

## Final Report – Belgian Symposium on Tissue Engineering (BSTE) 2012

### (A) SUMMARY

Date : 17<sup>th</sup> - 18<sup>th</sup> September 2012  
Venue : Auditorium BMW 6, Building O&N2, Fac. of Medicine, KU Leuven.  
Partner universities : Ghent University, Vrije Universiteit Brussel, University of Liège

Description :

The first ever, two-day national symposium on tissue engineering was successfully organised by “**Prometheus** - the Leuven Research & Development Division of Skeletal Tissue Engineering of the **KU Leuven** (<http://www.kuleuven.be/prometheus>)”. It represented an interuniversity initiative that was co-organised by tissue engineering oriented research groups from partner universities across Belgium, namely:

- (a) the Polymer Chemistry and Biomaterials Group, headed by Prof. dr. Peter Dubruel, Ghent University.
- (b) the Tissue Engineering Group, headed by Prof. dr. Maria Cornelissen, Ghent University.
- (c) the Liver Tissue Engineering Group, headed by Prof. dr. Leo van Grunsven, Vrije Universiteit Brussels.
- (d) the Biomechanics Research Unit, headed by Prof. dr. Liesbet Geris, University of Liege.

This symposium attracted a significant number of young scientists nationwide (**97 peoples out of 125 in total**) as well as internationally (**20 peoples from Germany, United Kingdom, United State of America, Canada, The Netherlands, France, Poland, Switzerland and Australia**). Together they contributed to nearly **60 accepted abstracts** (after stringent review by a scientific committee). Among these, **24 outstanding abstracts** were selected by the scientific committee for oral presentation in six “young scientist forum (YSF)” sessions that were distributed over the two days. All other accepted abstracts were presented in the poster session.

In addition, the symposium was streamlined with **8 invited lectures** by world renowned scientists on a series of scientific questions formulated based on a thorough study by Prometheus on the state-of-the art of tissue engineering and its’ limitations, specifically for bone engineering. These included:

- (1) *Novel approach to engineer large quantities of human mature bone for autologous transplantation.*
- (2) *The state-of-the art on the fabrication of “designed” tissue engineered products, including automation for robust stem cell bioprocessing, micro-engineering and 3D tissue assembly & tissue formation.*
- (3) *Vascularization strategies for TE Constructs, focusing on angiogenesis versus inosculation.*
- (4) *The advance of pluripotent stem cells (iPS) technology to produce alternative stem cells population for cartilage and bone tissue engineering based on the developmental biology approach.*

**List of Invited Speakers:**

- (a) **Prof. dr. Molly Stevens** (Imperial College London, UK). Topic: *Bioinspired Materials for Regenerative Medicine*.
- (b) **Prof. dr. Athanasios Mantalaris** (Imperial College London, UK). Topic: *Are We Culturing Cells in A “Natural” or “Engineered” Manner? Implications for Tissue Engineering & Stem Cell Therapy Approaches*
- (c) **Dr. Farlan Veraitch** (University College London, UK). Topic: *Engineering Robust, Reproducible and Efficient Stem Cell Bioprocesses*
- (d) **Dr. Mehmet Dokmeci** (Harvard Medical School, USA). Topic: *Microengineered Tissue Engineering Constructs for 3D Tissue Assembly & Tissue Formation*
- (e) **Dr. Matthias W. Laschke** (University of Saarland, Germany). Topic: *Vascularization Strategies for Tissue Engineering Constructs: Angiogenesis versus Inosculation*
- (f) **Dr. April Craft** (University Health Network, Canada). Topic: *Pluripotent Stem Cells: A Developmental Approach for Cartilage and Bone Tissue Engineering*
- (g) **Dr. Martin Stoddart** (AO Research Institute Davos, Switzerland). Topic: *Mechanically Induced Chondrogenesis – Mimicking the In Vivo Environment In Vitro*
- (h) **Dr. Peter Peumans** (IMEC, Belgium). Topic: *Semiconductor Technologies and Methodologies for Bio-manufacturing Process Control*

## **(B) DESCRIPTION OF THE SCIENTIFIC CONTENT OF & DISCUSSION AT THE EVENT**

This symposium consisted of 4 main topics which were addressed in 4 sessions over the two days. Each session was primed with one or two invited lectures by international experts presenting the state-of-the art and their latest research technologies/findings, to initiate discussion on that specific topic. The sessions were then followed by a “young scientist forum (YSF)” where outstanding research findings relevant to the topic by young researchers were presented.

