.

Results:
Following these results the Euro Disc Randomized Trial was initiated to embrace a representative patient group with persistent symptoms that had not responded to conservative treatment where an indication for surgical treatment was given. In the interim analyses we evaluated that patients who received autologous disc cell transplantation had greater pain reduction at 2 years compared with patients who did not receive cells following their discectomy surgery and discs in patients that received cells demonstrated a significant difference as a group in the fluid content of their treated disc when compared to control.

Discussion:
Autologous disc-derived cell transplantation is technically feasible and biologically relevant to repairing disc damage and retarding disc degeneration. Adipose tissue provides an alternative source of regenerative cells with little donor site morbidity. These regenerative cells are able to differentiate into a nucleus pulposus-like phenotype when exposed to environmental factors similar to disc, and offer the inherent advantage of availability without the need for transporting, culturing, and expanding the cells. In an effort to develop a clinical option for cell placement and assess the response of the cells to the post-surgical milieu, adipose-derived cells were collected, concentrated, and transplanted under fluoroscopic guidance directly into a surgically damaged disc using our dog model. This study provides evidence that cells harvested from adipose tissue might offer a reliable source of regenerative potential capable of bio-restitution.

References

Panel Q/A
14:50-15:00

Moderated by Christian Jorgensen, M.D., Ph.D.
Concluding Remarks, Moderated Q/A Session with panel.
Session Descriptions

SATURDAY, OCTOBER 8TH

Sectional Overview & Introduction
15:30-15:40
Diego Correa, M.D., MSc., Ph.D.
Cartilage Tissue Engineering: personalized implants, the next generation.

The unmet needs in rheumatology - is regenerative medicine the answer?
15:40-16:00
Ronald F. van Vollenhoven, M.D., Ph.D.
Rheumatology is the medical discipline that addresses, among other things, the needs of patients with inflammatory diseases of the musculoskeletal system such as rheumatoid arthritis, spondyloarthritis, and psoriatic arthritis. These autoimmune diseases have in common that they can strike at any age and cause considerable pain, stiffness, and general symptoms of a chronic nature. In addition, they have the potential to damage the structures of the joints, resulting in permanent damage.

While these inflammatory diseases are relatively common and serious, major advances have been made in their treatment. The use of biological medications with specifically targeted mechanisms of action, such as the blockade of tumor necrosis factor (TNF) has made it possible to achieve very good control over the inflammatory process in a majority of patients. Ongoing improvements in the use of these medications make it possible to aim for remission in most cases.

However, none of the currently available antirheumatic therapies offers hope for clinically meaningful repair of previously damaged joints. The prospect that is now emerging is that within 5-10 years, the prognosis for the newly diagnosed patient will be excellent – but that the millions of patients in Europe and beyond who have already sustained moderate or severe damage to the musculoskeletal system are left behind.

To address this large unmet need in rheumatology, a joining of forces with regenerative medicine will be needed. Advances in cellular methods including the use of mesenchymal stromal cells with the potential to regenerate bone, cartilage, and muscle raise hopes for the patients thus afflicted. Our current treatment goal, fully to control the autoimmune inflammation, must be complemented by a new ambition: to rebuild damaged structure and restore lost function. Seen in this light, regenerative medicine provides hope for patients with rheumatic diseases and marks a new direction in the field of rheumatology.

Cartilage repair: how to regulate the chondrogenic capacity of mesenchymal stem cells
16:00-16:20
Gerjo van Osch, Ph.D.
Reproducible generation of permanent cartilage by mesenchymal stem cells (MSC) remains a challenge. Bone marrow and synovium membrane contain subpopulations of cells with different chondrogenic capacities. Cell selection based on membrane surface markers reveal some promise, to select the most chondrogenic cells, with different markers for bone marrow and synovium membrane. Moreover, the conditions for cell expansion in culture and the subsequent chondrogenic differentiation conditions greatly influence cartilage formation. The most optimal condition we have at the moment to expand bone marrow derived MSC is the addition of Wnt3a and FGF2 during expansion. This leads to a population of cells with different expression of membrane markers as well as different expression of transcription factors such as TWIST and SOX9. To induce chondrogenic differentiation TGFbeta is the best known factor. TGFbeta, however, also drives hypertrophic differentiation of these cells. Inhibition of part of the TGFbeta pathway, as well as inhibition of Wnt during chondrogenesis reduced hypertrophic differentiation. Growth factors need to be tightly regulated in time during the process and this makes their application difficult. Recently we found an alternative way to induce chondrogenic differentiation without addition of TGFbeta, by inhibiting miRNA221. Inhibition of this anti-chondrogenic factor resulted in chondrogenesis without stimulating hypertrophy and enhanced repair of cartilage defects in in-vitro and in-vivo models.
Organ culture studies in bioreactors to assess cellular therapies
16:20-16:40
Theo Smit, Ph.D.

In the last decade, ex vivo three-dimensional organ culture systems were developed to study the (patho-)physiology of human organs. While in vivo models provide comprehensive insights in biology, an organ culture model can better focus on a single factor, such as biochemical cues or mechanical loading. The systems also have potential as prescreening model in tissue engineering and thereby reduce live animal testing.

The intervertebral disc is an interesting organ for culture studies, because it is non-vascularized and therefore easier to maintain in a physiological condition. Mechanical loading is required for the transport of nutrients and waste products, but overloading results in the induction of disc degeneration. Such well-defined models are also useful for the testing of therapies, like the repair of the annulus fibrosus.

Monitoring the fate and action of cells used in regenerative therapies is an important challenge which we addressed by luciferase-mediated bioluminescence imaging. Goat adipose-derived stem cells were transduced with either Firefly luciferase (Fluc) or Gaussia luciferase (Gluc) reporter genes and injected in isolated goat intervertebral discs. Gluc appeared to be a more promising way to monitor spatial and temporal cellular behavior in ex vivo organ culture. Thus, ex vivo organ culture systems allow pre-screening and pre-validation of novel therapeutic concepts.

Abstract Presentation
16:40-16:45

In situ gelating hydrogels for cartilage tissue repair
16:45-17:05
Marcel Karperien, Ph.D.

Focal cartilage defects still pose a challenge for the treating orthopedic surgeon with long term consequences for the individual patient. My group is developing cell-free regenerative treatments for these defects by challenging William Hunter’s dogma that damaged cartilage cannot repair itself. We have developed injectable in situ gelating hydrogels that can be applied in an arthroscopic procedure to fill up cartilage defects. These hydrogels possess cell attracting properties. Indeed in a pilot experiment in an equine model with focal cartilage defects, we demonstrate that the gel can be applied in an arthroscopic procedure. The procedure and materials used are safe and horses show a normal recovery after the procedure. Within one week they resumed a normal walking pattern. Interestingly, after two weeks the gel was still present in the defect and histological analysis demonstrated in growth of cells. The ingrowing cells self-organized in columns and started to secrete cartilaginous matrix. This pilot experiment showed that it is feasible to develop a cell-free regenerative treatment and this concept is currently further evaluated in a larger preclinical trial in horses. In my presentation I will present our newest data and will provide further outlook how in situ gelating hydrogels can be used and further adapted for application in regenerative medicine.

