



PERSONAL INFORMATION

Moretti, Matteo

Date of birth: 05 August 1975

Nationality: Italian

EDUCATION

- 2005 European Doctorate (Ph.D.) in Bioengineering, **Bioengineering Department, Politecnico di Milano**, Italy. *Advisors: Prof. R. Pietrabissa, Prof. M.T. Raimondi*
- 2001 M.Sc. (Research) in Bioengineering, **Trinity Centre for Bioengineering, Trinity College Dublin**, Ireland. *Advisor: Prof. P.J. Prendergast*
- 2000 B.Eng. in Biomedical Engineering, **Bioengineering Department, Politecnico di Milano**, Italy.

CURRENT POSITION(S)

- 2016-present **EOC Hospital** (Orthop. Div.) and **SIRM**, Lugano, Switzerland, Director of the Regenerative Medicine Technology Lab.
- 2009-present **IRCCS Research Hospital Galeazzi Orthopedic Institute**, Milan, Italy. Director of the Cell and Tissue Engineering Laboratory.
- 2006-present **Harvard - MIT Division of Health Sciences and Technology**, MIT, Cambridge, MA, USA. Research Affiliate (*LangerLab and Khademhosseini Lab*).

PREVIOUS POSITIONS

- 2006-2007 **Politecnico di Milano**, Italy, Research Fellow at Laboratory for Biological Structure Mechanics (LaBS) *Advisor: Prof. M.T. Raimondi*
- 2005-2006 **Harvard - MIT Division of Health Sciences and Technology**, MIT, Cambridge, MA, USA. Post-doctoral Fellow at LangerLab. *Advisors: Dr. L.E. Freed, Prof. R. Langer*.
- 2002-2004 **University Hospital of Basel**, ZLF, Switzerland, Ph.D. Fellow in the Tissue Engineering Laboratory. *Advisor: Prof. I. Martin*.
- 2000 - 2001 **Trinity College Dublin**, Ireland. Postgraduate Researcher at the Trinity Centre for Bioengineering. *Advisor: Prof. P.J. Prendergast*.

INDUSTRIAL EXPERIENCE

- 2010-present **Co-Founder** and Advisory Board member of the company **CeltecBiotek A.G.**, Basel, Switzerland. Biotech start-up (with Prof. I. Martin, U. Basel) aimed at the development, production and commercialization of automated advanced cell culture systems.
- 2007-2009 **Co-Founder** and Associate of the company **SKE s.r.l.**, Milan, Italy. Biotech start-up aimed at the design and production of automated bioreactors and custom devices.
- 2004-2005 **Coordinator of EU Financed Projects** for **Fidia Advanced Biopolymers**, Italy (now Anika Therapeutics, MA, USA), leading company in the production of tissue engineered products.
-Project Manager of EU FP6 Integrated Project "STEPS" (*n° FP6-500465, 22.4M€, 23 EU partners*) - EU FP5 project "Meniscus-Regeneration" (*contract no: G5RD-CT-2002-0073, budget 5.7M€, 7 EU partners*) and, EU FP5 project "Adipo-Regeneration" (*contract no: G5RD-CT-1999-00111, budget 2.5M€, 6 EU partners*);

RELEVANT ROLES IN SCIENTIFIC SOCIETIES

2014-present Elected **Treasurer** and **Executive Council** Member of the **Tissue Engineering Regenerative Medicine International Society - Europe (TERMIS-EU)**, founding member of 'SYIS'

ORGANISATION OF SCIENTIFIC MEETINGS

- 2018 **BioMaH** (Biomat.Tech. for Healthcare), Rome, Conference scientific and local organizing committee
- 2017 **MRS**, Symposium Organizer, Boston, USA, "Biomaterials for Regenerative Engineering"
- 2016 **TERMIS-EU**, Davos, CH, Conference Scientific Advisory Committee and Evaluator
- 2014 **7th World Congress of Biomechanics**, Boston, USA, Session Organizer and Chair, "Advances in Tissue Engineering Bioreactor Systems"

COMMISSIONS OF TRUST (selected)