The first session was focused on “Vascularisation strategies for tissue engineering constructs”, combined with “Bone developmental strategies to promote ossification via chondrogenesis and hypertrophy events”. Dr. M.W. Laschke, from the University of Saarland, Germany, introduced the use of a skinfold chamber to study angiogenesis and inosculation of implanted 3D scaffolds (that were prevascularised *in vivo*) via intravital fluorescence microscopy, and have shown the acceleration of blood perfusion in prevascularised constructs after implantation as compared to non-prevascularised controls. Inosculation was further optimised by short-term precultivation or by embedding constructs in a pro-angiogenic extracellular matrix. Spectacularly, the used of microvascular fragments (that were derived from adipose tissue) within the constructs was shown to rapidly formed new microvasculature networks which inosculated with the host blood vessels upon implantation. This represents a simple prevascularisation strategy that may play a significant contribution to the success of tissue engineering applications in the future. Besides that, distinctive studies on the interactions between MSC-like periosteal cells and blood vessels during bone autograft healing, and the used of dental stem cells as alternative source for angiogenesis were brought to discussions in the first YSF session. Regarding the developmental approach for bone formation, Dr. A.M. Craft, from the McEwen Centre for Regenerative Medicine, Canada, presented her fascinating findings on the generation of highly enriched population of growth plate-like (GPC) and articular chondrocytes (AC) through BMP4 and GDF5 treatments on mouse embryonic stem cell (mESC)-derived somatic populations respectively, where implantation of such tissue construct by co-culturing both cell types resulted in the development of cartilage tissue that became ossified within eight weeks without teratoma formation. This study demonstrated a robust technique to produce distinct populations of mESC-derived chondrocytes through stage-specific manipulation of appropriate

signalling pathways, which may lead to the development of novel therapies for skeletal defect repair. From a YSF point of view, co-culturing mesenchymal stem cells at different stages of chondrogenic differentiation within tissue engineering constructs, presented by a PhD student from the AO Research Institute, Switzerland, and the development of a semi-autonomous model of endochondral ossification, presented by Dr. Scott Robert (from Prometheus), were the selected outstanding studies in the first YSF to further evidence this strategy on developmental bone tissue engineering.

The second session highlighted the latest development in technological tools for “3D tissues assembly and formation” and for “*In vitro* mimicking of *in vivo* microenvironment to enhance biological parameters of tissue engineering constructs”. At first, Dr. Mehmet R. Dokmeci, a senior microelectronic engineer and instructor at the Harvard medical School, USA, talked on their “top-down” and “bottom-up” micro-fabrication techniques for patterning 3D microgels and the assembly into 3D macro-tissues. This included the use of photopatterning to create microchannels to enhance cell viability inside thicker tissue constructs, and the incorporation of nanomaterials such as carbon nanotubes and grapheme oxide particles into hydrogels to create electrically conductive hydrogels with tunable mechanical properties. Then, it was our pleasure to have Prof. M. Stevens, from the imperial College London, U.K., talk on their recent development in bioinspired nanomaterials for tissue regeneration. They focused on the design of bio-responsive nanomaterials, and the control of nanoscale topography and chemistry of nanostructured scaffolds that mimic the nanostructure of the tissues in the body. The session then continued with contributions from selected young researchers on the production of controlled tissue constructs via high-throughput platform, manipulation of hydrogel properties to create controlled porosity, mechanical stimulation of *in vitro* engineered 3D bone tissue, and the modulation of cell differentiation with microenvironment mimicking the *in vivo* conditions.

The third session emphasised on the quality of routine *in vitro* cell culture technology and the influence of culture parameters on the *in vivo* outcomes, as well as latest technologies that are applicable for non-invasive, online cell culture quality assessment and monitoring. We first had Prof. A. Mantalaris, from the Imperial College London, UK, and Dr. Farlan Veraitch, from the University College London, UK, to talk on the implications of current cell culture technologies for tissue engineering and stem cell therapy approaches, and the engineering of robust, reproducible and efficient stem cell bioprocesses. Hereby, microsensors were implemented and cellular metabolites were monitored and used as markers for the assessment of the specific stages of cell differentiation or tissue development. Then, Dr. Peter Peumans, from IMEC, Belgium, introduced semiconductor technologies and methodologies as novel tools for bio-manufacturing process control, where chip sensors can be incorporated into the bioreactor for high-throughput screening and assessment of the culture parameters. In the respective YSF sessions, novel technologies for multi-parameter control of *in vitro* cell cultures based on standard silicon fabrication methods were presented, including a new technique based on lens-free imagers that offer ultra-compact imaging solution and 3D reconstruction. In addition, computational modelling based on dynamic graph model to assess the importance of biological actors in cell differentiation, generation of functional human hepatocytes using a micro-liver device, non-invasive 3D quantitation of cartilage subarchitecture using high resolution nano-computed tomography, and the engineering of skeletal muscle with autologous deposited extracellular matrix, are among the others interesting research methodologies that were presented in the YSF sessions.