Panel Q/A
17:05-17:15
Moderated by Diego Correa, M.D., MSc., Ph.D.

Concluding Remarks, Moderated Q/A Session with panel.
Dental pulp Stem cells: dental and maxillofacial tissue engineering

Frédéric Cuisinier, Ph.D.

Dental pulp tissue from human third molar, exfoliated deciduous or supernumerary teeth represent an easily accessible source for mesenchymal stem cells harvesting as these teeth are often extracted. The dental pulp stem cells (DPSC) due to their embryologic origin and localisation have been proposed to be good candidate for dental and maxillofacial regeneration. We focus our research on the characterisation of these cells, the possibility to trigger their differentiations into neurones, bone and adipocyte. For bone regeneration we have selected an original scaffold Porous silicon (PSi) to carry cells and/or growth factor to the injured site. It is a promising biomaterial for tissue engineering, as it is both non-toxic and bioresorbable. Surface modification offer control over the degradation rate of PSi and can also impart properties to promote cell adhesion. Thus, coupling the good proliferation and differentiation capacities of DPSC with the textural and chemical properties of the PSi substrates provides an interesting approach for therapeutic use.

Adipose therapies for soft tissue reconstruction: clinical translation and regulatory issues

J. Peter Rubin, M.D.

Clinical Evidence Series: ASC, SVF, and Adipocyte Fractions from Adipose: Dose Relationships and Clinical Application

William W. Cimino, Ph.D.

Adipose tissue can be used for regenerative therapy as whole adipose lipoaspirate, as stromal vascular fraction (SVF) which is separated and concentrated from whole adipose tissue, or as adipose stem cells (ASC) which are isolated from the stromal vascular fraction. Clinical application of these different cell fractions is a function of cell concentration and resulting volume of the therapeutic dose. Impact of cell processing methods and resulting cellular fractions are assessed. Application to treatment for peripheral vascular disease of the lower extremity, osteoarthritis of the knee, and burn scars is presented.

Clinical Evidence Series: The role of stem cells in the treatment of large chondral articular defects with joint transplantation

Christian Krettek, M.D., FRACS, FRCSEd

Large cartilage defects do not heal. While joint replacement is a good option for the elderly, younger patients have more complications (loosening, revisions, bone loss). Bulky osteochondral and frozen allografts do not get vascularized well and degenerate rapidly.

BioRePAJR is a biologic treatment for active patients under 55y with large defects. In these patients we use thin (<6mm bone) fresh large osteochondral allograft shells (FLOCAS). Results from the literature show after transplantation of fresh osteochondral allografts 74% functional survival at 15 years and 79% return to pre-injury sport level. FLOCAS cartilage cells stay alive in storage systems for 6 weeks with cell survival >70%. There is no need for HLA matching or immunosuppression. The cartilage cells are protected from host cell response by their matrix and survive. Our group and others can present DNA data showing that cartilage cells in the graft undergo slow exchange with host cartilage cells over years. Vascularization and osteointegration is fast (6 – 12 weeks) and has further improved by the use of stem cell concentrates.
SUNDAY, OCTOBER 9TH

The difficulty in managing multi-planar defects with FLOCAS transplantation is not the biology, it is the geometric fit. The problem is to create a thin graft shell with full contact to the host bone. This is relatively easy in uni-planar osteotomies (tibia plateau), but gets very difficult in curved complex geometries as distal femur or ankle. The lack of reference leads to incomplete contact (gap problem). This compromises vascularisation, osteo-integration, cartilage nutrition, and normal joint function. The experience with 15 FLOCAS in knee, ankle, hip and elbow will be reported.

Clinical Evidence Series: Engineering the delivery of an optimal platelet-rich plasma composition for individualized care and treatment
11:30-12:00
Peter Everts, Ph.D.

Normal healthy tissues have the ability to spontaneously regenerate during the remodeling phase after injury, trauma, or surgery. However, if the normal healing time of a lesion site is exceeded, a critical tissue regeneration phase may develop, leading to prolonged dysfunction and pain. An acute injury might turn to a chronic condition, like in many musculoskeletal, tendon, disorders. A disturbed tendon healing has the potential for the formation of unwanted scar tissue, leading to inferior mechanical strength, making them susceptible to re-injury.

In recent years, the injection, or implantation, of platelet-rich plasma (PRP) has been increasingly used in a variety of medical conditions, with varying outcome results, like orthopedic surgery, chronic wound care, dermatology, plastic surgery, dentistry, and sports medicine. More specifically, the efficacy of PRP treatments on injured tendons is highly debated with controversial results in vitro, animal, and clinical studies. No study has up until now demonstrated the exclusive role of PRP in enhancing tissue/tendon healing. An explicit lack of knowledge on specific roles of cells and molecules in PRP, and a large variability of PRP producing centrifuges might initiate this, as different PRP producing devices yield different PRP recipes.

In this presentation I reason that there are many PRP- and patient-related factors that influence the results of PRP treatment on injured tendons in musculoskeletal disorders. Specific emphasis will be given to the “characters” of all leukocytic cells, highlighting the granulocytic and mononuclear cell activities, and the role of macrophages, with regard to their function, and part in antimicrobial and pro-inflammatory activities. Ultimately, a variety of PRP cells and cytokines have an effect on tendon stem/progenitor cell healing. Furthermore, the erythrocyte presence in PRP will be discussed.

It is my belief that PRP should be engineered and applied based on tissue type, and disorder specific conditions, in order to create the optimum PRP milieu to significantly effect the healing mechanisms. However, only very few PRP devices are capable of producing customized treatment protocols, with a specific platelet-rich plasma composition for effective healing of, among others, musculoskeletal injuries.

To PRP or not to PRP, that is the question. An endless debate
12:00-12:30
Peter Everts, Ph.D., Diego Correa, M.D., Ph.D.

Round table with experts debating on the use, scientific/medical literature, credibility, volatility and standardization status in the PRP universe.

Concluding Remarks: Putting It All Together
12:30-13:00
Michael P. Tierney, J.D.

Notes from the field – four years of interacting with academic medical centers, group practices and individual practitioners in the field of “regenerative medicine”. Real-life examples of successful and less-than-successful regenerative medicine practices. Conclusions to be drawn, considerations to be kept in mind and some suggested approaches. Covering financial, operational and regulatory contexts.
Julie Allickson focuses on the translation of regenerative medicine products including cell therapy, tissue engineering, biomaterials and devices. This process begins at Proof-of-Concept where early discussion with regulators and clinicians are critical in moving the technology from the bench to the bedside. The Translational Team includes Quality Assurance, Quality Control, Regulatory Affairs, Process Development and the GMP-complaint Manufacturing Facility. Prior to joining the institute, she was an Executive Officer of the company and Vice President of Laboratory Operations and R & D at Cryo-Cell International, Inc., an AABB accredited Cord Blood Bank.

