

**GORDANA VUNJAK-NOVAKOVIC, PhD**



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**Education**

1980 Ph.D. Chemical Engineering University of Belgrade  
1986 -1987 Fulbright Fellow, Department of Chemical Engineering, MIT, Cambridge MA

**Fellowships**

1989 Fellowship, Harvard-MIT Div. of Health Sciences and Technology, Cambridge MA  
1977, 1978 Fellowship, Clausthal University, Germany

**Academic appointments:**

2011 - Mikati Foundation Professor of Biomedical Engineering, Columbia University  
2011- Professor of Medical Sciences (in Medicine)  
2014- Member, Irving Comprehensive Cancer Center, Columbia University  
2015- Faculty, Center for Human Development, Columbia University  
2011-2012 Vice-Chair, Dept of Biomedical Engineering, Columbia University  
2011 Biomedical Engineering track of Mayo Graduate Faculty, Mayo Clinic  
2005 - Professor, Columbia University, Department of Biomedical Engineering  
2005 - Director, Stem Cell and Tissue Engineering Laboratory, Columbia University  
2005 - Visiting Scientist, Massachusetts Institute of Technology, Harvard-MIT Division for Health Sciences and Technology, Cambridge MA  
2009- Honorary Professor, Department of Chemical Engineering, University of Belgrade  
2004 - Associate director, NIH Resource Center for Tissue Engineering

2009 - Co-director, Craniofacial Regeneration Center, Columbia University  
 2002- Adjunct Professor, Department of Biomedical Engineering, Tufts University, Medford MA  
 1998 - 2005 Principal Research Scientist, Harvard – MIT Division of Health Sciences and Technology, MIT, Cambridge MA  
 1994 - 2017 Adjunct Professor, Department of Chemical and Biological Engineering, Tufts University  
 1993 – 1998 Research Scientist, Whitaker College, MIT, Cambridge MA  
 1993 – 1999 Professor, Department of Chemical Engineering, Belgrade University, Yugoslavia  
 1987 – 1992 Associate Professor, Director of the Biochemical Engineering Laboratory, Department of Chemical Engineering, University of Belgrade, Yugoslavia

#### Companies founded:

2016 - Founder and Scientific Advisor, MatriTek (<http://matritek.com>)  
 2014 - Founder and Scientific Advisor, Tara Biosystems Inc (<http://tarabiosystems.com>)  
 2013 - Founder and Scientific Advisor, epiBone (<http://epibone.com>)

#### Visiting appointments

2013- Visiting Professor and Guest Speaker, Penn Center for Musculoskeletal Disorders, University of Pennsylvania, Philadelphia  
 2009 – Visiting Professor, Ben Gurion University of the Negev, Israel  
 2009 - Visiting Professor, University of Belgrade  
 1993 Visiting Scientist, Department of Chemical Engineering, MIT, Cambridge MA  
 1992 Visiting Scientist, Harvard – MIT Division of Health Sciences and Technology  
 1989 Visiting professor, University of Wageningen, Wageningen, Netherlands

#### Honors and awards:

2015-2018 Bioengineering Peer Committee, National Academy of Engineering  
 2015-2017 Chair-Elect, College of Fellows, American Institute for Medical and Biological Engineering (AIBME)  
 2015- Council, Tissue Engineering and Regenerative Medicine Society (TERMIS)  
 2014 Fellow, American Association for the Advancement of Science (AAAS)  
 2014 National Academy of Medicine  
 2014 Foreign Policy's 100 Leading Global Thinkers of 2014  
 2013 National Academy of Engineering, Executive Committee, Section for Bioengineering  
 2013-2016 National Academy of Engineering, Fritz J and Dolores H Russ Prize Committee  
 2013 Founding Class, International Fellows of Tissue Engineering and Regenerative Medicine  
 2012 National Academy of Engineering  
 2012 Academia Europea  
 2012 Serbian Academy of Sciences and Arts  
 2012 Serbian National Academy of Engineering  
 2012 Fellow, Biomedical Engineering Society (BMES)  
 2011-2014 Continental Chapter Council (North America), Tissue Engineering and Regenerative Medicine International Society  
 2010 2010 Clemson award of the Society of Biomaterials "for significant contributions to the literature on the science or technology of biomaterials"  
 2009 - New York Academy of Sciences  
 2008 Hall of Fame, Women in Technology International (one of 5 leaders in science and technology in 2008)  
 2008 - US Section Head, Musculoskeletal Repair & Regeneration Section, Faculty 1000 of Medicine  
 2007 Director's lecture, NIH, October 17, 2007; the first woman engineer to receive this distinction (<http://videocast.nih.gov/PastEvents.asp?c=3&s=31>)  
 2006 NASA Award for a patent "BMP-2, BMP-12, and BMP-13 Modulate in Vitro Development of Engineered Cartilage"

2005	The Association of Orthopedic Research, Switzerland; team award "for the best science in orthopaedics" (with Meinel, Ziechner, Fajardo, and Kaplan)
2004	Outstanding Performance Medal, World Congress of in vitro Biology.
2004	Space Act Award, NASA, for patent describing bioengineering of anterior cruciate ligaments (US patent 6,287,340, issued September 11, 2001)
2004 - 2004	Faculty of 1000 Medicine, Regenerative Medicine Section
2004	Space Act Award, NASA, for patent describing gene transfer of a growth factor to enhance tissue engineering of cartilage
2000 - 1997	American Institute for Medical and Biological Engineering Medal of recognition, Centennial of the Serbian Chemical Society, Belgrade YU
1996 - 1997	Space study of cartilage tissue engineering aboard "Mir", in collaboration with NASA Johnson Space Center (co-lead of the 13-member team, with LE Freed); the longest cell experiment ever conducted in space; study reported in PNAS)
1987 - 1992	Serbian Academy of Sciences and Arts, Biomass Committee
1980	City of Belgrade award for the best PhD thesis in engineering
1975	Belgrade Chamber of Commerce award for the best MS thesis in engineering

### Recognitions:

2015	Board of Directors, American Institute of Medical and Biological Engineering (AIMBE)
2015	Archimedes Society Lecturer
2014	Stem Cell Image Contest, one of six winners
2014	First prize for presentation in the Arrhythmia Surgery category at the International Society for Minimally Invasive Cardiac Surgery (ISMICS) meeting, Boston, May 28-31, 2014
2013	25th annual Rushmer Lecture, University of Washington Seattle
2013	Leadership lectures, University of Florida
2013	Paper Iyer et al. <i>Biofabrication</i> 4(3):035002, 2012 was selected as one of the 9 articles that are included into the journal's <i>Highlights of 2012 collection</i> (based on the reviews and downloads) and are free to read through the end of this year.
2013	NIBIB National Advisory Council (deferred until 2015)
2012	Hollingsworth Distinguished Lecturership, University of Texas Austin
2012	UK Medical Research Council, National Programme Board in regenerative medicine (declined)
2011	Plenary lecture at the University of Bristol UK, UK National Stem Cell Network
2011	Key Opinion Leader session speaker, Life Sciences Summit 2011, New York NY, November 16-17, 2011
2010	Winner, Stem Cell Image contest, New York State Stem Cell Science (NYSTEM)
2010	Distinguished Speaker, <i>Future Frontiers of Biomedical Engineering</i> , 2010 Annual Meeting of the Biomedical Engineering Society, Austin TX, October 8, 2010
2010	Paper Chiu et al. (Macromolecular Bioscience), feature article, selected as a frontispiece
2010	Biomedical Engineering Materials and Applications (BEMA) Initiative of the National Research Council of the National Academies
2010	The New York Times (March 26 issue) featured bone work in the story "Replacement bones, grown to order in the lab," as "tissue engineering at its best"
2010	Keynote lecture, Stem Cell Bioengineering (Chairs: George Daley and Peter Zandstra), Boston MA May 2-5, 2010
2010	Finalist, The World Technologies Award for Biotechnology
2009	Paper Freytes et al. (J Cell Biochem. 2009) selected as a journal cover
2009	Paper Grayson et al. (PNAS, 2009) featured as Editors' Choice in <i>Science Translational Medicine</i> (October 21, 2009 issue)
2009	Paper Grayson et al. (PNAS, 2009) featured in <i>Scientific American</i> and <i>BBC</i> .
2009	Image from the article: Figallo E., Cannizzaro C, Gerecht-Nir S, Burdick J, Langer R, Elvassore N and Vunjak-Novakovic G. Micro-bioreactor array for controlling cellular environments. <i>Lab on a Chip</i> 7(6): 710 - 719, 2007 (selected as cover of the September 2009 issue of <i>Tissue Engineering Reviews</i> ).
2008	Paper Jakab et al <i>Tissue Engineering</i> 14:413-421, 2008 featured in <i>Nature News</i> 20 March 2008

- 2008 Keystone Symposia Annual Report, program chair highlighted for the year 2007 (one of the most successful symposia out of total of 120)
- 2007 Chemical and Engineering News, 87(35) 14-19, Sep 10 2007, "Mimicking biological systems" by Celia Henry Arnaud (cover story) features microbioreactor work in the lab, and studies published in *Lab on a Chip* in 2007)
- 2007 All articles from the special issue of *Tissue Engineering* (December 2006) were among the most frequently read in the journal in 2007
- 2006 Cardiac tissue engineering work highlighted at the NIBIB Council, and featured on the NIBIB web site: "Cardiac patch: the beat never stops"
- 2006 Biography in the book *Extraordinary Women Engineers* by Kendall Anderson (ASCE publication, 2006); featured on the book cover
- 2005 Research featured in *Drug Discovery & Development*: Labs have growing interest in cell culture automation. By Tanuja Koppal. April 3, 2005.
- 2005 An evening at the Boston Museum of Science (March 18, 2005): "Tissue engineering and the challenges of imitating nature". Live televised event. Lecture posted on the Museum of Science web page
- 2005 Research featured in the *IEEE Spectrum magazine*: "The Body Shops". Featured article, February 17, 2005.
- 2005 Published work (Park et al. *In Vitro Cell Dev Biol* 41:188-196, 2005) highlighted in the *In vitro Biology*
- 2004 Research featured in the *Scientific American*: Electrical Signals Key to Culturing Heart Tissue. December 14, 2004.
- 2003 Research featured in *Nature* 421: 884-886 (2003) "The beat goes on", by C. Zandonella.
- 2002 *Public Broadcasting System and Canadian Broadcast Company* "Masters of Technology" (TV documentary) Fall 2002.
- 2001 Newsweek, Special Edition, "Cures for the Future", by A. Rogers, Winter 2001
- 2000 Outstanding performance certificate, NASA
- 2000 Paper of the month (*Journal of the American Institute of Chemical Engineers*, Sept. 2000); featured in *Chemical Engineering Progress*, September 2000
- 2000 Research featured in *Chemical & Engineering News* "Biomaterials Body Shop" pp. 33-42, June 26, 2000
- 2000 PBS "Scientific American Frontiers: Never Say Die" with Alan Alda, Jan 25
- 2000 Popular Science "Growing Hearts from Scratch" pp. 47-50, April 2000 (cover)
- 2000 Microgravity News "Bioreactors Advance Heart Research" pp. 7-9, Spring issue 2000
- 2000 *Chemical & Engineering News* "Biomaterials Body Shop" pp.33-42, June 2000
- 1999 *Scientific American*: Tissue Engineering: Challenges ahead. April 1999, pp. 86-89.
- 1994, 1996 Paper of the month, *Journal of the American Institute of Chemical Engineers*, July 1994 and March 1996.