The last session was headed by the lecture of Dr. Martin Stoddart, a senior researcher from AO Research Institute Davos, Switzerland, who talked on the use of a custom built loading device (combining compression and shear stimulations) to mimic the mechanics of *in vivo* joint environment *in vitro*, in order to

induce chondrogenesis for cartilage regeneration. This strategy may represent a novel cartilage repair therapy which utilise rehabilitation protocols to optimise cartilaginous differentiation of MSCs. This session was concluded with a selection of outstanding studies by young scientists, on topics about novel biomaterials as 3D scaffolds for cell encapsulation and tissue engineering, as well as growth factors incorporation and control-release.

Two awards were awarded to the best oral presenter and the best poster presenter selected from the YSF and poster sessions based on the scoring system below:

- For oral award, each presentation will be evaluated by three judges (i.e. the chairs of a session) based on a score system (0 – 10 points), and the top scorers of every sessions will then be selected as finalists for the award. Final decision will then be made by only the invited speakers for the best oral presentation award to ensure fairness of the competition.
- For poster award, only the non-oral presenter can compete for this award. During the poster session, each invited speakers and principle investigators (PIs) of the organiser and co-organisers will nominate two poster presentation together with the score, and the best scorer will then be selected for the best poster award. In the case of equal scoring, final decision will then be made by only the invited speakers for the award.

### **(C) ASSESSMENT OF THE RESULTS AND IMPACT OF THE EVENT ON THE FUTURE DIRECTION OF THE FIELD**

This symposium was the first ever event on tissue engineering in Belgium, which has gathered the respective scientific communities within the country and also international experts and young researchers to share and discuss the state-of-the art and latest findings on such an interdisciplinary field of research. Through this meeting, individual local research groups that are active in tissue engineering, stem cell , biomaterials, and computational modelling researches were recognised by the local and international scientific communities and the research networking was thus nurtured. Specifically, this event has resulted in an positive impact on the following:

- (1) Promoted scientific networking and potential collaborations within the related research communities in Belgium and at international level.
- (2) Encouraged young scientists to participate actively in research publications, soft skills development, networking and direct interaction with PIs.
- (3) Gained further insights on both the state-of-the art and bottlenecks exists in the research field of tissue engineering through the keynote lectures, which are beneficial for re-positioning of current research tracks towards better outcomes.

### **Analysis of participants:**

PhD student	: 38 peoples
Postdoc researchers	: 27 peoples
KU Leuven participants	: 49 peoples
Others (faculty/Industrial/research staff)	: 33 peoples

International participants

: 20 peoples

**(D) FINAL PROGRAMME**

**Scientific Program**  
Monday, 17<sup>th</sup> September 2012

8:15 – 9:00	<b>Registration</b>
9:00 – 9:15	<b>Welcome</b> <b>Prof. Dr. Frank P. Luyten</b> (Chairman, Prometheus, KU Leuven, Belgium)
9:15 – 10:00	<b>Invited Lecture 1:</b> (Chair: FP. Luyten) <i>Vascularization Strategies for Tissue Engineering Constructs: Angiogenesis Versus Inosculation</i> <b>PD Dr. Matthias W. Laschke</b> (Univ. of Saarland, Germany)
10:00 – 10:20	<i>Coffee Break</i>
10:20 – 11:05	<b>Invited Lecture 2:</b> (Chair: J. Schrooten) <i>Pluripotent Stem Cells: A Developmental Approach for Cartilage and Bone Tissue Engineering</i> <b>Dr. April M. Craft</b> (Univ. Health Network, Canada)
<b>Young Scientist Forum (YSF) 1</b> <b>Chairs: J. Schrooten, MW. Laschke, R. Cornelissen</b>	
11:05 – 11:20	<i>Interactions between Periosteal Cells and Blood Vessels during Bone Autograft Healing: Implications for Tissue Engineering Strategies</i> <b>Nick van Gestel</b> (KU Leuven, Belgium)