As Vice President of the Laboratory Dr. Allickson was responsible for all technical aspects of Laboratory Operations along with Research and Development activities associated with adult stem cells, including the development work related to isolation of a unique stem cell harvested from menstrual blood. Prior to this position, Dr. Allickson worked for the University Of Miami School Of Medicine, Diabetes Research Institute as the Laboratory Director of the cGMP Hematopoietic Cell Processing Facility. She was responsible for the design and implementation of the State Licensed Clinical Flow Cytometry Laboratory. Dr. Allickson was the lead in Regulatory Affairs for the processing laboratory of Islet and Hematopoietic Cell products which included oversight of all Investigational New Drugs (IND) and external regulations.

Prior to working for the University of Miami she worked for the American Red Cross managing the Hematopoietic Cell Processing and Platelet Serology Laboratory. During her tenure at the American Red Cross she served as a member of the National Stem Cell Task Force and participated in the preparation of national protocols developed for Hematopoietic Cell Processing Laboratories. Dr. Allickson was part of the team to perform the very first Bone Marrow Transplant at the University of Miami in 1990.

Dr. Allickson has 25 years experience in Cellular Therapy, Cellular Processing and Regenerative Medicine. She has a Doctorate in Health Sciences along with a Master’s Degree in Medical Laboratory Sciences. She is one of the founding members of the International Society of Cellular Therapy in 1992 and has been a member of the American Association of Blood Banks (AABB) for 25 years. She has presented at national and international meeting related to adult stem cells and translation. She is currently Chair of the AABB Standards Committee for Cell Therapy Product Services. Dr. Allickson is also on the Technical Advisory Board for Tissue Engineered Products under ICCBBA and the ISCT Commercialization Committee.
Frank Barry is Professor of Cellular Therapy at the National University of Ireland Galway and a principle investigator at the Regenerative Medicine Institute (REMEDI). Here he directs a large group of researchers who focus on the development of new repair strategies in stem cell therapy and gene therapy in orthopaedics. REMEDI includes a GMP stem cell manufacturing facility for the preparation of stem cells for use in human clinical studies.

Frank Barry has contributed to the fields of tissue engineering and regenerative medicine by developing innovative and successful cellular therapies for the treatment of acute joint injury and arthritic disease. This has included the generation of a large body of new data in groundbreaking preclinical studies, and has lead to the first phase of clinical testing of mesenchymal stem cells in clinical trials for joint injury. In addition he has developed new techniques for the isolation, characterization and commitment of bone marrow stem cells and has described the phenotypic changes seen in these cells in patients with advanced osteoarthritis. These studies indicated that patients have functionally depleted reservoirs of stem cells in the marrow. These data suggest that stem cells may be a component of the diseases process and at the least will influence future strategies in cell-based repair for these patients.

In a career that has spanned both industry and academic research, he has been a driver in the development of cellular therapy as a biological repair strategy. It is his belief that the application of new technologies in regenerative medicine, including cellular therapy, gene therapy, growth factor augmentation, implantable scaffolds and nanomaterials, will have a profound impact in Orthopaedics. Frank Barry was the recipient of the 2012 Marshall Urist Award for excellence in tissue regeneration research from the Orthopaedic Research Society. In 2013 he was elected Senior Fellow of the International Cartilage Repair Society.

Dr. Cimino is an established scientist and engineer specializing in medical system design, clinical research, and strategic business planning/development. He has over 30 years of professional experience, from Senior Engineer to CEO/Chairman, covering all aspects of medical device business including device design and technology development, clinical studies and assessment, regulatory affairs, strategic market development, distribution, business management/growth, and financial/funding requirements. An experienced CEO of successful medical device startups, he is currently CEO of The GID Group, Inc., established to become the world-leading provider of adipose-derived cell bio-technology to support emerging cell-based therapies. Dr. Cimino has designed and introduced to the market over 50 different medical products/accessories including capital products and disposables, and has over 30 issued US patents.

**Education:** Ph.D. Bioengineering, M.S. Mechanical Engineering, B.S. Aerospace Engineering.
Diego Correa, M.D., MSc., Ph.D.

M.D. from Universidad Javeriana (Bogotá - Colombia); M.Sc. in Mechanical Engineering from Universidad de Los Andes (Bogotá - Colombia) obtaining the Engineering School Fellowship for academic and research excellence; Ph.D. in Cellular and Molecular Physiology from Yale University/Harvard University where he received a full scholarship and was recipient of the George Robert Pfeiffer Fellowship from the Gustavus and Louise Pfeiffer Research Foundation. In 2009, he joined the laboratory of Professor Arnold Caplan at the Skeletal Research Center - Case Western Reserve University (Cleveland, OH), where he led the projects related with the use of adult Mesenchymal Stem Cells (MSCs) in the areas of Articular Cartilage Tissue Engineering and the description of their role as gatekeepers controlling the process of distant Cancer Metastasis.

Currently holds a joint appointment as Scientist/Assistant Professor between the Department of Orthopaedics (Division of Sports Medicine) and the Diabetes Research Institute at the University of Miami, Miller School of Medicine. Dr. Correa's laboratory focuses on the Biology of Mesenchymal Stem Cells (MSCs), including their immunomodulatory and trophic activities, intercellular communication through exosomes, and their potential therapeutic application for joint diseases and during islet cell transplantation in type 1 Diabetes, using both in vitro and in vivo models. In addition, he holds an Adjunct Assistant Professor appointment at the Dept. of Biology, Skeletal Research Center - Case Western Reserve University, where he continues interacting with Professor Arnold Caplan participating in various research areas and funded projects.

Dr. Correa is an expert in Cell Biology, with special emphasis on MSC biology and clinical applications in Regenerative Medicine. Throughout his career, Dr. Correa has approached Medicine and Science in a dynamic multidisciplinary manner, using the musculoskeletal system as a primary platform. He has analyzed it from various perspectives, including a clinical view of skeletal diseases, an engineering analysis of tissue mechanical properties, a basic science study of the cellular and molecular underpinnings of skeletal development using genetic models, and the development of novel therapeutic approaches to treat skeletal diseases based on stem cell therapy. This cohesive work has been recognized by distinctions such as the Young Investigator Award from OARSI (Osteoarthritis Research Society International) and chosen as special delegate for the Academy of Achievements 46th International Summit (Washington DC).

He holds various patents submissions; is author and co-author of a significant number of scientific publications in recognized journals; serves on the editorial board and as peer reviewer of several recognized scientific journals; and is an invited speaker and lecturer in national and international scientific and medical meetings.