- 2011-present **Invited EU Expert Evaluator:** 2011 **FP7** (NMP - Large scale Integrating Projects), 2013 **FP7** (NMP - first EU-CHINA coordinated call), 2014-17 **Horizon 2020 (M-ERANET)**
- 2009-present **Invited Expert Grant Reviewer:**, United Kingdom EPSRC, BBSRC Cancer Research, Hong Kong ITC, Switzerland ETH, Germany BMBF, Netherlands ZonMw and NWO (MKMD and Veni-Vidi-Vici prog.s), Portugal FCT, US-Israel BSF
- 2014-present **Review Editorial Board** - *Frontiers in Bioengineering and Biotechnology*, *Journal of Biomaterials and Tissue Engineering*
- 2005-present **Reviewer for over 25 Journals** amongst which: *Nature Biomedical Engineering*, *ACS Nano*, *Lab Chip*, *Biomaterials*, *Sci. Rep.*, *Drug Discovery Today*, *Tissue Eng.*, *eCM*, *Integr. Biol.*, *Molecular Cancer*, *Nanomedicine*.

AWARDS, HONORS (Selected)

- 2015 Biofabrication 2015, Best Poster Award as co-author of the work "Surface design for selective cell catch-and-release using electrochemical trigger"
- 2014 European Society of Biomaterials, Best Presentation Award as co-author of the work "Generation of 3D functional microvascular networks with mural cell-like human mesenchymal stem cells in microfluidic systems"
- 2013 TERMIS-EU 1st Prize for the best young investigator presentation as co-author of the work "Reconstruction of Human Articular Cartilage in Collagen Scaffolds under Bi-Directional Perfusion"
- 2011 Selection as Best Paper for the year 2011 Draper Technology Digest, (Charles Starck Draper Laboratories, MA, US) (*Biomaterials*, 2010, 31 (8), 2193-2200).
- 2011 Bioreactor selected from 'WIRED' magazine for Italy's best 150 projects representing the future at the 150 Years Unity National Exhibition (> 1Million visitors in first 90 days).
- 2010 N.A.S.A. Tech Brief Award for development of scientific or technical innovations.
- 2009 Prize 'Ricerca.tissimi' to the 20 Best International Achievements within Health, Environmental and Industrial Projects in Lombardy Region. (15.000 € prize).
- 2005-2007 Postdoctoral Fellowship funded by MIT, USA, (N.A.S.A. Grant NNJ04HC72G to LE Freed) and Politecnico di Milano, IT.
- 2002-2005 Doctoral Fellowship awarded from Fidia Advanced Biopolymers, Abano Terme, PD, Italy.
- 2000-2001 MSc Research Fellowship awarded from Trinity College Dublin, EI, (Grant from HEA under Nanobiotechnologies Project to PJ Prendergast).

AWARDED LAB RESEARCH PROJECTS (Selected)

- 2015-2017 **US Department of Defense**, Breast Cancer Breakthrough Award on "Bone tropism of breast cancer metastases: dissecting the role of endothelial adhesion molecules through human organotypic vascularized microfluidic 3D models"

- 2014-2017 **Cariplo Foundation**, “Self Assembled Monolayer coatings for lab-on-chip cell Sorting via Aptamer-Mediated reversible cellular adhesion”
- 2013-2016 **Cariplo Foundation**, “Smart hydrogel systems for generation of contractile cardiac organoids”
- 2012-2017 **Italian Ministry of Health**, “Porous titanium with an osteoinductive hydrogel and cells: an innovative strategy to improve implants osteointegration”
- 2010-2013 **Lombardy Region (EU-FESR)**, “Industrialization and pre-clinical validation of a technological platform for clinical applications of regenerative medicine”
- 2008-2011 **Italian Ministry of Health**, “Development of biocompatible hydrogels engineered as cell and bioactive factor carriers for improving osteointegration of biomedical implants”
- 2008-2011 **Cariplo Foundation**, “Advanced co-cultures of human mesenchymal stem cells and chondrocytes for tissue repair in articular cartilage pathologies
- 2008-2011 **Italian Ministry of Health**, “Tissue engineering in osteoarticular disease: basic and clinical evaluation”

INVITED LECTURES and TEACHING ACTIVITIES (selected)