11:20 – 11:35	<p><i>Dental Stem Cells: Leading the Way Towards Angiogenesis</i></p> <p><b>Petra Hilkens</b> (Univ. Hasselt, Belgium)</p>
11:35 – 11:50	<p><i>Co-Culture of Mesenchymal Stem Cells at Different Stages of Chondrogenic Differentiation within a Tissue Engineering Construct: Effects on Chondrogenesis and Hypertrophy</i></p> <p><b>Oliver F.W. Gardner</b> (AO Research Institute, Switzerland)</p>
11:50 – 12:05	<p><i>A Semi-Autonomous Model of Endochondral Ossification for Developmental Tissue Engineering</i></p> <p><b>Scott J. Roberts</b> (KU Leuven, Belgium)</p>
12:05 – 13:30	<p><b>Lunch</b></p>
13:30 – 14:15	<p><b>Invited Lecture 3:</b> (Chair: L. van Grunsven)</p> <p><i>Microengineered Tissue Engineering Constructs for 3D Tissue Assembly &amp; Tissue Formation</i></p> <p><b>Dr. Mehmet R. Dokmeci</b> (Harvard Medical School, USA)</p>
<p><b>Young Scientist Forum (YSF) 2</b> <b>Chairs: L. van Grunsven, MR. Dokmeci, Y.C. Chai</b></p>	
14:15 – 14:30	<p><i>Improved Neo-cartilage Formation in Dex-TA Hydrogels by Seeding Cell Micro-aggregates Produced in a Novel Controllable High-Throughput Platform</i></p> <p><b>Liliana S. Moreira Teixeira</b> (Univ. Twente, The Netherlands/KU Leuven)</p>
14:30 – 14:45	<p><i>Design and Development of Porous Pluronic-based Scaffolds for Tissue Engineering</i></p> <p><b>Mieke Vandenhaute</b> (UGhent, Belgium)</p>

14:45 – 15:00	<p><i>Development and Validation of A Bioreactor for Mechanical Stimulation of In Vitro Engineered 3D Bone Tissue</i></p> <p><b>Guenaelle Bouet</b> (Université Jean Monnet, France)</p>
15:00 – 15:15	<p><i>Generation of a Cell-Gelatin Scaffold for Hepatic Tissue Engineering</i></p> <p><b>Elien Gevaert</b> (UGhent, Belgium)</p>
15:15 – 15:45	<p><i>Coffee Break</i></p>
15:45 – 16:30	<p><b>Invited Lecture 4:</b> (Chair: S. Van Vlierberghe) <i>Bioinspired Materials for Regenerative Medicine</i></p> <p><b>Prof. Dr. Molly Stevens</b> (Imperial College London, UK)</p>
<p><b>Young Scientist Forum (YSF) 3</b> <b>Chairs: M. Stevens, J.M. Aerts, S. Van Vlierberghe</b></p>	
16:30 – 16:45	<p><i>Dynamic Culture Conditions Modulate not only Osteoblastic Differentiation but also IL-11 and VEGF Secretion by hMSCs on 3D Coral Scaffolds</i></p> <p><b>Katleen Vandamme</b> (KU Leuven, Belgium)</p>
16:45 – 17:00	<p><i>Preconditioning Mouse Periosteal Cells to Hypoxia by Inactivation of the Phd2 Oxygen Sensor Improves In Vivo Ectopic Bone Formation</i></p> <p><b>Steve Stegen</b> (KU Leuven, Belgium)</p>
17:00 – 17:15	<p><i>Dynamic Control over the Mechanical Microenvironment During The Neuronal Differentiation of Mouse Embryonic Stem Cells</i></p> <p><b>Shahzad Ali</b> (Univ. College London, UK)</p>
17:15 – 17:30	<p><i>Sox9 Reprogrammed Dermal Fibroblasts Undergo Chondrogenic Differentiation In Vitro and In Vivo</i></p> <p><b>Wai Long Tam</b> (KU Leuven, Belgium)</p>

17:30 – 18:45	<b>Poster Presentation &amp; Networking (with reception)</b>
20:00	<b>Dinner @ Faculty Club, Leuven</b>

**Scientific Program**  
Tuesday, 18<sup>th</sup> September 2012

8:15 – 9:00	<b>Registration</b>
9:00 – 9:45	<p style="text-align: center;"><b>Invited Lecture 5:</b> (Chair: J.M. Aerts) <i>Are We Culturing Cells in A “Natural” or “Engineered” Manner? Implications for Tissue Engineering &amp; Stem Cell Therapy Approaches</i> <b>Prof. Dr. Athanasios Mantalaris</b> (Imperial College London, UK)</p>
9:45 – 10:30	<p style="text-align: center;"><b>Invited Lecture 6:</b> (Chair: G. Carmeliet) <i>Semiconductor Technologies and Methodologies for Bio-manufacturing Process Control</i> <b>Dr. Peter Peumans</b> (Imec, Belgium)</p>
10:30 – 11:00	<i>Coffee Break</i>
<b>Young Scientist Forum (YSF) 4</b> <b>Chairs: A. Mantalaris, G. Carmeliet, P. Dubruel</b>	
11:00 – 11:15	<p style="text-align: center;"><i>Detection of Changes in Membrane Properties and Morphology in Single Cells for Tomorrow’s Bioreactors</i> <b>Dries Braeken</b> (Imec, Belgium)</p>
11:15 – 11:30	<p style="text-align: center;"><i>A Dynamic Graph Model of Endochondral Ossification can Assess the Importance of Biological Actors in Differentiation</i> <b>Johan Kerkhofs</b></p>