Dr. Correa also participates in diverse entrepreneurial activities, such as the creation and evaluation of private start-up companies in the areas of Regenerative Medicine and adult stem cell-based therapy. He also participates in various Scientific Advisory Boards in companies within the Regenerative Medicine field.
Frédéric Cuisinier, Ph.D.

Professor Frédéric Cuisinier graduate as dentist in 1986 at Strasbourg University (France) and acces to the national board of periodontology in 1987. After a Master of Science he obtained a PhD in 1990 on High Resolution Electron Microscopy of bone crystal formation. He abilitate in 1994. After a post-doctoral position in Oxford University he was associate professor in Strasbourg University (France) from 1990 to 2005 working in an INSERM research unit on bone mineralization. From 2000-2003 Professor Frédéric CUISINIER was the scientific coordinator of an RTD project in the 5th EU framework program. The project title was Surface enhancement of metal implant: new method and new material". He was appointed as full time professor in Montpelier University in 2005. In 2007 he created the Bioengineering and Nanoscience Lab. The two research teams of the laboratory work on maxillofacial bioengineering and on biophotonics for oral diagnostic.

Massimo Dominici, M.D.

Massimo Dominici is a 44 years-old clinical scientist developing cell and gene therapy approaches around cancer patients. He got his MD degree at the University of Pavia (Italy) then internship, residency and post-doctoral training between the Institute of Haematology, Vienna University (Austria), the Division of Immuno-haematology, Ferrara University (Italy) and St Jude Children’s Hospital, Memphis (USA). Then hospital physician, associate professor of Medical Oncology and head of the Laboratory of Cellular Therapies at the University of Modena. 26 between research grants and awards. About 110 papers published or in press on stem cells, tissue regeneration, experimental oncology and hematology with over 11000 citations. Author of 3 books, 3 chapters and 7 patents. Founder of the University start-up Rigenerand. Founder and scientific coordinator of the Mirandola Science & Tecnology Park. Co-editor, editorial board member and referee for several scientific Journals. Referee for 16 national & international founding Bodies. He has been co-founder of the Forum of Italian Researcher on MSC (FIRST), board member of JACIE, WBMT and scientific advisor for the Italian Minister of Health. He has been member of ISCT, ASH, ESCGT, IFATS, IPLASS. He has been President of ISCT 2014-2016.

Peter Everts, Ph.D.

He started his career as a clinical perfusionist and in addition to his clinical duties, he held a variety of posts including Chairman of the Dutch National Society for Extra Corporeal Circulation, and Board member of the European Board of Cardiovascular Perfusion. He was a founding member of the department of Peri-operative blood management at the Catharina Hospital in Eindhoven, specialized in cell therapy programs in general, cardiac, orthopedic, plastic reconstructive, and spinal surgical procedures, and chronic wounds. He has been pioneering since 1992 in the science and clinical applications of platelet-rich plasma (PRP) technology. Peter has been leading...
research teams in regenerative medicine in cardiac surgery, orthopedics and sports medicine, aesthetic and plastic reconstructive surgery, and chronic wound care treatments. Furthermore, he was one of the first to use concentrated plasma to produce autologous fibrin in different clinical applications together with PRP in order to control postoperative hemostasis.

Peter received his PhD in Medicine from the University of Utrecht (the Netherlands) in 2007 on the subject of PRP basic research and applications in orthopedics. This work was collected in his book on "Platelet-rich Leukocyte gel basics and applications inclinical practice", (ISBN 13: 978-90-8590-016-0). At present he has published and authored more than 40 articles or book chapters.

During his career, he has been a board member, interim director, consultant, chairman and founder of several health care organizations and models. He was member of the sport medicine steering group at the International Olympic Committee.

Peter is the co-founder of the Dutch Da Vinci integrated wound healing concept, bridging the many needs for patients and health care providers, in order to organize adequate and state of the art chronic wound healing models. At present he also serves as the General Director and Chairman of the Board of the Da Vinci Clinics, Expert centers for wound healing, regenerative medicine and hyperbaric medicine in The Netherlands.

Furthermore, he still practices advanced wound care treatments, including a variety of bio-regenerative medicine technologies incorporating cellular therapies, adipose tissue, and hyperbaric medicine.

Tymour Forouzanfar, M.D., DDS, Ph.D.

Prof. Forouzanfar studied medicine at the University of Maastricht(1993-1999) and dentistry at the University of Leuven, Belgium (2001-2004). Between 2000 and 2004 he performed his PhD program at the department of Anesthesiology and pain management UMCU Maastricht (Head: prof. v Kleef). His PhD topic was "Pain and Pain measurement in CRPS I patients". In 2004 he started as resident in oral and maxillofacial surgery and finished it at 2008. He is since 2011 head of the department of Oral and Maxillofacial surgery / Oral Pathology of VU university medical centre. Concerning patient care his interest is focused on traumatology, orthognatic surgery, and oncology. Oncology in the oral and maxillofacial region is his main focus. He is currently official registered as Head and Neck oncological surgeon. His research interests lays in aetiology and treatment of facial defect using stem cell - and 3D technology. His research line which is one of the main research lines of his department is part of the inter-faculty Research institute MOVE. He is supervisor of 15 PhD projects of which 5 will be finished in 2016. In 2013 he founded in cooperation with the department of Physical and Medical Technology of VU university medical centre the 3D InnovationLab. In this lab clinicians, scientist, engineers and designers perform research on 3D software technology, material sciences, imaging and 3d printing using a multidisciplinary approach. There is an intensive cooperation with technical Universities and industrial partners. Currently 20 research projects are ongoing in the 3D InnovationLab.
**CELLS | Musculoskeletal 2016**

**Speakers**

### J. William Futrell, M.D.

Former Professor and Chief of Plastic Surgery at the University of Pittsburgh Medical Center for 21 years. Dr. Futrell served as a President of the American Association of Plastic Surgeons and multiple other medical organizations and author or co-author of more than 200 peer-reviewed scientific publications. As an entrepreneur he is co-inventor of multiple patents and co-founder of numerous businesses including CellSource, Inc.; StemSource, Inc.; Human Analytix, Inc.; Illumineer, Inc.; and Life Science Enhancement Corporation.

### Jaime Garza, M.D., DDS, FACS

Leader in Academia and Business - A renowned surgeon, Dr. Garza’s distinguished career as an educator, administrator, researcher, business owner, leader and community activist has earned him far-reaching respect and recognition. As Clinical Professor of Surgery and former Chief of Plastic and Reconstructive Surgery and Assoc. Vice President at the University of Texas Health Science Center at San Antonio, Dr. Garza founded and directed their nationally recognized residency program in that specialty. As Chairman of the Texas State University System Board of Regents, he serves as chairman of the Academic Affairs Committee and member of the Governmental Relations Committee. Under Dr. Garza and his counterparts’ term as regents, the Texas State University System saw Texas State University become a national “Hispanic Serving Institution” and an “Emerging Research University.”

Dr. Garza’s extensive experience in the private sector garnered accolades from local, state and national organizations, including recognition as Hispanic Business Leader of the year.