#### Councils, Advisory Boards, Executive Committees

- 2016- Scientific Advisory Board, Medicine by design, University of Toronto, Canada
- 2016-19 External Advisory Board, Department of Biomedical Engineering, Washington University in St. Louis MO
- 2015- External Advisory Committee, Regenerative Medicine Program, University of Vermont
- 2015 Shu Chen Award Committee
- 2015 NIH-CSR Blue Ribbon Advisory Panel for Bioengineering/Computational Biology study sections
- 2015 Advisory Board, One Young World
- 2014 Scientific Advisory Panel, Strategic Plan for New York State Stem Cell Science
- 2014 Heinz awards panel
- 2014- Advisory Board, City College New York, Department of Biomedical Engineering
- 2014- Scientific Advisory Board, Advanced Cell Technology, Marlborough MA
- 2014- Scientific Advisory Board, UK centres for tissue engineering/regenerative medicine, Imperial College, London
- 2014 Advisory Board, Wolfson Centre for Stem Cells, Tissue Engineering and Modelling (STEM)
- 2014 Columbia University Task Force on New Scientific Advances

2014-2017 Council, Tissue Engineering and Regenerative Medicine International Society, TERMIS Americas

2014 International Advisory Board, TERMIS EU, Genoa Italy, June 10-13, 2014.

2013 Advisory Council, Rensselaer Polytechnic Institute, Department of Biomedical Engineering

2013 Advisory Board, Lifeline, humanitarian organization supporting children in Serbia

2012 Scientific Director on the Board of Directors, Center for Advancement of Science in Space (CASIS)

2012 External Advisory Board, Sloan-Kettering Institute, Center for Stem Cell Biology, NYSTEM training grant "Research Training Program in Stem Cell Biology".

2011 - External Advisory Committee for the Progenitor Cell Biology Consortium

2011 Innovation fund of Serbia, panel of experts

2011-2012 Faculty representative in the Columbia School of Engineering Board of Visitors

2011 Biomedical Engineering Society, National Meetings Committee

2010- Scientific Advisor, Howard Hughes Medical Institute

2010 Executive Committee, Columbia University Stem Cell Initiative

2010 Stem Cell Committee, Columbia University Stem Cell Initiative

2010- College of Dental Medicine, Research Strategic Planning (RSP) Committee

2010- YUCOMAT International Advisory Board

2009 - New York Stem Cell Foundation, Medical Advisory Board

2009 Strategic Planning Committee, NIH-NIDDK

2009 - Faculty Steering Committee, Columbia Global Centers - Amman

2009 TERMIS - EU International Advisory Board

2008 NIAMS Board of Scientific Councilors, January 22-23, 2008

2008 - Executive Committee of the Cardiovascular Research Institute (CVRI), of the Dean of Medicine, Columbia University Medical Center

2008 - External Advisory Committee, COBRE (Centers of Biomedical Research Excellence), University of Delaware, Newark DE (Pi Dr Thomas Beebe)

2007 Invitation to the National Advisory Dental and Craniofacial Research Council (declined, to chair the Biomaterials and Biointerfaces study section)

2007 - Scientific Advisory Council, StemSave Inc, Scottsdale AZ

2007 - Scientific Advisory Board, Biomaterials Network

2006 -2008 Engineering Conferences Foundation (ECF), Biomedical Engineering Committee

2006 NHLBI Strategic Planning Working Group: Regenerative and Reparative Medicine July 6-7, 2006

2006 National Judge, 2006 Siemens Competition in Math, Science and Technology. National finals, December 2-4, 2006, New York, NY

2005 Workshop on future directions of NIBIB. Atlanta GA, June 2, 2005; resulted in the RFA for Enabling Technologies

2005 Expert group for new technologies in Regenerative Medicine. Report in Greenwood HL, Singer PA, Downey GP, Martin DK, Thorsteinsdottir H, Daar AS. Regenerative Medicine and the Developing World. PLoS Med. 12;3(9) 2006

2005- Faculty Advisory Board, Columbia Undergraduate Science Journal

2004 National Science Foundation, Expert group for assessment of bioengineering needs in Vietnam (site visit January 2 - 17, 2004; article published in IEEE Engineering in Biology and Medicine 24 (3) 11-17, 2005

2003 - 2005 External Advisory Board, Tufts University Dental School

2003 - 2008 Space Life Sciences Council, NASA

2002 - 2006 Scientific Advisory Board, Society for in vitro Biology

2001 - 2009 Scientific advisor, GreenFuel, Cambridge MA

1987 - 1992 Chair, Graduate Committee, School of Engineering University of Belgrade, YU

1986 - 1992 Committee for Genetic Engineering and Biotechnology, Research Council, Serbia

1996 - 2003 Scientific lead (for MIT), Development of the automated modular cell culture system for the International Space Station, NASA

1992 Expert Group for Biotechnology, Research Council of Serbia, Belgrade, YU

1990 - 1992 Council of the School of Engineering, University of Belgrade, Yugoslavia

<b>Companies</b>
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2016 Founder and Scientific Advisor, MatriTek  
 2014 Founder and Scientific Advisor, Tara Biosystems  
 2013 Founder and Scientific Advisor, epiBone  
 2013 Advisory Board, xCELLpure, spin-out from the University of Toronto for cell separation  
 2012 – Scientific Advisory Board, Modern Meadow  
 2008 - Scientific Advisory Board, Organovo  
 2008 - Scientific Advisory Board, *Green Planet*, Ireland  
 2003- Co-founder, member of the Board of Directors, GreenFuel, Cambridge MA  
 2001 - 2004 Scientific Advisory Board, co.don, Tetlow, Germany  
 2000 - 2005 Scientific Advisory Board, Tissue Regeneration Inc., Medford MA

### Editorship

2015 Advisory Board, *Tissue Engineering bookseries* (Springer Reference and TERMIS)  
 2014 Editorial Board, *Regenerative Engineering and Translational Medicine* (Springer)  
 2014 Guest editor, special issue of *Current Opinion in Chemical Engineering*  
 2013 Editorial Board, *Journal of Experimental Biology and Medicine*  
 2013 Editorial Board, *Journal of Experimental Orthopaedics*  
 2013 Editorial Board, *Organogenesis*  
 2013 Executive Editorial Board, *Tissue Engineering* (Parts A, B and C)  
 2013 Editorial Board, *BioResearch Open Access*  
 2013 Editorial Board, *Technology*  
 2013 Editor, Biological Engineering Section of *Current Opinion in Chemical Engineering*  
 2013 Guest Editor, *Methods*, special issue on Advanced Methods for Tissue Engineering and Regenerative Medicine  
 2012 Editorial Board, *eLife*  
 2012 Editorial Board, *Journal of Computational Surgery*  
 2012 Editorial Board, *Frontiers in Physiology*, *Frontiers in Computational Physiology and Medicine*  
 2011 Editor, *Stem Cell Research and Therapy*, special issue on *Biophysical Influences on Stem Cells*.  
 2011 Editorial Advisory Board, *Stem Cells Translational Medicine*  
 2011 Editorial Advisory Board, *Journal of the Orthopaedic Research*  
 2010 Editorial board, *Biomedical Materials*  
 2009 Editorial Board, *Annual Review of Biomedical Engineering*, preparation of 2011 issues  
 2009 Editorial board, *Stem Cell Research & Therapy*  
 2009 Editorial Board, *International Journal for Artificial Organs*  
 2008 Editorial board, *Stem Cell Reviews & Reports*  
 2007 Editor, new book series on Biomedical Engineering for John Wiley (deferred)  
 2006 Guest Editor, *Tissue Engineering Journal Tissue engineering- the next generation*. Vol 12, issue 12, December 2006. Cover.  
 2006 Editorial board, *Tissue Engineering and Regenerative Medicine Journal*  
 2006 Editorial Board, *Tissue Engineering Journal*  
 2005 Editorial Board, *Fluid Dynamics and Materials Processing Journal*  
 2005 Editorial Board, *Chemical Industry and Chemical Engineering Quarterly*  
 2004 Editorial Board, *Woodhead Publishing*, Cambridge, England

### Review panels (selected)

2016 European Commission, Horizon 2020, standing member  
 2016 European Commission, Panel Member, Advanced Grants, PE8-Products and Processes Engineering  
 2016 NIH Pioneer awards  
 2014 European Commission, Panel Member, Advanced Grants, PE8-Products and Processes Engineering  
 2014 European Commission, Horizon 2020, standing member