	(KU Leuven)
11:30 – 11:45	<i>Building a Microliver Device</i> <b>Sofia. B. Leite</b> (VUB)
11:45 – 12:00	<i>High-Resolution Non-Destructive 3D Quantitative Imaging of the Cartilage Subarchitecture</i> <b>Greet Kerckhofs</b> (KU Leuven)
12:00 – 14:00	<b>Lunch Break</b>
14:00 – 14:45	<b>Invited Lecture 7:</b> (Chair: H. Van Oosterwyck) <i>Engineering Robust, Reproducible and Efficient Stem Cell Bioprocesses</i> <b>Dr. Farlan Veraitch</b> (Univ. College London, UK)
<b>Young Scientist Forum (YSF) 5</b> <b>Chairs: H. Van Oosterwyck, P. Peumans, M. Stoddart</b>	
14:45 – 15:00	<i>Mapping Osteogenic Gene Networks to Target Osteoinduction by Human Periosteum Derived Cells In Vivo</i> <b>Jeroen Eyckmans</b> (KU Leuven/UPennsylvania)
15:00 – 15:15	<i>Engineering of Skeletal Muscle with an Autologous Deposited Extracellular Matrix</i> <b>Lieven Thorrez</b> (KU Leuven, Belgium)
15:15 – 15:30	<i>The Differentiation Potential of Human Embryonic and Adult Stem Cells and Their Application in Bone Tissue Engineering</i> <b>Heidi Declercq</b> (UGhent, Belgium)
15:30 – 16:00	<i>Coffee Break</i>

16:00 – 16:45	<p style="text-align: center;"><b>Invited Lecture 8:</b> (Chair: J. Patterson)  <i>Mechanically Induced Chondrogenesis – Mimicking the In Vivo Environment In Vitro</i>  <b>Dr. Martin Stoddart</b>  (AO Research Institute Davos, Switzerland)</p>
<p><b>Young Scientist Forum (YSF) 6</b>  Chairs: J. Patterson, F. Veraitch, H. Declercq</p>	
16:45 – 17:00	<p style="text-align: center;"><i>Fabrication of 3D Porous Hydrogel Scaffolds for Cell Encapsulation Purposes</i>  <b>Thomas Billiet</b>  (Univ. Ghent, Belgium)</p>
17:00 – 17:15	<p style="text-align: center;"><i>Injectable 3D Implants Delivering GDNF for Spinal Cord Regeneration</i>  <b>Anne des Rieux</b>  (Université Catholique de Louvain, Belgium)</p>
17:15 – 17:30	<p style="text-align: center;"><i>Electrospun PCL/Gelatine Nanofibrous Membrane with Stromal Cell Derived Factor-1<math>\alpha</math> (SDF-1<math>\alpha</math>) Release for Guided Bone Regeneration (GBR)</i>  <b>Wei Ji</b>  (Univ. Nijmegen Medical Ctr., The Netherlands)</p>
17:30 – 17:45	<p style="text-align: center;"><i>Development of a Dual Layer Electrospun Scaffold for Corneal Stroma Tissue Engineering</i>  <b>Siobhán Dunphy</b>  (Univ. of Nottingham, UK)</p>
17:45 – 18:00	<p style="text-align: center;"><i>Chitosan as Scaffold Material for Esophageal Defect Repair</i>  <b>Very Coulic</b>  ('Université Libre de Bruxelles, Belgium)</p>
18:00 – 18:30	<p style="text-align: center;"><b>Awards &amp; Closing</b>  (YSF Oral &amp; Poster Awards)</p>