Trailblazer - Dr. Garza is one of the first clinician/scientists in the nation to receive an IRB approval for a clinical study in the use of human regenerative cells for the treatment of osteoarthritis of the knees. He’s also an internationally known expert in the treatment of sports related facial injuries, and from his research lab he translated that work to a U.S. patent on a protective facemask used by professional and college athletes.

Mentor - Throughout his academic, medical and business careers, Dr. Garza has placed a premium on his work with future generations of medical doctors and he has spoken extensively to groups of high school, collegiate and professional students.
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Speakers

Marco Helder, Ph.D.

M.N. Helder, PhD, associate professor at The Depts. of Orthopaedic Surgery and Oral & Maxillofacial Surgery of the VUMC, obtained his PhD on the role of BMPs in the development of bones and teeth. After post-doc positions on biochemical, oncologic and gene therapeutical topics at the RU Leiden and the Academic Hospital of RU Groningen, he joined the VUMC in 2002.

His research lines are twofold: osteosarcoma (OS) cancer research and tissue engineering (TE). For OS he developed novel conditionally-replicating adenoviral as well as nanoparticle-mediated, dual-targeted treatment to combat OS metastatic disease. In the TE field, he was the first to introduce adipose stem cell (ASC) technology in The Netherlands. The application of freshly isolated ASC preparations (stromal vascular fraction, SVF) in a one-step surgical procedure for skeletal regeneration has been his driving force ever since, and via in vitro and in vivo preclinical research, the Dept. was in 2010 the first to launch a (government-funded) SVF bone tissue engineering phase I/II safety and efficacy trial worldwide.

After initial work on spinal fusion, intervertebral disc and articular cartilage regeneration have also been major research topics since 2004. This has resulted in multiple publications, two patents, an articular cartilage defect model in goats, and safety, feasibility and efficacy studies of the SVF one-step surgical concept in this model. Dr. Helder published more than 90 papers and book chapters, and has recently been coordinator of the EU-FP7 NMP collaborative project “NPmimetic”, and the 2014 president of “adipose tissue society” IFATS.

Philippe Hernigou, M.D., Ph.D.

He has used autologous bone marrow concentrate (BMC) to treat orthopedic pathologies since 1990. Dr. Hernigou is required to characterize the BMC provided to each patient, including total nucleated cell count, viability, and a colony forming unit assay (CFU-F) that is considered as an indicator of mesenchymal stem cell content. He is the Chief of Orthopaedic Surgery at the Henri Mondor Hospital, East University (aka University of Paris, France).
Peter C. Johnson, MD is a University of Notre Dame and SUNY Upstate Medical University graduate. After General and Plastic Surgery training, Dr. Johnson practiced reconstructive surgery for ten years at U. Pittsburgh where he founded and was the first President of the Pittsburgh Tissue Engineering Initiative. Subsequent roles were co-founder/CEO of TissuInformatics, EVP of Life Sciences, CMO and CBO of Icoria, EVP, Entegrior, Inc. and VP, Research and Development and Medical and Scientific Affairs of Vancive Medical Technologies, an Avery Dennison business. He presently serves as President and CEO of Scintellix, LLC, Chief Medical Advisor to Vancive Medical Technologies and Principal, MedSurgPI, LLC. He is the current President of NCTERMS (North Carolina Tissue Engineering and Regenerative medicine Society). He has chaired the Plastic Surgery Research Council, was President of the Pennsylvania Biotechnology Association and the Tissue Engineering Society, International and is presently the Co-Editor-in-Chief of the three-part Journal, Tissue Engineering. He serves on the Industry Committee of Tissue Engineering and Regenerative Medicine International Society (TERMIS) on the board of the Transverse Myelitis Association and on the Industry Advisory Board of the UNC/NC State Joint Program in Bioengineering. He is an Adjunct Professor of Surgery, Bioengineering and Business at the University of North Carolina at Chapel Hill, of Bioengineering at NC State and of Regenerative Medicine at Wake Forest University School of Medicine. He is an avid cook, fly fisherman, artist and novelist.

C Jorgensen clinical interest are in stem cell, immunology and rheumatology. He is head of the clinical unit, “Immuno-therapy Rheumatology”, University Hospital “Lapeyronie” (Montpellier). He leads Institute Regenerative Medicine and Biotherapy IRMB dedicated to regenerative medicine. IRMB gathers scientist and clinicians on regenerative medicine and innovative immunotherapies. The objectives of IRMB are to increase the knowledge of stem cell biology, interactions between stem cells and immune cells, stem cell niches and homing, as well as the role of epigenetics mechanisms in chronic and age related diseases. These researches include both basic biological aspects and innovative applications of regenerative therapy.

The aim of IRMB is to facilitate the transfer of research on stem cell biology to clinical applications in coordination with clinical specialists in chronic diseases (aging, rheumatoid arthritis, rare genetic diseases, autoinflammatory disorders, diabetes, liver disease, neurodegenerative disease, musculoskeletal disorders).

The clinical research is conducted in the clinical department for immunotherapy with 20 beds dedicated to biotherapy applied to Rheumatoid Arthritis and other autoimmune diseases. Pr Christian Jorgensen, specialist in Therapeutics and Rheumatology, is head of research INSERM unit U1183 (“Stem cells, cell plasticity, regenerative medicine & immunotherapies”) and department of biotherapy. C Jorgensen is a professor in the Faculty of Medicine Montpellier-Nimes (responsible teacher of DES Rheumatology). He is also responsible for teaching the Master Pro “Evaluation & methodology of therapeutic trials. He is expert for Biologics at...
Christian Jorgensen, M.D., Ph.D. (cont’d)

French National Authority or Health (HAS), where he was former member of Transparency Comity at HAS, and member of national scientific board of Inserm.

C Jorgensen has published extensively (over 170 publications in the field of Immunology and stem cell therapy applied for rheumatic diseases), and has a strong track record for competitive research grant from EU and ANR. He has coordinated a program of 2004-2007 FP6 integrated project Genostem : Adult mesenchymal stem cells engineering for connective tissue disorders. He is also principal investigator in the Integrated Project 6th FP-healing: Post-genomic Approaches for inflammatory rheumatic disease, Leading to the development of Improved therapy. Finally, today it coordinates the FP7 ADIPOA project, large scale project focusing on adipose-derived mesenchymal stem cells in osteoarthritis therapy, since 2010.

Marcel Karperien, Ph.D.

Marcel Karperien studied biology at Utrecht University. After graduation in 1991 he worked as a PhD-student at the Netherlands Institute for Developmental Biology and Stem Cell Research. He continued his career at the Leiden University Medical Center working on regulation of longitudinal bone growth and metabolic bone disorders. In 2007 he moved to the MIRA Institute for Biomedical Technology and Technical Medicine where he established the Department of Developmental BioEngineering. He is interested in developing new solutions for treating cartilage related disorders. His work is technology inspired and is characterized by a multidisciplinary approach. In his work in depth knowledge of the molecular and cellular biology of cartilage is combined with state of the art chemical- and nano-technology.