- 2017 Invited Speaker, 8th International Conference on Tissue Science and Regenerative Medicine, Singapore
- 2016 Keynote Invited Speaker, Enabling Technologies in 3D Cancer Organoids workshop, Turin,
- 2014-2016 Lecturer, Master in BioSciences, Tissue Engineering, CNRS-Univ. de Lyon, FR, Prof. Mallein-Gerin
- 2014 Invited Lecture, Science and Biotechnology Div., Osaka Univ., Osaka, Japan, Prof. Kino-Oka
- 2014 Keynote Invited Speaker, Biomimetic Organ-on-Chip Systems session, Medical and Biological Engineering 2014 Conference, Dubrovnik, CR
- 2013 Invited Lecture, Tissue Regeneration Dept., Twente Univ., NL, Prof. Moroni/Van Blitterswijk
- 2010-2012 Keynote Lecturer, Bioreactor & Growth Environments for Tissue Engineering, Industry and Academia Postgraduate Training Course, Keele Univ., UK, Prof. Alicia El Haj
- 2011 Invited Speaker, The Bioprocessing Summit, Cambridge Healthtech Initiative, Boston, USA

PUBLICATIONS

1. Talò G, Turrisi C, Arrigoni C, Recordati C, Gerges I, Tamplenizza M, Cappelluti A, Riboldi SA, Moretti M Industrialization of a perfusion bioreactor: prime example of a non-straightforward process. *J Tissue Eng Regen Med.* 2017 May 16. doi: 10.1002/term.2480. [Epub ahead of print]
2. Bianchi E, Piergiovanni M, Arrigoni C, Fukuda J, Gautieri A, Moretti M, Dubini G. Herringbone-like hydrodynamic structures in microchannels: A CFD model to evaluate the enhancement of surface binding. *Med Eng Phys.* 2017 Oct;48:62-67. doi: 10.1016/j.medengphy.2017.07.003.
3. Arrigoni C, Gilardi M, Bersini S, Candrian C, Moretti M. Bioprinting and Organ-on-Chip Applications Towards Personalized Medicine for Bone Diseases. *Stem Cell Rev.* 2017 Jun;13(3):407-417. doi: 10.1007/s12015-017-9741-5.
4. Ugolini GS, Visone R, Redaelli A, Moretti M, Rasponi M. Generating Multicompartmental 3D Biological Constructs Interfaced through Sequential Injections in Microfluidic Devices. *Adv Healthc Mater.* 2017 May;6(10). doi: 10.1002/adhm.201601170..
5. Bottagisio M, Lopa S, Granata V, Talò G, Bazzocchi C, Moretti M, Barbara Lovati A Different combinations of growth factors for the tenogenic differentiation of bone marrow mesenchymal stem cells in monolayer culture and in fibrin-based three-dimensional constructs. *Differentiation.* 2017 May - Jun;95:44-53. doi: 10.1016/j.diff.2017.03.001.
6. Enomoto J, Kageyama T, Osaki T, Bonalumi F, Marchese F, Gautieri A, Bianchi E, Dubini G, Arrigoni C, Moretti M, Fukuda J Catch-and-Release of Target Cells Using Aptamer-Conjugated Electroactive Zwitterionic Oligopeptide SAM. *Sci Rep.* 2017 Mar 7;7:43375. doi: 10.1038/srep43375