2014 NIH Director's Pioneer's Award Program, Special Emphasis Panel  
 2013 European Commission, Health 2013 projects, standing member  
 2013 RFP PCBC2012Pilot 01 grants  
 2013 NIH Director's New Innovator Awards, January 2013  
 2013 NIH Director's Pioneer Awards, January 2013  
 2012 AFIRM II CR-1 panel, September 27-28, 2012  
 2012 NHLBI Program projects, September 25, 2012  
 2012 European Research Council, August 23, 2012  
 2012 Chair, SBIB-W (02) Study Section, February 22, 2012  
 2012 New York Academy of Sciences, Blavatnik awards for young scientists, judge  
 2011 NIH Director's Pioneer's Award Program, Special Emphasis Panel  
 2011 New York Stem Cell Foundation fellowships  
 2010 Distinguished Editorial Panel, NIH, Director's Opportunity for Research in Five Thematic Areas (RC4 grants)  
 2010 NIH Director's Pioneer Award, January 2010  
 2009 Distinguished Editorial Panel, NIH, Stem Cell Challenge grants  
 2009 Review panel, MacArthur Fellows Program  
 2009 Reviewer, Charles Bronfman Prize  
 2008- 2010 Chair, NIH Study section on Biomaterials and Biointerfaces (BMBI)  
 2006- 2010 NIH Study section on Biomaterials and Biointerfaces (BMBI), permanent member  
 2009 Juvenile Diabetes Research Foundation, Bioengineering panel, May 2009  
 2009 New York Academy of Sciences, Blavatnik awards for young scientists, judge  
 2009 CIMIT, Regenerative Medicine panel, May 2009  
 2009 American Institute of Biological Sciences, Regenerative Medicine panel, January 2009  
 2008 NIAMS P30 awards NIH/NIAMS ZAR1 CHW-G (M1), November 6, 2008  
 2008 NIH Director's New Innovator Award, Special Emphasis Panel  
 2008 Review panel 2009/01 ZRG1 BST-G (02) M, September 25, 2008  
 2008 NSF's Engineering Research Center Program, via FastLane, January 16, 2008  
 2008 NIH Roadmap Panel on "Transformative R01", NIH, October 24, 2008.  
 2008 NIH workshop "Transforming Regenerative Medicine", May 19-20, 2008  
 2008 NIBIB workshop Bioengineering and Imaging Research Opportunities BIROW V, January 17-18, 2008, Bethesda, White paper published in *Radiology*.  
 2007 National Judge, 2007 Siemens Competition in Math, Science and Technology. National finals, December 1-3, 2007, New York, NY  
 2007 NSF/NIH Workshop on Stem Cells, Tissue Engineering and Regenerative Medicine, defining research priorities for the next 10 years, January 2007  
 2007 Specialist reviewer, California Institute for Regenerative Medicine (CIRM)  
 2007 *Invited to join the Nano-Medicine study section (declined)*  
 2007 NIH Director's New Innovator Award, Special Emphasis Panel  
 2007 Review panel, ZRG1 MOSS-E (11) NIH, December 13-14, 2007  
 2007 Review panel, SBIR/STTR, October 23, 2007  
 2007 Review panel, ZEB1 OSR-B O2, Career awards, July 12, 2007  
 2007 Review panel, ZEB1 OSR-B O1, Conference awards, July 12, 2007  
 2006 NIH Special emphasis panel, NIDCR RFA DE07-005 Nanostructured Dental Composite Restorative Materials, December 11, 2006  
 2006 Chair, NIH Special Emphasis Scientific Review Group 2007/01 ZRG1 CVS-P (50) (S), November 20-21, 2006  
 2004 - 2006 NIH Study section on Biomaterials and Biointerfaces (BMBI), member  
 2005 NIH Special emphasis panel for blood vessel technologies  
 2004 NIH (NHLBI) Special emphasis panel for cell based therapies  
 2004 NIH (CSR) Special emphasis panel for Bioengineering Partnership grants  
 2004 NIH (NIDCR) Special emphasis panel for tissue engineering  
 2004 NIH (NCI) Special emphasis panel for *in vitro* research  
 2002 NASA Biomedical Engineering Institute, Panel member

<b>Academic service</b> (selected)
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2016 Dean Goldman's Annual Student Research Day, Committee Chair  
2015 Search Committee, Director of Irving Institute for Translational Research  
2015 Search Committee, Director of Stem Cell Initiative  
2014 Search Committee, Chair of Pharmacology, Columbia University Medical Center  
2014 University-wide Task Force, Columbia University  
2014- Board of Undergraduate Advisors  
2012-2014 Columbia University Tenure Review Advisory Committee (TRAC standing committee)  
2012-2013 Search committee, Dean of the School of Engineering and Applied Sciences  
2012-2013 Search committee, Dean of the College of Dental Medicine  
2012 Columbia University, 2020 P&S Strategic Plan Implementation Committee  
2011 Search Committee, Chair of the Biomedical Engineering Department, Columbia University  
2011-14 Committee of Instruction, SEAS, Columbia University  
2010-2011 Task force on mentoring, Columbia University  
2009 Search Committee, Director of the Columbia Stem Cell Institute  
2008 Executive Committee of the Cardiovascular Research Institute, Columbia University  
2008 - College of Dental Medicine, Research Mentor  
2008 Pew Scholars Program in the Biomedical Sciences, Columbia Medical School Committee  
2007-2009 Graduate Affairs Chair, Department of Biomedical Engineering, Columbia University  
2007 - Engineering School representative, MD-PhD Committee, Columbia Medical School  
2007 PhD theses evaluator, Ben Gurion University, Israel  
2007 PhD theses evaluator, University of Singapore, Singapore  
2006 PhD theses evaluator, University of Melbourne, Australia  
2006 Panel of experts, Evaluation of academic and research programs in Chemical and Biomedical Engineering, University of Padova, Italy  
2005-2006 Chair, Faculty search committee, Department of Biomedical Engineering, Columbia University  
2003-2005 Graduate Committee, Harvard-MIT Division of Health Sciences and Technology, Massachusetts Institute of Technology  
2001 Faculty Search Committee, Harvard Dental School  
1988 - 1992 Curriculum Committee, Department of Chemical and Department of Biochemical Engineering, University of Belgrade, Yugoslavia

<b>Professional service - scientific conferences (selected)</b>
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2016	Scientific Advisory Committee, TERMIS-AM 2016, December 11-14, 2016, San Diego CA
2015	Science Advisory Board, 4 <sup>th</sup> World Congress of Tissue Engineering and Regenerative Medicine (TERMIS), Boston MA, September 8-11, 2015
2015	Science Advisory Board, 2nd International Stem Cell Meeting, September 2015, Antalya, Turkey
2013	Program Chair, 2013 annual meeting of the Biomedical Engineering Society
2013	Co-chair, Symposium on "Developmental Biology and Regeneration in Orthopaedics", American Academy of Orthopaedic Surgeons (AAOS) and Orthopaedic Research Society (ORS), 2013 annual meeting of the AAOS/ORS, Dallas TX
2013	International Advisory Board, 15 <sup>th</sup> International conference YUCOMAT 2013, Herceg Novi, Montenegro, September 2-6, 2013
2013	Co-Director, Cell Therapy for Cardiovascular Disease, New York NY, January 23-25, 2013
2012	Organizing Committee, International Conference on Stem Cells, Crete-Greece, September 6-11, 2012
2012	Chair of the Tissue Engineering Track, Annual Meeting of the Biomedical Engineering Society, Atlanta GA, October 24-27, 2012
2012	Scientific Advisory Board, Symposium Chair, World Meeting of TERMIS (Tissue Engineering & Regenerative Medicine Society, Vienna, Austria, Sept. 5 - 8, 2012.
2012	Organizer and chair, Cardiac Tissue Engineering, AAAS, April 21-25 2012, San Diego CA
2012	Chair, Functional imaging in regenerative medicine, NIH/NSF/FDA/NIST workshop, NIH Bethesda MD
2012	Co-Director, Cell Therapy for Cardiovascular Disease, New York NY, January 25-27, 2012



2011 Session chair, Electrical Fields at the Cell and Protein Scale, Theme 7: Molecular and Cellular Biomechanics, Tissue Engineering and Biomaterials, IEEE-EMBS 2011, Aug 30 - Sep 3, 2011, Boston MA

2011 Co-organizer, New York State Stem Cell conference, New York NY, May 24-25, 2011

2011 Session chair, Cologne Conference on Cardiac Regeneration and Cell Therapy, Cologne, Germany

2011 Panelist, NIH/FDA workshop "Pluripotent Cells in Translation: Early Decisions", March 21 - 22, 2011, NIH campus in Bethesda, MD

2010 Co-chair, Musculoskeletal tissue engineering session, TERMIS 2010, Orlando FL, December 4-8, 2010

2010 Co-Chair, Tissue engineering and regenerative medicine: the next 20 years, Sydney, Australia.

2010 Chair, Heart & muscles session, 5<sup>th</sup> Annual Translational Stem Cell Conference, The New York Stem Cell Foundation, October 12-13, 2010, Rockefeller University, New York NY.

2010 Co-convener and co-Chair, Tissue Engineering and Regenerative Medicine – The Next 20 years, International conference supported by a World Class Grant of the International Program Development Fund, University of Sydney, Sydney, Australia, November 9-11, 2010

2010 Scientific Advisory Board, 2<sup>nd</sup> International Conference for Stem Cell Bioengineering, May 2-5 2010, Boston MA

2010 Co-Director, Cell Therapy for Cardiovascular Disease, New York NY, June 14, 2010

2009 Program Committee, NYSTEM Grantees Conference 2009

2009 Session chair, 35<sup>th</sup> Annual Northeast Bioengineering Conference. April 3-5, 2009 Boston MA

2009 Course Co-Director, Cardiovascular Research & Technology (CRT) 2009 March 4-6, Washington D.C. Course Co-Director for the Angiomyogenesis & Cell Therapy; Organizer and Chair, Tissue Engineering session

2009 Course Co-Director, Cell Therapy for Cardiovascular Disease, New York NY, January 14-16, 2009

2009 Organizer and Co-chair, Role of Electrochemical Intercellular Coupling in Cardiac Tissue: Development, Disease, and Tissue Engineering Applications. April 18-22, 2009, New Orleans LA

2009 Chair and organizer, Tissue Engineering Session, The 5<sup>th</sup> Annual International Conference on Cell Therapy for Cardiovascular Diseases. Conference co-director. New York NY, Jan 14-16, 2009

2008 Session Chair, Bioreactors and Mechanical Training of Tissue Constructs, *TERMIS NA 2008 Conference and Exposition*, San Diego CA, Dec 7-10, 2008

2008 Panelist on the NIH round table on 3D tissue models (Roadmap initiative, meeting hosted by Dr Alan Krensky, live webcast), October 24, 2008, NIH campus, Bethesda MD

2008 Scientific Committee, Session Chair, Evaluator of students' proposals, Tissue Engineering and Regenerative Medicine International Society Annual Meeting, Porto, Portugal, June 23-26, 2008

2008 Chair and organizer, Cardiac Tissue Engineering Symposium, Tissue Engineering and Regenerative Medicine International Society Annual Meeting (TERMIS-EU), Porto, Portugal, June 23-26, 2008

2008 Stem Cell Day, Columbia University, May 5, 2008. Co-organizer, Team leader for Tissue Engineering, imaging and technologies

2008 NIH workshop on Transforming Regenerative Medicine, Chair of the "3D models" session, Washington DC, May 19-20, 2008.