Specific research topics are i) the identification of the molecular mechanisms underlying the pathophysiology of osteoarthritis, ii) the development of (stem) cell based strategies for repairing the damaged articular cartilage surface and iii) the development of new generations of biomaterials that can be used in a non-invasive manner for cell delivery in the diseased joint.

Marcel Karperien has received awards from the American Society for Bone and Mineral Research (Young investigator award, travel grant awards), Dutch Society for Endocrinology (NVE), the European Calcified Tissue Society and the MIRA Institute for Biomedical Technology and Technical Medicine for his work. His work is supported by an unrestricted research grant from the Dutch Arthritis Foundation.
Christian Krettek, M.D., FRACS, FRCSEd

Education & Experience
1980  Graduation from Medical School, Ludwig-Maximilians University Munich
1980 - 1982  Institute for Pharmacology, Ludwig-Maximilians University Munich
1982  Doctorate
1982-1989  Residency, Trauma Department, Hannover Medical School (MHH)
1992/1996  Habilitation / Apl. Professor, Trauma Department, MHH
1997  Deputy Director of Trauma, Hannover Medical School
1999  Fellow of the Royal Australasian College of Surgeons (FRACS)
1999  Professor / Director of Trauma, Monash University / The Alfred Hospital, Melbourne, Australia
since 2000  Professor of Trauma & Orthopaedics, Director Division of Trauma & Orthopaedics, Hannover Medical School (MHH), Germany

Scholarships & Awards
1973-80  ‘Hundhammer’-Scholarship of the State Government of Bavaria
1980  ‘Karl-Forster’-Scholarship of the Ludwig-Maximilians University, Munich
1994  ‘Recognition Award’ of the AO/ASIF Technical Commis¬sion
1997  ‘SICOT Travelling Fellowship’
1998  ‘Recognition Award’ of the AO/ASIF Technical Commis¬sion
1998  ‘Edgar-Ungeheuer-Prize’ of the German Society for General Surgery
2012  Johann Friedrich Dieffenbach Büste (DGU)

Boards
1985  Member European Society of Biomechanics
1985  Member International Society of Biomechanics
1994  Int. member American Orthop. Trauma Association (OTA)
1997  Member American Academy of Ortho¬p Surg (AAOS)
1997  Member ‘Long Bone Expert Group of the AO/ASIF’ (AO LBEG)
1997  Member Steering committee Computer Assisted Orthopaedic Surgery of the AO/ASIF’
1999-2000  Board of Directors Victorian State Trauma Foundation, Melbourne, Australia
2000  Founding member International Society Computer Assisted Orthopaedic Surgery (CAOS International)
2002  Präsidiumsmitglied Deutsche Gesellschaft f Unfallchirurgie
2001  Trustee AO International
2001  Chairman of the ‘Computer Assisted Surgery Expert Group of the AO/ASIF’ (AO CSEG) and AGROP (Deutsche Gesellschaft für Unfallchirurgie (DGU))
2003  Medical Board of Deutsche Rettungsfugwacht (DRF)
2005  Honorary Membership of the Hellenic Association of Orthopaedic Surgery and Traumatology
2005  Honorary fellowship of the Royal College of Surgeons of Edinburgh FRACSEd
2009  Honorary member of Serbian Trauma Association (STA)
2015  Orthopaedic Trauma Association (OTA) John Border Memorial Lecturer

Editorial Work
Editor and Associate Editor
•  DER UNFALLCHIRURG
•  INNOVATIVE SURGICAL SCIENCES (ISS) (Springer)
•  SKELETAL TRAUMA (2 Vol, Elsevier)
•  ORTHOTRAUMA UPDATE (MedUpdate)
•  JOURNAL BONE JOINT SURG Orthopaedic Highlights Trauma

Publications
•  717 Medline listed publications by September 2015

Scientific Journal Reviews
J Trauma, J Orthop Trauma, Lancet, Unfallchirurg, Chirurg, Orthopäde, CORR and others

Research Grant Reviews
Reviews for the German Research Society (DFG), Norwegian Research Council and others
In 1998 HJ. Meisel was appointed to the Berufsgenossenschaftliche Clinic in Bergmannstrost Halle/Saale as Director of the Clinic for Neurosurgery. Every year his team of 10 surgeons carries out a minimum of 1800 surgeries in the area of cerebral and spinal diseases.

Since September 2008 HJ. Meisel has been appointed as the Director of the Center of Neurosciences of the BG-Clinic Bergmannstrost Halle.

HJ. Meisel’s primary focus in spine surgery and research is for the last 20 years in degenerative spinal diseases. Starting as inventor and designer of spinal implants for the intervertebral space in cervical and lumbar in arthroplasty and fixation he developed 1995 the first biological disc repair transplantation system with autologus chondrocytes.

HJ. Meisel served as a PI for the first randomized clinical trial to study this regenerative approach (EuroDisc) after running all preclinical evaluations at Emory Spine Center, Atlanta. Together with his Atlanta group they continued the preclinical and clinical work in disc regeneration with adiposed derived mesenchymal stem cells.

As a founding member HJ. Meisel helped to start the ETP Platform Nanomedicine for the European Commission. From 2003 to 2006 HJ. Meisel served AOSpine Europe as a founding member and to develop a new teaching and course platform as a deputy on the neurosurgical side. (Intervertable Disc Course Davos, 2005; Strasbour Course 2006; Cervical Course Palma de Mallorca, 2006)

In 2005 HJ. Meisel co-founded the Translation Center for Regenerative Medicine at the University of Leipzig and supported there as an Executive Board member the preclinical affairs mentoring since the beginning 4 major spinal projects with the focus in regenerative disc repair and biomaterials financed by the German Ministry of Research (BMBF).


In 2007 HJ. Meisel was appointed by the Vreije University of Amsterdam to become a Visiting Professor in the Department of Orthopedic Surgery for the coordination of international research projects and the development of the European Master Degree in Regenerative Medicine. Currently there is running the EU COST project Namabio “From nano to macro biomaterials (design, processing, characterization, modelling) and applications to stem cells regenerative orthopaedic and dental medicine” including 250 members in nanomaterial research and clinical application.

In 2013 he became an Honorary Professor in the Department for Health Sciences and Biomedicine at the Donau-University Krems (Austria).

In 2013 he became an elected member of the AO Spine Knowledge Forum Degenerative and Biologics.

In 2014 he was elected as chair of the European Technology Platform Nanomedicine (ETPN) Working Group of Nanotechnologies for Regenerative Medicine.