7. Zhang YS, Arneri A, Bersini S, [...], Moretti M, [...], Khademhosseini A. Bioprinting 3D Microfibrous Scaffolds for Engineering Endothelialized Myocardium and Heart-on-a-Chip. *Biomaterials*. In Press. DOI: 10.1016/j.biomaterials.2016.09.003
8. Gautieri A, Passini FS, Silván U, Guizar-Sicairos M, Carimati G, Volpi P, Moretti M, Redaelli A, Berli M, Snedeker JG. Advanced glycation end-products: Mechanics of aged collagen from molecule to tissue. *Matrix Biol*. 2016 Sep 8. pii: S0945-053X(16)30168-8. doi: 10.1016/j.matbio.2016.09.001.
9. Mayer N, Lopa S, Talò G, Lovati AB, Pasdeloup M, Riboldi SA, Moretti M, Mallein-Gerin F. Interstitial Perfusion Culture with Specific Soluble Factors Inhibits Type I Collagen Production from Human Osteoarthritic Chondrocytes in Clinical-Grade Collagen Sponges. *PLoS One*. 2016 Sep 1;11(9):e0161479. doi: 10.1371/journal.pone.0161479. eCollection 2016.
10. Arrigoni C, Bersini S, Gilardi M, Moretti M In Vitro Co-Culture Models of Breast Cancer Metastatic Progression towards Bone. *Int J Mol Sci*. 2016 Aug 25;17(9). pii: E1405. doi: 10.3390/ijms17091405. Review.
11. Visone R, Gilardi M, Marsano A, Rasponi M, Bersini S, Moretti M. Cardiac Meets Skeletal: What's New in Microfluidic Models for Muscle Tissue Engineering. *Molecules*. 2016 Aug 26;21(9). pii: E1128. doi: 10.3390/molecules21091128. Review.
12. Bersini S, Yazdi IK, Talò G, Shin SR, Moretti M, Khademhosseini A. Cell-microenvironment interactions and architectures in microvascular systems. *Biotechnol Adv*. 2016 Nov 1;34(6):1113-30. doi: 10.1016/j.biotechadv.2016.07.002. Review.
13. Bersini S, Arrigoni C, Lopa S, Bongio M, Martin I, Moretti M. Engineered miniaturized models of musculoskeletal diseases. *Drug Discov Today*. 2016 Apr 28. pii: S1359-6446(16)30120-9. doi: 10.1016/j.drudis.2016.04.015[Epub ahead of print]
14. Arrigoni C, Bongio M, Talò G, Bersini S, Enomoto J, Fukuda J, Moretti M. Rational Design of Prevascularized Large 3D Tissue Constructs using Computational Simulations and Biofabrication of Geometrically Controlled Microvessels. *Adv Healthc Mater*. 2016 Jul;5(13):1617-26. doi: 10.1002/adhm.201500958.
15. Bottagisio M, Pellegata A, Boschetti F, Ferroni M, Moretti M, Lovati AB. A new strategy for the decellularization of large equine tendons as biocompatible tendon substitutes. *Eur Cell Mater*. 2016 Jul 8;32:58-73.
16. Gerges I, Tamplenizza M, Lopa S, Recordati C, Martello F, Tocchio S, Ricotti L, Arrigoni C, Milani P, Moretti M, Lenardi C. Creep-Resistant Dextran-Based Polyurethane Foam as a Candidate Scaffold for Bone Tissue Engineering: Synthesis, Chemico-Physical Characterization, In vitro and In vivo Biocompatibility. *Int J Polym Mater*. 2016 Sep;65(14):729-740. doi: 10.1080/00914037.2016.1163565
17. Lovati AB, Lopa S, Recordati C, Talò G, Turrisi C, Bottagisio M, Losa M, Scanziani E, Moretti M. In vivo bone formation within engineered hydroxyapatite scaffolds in a sheep model. *Calcif Tissue Int*. 2016 Aug;99(2):209-23. doi: 10.1007/s00223-016-0140-8.
18. Lopa S, Ceriani C, Cecchinato R, Zagra L, Moretti M, Colombini A. Stability of housekeeping genes in human intervertebral disc, endplate and articular cartilage cells in multiple conditions for reliable transcriptional analysis. *Eur Cell Mater*. 2016 May 27;31:395-406.
19. Bongio M, Lopa S, Gilardi M, Bersini S, Moretti M. A 3D vascularized bone remodeling model combining osteoblasts and osteoclasts in a CaP nanoparticle-enriched matrix. *Nanomedicine (Lond)*. 2016 May;11(9):1073-91
20. Lovati AB, Colombini A, Recordati C, Ceriani C, Zagra L, Berzero G, Moretti M. Chondrogenic capability of osteoarthritic chondrocytes from the trapeziometacarpal and hip joints. *Cell and Tissue Banking*. 2016 Mar;17(1):171-7
21. Russo L, Sgambato A, Visone R, Occhetta P, Moretti M, Rasponi M, Nicotra F, Cipolla L. Gelatin hydrogels via thiol-ene chemistry. *Monatshefte fuer Chemie/Chemical Monthly* 2016 Mar;147(3):587-92
22. Lovati AB, Bottagisio M, Moretti M. Decellularized and engineered tendons as biological substitutes. A critical review. *Stem Cells Int*. 2016;2016:7276150.