2008 Cardiovascular Revascularization Therapies, February 11-13, 2008, Washington DC, Course co-director

2008 Course Co-Director, The 4<sup>th</sup> Annual International Conference on Cell Therapy for Cardiovascular Diseases. New York City, January 16-18, 2008

2008 Chair and organizer, Tissue Engineering Session, The 4<sup>th</sup> Annual International Conference on Cell Therapy for Cardiovascular Diseases. New York NY, Jan 16-18, 2008

2008 Course Co-Director, Angiomyogenesis & Cell Therapy, Washington DC, Feb. 12-13, 2008

2007 Scientific Committee, Fifth Interdisciplinary Transport Phenomena Conference, Bansko, Bulgaria, October 14-19, 2007

- 2007 Session convener and chair, Regenerate 2007, Tissue Engineering and Regenerative Medicine International Society (TERMIS), and the Pittsburgh Tissue Engineering Institute, Biomechanical Training of Tissue Constructs. June 13-16, 2007, Toronto ON Canada.
- 2007 Organizer and Chair, Keystone conference on *Tissue engineering and Developmental Biology*, Snowbird, Utah, April 12-17, 2007; Ranked #6 among all 2007 Keystone meetings, 93% participants evaluated the meeting as "excellent"
- 2007 The 3<sup>rd</sup> International Conference on Cell Therapy for Cardiovascular Disease. Planning Committee; Chair, Tissue engineering session. New York Academy of Medicine, January 17-19, 2007.
- 2006 Track chair, IEEE Engineering in Medicine and Biology Conference, Biomechanics, Bio-Robotics, and Surgical Planning. New York NY Aug 31 –Sept 3, 2006
- 2006 Track chair, IEEE Engineering in Medicine and Biology Conference, Functional Cardiac Tissue Engineering. New York, NY Aug 31 – Sept 3, 2006
- 2006 Program Chair (with D. Stamenovic, Boston University and Bojana Obradovic Belgrade University). International Workshop on Cell and Tissue Engineering and International Summer School on Cell and Tissue Engineering, University of Belgrade, Serbia, July 1-8 2006,
- 2006 Session chair, moderator, Gordon Research Conference *Cutting Edge Science in Musculoskeletal Biology and Biomechanics The controversies and next steps toward success* July 23-28, 2006, Andover NH
- 2005 Convener and co-chair, NIH workshop: Tissue engineering – the next generation, May 2-4, 2005, Cambridge MA.
- 2005 Co-chair, Tissue engineering – the next generation, sponsored by NIH, Boston MA, May 2-4, 2005
- 2005 Chair, Congress of *In vitro Biology*, June 4-7 2005, Baltimore MD
- 2005 Scientific Committee, Engineering Conferences International, Interdisciplinary Transport Phenomena in Microgravity and Space Sciences IV, Tomar, Portugal, August 7-12, 2005
- 2005 Session chair, NASA Cell Science Conference, Cardiovascular and Radiation Session, Galveston TX, February 23 – 25, 2005.
- 2005 NIDCR-Industry Workshop: Pathway to Product Development, Bethesda, MD, November 7-8, 2005
- 2004 Session Convener and Chair, Computational Biomechanics, Annual meeting of the Biomedical Engineering Society. October 13-16 2004, Philadelphia PA
- 2004 Session Convener and Co-Chair, Bioreactors and Bioengineering, Annual meeting of the Biomedical Engineering Society. October 13-16 2004, Philadelphia PA
- 2004 Session Chair and Moderator, Cartilage tissue engineering. Gordon Research Conference on Musculoskeletal Biology and Bioengineering, July 25–30, 2004, Andover NH
- 2004 Co-Chair, World congress of *in vitro* biology. San Francisco CA, May 22-26, 2004,
- 2004 Session Convener and Chair, Presidential Symposium on Stem Cell and Gene Therapeutics. 227<sup>th</sup> Annual Meeting of the American Chemical Society, Anaheim CA, March 28 - April 1, 2004,
- 2004 Session chair, Tissue Engineering. NASA Cell Science Conference, February 26 – 28, 2004, Palo Alto CA
- 2003 Scientific Committee, United Engineering Foundation, Microgravity Transport Processes in Fluid, Thermal, Materials and Biological Sciences, Davos, Switzerland, September 14-19, 2003
- 2003 Session Chair, 3<sup>rd</sup> International Conference of the European Society of Tissue Engineering, Genoa, Italy, September 3-6, 2003, Cardiac Tissue Engineering
- 2003 Faculty, Workshop on Skeletal Tissue Engineering, American Academy of Orthopedic Surgeons and the National Institutes of Health, Santa Fe NM, January 16-19, 2003
- 2002 Discussion leader, Gordon Research Conference on Musculoskeletal Biology and Bioengineering, July 28 – August 1, 2002, Andover NH
- 2002 Session Convener and Chair, Tissue engineering. World Congress of *in vitro* Biology, Orlando FL, June 26-28, 2002,
- 2002 Scientific Advisory Board, World Congress of *in vitro* Biology, Orlando FL, June 2002.
- 2002 Faculty, Workshop on Tissue Engineering of Cartilage and Bone, Novartis Foundation, April 9-11, 2002, London UK
- 2001 Session Convener and Chair, Tissue engineering. World Congress on *In Vitro* Biology, St. Louis, June 16-21, 2001.

- 2001 Session Chair, Microgravity Studies of Cells and Tissues, United Engineering Foundation, Microgravity Transport Processes in Fluid, Thermal, Materials and Biological Sciences, Banff, Canada, Sept. 30 – Oct. 5, 2001.
- 2001 Scientific Committee, United Engineering Foundation, Microgravity Transport Processes in Fluid, Thermal, Materials and Biological Sciences, Banff, Canada, Sept. 30 – Oct. 5, 2001.
- 2000 Session Chair, Tissue engineering: From cells to organs. World Congress on In Vitro Biology, San Diego, June 10-15, 2000.
- 1999 Session Chair, Symposium on Soft Tissue Engineering. Third Annual Conference on Orthopedic Tissue Engineering, Boston MA
- 1991 Scientific Secretary, International Conference on Macroscopic and Microscopic Heat and Mass Transfer in Biomedical Engineering, Athens, Greece.
- 1989 Chair, International Conference on Process Development and Scale-up in Biotechnology, Belgrade, Yugoslavia, Sept 1989

<b>Reviews of proposals</b>
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1. American Institute of Biological Sciences
2. Belgian Science Foundation
3. Beta Cell Biology Consortium
4. Borroughs Foundation
5. British – Israel Research and Academic Partnership (BIRAX)
6. California Institute for Regenerative Medicine
7. California Stem Cell Foundation
8. Canadian Institutes of Health Research (CIHR),
9. Czech Academy of Sciences
10. CIMIT
11. Clara Cole Foundation
12. Columbia Research Initiatives for Science and Engineering (RISE)
13. Danish Innovation Fund
14. Department of Veterans Affairs
15. Dutch Biomedical Materials Program
16. European Commission
17. European Research Council
18. European Science Foundation
19. German Federal Ministry of Education & Research
20. German-Israeli Foundation
21. Government of Canada - Canada Excellence Research Chairs
22. Helmsley Foundations
23. Howard Hughes Medical Institute
24. Human Frontier Science Program
25. International Society for Stem Cell Research
26. Irving Institute for Clinical and Translational Research
27. Juvenile Diabetes Research Foundation
28. Kansas Biosciences Authority –Rising Stars Program
29. Medical Research Council UK
30. NASA
31. National Academies of the USA
32. National Research Council
33. National Science Foundations of
34. Australia
35. Austria
36. Canada (NSERC)
37. Chile
38. China
39. Czechoslovakia
40. Germany

41. Hong Kong
42. Ireland
43. Israel
44. Italy
45. Kazakhstan
46. Malaysia
47. Netherlands
48. Serbia
49. Singapore
50. Slovenia
51. Switzerland
52. Thailand
53. United Kingdom
54. New York Academy of Sciences
55. New York Stem Cell Foundation
56. NIH
  - a. study sections
  - b. ad hoc panels
  - c. ARRA
  - d. Director's awards
  - e. New Investigator awards
  - f. Transformational Awards
  - g. Roadmapinitiatives
57. NSF
58. Packard Foundation Fellowships
59. Portuguese Foundation for Science and Technology
60. Research Foundation Flanders
61. Royal Netherlands Academy of Arts and Sciences
62. Romanian National Council for Development and Innovation
63. Technology Foundation in The Netherlands
64. Volkswagen Foundation
65. Wellcome Foundation

<b>Reviews of journal articles</b>
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1. ACS Applied Materials and Interfaces
2. ACS Biomaterials Science & Engineering
3. ACS Nano
4. Acta Biochimica et Biophysica Sinica (ABBS)
5. Acta Biomaterialia
6. Advanced Functional Materials
7. Advanced Health Materials
8. Advanced Materials
9. Advanced Healthcare Materials
10. Advances in Medical Sciences
11. African Journal of Biotechnology
12. American Institute for Physiocs - Biomicrofluidics
13. Annals of Biomedical Engineering
14. American Institute of Chemical Engineers Journal (J AIChE)
15. American Journal of Applied Physiology
16. American Journal of Physiology
17. Analytical Biochemistry
18. Annals of Biomedical Engineering
19. Annual Review of Biomedical Engineering
20. Applied Bionics and Biomechanics
21. Archives of Biochemistry and Biophysics
22. Arthritis and Rheumatism
23. Arthritis Research UK