## List of Participants

No.	Name	FirstName	Salutation	Position	Institution	Email
1	Lambrechts	Dennis	Ir	Phd student	Prometheus, KU Leuven	dennis.lambrechts@mech.kuleuven.be
2	Gellynck	Karolien	Ms	Student	Tissue Engineering Group, Univ. Gent	Karolien.Gellynck@UGent.be
3	Declercq	Heidi	Dr	Post-Doc	Tissue Engineering Group, Univ. Gent	Heidi.Declercq@UGent.be
4	Hilkens	Petra	Ms	PhD student	Biomedisch Onderzoeksinstituut (Biomed), Univ. of Hasselt	petra.hilkens@uhasselt.be
5	Coulic	Very	Prof	Professor	Laboratory of Experimental Medicine, ULB	very.coulic@chu-Brugmann.be
6	des Rieux	Anne	Prof	Chercheur qualifié FNRS	Université catholique de Louvain - Louvain Drug Research Institute - Pharmaceuticals and Drug Delivery Unité, Belgium	anne.desrieux@uclouvain.be
7	Somers	Pamela	Dr	Post-Doc	Tissue Engineering Group, U Gent	pamela.somers@ugent.be
8	Laschke	Matthias	Prof	Professor	Institute for Clinical & Experimental Surgery, University of Saarland, Germany	matthias.laschke@uks.eu
9	Berneel	Elke	Ms	Phd student	Tissue Engineering Group, Univ. Gent	elke.berneel@ugent.be
11	Gevaert	Elien	Ms	Phd Student	Tissue Engineering Group, Univ. Gent	elien.gevaert@ugent.be
12	Van Gastel	Nick	Mr	Phd Student	Dept. Clinical and Experimental Endocrinology, KU Leuven	nick.vangastel@med.kuleuven.be
13	Kerckhofs	Greet	Dr	Post-Doc	Prometheus, KU Leuven	greet.kerckhofs@mtm.kuleuven.be
14	Vandamme	Kathleen	Phd	Post-Doc	BIOMAT RESEARCH CLUSTER KU LEUVEN	Katleen.Vandamme@med.kuleuven.be
15	Ji	Wei	Ms	Phd Student	Department of Biomaterials (Dentistry), Radboud University Nijmegen Medical Center	W.Ji@dent.umcn.nl
16	Douglas	Timothy	Dr	Post-Doc	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	Timothy.Douglas@UGent.be
17	Papantoniou	Ioannis	Phd	Post-Doc	Prometheus, KU Leuven	Ioannis.Papantoniou@med.kuleuven.be
18	Stegen	Steve	Mr	Phd Student	Dept. Clinical and Experimental Endocrinology, KU Leuven	steve.stegen@med.kuleuven.be
19	Thorrez	Lieven	Dr	Post-Doc	Stem Cell Institute, KU Leuven	lieven.thorrez@med.kuleuven.be
20	Bouet	Guenaelle	Ms	Phd Student	LBTO, Inserm, France	guenaelle.bouet@gmail.com
21	Tam	Wai Long	Mr	Phd Student	Prometheus, KU Leuven	wailong.tam@med.kuleuven.be
22	Sonnaert	Maarten	ing	Phd Student	Prometheus, KU Leuven	maarten.sonnaert@mtm.kuleuven.be

23	De Berdt	Pauline	Ms	Pharmacist / Assistant at U.C.L University	U.C.L, Laboratoire de Galénique . Ecole de Pharmacie.	pauline.deberdt@hotmail.com
24	Louis	Fiona	Ms	PhD Student	LBTO, Inserm, France	fio.louis@gmail.com
25	Leonidakis	Alexandros	Mr	PhD Student	Prometheus, KU Leuven	alexan.leonidakis@mech.kuleuven.be
26	Bloemen	Veerle	Dr	Post-Doc	Prometheus, KU Leuven	Veerle.bloemen@groept.be
27	Bolander	Johanna	Ms	PhD Student	Prometheus, KU Leuven	johanna.bolander@med.kuleuven.be
28	Patterson	Jennifer	Prof	Professor	Prometheus, KU Leuven	Jennifer.Patterson@mtm.kuleuven.be
29	Eyckmans	Jeroen	Dr	Post-Doc	Prometheus, KU Leuven	Jeroen.Eyckmans@med.kuleuven.be
30	Bronckaers	Annelies	Dr	Post-Doc	Biomedisch Onderzoeksinstituut (Biomed), Univ. of Hasselt	annelies.bronckaers@uhasselt.be
31	Kop	Alan	Dr	Biomedical Engineer	Royal Perth Hospital, Australia	Alan.Kop@health.wa.gov.au
32	Renner	Nicole				niki.renner@gmail.com
33	Stevens	Molly	Prof	Professor	Imperial College London, UK	m.stevens@imperial.ac.uk
34	Mantalaris	Athanasios	Prof	Professor	Imperial College London, UK	a.mantalaris@imperial.ac.uk
35	Veraitch	Farlan	Prof	Professor	University College London, UK	f.veraitch@ucl.ac.uk
36	Dokmeci	Mehmet	Prof	Professor	Harvard Medical School, USA	MDOKMECI@PARTNERS.ORG
37	Craft	April	Prof	Professor	University Health Network, Toronto, Canada	acraft@uhnresearch.ca
38	Carmeliet	Geert	Prof	Professor	Dept. Clinical and Experimental Endocrinology, KU Leuven	geert.carmeliet@med.kuleuven.be
39	Chai	Yoke Chin	Dr	Post-Doc	Prometheus, KU Leuven	YokeChin.Chai@med.kuleuven.be
40	Kerkhofs	Johan	Ir	Phd Student	Prometheus, KU Leuven	Johan.Kerkhofs@mech.kuleuven.be
41	Lambrechts	Toon	Ir	Phd Student	Prometheus, KU Leuven	toon.lambrechts@grenoble-em.com
42	Karunratanakul	Kavin	Mr	Phd Student	Prometheus, KU Leuven	kavin.karunratanakul@mech.kuleuven.be
43	Duxbury	Chris	Dr	Scientist Biomedical Materials	DSM	Chris.Duxbury@dsm.com
44	Nawrotek	Katarzyna	Ms	Phd Student	Faculty of Process and Environmental Engineering, Technical University of Lodz, Poland	nawrotekkatarzyna@gmail.com
45	Van Grunsen	Leo	Prof	Professor	Liver Cell Biology Lab, VUB	leovangrunsven@gmail.com