23. Bersini S, Gilardi M, Arrigoni C, Talò G, Zamai M, Zagra L, Caiolfa V, Moretti M. Human in vitro 3D co-culture model to engineer vascularized bone-mimicking tissues combining computational tools and statistical experimental approach. *Biomaterials* 2016 Jan;76:157-72
24. Raimondi MT, Bertoldi S, Caddeo S, Faré S, Arrigoni C, Moretti M. The effect of polyurethane scaffolds surface treatments on the adhesion of chondrocytes subjected to interstitial perfusion culture. *Tissue Engineering and Regenerative Medicine* 2016; 13(4): 364-74
25. Bottagisio M, Lovati AB, Lopa S, Moretti M. Osteogenic differentiation of human and ovine bone marrow stromal cells in response to β -glycerophosphate and monosodium phosphate. *Cell Reprogram.* 2015 Aug;17(4):235-42
26. Lopa S, Leijts M, Moretti M, Lubberts E, van Osch G, Bastiaansen-Jenniskens YM. Arthritic and non-arthritic synovial fluids modulate IL10 and IL1RA gene expression in differentially activated primary human monocytes. *Osteoarthritis and Cartilage.* 2015 Nov;23(11):1853-7.
27. Bersini S, Moretti M. 3D functional and perfusable microvascular networks for organotypic microfluidic models. *J Mater Sci Mater Med.* 2015 May;26(5):5520
28. Lopa S, Piraino F, Kemp RJ, Di Caro C, Lovati AB, Di Giancamillo A, Moroni L, Peretti GM, Rasponi M, Moretti M. Fabrication of multi-well chips for spheroid cultures and implantable constructs through rapid prototyping techniques. *Biotechnol Bioeng.* 2015 Jul;112(7):1457-71
29. Jeon JS, Bersini S, Gilardi M, Dubini G, Charest JL, Moretti M*, Kamm RD*. Human 3D vascularized organotypic microfluidic assays to study breast cancer cell extravasation. *PNAS.* 2015 Jan;112(1):214-9. (* equally contrib. corr. auth.)
30. Colombini A, Lopa S, Ceriani C, Lovati AB, Croiset SJ, Di Giancamillo A, Lombardi G, Banfi G, Moretti M. In vitro characterization and in vivo behavior of human nucleus pulposus and annulus fibrosus cells in clinical-grade fibrin and collagen-enriched fibrin gels. *Tissue Eng Part A.* 2015 Feb;21(3-4):793-802.
31. Lovati AB, Lopa S, Talò G, Previdi S, Recordati C, Mercuri D, Segatti F, Zagra L, Moretti M. In vivo evaluation of bone deposition in macroporous titanium implants loaded with mesenchymal stem cells and strontium-enriched hydrogel. *J Biomed Mater Res B Appl Biomater.* 2015 Feb;103(2):448-56.
32. Lovati AB, Pozzi A, Bongio M, Recordati C, Berzero G, Moretti M. A comparative study of diagnostic and imaging techniques for osteoarthritis of the trapezium. *Rheumatology (Oxford).* 2015 Jan;54(1):96-103.
33. Occhetta P, Visone R, Russo L, Cipolla L, Moretti M, Rasponi M. VA-086 methacrylate gelatine photopolymerizable hydrogels: A parametric study for highly biocompatible 3D cell embedding. *J Biomed Mater Res A.* 2015 Jun;103(6):2109-17.
34. Colombini A, Ceriani C, Banfi G, Brayda-Bruno M, Moretti M. Fibrin in intervertebral disc tissue engineering. *Tissue Eng Part B Rev.* 2014 Dec;20(6):713-21.
35. Arrigoni C, De Luca P, Gilardi M, Previdi S, Brogginini M, Moretti M. Direct but not indirect co-culture with osteogenically differentiated human bone marrow stromal cells increases RANKL/OPG ratio in human breast cancer cells generating bone metastases. *Mol Cancer.* 2014 Oct;13:238.
36. Bersini S, Jeon JS, Moretti M*, Kamm RD*. In vitro models of the metastatic cascade: from local invasion to extravasation. *Drug Discov Today.* 2014 Jun;19(6):735-42. (* equally contrib. corr. auth.)
37. Jeon JS, Bersini S, Whisler JA, Chen MB, Dubini G, Charest JL, Moretti M*, Kamm RD*. Generation of 3D functional microvascular networks with human mesenchymal stem cells in microfluidic systems. *Integr Biol (Camb).* 2014 May;6(5):555-63. (* equally contrib. corr. auth.)
38. Lopa S, Colombini A, Stanco D, de Girolamo L, Sansone V, Moretti M. Donor-matched mesenchymal stem cells from knee infrapatellar and subcutaneous adipose tissue of osteoarthritic donors display differential chondrogenic and osteogenic commitment. *Eur Cell Mater.* 2014 Apr 23;27:298-311.
39. Bersini S, Jeon JS, Dubini G, Arrigoni C, Chung S, Charest JL, Moretti M*, Kamm RD*. A microfluidic 3D in vitro model for specificity of breast cancer metastasis to bone. *Biomaterials.* 2014 Mar;35(8):2454-61. (* equally contrib. corr. auth.)
40. Talò G, Turrisi C, Lovati AB, Moretti M. Bioreactors for musculoskeletal tissue engineering. *Journal of Sports Traumatology.* 2014 Mar;31(1):13-22.