HJ Meisel is active member of the EANS, SSE, ICRS, ISSLS, ISASS, AOSpine and others.
CELLS | Musculoskeletal 2016

Speakers

**Gerjo Van Osch, Ph.D.**

Gerjo van Osch (1967) studied medical biology at the University of Utrecht (MSc 1990) and received her PhD in 1994 at the University of Nijmegen on animal models for osteoarthritis. Since then she became involved in cartilage tissue engineering and especially the use of growth factors. She is currently appointed as full professor at the Erasmus MC, University Medical Center in Rotterdam the Netherlands where she is leading a research group of approx. 12 people that is part of the departments of Orthopaedics and Otorhinolaryngology, focusing on cellular aspects of connective tissue degeneration and regeneration.

Gerjo van Osch is (co-)author on over 100 international peer-reviewed publications. She is active in various committees of the International Cartilage Repair Society (ICRS), is presently vice chair of the European Science Foundation network on Regenerative Medicine, REMEDIC, associate editor of Cartilage and editorial board member of Tissue Engineering and Journal of Tissue Engineering and Regenerative medicine. In addition she served as council member of the European chapter of the TERMIS and chaired the TERMIS-EU meeting in Rotterdam in 2006.

**Daniele Noël, Ph.D.**

Dr. Noël received her Master in Health Biology and PhD on Life Sciences from Bordeaux II University in Bordeaux, France. In 1992, Dr. Noël completed a post-doctoral fellowship at the Institute for Molecular Genetics in Montpellier in the field of gene therapy and recombinant retrovirology. Then in 1999, Dr. Noël joined the team led by Professor Christian Jorgensen in Montpellier to develop a strategy for cartilage tissue engineering, based on the use of mesenchymal stem cells. Since 2007, Dr Noël is the head of the group “Mesenchymal stem cell biology and cartilage therapy”, which comprises 3 researchers, two engineers as well as post-doctoral fellows and doctoral students.

Research interests - Mesenchymal stem cells, Cell therapy, Cartilage engineering, Osteo-articular diseases

The objectives of the group are to identify the molecular mechanisms regulating the process of regeneration of articular cartilage and develop MSC-based cell therapy approaches. In a first axis, we aim at understanding the paracrine properties of MSCs and identifying immunosuppressive and trophic factors secreted by MSCs responsible for these effects. The role of extracellular vesicles in the transport of these secreted factors is also evaluated. Our experimental models are degenerative osteoarthritis and autoimmune diseases, in particular rheumatoid arthritis and systemic sclerosis. Second, we focus on the process of chondrogenesis through transcriptomic approaches. We aim at identifying mRNAs and miRNAs associated with chondrocyte differentiation by comparing their expression profiles in MSC and chondrocytes derived from MSC. Optimization of cartilage tissue engineering approaches using the combination of molecular factors and scaffolds are under development through collaboration with chemists.

Professional activities

- Member of the editorial boards of international journals (Current Stem Cell Research and Therapy; the Open Rheumatology Journal; BMC Musculoskeletal Disorders, …)
- Lecturer at the University of Montpellier
Joseph Purita, M.D.

Dr. Joseph Purita, a pioneer in the use of Stem Cell and PRP therapy for orthopaedic conditions, graduated from Georgetown University Medical School and served his surgical internship at the University of Florida Medical Center. Following completion of a residency in orthopedic surgery at University of Miami-Jackson Memorial Hospital, where he served as chief administrative resident, Dr. Purita joined the Boca Raton Orthopedic Group in 1981.

Dr. Purita is a member of the following professional organizations:
- Fellow, American Academy of Orthopedic Surgeons
- Fellow, American College of Surgeons
- American Medical Association
- Southern Medical Association
- Palm Beach Medical Society
- Broward County Medical Society
- Palm Beach Orthopedic Society
- Florida Medical Association

Dr. Purita is an instructor and proctor of surgeons in the use of lasers in arthroscopic and orthopedic surgery at a variety of area hospitals.

Peter Rubin, M.D.

J. Peter Rubin, MD, is Chair of the Department of Plastic Surgery and the UPMC Endowed Professor of Plastic Surgery, as well as Professor of Bioengineering. He earned his undergraduate degree in biology from Grinnell College and his M.D. degree from Tufts University School of Medicine. He completed a categorical residency training program in general surgery at Boston University/Boston City Hospital. He took time away from the clinic to pursue a two year fellowship in surgical basic science at Massachusetts General Hospital/Harvard Medical School. After graduating from general surgery residency, he completed a 3 year residency in plastic surgery at Harvard Medical School. He has been a faculty member at the University of Pittsburgh since 2002.

Dr. Rubin is a noted expert on adult stem cells derived from fat tissue and advanced reconstructive surgery. Dr. Rubin leads a program that is devising innovative strategies for the use of adipose (fat)-derived stem cells to not only address problems of tissue regeneration but also other diseases that benefit from stem cell-based therapies. He is co-director of the Adipose Stem Cell Center and co-director of the UPMC Aesthetic Plastic Surgery Center. His laboratory research focuses on applications of adult adipose-derived stem cells for restoring damaged tissues after trauma and cancer therapy. He currently is the lead investigator for clinical trials using technologies designed to improve the lives of wounded military personnel. He recently founded and directs the Center for Innovation in Restorative Medicine at the University of Pittsburgh Medical Center, an advanced clinical accelerator unit with expertise in regulatory affair, preclinical testing, and clinical trials design and management.
Peter Rubin, M.D. (cont’d)

He has published extensively in the medical literature and has received numerous awards for his research work, most notably for the Presidential Early Career Award for Science and Engineering and for his National Institutes of Health-funded work with fat-derived stem cells, and in 2007.

Dr. Rubin has been a consistent leader in the international plastic surgery community. As a past president of the International Federation for Adipose Therapeutics and Science, Dr. Rubin led a group of scientists worldwide who are on the cutting edge in the study of the use of fat stem cells for treating numerous disorders. Dr. Rubin also has been chair of the Plastic Surgery Research Council. He currently serves as chair of a joint society task force of the American Society for Aesthetic Plastic Surgery and the American Society of Plastic Surgeons on the use of stem cells. Additionally, he serves as the liaison between the American Society of Plastic Surgeons and the American Society of Metabolic and Bariatric Surgeons, working to promote safety and quality standards in plastic surgery after weight loss. He is well known for his innovative techniques in breast and body contouring surgery. He has published a textbook on plastic surgery after weight loss and currently is lead editor of a multi-author textbook project on body contouring surgery that is expected to be the standard reference.

Arnaud Scherberich, Ph.D.

Arnaud Scherberich is a cell biologist and a pharmacologist. He’s leading a research team involved in the vascularization of tissue engineered grafts, with a strong focus on bone tissue. He has a strong interest for research, tissue engineering and regenerative medicine, especially if it can lead to concrete therapeutic advances or the development of products for tissue repair/regeneration. He is Founder member of the European Vascular Biology Organization (EVBO), Member of the Tissue Engineering and Regenerative Medicine International Society (TERMIS) and Member of BIOMAT (“Association pour le développement des Biomatiériaux”, French Society for the development of biomaterials, affiliated to the European Society for Biomaterials).