46	Batista Leite	Sofia	Dr	Post-Doc	Liver Cell Biology Lab, VUB	sofia.batista.leite@vub.ac.be
47	Holsbeeks	Inge	Dr	Post-Doc	GROEP T- Internationale Hogeschool Leuven	inge.holsbeeks@groept.be
48	Bosmans	Kathleen	Ms	Lab Technican	Prometheus, KU Leuven	Kathleen.Bosmans@med.kuleuven.be
49	Geeroms	Carla	Ms	Lab Technican	Prometheus, KU Leuven	carla.geeroms@med.kuleuven.be
50	Maréchal	Marina	Ms	Dr	Prometheus, KU Leuven	marina.marechal@med.kuleuven.be
51	Van Hove	Astrid	Ms	Student	Prometheus, KU Leuven	
52	Cornelissen	Maria	Prof	Professor	Tissue Engineering Group, Univ. Gent	Ria.Cornelissen@UGent.be
54	Dubruel	Peter	Prof	Professor	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	Peter.Dubruel@ugent.be
57	Luyten	Frank	Prof	Professor	Prometheus, KU Leuven	frank.luyten@uzleuven.be
58	Schrooten	Jan	Dr	Research Manager	Prometheus, KU Leuven	jan.schrooten@mtm.kuleuven.be
59	Smeets	Bart	Ir	Phd Student	Prometheus, KU Leuven	bart.smeets@biw.kuleuven.be
60	Odenthal	Tim	Dr	Post-Doc	Prometheus, KU Leuven	tim.odenthal@biw.kuleuven.be
61	Roberts	Scott	Dr	Post-Doc	Prometheus, KU Leuven	scott.roberts@med.kuleuven.be
62	van Oosterwijck	Hans	Prof	Professor	Prometheus, KU Leuven	hans.vanoosterwijck@mech.kuleuven.be
63	Aerts	Jean-Marie	Prof	Professor	Prometheus, KU Leuven	jean-marie.aerts@biw.kuleuven.be
64	Van Vlierberghe	Sandra	Dr	Post-Doc	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	sandra.vanvlierberghe@ugent.be
66	Ali	Shahzad	Mr	Research Engineer	University College London, UK	shahzadali1985@gmail.com
67	Graulus	Geert-Jan	Mr	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	geertjan.graulus@ugent.be
68	Billiet	Thomas	Ir	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	Thomas.Billiet@UGent.be
69	Giol	Elena Diana	Ms	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	ElenaDiana.Giol@UGent.be
70	Vandehaute	Mieke	Ir	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	mieke.vandehaute@ugent.be
71	Mignon	Arn	Ir	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	Arn.mignon@ugent.be

72	Stubbe	Brigit	Ms	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	birgit.stubbe@ugent.be
73	Kudva	Abhijith	Mr	Phd Student	Prometheus, KU Leuven	abhijithkundadka.kudva@mtm.kuleuven.be
74	Carlier	Aurelie	Ir	Phd Student	Prometheus, KU Leuven	Aurelie.Carlier@MECH.KULEUVEN.BE
75	Dunphy	Siobhán		Phd Student	ISTM	paxsd2@nottingham.ac.uk
77	Zahedmanesh	Houman	Dr	Post-Doc	Prometheus, KU Leuven	Houman.Zahedmanesh@mech.kuleuven.be
78	Samal	Sangram Keshari	Dr	Post-Doc	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	sksamalrec@gmail.com
79	Dash	Mamoni	Dr	Post-Doc	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	Mamoni.Dash@UGent.be
80	Peumans	Peter	Dr	Department director bio-nano electronics	IMEC	peter.peumans@imec.be
81	Musial	Olga	Mr	Scientific coworker	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	olga.musial@ugent.be
82	Khuu	Dung	Dr	R&D supervisor	Promethera Biosciences	dungngoc.khuu@promethera.com
83	Adesanya	Kenny	Dr	Post-Doc	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	kehinde.adesanya@ugent.be
84	Selfhout	Jorg	Ing	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	jorg.selfhout@ugent.be
85	Breaken	Dries	Dr	R&D Team Leader	IMEC	Dries.Braeken@imec.be
86	Gardner	Oliver	Mr	Phd Student	Musculoskeletal Regeneration, AO Research Institute	oliver.gardner@aofoundation.org
87	Stoddart	Martin	Prof	Professor	Musculoskeletal Regeneration, AO Research Institute	martin.stoddart@aofoundation.org
88	Bara	Jennifer	Dr	Post-Doc	Musculoskeletal Regeneration, AO Research Institute	Jennifer.Bara@nhs.net
89	Dos Santos	Ana	Dr	Post-Doc	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	ana.dossantos@ugent.be
90	Van Houtven	Ellen	Ms	Research assistant	ReGenesys	evanhoutven@regenesys.eu
91	Sterkendries	Peter	Mr	Research Associate	ReGenesys	psterkendries@regenesys.eu