41. Lopa S, Mercuri D, Colombini A, De Conti G, Segatti F, Zagra L, Moretti M. Orthopedic bioactive implants: hydrogel enrichment of macroporous titanium for the delivery of mesenchymal stem cells and strontium. *J Biomed Mater Res A*. 2013 Dec;101(12):3396-403.
42. Occhetta P, Sadr N, Piraino F, Redaelli A, Moretti M*, Rasponi M*. Fabrication of 3D cell-laden hydrogel microstructures through photo-mold patterning. *Biofabrication*. 2013 Sep;5(3):035002. (* equally contrib. auth.)
43. Laganà M, Arrigoni C, Lopa S, Sansone V, Zagra L, Moretti M*, Raimondi MT*. Characterization of articular chondrocytes isolated from 211 osteoarthritic patients. *Cell Tissue Bank*. 2014 Mar;15(1):59-66. (* equally contrib. auth.)
44. Lopa S, Colombini A, Sansone V, Preis FW, Moretti M. Influence on chondrogenesis of human osteoarthritic chondrocytes in co-culture with donor-matched mesenchymal stem cells from infrapatellar fat pad and subcutaneous adipose tissue. *Int J Immunopathol Pharmacol*. 2013 Jan-Mar;26(1 Suppl):23-31.
45. Sabatino MA, Santoro R, Gueven S, Jaquiere C, Wendt DJ, Martin I, Moretti M, Barbero A. Cartilage graft engineering by co-culturing primary human articular chondrocytes with human bone marrow stromal cells. *J Tissue Eng Regen Med*. 2012 Dec. doi: 10.1002/term.1661.
46. Sadr N, Zhu M, Osaki T, Kakegawa T, Yang Y, Moretti M, Fukuda J, Khademhosseini A. SAM-based cell transfer to photopatterned hydrogels for microengineering vascular-like structures. *Biomaterials*. 2011 Oct;32(30):7479-90.
47. Lopa S, Colombini A, de Girolamo L, Sansone V, Moretti M. New Strategies in Cartilage Tissue Engineering for Osteoarthritic Patients: Infrapatellar Fat Pad as an Alternative Source of Progenitor Cells. *Journal of Biomaterials and Tissue Engineering*, 2011 Jun;1(1):40-48.
48. Pavesi A, Piraino F, Fiore GB, Farino KM, Moretti M, Rasponi M. How to embed three-dimensional flexible electrodes in microfluidic devices for cell culture applications. *Lab Chip*. 2011 May;11(9):1593-5.
49. Lovati AB, Vianello E, Talò G, Recordati C, Bonizzi L, Galliera E, Brogginini M, Moretti M. Biodegradable microcarriers as cell delivery vehicle for in vivo transplantation and magnetic resonance monitoring. *J Biol Regul Homeost Agents*. 2011 Apr-Jun;25(2 Suppl):S63-74.
50. Raimondi MT, Bonacina E, Candiani G, Laganà M, Rolando E, Talò G, Pezzoli D, D'Anchise R, Pietrabissa R, Moretti M. Comparative chondrogenesis of human cells in a 3D integrated experimental-computational mechanobiology model. *Biomech Model Mechanobiol*. 2011 Apr;10(2):259-68.
51. Rasponi M, Piraino F, Sadr N, Laganà M, Redaelli A, Moretti M. Reliable magnetic reversible assembly of complex microfluidic devices: fabrication, characterization, and biological validation. *Microfluidics and Nanofluidics*, 2011 May;10(5):1097-1107.
52. Cioffi M*, Moretti M*, Manbachi A, Chung BG, Khademhosseini A, Dubini G. A computational and experimental study inside microfluidic systems: the role of shear stress and flow recirculation in cell docking. *Biomed Microdevices*. 2010 Aug;12(4):619-26. (* equally contrib. auth.)
53. Valonen PK, Moutos FT, Kusanagi A, Moretti MG, Diekman BO, Welter JF, Caplan AI, Guilak F, Freed LE. In vitro generation of mechanically functional cartilage grafts based on adult human stem cells and 3D-woven poly(epsilon-caprolactone) scaffolds. *Biomaterials*. 2010 Mar;31(8):2193-200.
54. Cheng M*, Moretti M*, Engelmayr GC, Freed LE. Insulin-like growth factor-I and slow, bi-directional perfusion enhance the formation of tissue-engineered cardiac grafts. *Tissue Eng Part A*. 2009 Mar;15(3):645-53. (* equally contrib. auth.)
55. Moretti M, Freed LE, Padera RF, Laganà K, Boschetti F, Raimondi MT. An integrated experimental-computational approach for the study of engineered cartilage constructs subjected to combined regimens of hydrostatic pressure and interstitial perfusion. *Biomed Mater Eng*. 2008;18(4-5):273-8.
56. Manbachi A, Shrivastava S, Cioffi M, Chung BG, Moretti M, Demirci U, Yliperttula M, Khademhosseini A. Microcirculation within grooved substrates regulates cell positioning and cell docking inside microfluidic channels. *Lab Chip*. 2008 May;8(5):747-54.
57. Laganà K, Moretti M, Dubini G, Raimondi MT. A new bioreactor for the controlled application of complex mechanical stimuli for cartilage tissue engineering. *Proc Inst Mech Eng H*. 2008 Jul;222(5):705-15.