24. Bioassays
25. Biochemica and Biophysica Acta
26. Biochemical Engineering Journal
27. Bioelectrochemistry
28. Biofabrication
29. Biomacromolecules
30. Biomaterials
31. Biomaterials Science
32. Biomechanics and Modeling in Mechanobiology
33. BioMed Research
34. Biomedical Materials
35. Biomedical Microdevices
36. BioMed Research International
37. Biomedizinische Technik
38. Biotechniques
39. Biotechnology Advances
40. Biotechnology and Bioengineering
41. Biotechnology Progress
42. BMC Biophysics
43. BMC Medical Imaging
44. Bone
45. Cardiovascular Engineering and Technology
46. Cell Adhesion and Migration
47. Cell and Tissue Research
48. Cell Communication and Adhesion
49. Cell Proliferation
50. Cells and Materials Journal
51. Cells, Tissues, Organs
52. Cellular and Molecular Bioengineering
53. Cellular and Molecular Biology Letters
54. Chemical Engineering and Processing
55. Chemical Engineering Communications
56. Circulation
57. Circulation Research
58. Cleft Palate-Craniofacial Journal
59. Colloids and Surfaces
60. Computer Methods in Biomechanics and Biomedical Engineering
61. Current Tissue Engineering
62. Cytotherapy
63. Developmental Dynamics
64. Drug Delivery and Translational Research
65. EBioMedicine
66. Environmental Science & Technology
67. European Biophysics Journal
68. European Heart Journal
69. European Journal of Histochemistry
70. European Polymer Journal
71. Expert Opinion On Biological Therapy
72. Expert Review of Cardiovascular Therapy
73. Expert Review of Medical Devices
74. FASEB Journal
75. Fluid Mechanics
76. Frontiers Physiology
77. Genome Biology
78. Gravitational and Space Biology
79. IEEE
80. Industrial Engineering Chemistry
81. Industrial & Engineering Chemistry Research
82. Injury

83. Integrative Biology
84. International Journal of Artificial Organs
85. International Journal of Life Science and Medical Research
86. International Journal of Molecular Sciences
87. International Journal of Nanomedicine
88. International Journal of Pediatric Otorhinolaryngology
89. International Journal of Smart and Nano Materials
90. Israel Journal of Chemistry
91. Journal of the American College of Cardiology
92. Journal of Applied Oral Science
93. Journal of Applied Physiology
94. Journal of Biomaterials
95. Journal of Biomedicine and Biotechnology
96. Journal of Biomaterials Applications
97. Journal of Biomaterials Science
98. Journal of Biomaterials Science – Polymer Edition
99. Journal of Biomechanics
100. Journal of Biomechanical Engineering
101. Journal of Biomedical Materials Research
102. Journal of Biomedicine and Biotechnology
103. Journal of Biophysics
104. Journal of Bone and Mineral Research
105. Journal of Cellular Biochemistry
106. Journal of Cell Physiology
107. Journal of Clinical Investigation
108. Journal of Clinical Medicine
109. Journal of Controlled Release
110. Journal of Functional Biomaterials
111. Journal of Molecular and Cellular Cardiology
112. Journal of Nanomaterials & Molecular Nanotechnology
113. Journal of Orthopedic Research
114. Journal of Polymer Science: Polymer Physics
115. Journal of Theoretical Biology
116. Journal of Translational Medicine
117. Journal of Vascular Research
118. Journal of Visual Experimentation (JoVE)
119. Lab on a Chip
120. Langmuir
121. Macromolecular Bioscience
122. Marine Drugs
123. Matrix Biology
124. Medical Engineering & Physics
125. Molecular Sciences
126. Molecular Therapy
127. Nanomedicine
128. Nanomedicine: Nanotechnology, Biology, and Medicine
129. Nanoscale
130. Nature
131. Nature Biotechnology
132. Nature Communications
133. Nature Materials
134. Nature Protocols
135. Nature Reviews Materials
136. Israel Journal
137. Optics Express
138. Osteoarthritis and Cartilage
139. Pharmaceutical Bioprocessing
140. PLoS One
141. PLoS One Medicine

142. Polymers
143. Proceedings of the National Academy of Sciences
144. Process Biochemistry
145. Processes
146. Recent Patents on Biomedical Engineering
147. Regenerative Medicine
148. Rheumatology Current Research
149. Royal Society of Chemistry Journals
150. Science
151. Science Progress
152. Science Translational Medicine
153. Scientific Reports
154. Scientific Research and Assays
155. Soft Robotics
156. Stem Cell Research
157. Stem Cells
158. Stem Cells and Development
159. Stem Cells International
160. Stem Cells Translational Medicine
161. Stem Cell Reviews and Reports
162. Systems Biology and Medicine
163. Theoretical Biology and Medical Modelling
164. Theranostics
165. Tissue and Cell
166. Tissue Engineering
167. Tissue Engineering Methods
168. The Tohoku Journal of Experimental Medicine
169. Translational Vision Science and Technology
170. Trends in Biotechnology
171. Trends in Cardiovascular Medicine
172. WIRE Nanomedicine and Nanotechnology
173. Yonsei Medical Journal

#### Reviews of books

Elsevier  
 John Wiley  
 Springer Verlag  
 CRC press  
 Kluwer  
 Woodshed Publishers

#### Professional organizations

American Institute for Medical and Biological Engineering, Fellow  
 American Association for the Advancement of Science  
 Association of Fulbright Scholars  
 American Chemical Society  
 American Institute of Chemical Engineers  
 American Society of Mechanical Engineering (ASME)  
 Biomaterials Research Society  
 Biomedical Engineering Society  
 European Tissue Engineering Society  
 International Society for Stem Cell Research  
 Orthopaedic Research Society, Editorial Board  
 Society for in vitro Biology (Cellular Toxicology Section, Chair, 2000-2004)  
 Society for in vitro Biology (Board of Directors, 2002-2006)

Society for Physical Regulation in Biology and Medicine  
TERMIS (Tissue Engineering and Regenerative Medicine Society), officer; Continental Council for North America; European Advisory Board  
World Technology Network, Fellow

#### Invited lectures

1. November 1986. "Scale up of Biochemical Processes with Immobilized Cells", *National Bureau of Standards*, Gaithersburg, MD.
2. February 1987. "From Laboratory to the Production Scale - a Critical Transition for New Biochemical Processes", *Harvard University*, Cambridge, MA.
3. December 1987. Pilot-Plant "Fermentations with Recombinant Cells", *Croatian Chemical Society, Society of Chemical Engineers and Zagreb University*, Zagreb Yugoslavia.
4. September 1989. "Laboratory Research and Process Scale-up". *International Seminar on Process Development and Scale-up in Biotechnology*, Belgrade, YU
5. December 1989. "Bioreactors and Processes with Immobilized Biologically Active Agents", Yugoslavian - USSR Biotechnology Meeting, *Serbian Academy of Sciences and Arts*, Belgrade, Yugoslavia
6. October 1991. Vunjak-Novakovic G. "Microencapsulation of the Pancreatic Cells" *International Conference on Diabetes*, University of Belgrade, Medical School, Belgrade, YU
7. January 1992. "Microencapsulation of Cells and Proteins for Application in Biotechnology and Medicine", *Annual Meeting of the Serbian Chemical Society*, Belgrade YU
8. April 1993. "Air-Lift Bioreactors: Experimental and Modeling Studies of Three-Phase Flow", *Queens University*, Department of Chemical Engineering, Kingston, Canada.
9. September 1993. "Modeling of Three-Phase Flow and Bioreactor Design based on Flow Visualization Studies", *Tufts University, Department of Chemical Engineering*, Medford MA.
10. November 1994. "Bioreactor Cultivation of Tissue Engineered Cartilage", *Advanced Tissue Sciences*, La Jolla, CA.
11. January 1995. "Microgravity Tissue Engineering", *NASA Johnson Space Center*, Houston, TX.
12. December 1995. "Tissue Engineering Bioreactors: Cartilage as a Model System", *Boston University, School of Medicine*, Boston MA.
13. February 1996. "Cell-Polymer-Bioreactor System for Tissue Engineering", *Oregon State University*, Department of Chemical Engineering, Corvallis OR.
14. March 1996. "Chondrocytes Cultured on Biodegradable Polymers" (Plenary lecture), *Interventional Rheumatology: From Basic to Clinical Research*, Paris, France
15. November 1996. "Tissue Engineering: Bone and Cartilage" (keynote lecture), *1996 Annual Meeting of the Dutch Society for Biomaterials*, Leiden, The Netherlands
16. January 1997. "Tissue Engineering", *Tufts University*, Bioengineering Center, Medford MA
17. February 1997. "Tissue Engineering Bioreactors", *Tufts University*, Department of Mechanical Engineering, Medford MA.
18. April 1997. "Tissue Engineering", *University of Massachusetts*, Lowell MA.
19. September 1997. "Tissue Engineering: How Well are we Doing"? (Keynote Lecture) *100 Years of the Serbian Chemical Society*, Belgrade, YU, Sept. 1997.
20. April 1998. "Cartilage Tissue Engineering", *University of Basel*, Switzerland
21. November 1998. "Cartilage tissue engineering", *62<sup>nd</sup> Annual Scientific Meeting of the American College of Rheumatology*, San Diego CA
22. March 1999. "Tissue engineering of cartilage". *2<sup>nd</sup> Annual Conference on Orthopedic Biomaterials*, Boston MA
23. May 1999. "Functional equivalents of articular cartilage engineered *in vitro* using cells, biodegradable polymer scaffolds and bioreactors". *3<sup>rd</sup> Annual Conference on Orthopedic Tissue Engineering*, Boston MA
24. May 1999 "Ground and space studies of engineered musculoskeletal and cardiovascular tissues". *Bio'99 International, Symposium: Out of this world Biotechnology*, Seattle WA
25. June 1999. "Novel methods of cartilage repair". *MIT Technology Day: Emerging Medical Science and Technology*, MIT, Cambridge MA.
26. June 1999. "Orthopedic tissue engineering". *Harvard Medical School*, Division of Rheumatology, and *Beth Israel Deaconess Medical Center*, Boston MA.