93	Eggermont	Kristel	Ms	Lab Tech	Stem Cell Institute, KU Leuven	kristel.eggermont@med.kuleuven.be
94	Vandereijcken	Annemie	Ms			
95	Vanderleyden	Els	Dr	Post-Doc	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	Els.Vanderleyden@UGent.be
96	Moreira Teixeira	Liliana Sofia	Dr	Post-Doc	Prometheus, KU Leuven	L.S.MoreiraTeixeira@utwente.nl
97	Germain	Morgan	Ms	Phd Student	Prometheus, KU Leuven	morgan.germain@ulg.ac.be
98	Bessonov	Kyrylo	Mr	Phd Student	University of Liege	kbessonov@ulg.ac.be
99	Guyot	Yan	Mr	Phd Student	University of Liege/Prometheus	yguyot@ulg.ac.be
100	Lukman	Hakim	Dr	Post-Doc	Department of Urology	lukman0908@hotmail.com
101	Meschi	Nastaran	Ms	Endodontist		nastaranmeschi@gmail.com
102	Vrijens	Karen	Dr	Post-Doc	Center for human genetics, KU Leuven	karen.vrijens@med.kuleuven.be
103	Corpas	Livia	Ms	Phd Student	KU Leuven	livia.dossantoscorpas@med.kuleuven.be
104	Ding	Lei	Ms	Phd Student	Dept. Clinical and Experimental Endocrinology, KU Leuven	lei.ding@med.kuleuven.be
105	Monteiro Carvalho Mori da Cunha	Joao Paulo	Mr	Phd Student	Dept. Clinical and Experimental Endocrinology, KU Leuven	joaopaulo.monteirocarvalhomoricunha@med.kuleuven.be
106	Schoen	Christian	Mr	scientific collaborator	BIOMAT research cluster, KU Leuven	schoen.christian@hotmail.com
107	Minet	Magali	Ms	Student	Prometheus, the division of Skeletal Tissue Engineering, KU Leuven	magali.minet@student.groept.be
108	Brems	Hilde	Ms	Post-Doc	Department Menselijke Erfelijkheid, Laboratorium voor onderzoek van Neurofibromatose	hilde.brems@med.kuleuven.be
109	Van Houdt	Loes	Ms	Lab Technican	Prometheus, KU Leuven	loes.vanhoudt@med.kuleuven.be
110	Meers	Caroline	Ms	DVM, Phd	Medanex Clinic	caroline.meers@medanex.com
111	Van Hauwermeiren	Hadewych	Ms	DVM, LMAS	Medanex Clinic	Hadewych.VanHauwermeiren@medanex.com
112	Schmidt	Bela	Mr	Post-Doc	VIB Switch laboratory	Bela.schmidt@switch.vib-kuleuven.be
113	Fuhrer	Alberto	Mr	Student	KU Leuven	aafuhrer@miuandes.cl
114	Torres	Andres	Mr	Student	KU Leuven	andreset.88@gmail.com
115	Madain	Frances	Ms	Student	KU Leuven	fbmadain@miuandes.cl

116	Coppens	Kurt	Mr	Researcher	Lessius Campus De Nayer	kurt.coppens@lessius.eu
117	Materialise					
118	Sigma-Aldrich					
119	Maquet	Veronique	Ms		Kitozyme	info@kitozyme.com
120	Chausson	Mickaël	Mr		Kitozyme	info@kitozyme.com
121	Decroix	Lieselot	Ms	Phd Student	KU Leuven, Kulak	Lieselot.Decroix@kuleuven-kulak.be
122	Lo Giudice	Maria Cristina	Ms	Phd Student	UMCN	M.LoGiudice@dent.umcn.nl
123	Lupascu	Florentina Geanina	Ms	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	geani0407@yahoo.com
124	Dragostin	Oana Maria	Ms	Phd Student	Polymer Chemistry and Biomaterials (PBM) group, Univ. Gent	farmaidist_oanamaria@yahoo.com
125	Stiers	Pieter-Jan	Mr	Phd Student	Dept. Clinical and Experimental Endocrinology, KU Leuven	PieterJan.Stiers@MED.KULEUVEN.BE