Luc Sensebé, M.D., Ph.D.

He is head of team 2 of the research unit STROMALab UMR5273 CNRS/EFS/UPS - INSERM U1031, and Medical and Scientific Director in charge of adult stem cell at the EFS in Toulouse. During the nineties, working with Pierre Charbord in Besançon and Jack Singer in Seattle, his research was focused on the study of hematopoietic microenvironment and bone marrow stromal cells/ mesenchymal stem cells.

Since 2001, his research work is dedicated to the clinical applications of mesenchymal stem/stromal cells for hematopoietic stem cell transplantation and regenerative medicine. He is leading the MSC committee of International Society for Cellular Therapy (ISCT), and coordinates/co-coordinates two 7th FP European Consortiums (CASCADE and REBORNE).
Michael P. Tierney, J.D.

Mr. Tierney’s professional background comprises broad C-level executive, financial and legal positions, both domestically and abroad. He has co-founded and/or managed a number of profitable companies in the banking, digital, pharmaceutical marketing, and specialty packaging sectors. He has presided over a private equity fund with over $1 billion in assets, with successful exits.

Mr. Tierney has served for many years on the boards of directors of public and private companies, including on their audit and governance committees. He has played major roles in large financing projects in the U.S., as well as in Asia, Mexico, the Former Soviet Union and other countries, with aggregate values exceeding several billions of dollars.

Mr. Tierney practiced law in New York, California and Hong Kong, and retains bar memberships in the states of New York and California. He currently serves as the Chair of the Visiting Committee of the University of Chicago Law School. A more detailed description of Mr. Tierney’s background can be found at https://www.linkedin.com/pub/michael-p-tierney/40/594/7a2.

Carlo Tremolada, M.D.

Graduated in 1989 in Medicine and Surgery at the University of Milan, and specialized in Plastic Reconstructive and Aesthetic Surgery and Maxillofacial Surgery. He also graduated at the European Board of Plastic Reconstructive and Aesthetic Surgery. From 1994 to 2009, he was professor at the school of specialization in Maxillofacial Surgery at the University of Parma before and at the School of Dentistry at the University of Florence after.

Medical Director at San Paolo Hospital in Milan in the role of Chief of Plastic Surgery service (1996-2009) he served first at the Department of Maxillofacial Surgery and later at the Department of General Surgery. During this period, he developed extensive experience in the reconstructive surgery of genetic and acquired deformities of face, breast, limbs, and abdomen. He also served as consultant at the Department of Orthopedics at San Raffaele (1999-2003) and San Carlo (2003-2008) Hospitals.

Scientific director of Image Medical Spa since 2010 and President of Lipogems International Spa since 2012. Author of over 70 publications of plastic, aesthetic and maxillofacial surgery on indexed journals.
Severiano Dos Anjos Vilaboa Ph.D.

During the last 4 years I have been involved in the development and validation of new disposable devices for adipose tissue processing and SVF (stromal vascular fraction) isolation from human lipoaspirates.

I have significant experience in preparing cell-enhanced fat grafts in the clinical setting using GID technology that can be used for different reconstructive and aesthetic clinical applications in an autologous manner for patients.

Ronald F. van Vollenhoven, M.D, Ph.D.

Professor Ronald F. van Vollenhoven was recently appointed as the Director of the Amsterdam Rheumatology and Immunology Center ARC and chief of the Department of Rheumatology and Clinical Immunology at the AMC and the Department of Rheumatology at VUMC in Amsterdam, the Netherlands. He also continues in his prior role as chief of the Unit for Clinical Therapy Research, Inflammatory Diseases (ClinTRID) at the Karolinska Institute.

He received his MD and PhD degrees from the University of Leiden in The Netherlands. After graduating in 1984 he pursued immunology research at Cornell Medical College in New York, followed by residency (specialty training) in Internal Medicine at the State University of New York at Stony Brook, and a fellowship in Rheumatology at Stanford University in Palo Alto following which he received American Board of Internal Medicine certification in both Internal Medicine and Rheumatology.

From 1993 to 1998 Dr. Van Vollenhoven held a faculty appointment as Assistant Professor of Medicine in the Division of Immunology and Rheumatology at Stanford University, and from 1995 he was the Medical Services Chief and Fellowship Director in that division.

In 1998 Dr. Van Vollenhoven moved to Stockholm, Sweden, where he worked as a Senior Physician and Chief of the Clinical Trials Unit in the Department of Rheumatology at the Karolinska University Hospital and Associate Professor of Rheumatology; and in 2010, he was appointed as Professor and Unit Chief at the Karolinska Institute.

On January 1st, 2016 Ronald van Vollenhoven assumed his new position as Director of the Amsterdam Rheumatology and Immunology Center ARC, Professor of Rheumatology at the University of Amsterdam and the VU University, and as Chief of Rheumatology at both the AMC and VUMC hospitals in Amsterdam, The Netherlands. He is also chair of the rheumatology research council at Reade, and maintains part of his responsibilities at the Karolinska Institute.

Dr. Van Vollenhoven’s research interests focus around the development and systematic evaluation of biological and immunomodulatory treatments for the rheumatic diseases. With his co-workers, he has established the Stockholm registry for biological therapies (the STURE database) for this purpose, which has supported research projects relating to clinical efficacy, pharmacology, outcomes and pharmacoeconomics. He has been principal investigator in many clinical trials of novel therapies in rheumatic diseases and has contributed to a number of important investigator-initiated trials including the recently published SWEFOT trial. He has published over 260
Jan Wolff graduated in 1995. He received his doctoral degree (Dr.med,dent) in 1997 from the University of Hannover, Germany, for his research on “Detection of Early Complications and Risk Factors in the Branemark Implant System by the Monitoring of Two Patient Groups”. After his doctorate he spent one year (1996-1997) at the Department of Periodontology Catholic University of Leuven, Belgium. He then pursued a specialisation in oral surgery at University of Düsseldorf, Germany and graduated in 2001. From 2001-2002 he worked at the Department of Oral and Maxillofacial Surgery University Stockholm, Karolinska Institutet, Sweden. From 2003 to 2009 Dr.Wolff had a private clinic in Hamburg, Germany. From 2009 to 2013 he worked in Finland and was employed at the University of Tampere, Finland, where he was employed as a senior researcher at the REGEA Institute for Regenerative Medicine and furthermore as a Senior surgeon at the Oral and Maxillofacial Unit Tampere university hospital, he was also employed as a Senior researcher at the Department of Radiology Tampere University hospital. In 2013, he moved to the Netherlands and was nominated in 2014 to Assistant Professor at the Department of Oral and Maxillofacial Surgery VUmc University Hospital Amsterdam, The Netherlands, where he is working as a senior surgeon and is also engaged in stem cell research and furthermore heads the 3D Innovation lab which focuses on medical 3D printing.
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