27. June 1999. "Tissue engineering: from discovery to patient care", 12<sup>th</sup> *International Congress of the Confederation for Plastic, Reconstructive and Aesthetic Surgery*, San Francisco CA
28. October 1999. "Collagen network in tissue engineered cartilage". *Israel Science Foundation Workshop on Collagen Network in Human Cartilage: Structure and Function*, Haifa, Israel
29. January 19, 2000. "Microgravity studies of cells and tissues." *Air Force Research Laboratories*, Lexington, MA
30. April 2000. "Cartilage tissue engineering using cells, scaffolds and bioreactors". 3<sup>rd</sup> *International Cartilage Repair Society Meeting*. Gothenburg, Sweden.
31. April 2000. "Engineering of cartilage". *The Croucher Advanced Study Institute on Engineering of Musculoskeletal Tissues*, Hong Kong.
32. April 2000. "Polymer scaffolds, bioreactors, physical forces and growth factors". *The Croucher Advanced Study Institute on Engineering of Musculoskeletal Tissues*, Hong Kong.
33. May 18, 2000. "Bioreactor cultivation of cartilaginous tissue". *Symposium on cartilage damage and repair*, New York Academy of Science.
34. June 10-15, 2000. "Tissue engineering bioreactors: in vitro cultivation of cartilage and cardiac muscle". *2000 World Congress on In Vitro Biology, Tissue engineering: From cells to organs*, San Diego.
35. June 10-15, 2000. "Microgravity studies of cells and tissues". *2000 World Congress on In Vitro Biology, NASA biotechnology: Cell science in microgravity*, San Diego.
36. July 2000. "Skeletal Tissue Engineering". *Tissue Engineering 2000. 2<sup>nd</sup> Int. Symposium on Advances in Tissue Engineering, Biomaterials and Cell Signaling*. University of York UK.
37. July 21, 2000. "Topics in Tissue Engineering". (with L.E. Freed) *M.I.T Division of Comparative Medicine*, Cambridge.
38. November 27-29, 2000. "Structural templates and bioreactors for cartilage tissue engineering". *Materials Research Society, Symposium on Orthopedic and Dental Biomaterials*, Boston MA.
39. March 26-29, 2001. "Tissue engineering bioreactors". *Engineering Tissue Growth International Conference & Exposition*, Pittsburgh PA
40. May 12-13, 2001. "Microgravity studies of cells and tissues". *Symposium on Physical forces and gravity in skeletal tissue engineering*, European Space Agency, Genova, Italy.
41. June 16-20, 2001. "Tissue engineering bioreactors". *2001 World Congress on In Vitro Biology, Tissue engineering*, St Louis MO.
42. Sept 29 - Oct 5 2001 "Microgravity studies of cells and tissues" (keynote lecture). *Engineering Foundation Conference, Microgravity transport processes in fluid, thermal, materials and biological sciences* Banff, Alberta, Canada.
43. October 17, 2001 "Tissue engineering bioreactors". *Rensselaer Polytechnic Institute*, Troy NY.
44. February 12, 2002. "Tissue engineering: quantification and modeling". *Duke University*, Durham NC.
45. February 27 - March 2, 2002. "Tissue engineering approach to functional myocardium". *Towards biofunctional cardiovascular implants*, 8<sup>th</sup> biennial meeting, St. Gallen Switzerland
46. March 19-21, 2002 "Tissue engineering bioreactors". *Engineering Tissue Growth*, 2<sup>nd</sup> Annual International Conference & Exposition, Pittsburgh PA
47. April 9-11, 2002. "The fundamentals of tissue engineering: scaffolds and bioreactors." *Novartis foundation*. London UK
48. June 26-28, 2002 "Quantitative *in vitro* studies of tissue development". *World Congress of in vitro Biology*, Orlando FL
49. September 22-25, 2002. "How important is the biomaterial/scaffold for cartilage regeneration?" *2002 OARSI World Congress on Osteoarthritis*, Sydney, Australia
50. October 9 - 11, 2002. "Integration of tissue engineered cartilage". *3rd International Conference on Tissue and Genetic Engineering for the Treatment of Arthritic Diseases*, Providence RI
51. November 18-24, 2002. "Functional tissue engineering of cartilage, ligament and myocardium." *Cold Spring Harbor Conference on Tissue Engineering*. Cold Spring Harbor, NY
52. December 5, 2002. "Recent progress in functional tissue engineering of cartilage and myocardium". *Genzyme*. Cambridge MA
53. January 16-19, 2003. "Functional tissue engineering of cartilage: scaffolds and bioreactors". *American Academy of Orthopedic Surgeons and the NIH workshop on Tissue Engineering*. Santa Fe NM
54. March 10, 2003. "Tissue Engineering: How well are we doing?" *Tufts University*, Medford MA
55. March 11, 2003. "Functional tissue engineering of cardiac muscle". *Distinguished speakers in Bioengineering*, University of Toronto, Toronto ON, Canada.

56. April 30 – May 3, 2003. "Functional tissue engineering of cartilage and myocardium." *Annual Meeting of the Society of Biomaterials, Tissue engineering – The Essential Elements Workshop*, Reno NV
57. May 16-18, 2003. "Integration of tissue engineered cartilage". *3<sup>rd</sup> Symposium on Mechanobiology of Cartilage and Chondrocyte*. Brussels, Belgium.
58. August 13-17, 2003, "Functional tissue engineering of myocardium", *Molecular Mechanisms of Growth, Death and Regeneration in the Myocardium*, AHA, Snowbird Conference Center, Salt Lake City UT.
59. September 3-6, 2003. "Recent progress in tissue engineering of myocardium" (main presentation) *European Society of Tissue Engineering*, Genoa, Italy
60. October 18-21, 2003 "Functional tissue engineering of myocardium" *Myocardial Ischemia: from molecular adaptation to cellular repair*, Basic Cardiovascular Sciences Council of the American Heart Association and European Society of Cardiology, Capri, Italy
61. October 2003 "State of the art of functional tissue engineering" *Department of Biomedical Engineering, Columbia University*, New York NY
62. December 8, 2003 "Functional tissue engineering: how well are we doing?" *Massachusetts General Hospital*, Boston MA
63. February 18, 2004. "Tissue engineering: the challenges of imitating nature." *Massachusetts Institute of Technology*, Cambridge MA
64. March 4, 2004. "Integration of human osteochondral grafts: in vitro evaluation". *Musculoskeletal Transplant Foundation*, Edison NJ
65. March 5, 2004 "Tissue engineering of skeletal and cardiac tissues: how well are we doing". *New York Polytechnic Institute*, New York NY
66. June 26, 2004. "Cardiac tissue engineering". *Expert's conference and COST Steering Committee Meeting "Applications of Immobilization/Bioencapsulation in Medicine, Pharmacy, Food Technology and Biotechnology"*, Belgrade, Serbia.
67. July 7-18, 2004. Tissue engineering of osteochondral grafts. *US – China multi-site Workshops on Biomedical Engineering*. Shanghai and Beijing, China.
68. July 7-18, 2004. Functional tissue engineering of myocardium. *US – China multi-site Workshops on Biomedical Engineering*. Shanghai and Beijing, China.
69. July 7-18, 2004. Tissue engineering of skeletal and cardiac tissues: how well are we doing"? *US – China multi-site Workshops on Biomedical Engineering*. Shanghai and Beijing, China.
70. July 25-30, 2004. Cartilage tissue engineering: state of the art. *Gordon Research Conference on Musculoskeletal Biology and Bioengineering*. Proctor Academy, Andover NH.
71. December 2-4, 2004 Tissue engineering and the challenge of imitating nature. *Designing life – learning from nature*, EMBL, Heidelberg, Germany.
72. March 18, 2005: Tissue engineering: the challenges of imitating nature. *Boston Museum of Science*, Boston MA
73. April 13, 2005. Cell technologies for skeletal and cardiac therapy. *Genzyme*, Framingham MA
74. May 5, 2005: "Growing Body Parts. Beating heart tissue grown in the lab: can it mend a broken heart". *Boston Museum of Science*, Boston MA
75. May 11-13, 2005. "Tissue engineering and the challenge of imitating nature". *Brooklyn Polytechnic Institute, 150<sup>th</sup> year celebration*, New York NY
76. June 1-4, 2005. "Cardiac tissue engineering". *Regenerate 2005*. Atlanta GA
77. June 1-4, 2005. "The importance of mass transport for tissue engineering". *Regenerate 2005*. Atlanta GA
78. June 11-16, 2005. "Bioengineering of myopathic diseases" *2005 FASEB Summer Research Conference "Skeletal Muscle Satellite and Stem Cells"*, Tucson AZ
79. September 25-28, 2005. "Advances in tissue engineering". *1<sup>st</sup> South East European Congress of Chemical Engineering*. September 25-28. Belgrade, Serbia.
80. September 30 – October 1, 2005. "Convective-diffusive oxygen transport in engineered cardiac tissue". *2005 Meeting of the Biomedical Engineering Society*, Baltimore MD
81. October 10, 2005. "Recent advances in cardiac tissue engineering". *University of Minnesota*, Minneapolis MN
82. December 11-16, 2005. "Advances in cardiac tissue engineering". *US-Thai Biomedical Engineering Conference*, Bangkok, Thailand
83. January 11-13, 2006 "Cardiac tissue engineering". *24<sup>th</sup> Scientific Conference of the Society of Physical Regulation in Biology and Medicine: Stem Cells, Tissue Engineering and Regenerative Medicine*. Cancun Mexico.