58. Raimondi MT, Candiani G, Cabras M, Cioffi M, Laganà K, Moretti M, Pietrabissa R. Engineered cartilage constructs subject to very low regimens of interstitial perfusion. *Biorheology*. 2008;45(3-4):471-8.
59. Cheng M, Park H, Engelmayr GC, Moretti M, Freed LE. Effects of regulatory factors on engineered cardiac tissue in vitro. *Tissue Eng*. 2007 Nov;13(11):2709-19.
60. Raimondi MT, Moretti M, Cioffi M, Giordano C, Boschetti F, Laganà K, Pietrabissa R. The effect of hydrodynamic shear on 3D engineered chondrocyte systems subject to direct perfusion. *Biorheology*. 2006;43(3-4):215-22.
61. Moretti M, Wendt D, Dickinson SC, Sims TJ, Hollander AP, Kelly DJ, Prendergast PJ, Heberer M, Martin I. Effects of in vitro preculture on in vivo development of human engineered cartilage in an ectopic model. *Tissue Eng*. 2005 Sep-Oct;11(9-10):1421-8.
62. Moretti M, Wendt D, Schaefer D, Jakob M, Hunziker EB, Heberer M, Martin I. Structural characterization and reliable biomechanical assessment of integrative cartilage repair. *J Biomech*. 2005 Sep;38(9):1846-54.
63. Schaefer DB, Wendt D, Moretti M, Jakob M, Jay GD, Heberer M, Martin I. Lubricin reduces cartilage--cartilage integration. *Biorheology*. 2004;41(3-4):503-8.
64. Moretti M, Prina-Mello A, Reid AJ, Barron V, Prendergast PJ. Endothelial cell alignment on cyclically-stretched silicone surfaces. *J Mater Sci Mater Med*. 2004 Oct;15(10):1159-64.

Patents and Additional Publications (selected)

M.G. Moretti, L.E. Freed, and R. Langer. Oscillating cell culture bioreactor. Massachusetts Institute of Technology Disclosure No. 12301. **Patent No. WO 2008/098165 A2**. Licensed to company.

G.S. Ugolini, R. Visone, A. Redaelli, M.G. Moretti, M. Rasponi. Three dimensional multilayer constructs in microchannels. Politecnico di Milano - Galeazzi Orthop. Inst. Provisional **Patent** IT 102016000131735.

M.G. Moretti, P. Cecini, G. Talò, MT Raimondi. Bioreactor for cell and tissue culture, method and multistation system. Politecnico di Milano - Galeazzi Orthop. Inst. **Patent** Priority 13/03/2009.

M. Moretti, M.Y. Cheng, L.E. Freed, Oscillating Cell Culture Bioreactor, *N.A.S.A. Medical Design Briefs*, 2010, March; 25-26.

M. Moretti, (Contributor), Roadmaps in Nanomedicine towards 2020, *Joint European Commission / ETP Nanomedicine report*, 2009.