84. January 19-21, 2006 The "Cardiac patch". *2<sup>nd</sup> Int Conference n Cell Therapy for Cardiovascular Diseases*. New York Academy of Medicine, New York NY
85. March 2-5, 2006 "Advances in tissue engineering". 10<sup>th</sup> Annual Hilton Head workshop and 2<sup>nd</sup> biennial Heart Valve meeting *Advances in Tissue Engineering and Innovative Technologies for the Treatment of Heart Valve Disease* Hilton Head NC (keynote lecture)
86. March 18-19, "Tissue engineering and the challenges of imitating nature". *Columbia's Engineering Development and Alumni Relations event*. Los Angeles CA
87. May 19-20, 2006 "Cardiac tissue engineering". *4th Leibniz Symposium Transplantation and Regeneration of Thoracic Organs* Hannover, Germany
88. May 25, 2006. "Bioreactor parameters". *Cell-Based Therapies and Tissue Engineering*. Case Western Reserve University. Cleveland OH.
89. June 5, 2006. "Engineering large, mineralized bone tissue constructs using human mesenchymal stem cells". *Annual Meeting of the Society for in vitro Biology*. Minneapolis MN.
90. June 19-23, 2006 "Engineering tools for growing living tissues: stem cells, biomaterial scaffolds, bioreactors". 7th Advanced Summer Course in Regenerative Medicine. Porto, Portugal.
91. June 13-16, 2006. "Biomimetic approach to cardiac tissue engineering". International Society for Heart Research, *2006 Meeting of the North American Section* Toronto, Canada.
92. July 1-2, 2006 "Biomimetic approach to cardiac tissue engineering". *Cell and Tissue Engineering, International Workshop*. Belgrade YU
93. July 3-8, 2006 "Tissue engineering bioreactors". *Cell and Tissue Engineering, Summer School*. Belgrade YU
94. July 14-16, 2006. "Engineering a cardiac patch". *Celebrating 30 Years of Robert Langer's Science*, Boston MA
95. July 17-18, 2006. "Bioreactors and tissue engineering". *Methods in Bioengineering*, MIT, Cambridge MA
96. October 19, 2006. "Functional tissue engineering of cartilage and bone". *21st Annual research Meeting of the Japanese Orthopaedic Association* Nagasaki, Japan (keynote lecture)
97. October 20, 2006 "Advanced biomaterials and bioreactors for tissue engineering". *Institute for Frontier Medical Sciences, Kyoto University*, Kyoto, Japan.
98. October 22-27, 2006 "The requirements for cell-based cardiac patch" *18th Annual Scientific Symposium of Transcatheter Cardiovascular Therapeutics (TCT) 2006*. Washington, D.C.
99. December 5, 2006. "Tissue Engineering of Large, Mineralized Bone Constructs Using Human Mesenchymal Stem Cells". *New York City Bone Seminar Series*. CCNY, Hospital for Special Surgery, Stony Brook, Mt. Sinai and Columbia University.
100. January 10, 2007. "Craniofacial tissue engineering". *Dean's Lecture. College of Dental Medicine, Columbia University*
101. January 17-19, 2007 "Cardiac tissue engineering" *3<sup>rd</sup> Int Conference n Cell Therapy for Cardiovascular Diseases*. New York Academy of medicine, New York NY
102. Jan 22 - Jan 27, 2007. "Tissue engineering of a contractile cardiac patch". *Keystone Symposium on Molecular Pathways in Cardiac Development and Disease* (chairs: Kenneth R. Chien, Eric N. Olson and Ketty Schwartz); *Keystone Symposium on Integrative Basis of Cardiovascular Disease*, Beaver Run Resort in Breckenridge, Colorado. (chairs: Andrew R. Marks, Stefanie Dimmeler and Ketty Schwartz)
103. February 1-2, 2007. "Cardiac tissue engineering". *Workshop on Stem Cell Research for Regenerative Medicine and Tissue Engineering*, Multi-Agency Tissue Engineering Science (MATES) Interagency Working Group, Arlington VA
104. March 7, 2007. "Tissue engineering of myocardium: role of bioreactors and electromechanical conditioning". *Angiomyogenesis and Cell Therapy Symposium (CRT)*, Washington, DC.
105. April 4, 2007. Cardiac tissue engineering. *Columbia University, Division of Surgical Science*
106. April 12-17, 2007. "Engineering complex tissues". *Keystone Symposium on Tissue Engineering and Development Biology*. Snowbird, Utah. (chairs: **Error! Reference source not found.**, David Kaplan and Randall Moon).
107. May 17, 2007. "The role of developmental biology in tissue engineering". *American Association of Oral and Maxillofacial Surgeons* Rosemont IL
108. May 21-25, 2007 "Bioreactor parameters". *Cell-Based Therapies and Tissue Engineering*. Case Western Reserve University. Cleveland OH.
109. May 28, 2007. "Advances in cardiac tissue engineering", *Cell and Tissue Engineering Society of Slovenia*, Ljubljana, Slovenia

110. June 13-16, 2007. "Biomechanical training of tissue constructs". *Regenerate 2007*. Toronto, Canada.
111. July 12-13, 2007 Bioreactor Systems to Generate Functional Tissues. *Methods in Bioengineering*, MIT, Cambridge MA
112. July 23, 2007 "Bioreactor Design" *Aastrom*, Ann Arbor MI
113. September 26-28, 2007. "Advances in tissue engineering". *Annual Meeting of the Finnish Society for Biomaterials*, Turku, Finland.
114. October 12, 2007 "Tissue engineering and the challenges if imitating nature". SEAS Family Weekend, *Columbia University*
115. October 18, 2007. "Advanced technologies for the cultivation of electrically excitable cells", *Forsyth Insitute*, Boston MA
116. October 20, 2007 "Cardiac tissue engineering" *Cardiovascular Research Foundation*, 19<sup>th</sup> Ann. Scientific Symposium of Transcatheter Cardiovascular Therapeutics (TCT), Washington, D.C.
117. October 25, 2007. "Advances in cardiac tissue engineering". *19<sup>th</sup> Annual Scientific Symposium of Transcatheter Cardiovascular Therapeutics (TCT) Cardiovascular Research Foundation*, Washington DC
118. November 7, 2007." Advanced Technologies for Cartilage and Bone Tissue Engineering". *American College of Rheumatology*, Boston MA
119. November 13, 2007. Tissue engineering and the challenges of imitating nature. *Cooper Union, IEEE chapter*, New York NY
120. November 27, 2007. "Advanced bioreactors for tissue engineering and stem cell research". *Patten Seminar Series, Department of Chemical and Biological Engineering, University of Colorado*, Denver CO
121. December 4, 2007. "Tissue engineering of a cardiac patch". *Georgia Institute of Technology*, Atlanta GA
122. December 17, 2007. "Cardiac tissue engineering and electrical stimulation". *Boston Scientific*, Maple Grow MN
123. January 19-21, 2008 "Platforms for cardiac tissue regeneration". *4<sup>th</sup> Int Conference n Cell Therapy for Cardiovascular Diseases*. New York Academy of Medicine, New York NY
124. January 16-18, 2008 "The needs for functional imaging of engineered tissues, in vitro and in vivo" *NIBIB workshop Bioengineering and Imaging Research Opportunities*, January 17-18, 2008, Bethesda MD
125. February 12, 2008 "Tissue Engineering: Basic Concepts and Limitations" *Angiomyogenesis & Cell Therapy Symposium*, Washington DC
126. February 15, 2008 "Tissue engineering and the challenges of imitating nature" *Brooklyn Polytechnic University*, Brooklyn NY
127. May 5, 2008 Tissue engineering, Stem Cell Forum, *Columbia University*
128. May 19-23, 2008 "Bioreactor parameters". *Cell-Based Therapies and Tissue Engineering*. Case Western Reserve University. Cleveland OH.
129. May 19-20, 2008 Creating tissues for therapeutic use: biological principles and engineering designs. *NIH workshop on Transforming Regenerative Medicine: An Interdisciplinary Approach*, session on "Regeneration and Development". Washington DC, May 19-20, 2008.
130. July 7, 2008 "Biomimetic Approach to Tissue Engineering", *Gordon Research Conference on "Signal Transduction by Engineered Extracellular Matrices"* July 6-11, 2008, Lewiston ME
131. September 14-21, 2008 "Tissue engineering approaches to treat osteochondral defects". *Advanced Biomedical Technologies for Tretament of Osteochodral Defects*. Piran, Slovenia.
132. September 21-26, 2008. "Microarray platforms for cardiac research". *2008 Aegean Conference on tissue engineering*, Rhodes, Greece.
133. September 22-23, 2008. "Bioneengineering approaches to stem cell research" *World Stem Cell Summit*, Madison, WI.
134. September 24, 2008. "Stem cells and tissue engineering" *1<sup>st</sup> Annual University of Wisconsin Stem Cell Technology Symposium*, Madison, WI
135. October 10, 2008. "Engineering vascularized cardiac tissue." Third BioStar Congress on Regeneration Biology, Stuttgart, Germany.
136. October 13, 2008. "Advances in cardiac tissue engineering". *20<sup>th</sup> Annual Scientific Symposium of Transcatheter Cardiovascular Therapeutics (TCT) Cardiovascular Research Foundation*, Washington DC
137. October 22, 2008. "Engineering human tissues", Biological Sciences 1<sup>st</sup> year seminar, Columbia University

138. November 13, 2008. "Tissue engineering and the challenges of imitating nature" *BioE Seminar Series*, Department of Mechanical Engineering and Materials Science, and Center for Biologically Inspired Materials and Materials Systems (CBIMMS) and Center for Biomolecular and Tissue Engineering (CBTE), Duke University, Durham NC
139. November 17, 2008 Cardiac tissue engineering. *Rocky Kass lab*, Columbia University Medical School
140. November 19-21, 2008 *7th Annual Gene Therapy Symposium for Heart, Lung, and Blood Diseases* Sonoma Mission Inn and Spa, Sonoma CA
141. November 28, 2008. Recent Developments in Human Stem Cells and Tissue Engineering. 200 years of the University of Belgrade, Serbia.
142. December 2, 2008. Application of stem cells in medicine. School of Mechanical Engineering, University of Belgrade, Serbia.
143. December 4, 2008. Tissue engineering. *Seminar for the MDPHD students*, Columbia University.
144. December 7-10, 2008 Bioreactors and mechanical training of tissue constructs. Keynote speaker and session chair. *TERMIS NA 2008 Conference and Exhibition* San Diego CA
145. December 8, 2008 Cardiac tissue engineering. Burnham Institute, La Jolla CA
146. January 28, 2009 *SUNNY at Buffalo*
147. February 11, 2009 Stevens Insitute of Technology, Hoboken NJ
148. February 5-7, 2009 Cardiac tissue engineering. 7<sup>th</sup> Dutch-German Joint Meeting of the Molecular Cardiology, Hamburg, Germany
149. March 15, 2009 Cardiac tissue engineering. *Cardiovascular Research Seminar Series*, Columbia University Medical School
150. March 23, 2009 "Tissue engineering and the challenges of imitating nature" *Rutgers University*, Piscataway, NJ
151. April 5, 2009 Engineering tissues for therapeutic use. 35<sup>th</sup> *Annual Northeast Bioengineering Conference*. Keynote speaker. Boston MA
152. April 7, 2009. "Stem cells and tissue engineering". University of Albany SUNY
153. April 18-22, 2009 Biomimetic approach to cardiac tissue engineering *Role of Electrochemical Intercellular Coupling in Cardiac Tissue: Development, Disease, and Tissue Engineering Applications*, New Orleans LA
154. May 13, 2009 Advanced technologies for human stem cells and tissue engineering. Case Western Biometareials: Reserve University, Center for Stem Cell and Regenerative Medicine, Cleveland OH
155. June 11, 2009 Johnson & Johnson, Expert Panel on Electrical Stimulation, Boston MA
156. June 12, 2009. *New York Stem Cell Initiative*, 1<sup>st</sup> Annual Conference, Albany NY
157. June 29, 2009 Ledership in science. European School for Business Management, Bled, Slovenia
158. September 18, 2009. Engineering of functional human tissues. Graduate seminar, Department of Biomedical Engineering, Columbia University
159. September 25, 2009. Orthopaedic tissue engineering. Ethicon, Johnson & Johnson, NJ
160. October 6, 2009. Cardiac tissue engineering, *Research Excellence Symposium on Cardiac Myogenesis and Regeneration* (Chair: Michael Schneider), Imperial College London
161. October 14, 2009. Tissue engineering strategies for cardiac regeneration. *New York Stem Cell Foundation Annual Translational Stem Cell Research Conference*, New York NY
162. November 4-7, 2009. Tissue engineering of anatomically correct bone grafts. 2<sup>nd</sup> *TMJ Bioengineering Conference*, Boulder CO
163. November 11, 2009. Engineering functional human tissues. Cornel University, Ithaca NY
164. November 30 – December 4, 2009 Engineering functional tissues *NSF workshop Biomaterials: Possibilities and perspectives*. University of Mauritius, Mauritius
165. November 30 – December 4, 2009 Bioreactor systems *NSF workshop Biomaterials: Possibilities and perspectives*. University of Mauritius, Mauritius
166. January 5, 2010. Engineering functional human tissues. The Dean Podium Lecture, Ben Gurion University of the Negev, Israel
167. January 7, 2010. Engineering human tissues. Department of Biomedical Engineering, Technion University, Haifa, Israel
168. January 10, 2010. Cardiac tissue engineering. Department of Biotechnology Engineering, Ben Gurion University of the Negev, Israel
169. January 13, 2010 Tissue engineering strategies for cardiac regeneration, CVRI Symposium, Columbia University Medical Center
170. February 10, 2010 Engineering functional human tissues, SUNY Buffalo

171. February 24, 2010, Advanced technologies for stem cell research and tissue engineering, Albert Einstein College of Medicine
172. March 1, 2010, Engineering anatomically shaped functional human bone, Monday Lunch Seminar Series, Irving Institute for Clinical and Translational Research, Columbia University Medical Center
173. March 18, 2010 Engineering human tissues, Rice University, Houston TX
174. March 27, 2010 Biomaterial scaffold designs for engineering human tissues. Northeastern Bioengineering Conference, Columbia University.
175. April 15, 2010 Why I came to Columbia. Dinner talk for Egleson scholars. Law Library, Columbia University
176. April 22, 2010. Engineering human tissues. Plenary session, *2010 Clemson Award for Contributions to the Literature*, 34<sup>th</sup> Annual Meeting of the Society for Biomaterials, Seattle WA
177. April 25-27, 2010 Decellularized heart and bone as scaffolds for engineering human tissues. 6<sup>th</sup> Symposium on Biologic Scaffolds for Regenerative Medicine, Silverado Resort, Napa Valley CA April 25-27<sup>th</sup>, 2010.
178. May 2-5, 2010. Keynote lecture: Engineering human tissues. Stem Cell Bioengineering (chairs: Daley and Zandstra), Boston MA
179. June 4, 2010. Tissue engineering strategies for connective tissue repair. Plenary talk, 16th Annual Canadian Connective Tissue Conference, Toronto, Ontario, Canada
180. June 9, 2010. Engineering human tissues. SUNY Downstate Medical Center, Brooklyn NY
181. July 15, 2010. Engineering human bone. *Grand Rounds*, Department of Neurological surgery, Columbia University.
182. October 8, 2010 Stem cells, tissue engineering and regenerative medicine: challenges ahead. *Distinguished Speakers Plenary Session: The future of Biomedical Engineering*, BMES, Austin TX
183. October 15, 2010. Engineering human tissues. Department of Biomedical Engineering, Columbia University, Graduate Seminar
184. October 25, 2010. Engineering human tissues. Johns Hopkins University, Biomedical Engineering Seminar Series, Baltimore MD
185. November 5, 2010. Engineering cardiac tissue grafts. 2010 Carolina Biophysics Symposium, University of North Carolina Chapel Hill.
186. November 9-11, 2010. Engineering human tissues: concepts, tools and challenges. Plenary lecture, Tissue engineering and regenerative medicine: the next 20 years. Sydney, Australia
187. November 9-11, 2010. The next 20 years: the challenges and opportunities. Tissue engineering and regenerative medicine: the next 20 years. Sydney, Australia
188. December 4, 2010. The Art of tissue engineering. Special symposium in honor of the 70<sup>th</sup> birthday of Art Coury. Orlando FL
189. December 6, 2010. Tissue engineering bioreactors. TERMIS 2010, Orlando FL
190. December 13, 2010. Engineering human tissues. Stem Cell Seminar Series of the Gottesman Institute for Stem Cell and Regenerative Medicine Research, Albert Einstein College of Medicine< New York NY
191. January 7, 2011. Engineering human tissues. Distinguished Seminar Series, University of California Irvine, Irvine CA
192. January 20, 2011 Progress in ex vivo engineered cardiac tissue. International Conference on Cell Therapy for Cardiovascular Diseases, New York NY, January 20-21, 2011
193. February 5, 2011. Bioelectricity. American Academy of Dermatology, New Orleans LA
194. February 22-27, 2011 Cardiac regeneration through tissue engineering. Keystone Symposium on Mechanisms of cardiac growth, death and regeneration. Keystone CO
195. April 11-12, 2011 Osteochondral tissue engineering. Plenary lecture. Advances in Musculoskeletal Repair and Regeneration, British Society for Matrix Biology, Bristol UK
196. March 2, 2011. Tissue engineering for craniofacial regeneration. Inauguration of the Craniofacial Regeneration Center, Columbia University, New York NY
197. March 4, 2011. Stem cell technologies for craniofacial regeneration. Division of Plastic Surgery, Columbia University College of Physicians & Surgeons, New York NY
198. March 14, 2011 Engineering human tissues. Ottawa Hospital Research Institute, Ottawa ON, Canada
199. March 31, 2011 epiBone: Engineering anatomical human bone grafts. University Research and Entrepreneurship Symposium, Cambridge MA
200. April 4, 2011 Lessons learned from directing a tissue-engineering lab. Columbia Undergraduate Scholars Program, Columbai University, New York NY
201. April 6, 2011 Using bioelectricity in tissue engineering. Cooper Union, New York NY
202. April 8, 2011 TEDx event, Columbia University, New York NY

203. April 7, 2011 Engineering human bone. New York University, New York NY
204. April 11-12, 2011 Advances in Musculoskeletal Repair and Regeneration. Plenary lecture. British Society for Matrix Biology. Bristol UK. Sponsored by the UK National Stem Cell Network.
205. April 15, 2011. Engineering human tissues. Days on Campus, Master Class, Columbia University, New York NY
206. April 27, 2011 Engineering human tissues. Department of Chemical and Biological Engineering at the State University of New York at Buffalo
207. May 13-14, 2011 Tissue engineered cardiac patch. Cologne Conference on Cardiac Regeneration and Cell Therapy, Cologne, Germany
208. May 16, 2011. Translational research in regenerative medicine. American University in Beirut, Lebanon
209. May 23, 2011 Bioengineering platforms for human stem cell research. Columbia Stem Cell Day, Columbia University, New York NY
210. May 24, 2011 Bioengineering strategies for stem cell research. Plenary lecture. New York State Stem Cell Conference, New York NY
211. June 18, 2011 Tissue engineering. Osteoarthritis Summit, Hospital for Special Surgery, New York NY
212. July 22, 2011 Fixing broken hearts and bones: the power of tissue engineering. Columbia University, visit of highschool students
213. September 26, 2011. Regenerative medicine and tissue engineering. *Inaugural Lecture, Undergraduate Seminar Series in Global Health*. Rensselaer Polytechnic Institute, Troy NY
214. September 29-30, 2011 Tissue engineering. Hospital for Special Surgery, New York NY
215. October 4-5, 2011 Cardiac tissue engineering. NHLBI Regenerative Medicine Symposium, NIH, Bethesda MD
216. October 18, 2011 Cardiac tissue engineering. Guest lecture for SCRB170: Heart Stem Cell Therapeutics: A Case Study in Regenerative Medicine. Harvard University
217. October 24, 2011. Tissue engineering. Keynote lecture, Bioengineering for Human Health, *Serbian Academy of Sciences and Arts*, Belgrade, Serbia.
218. October 28, 2011. Personalized bone grafts for craniofacial reconstruction. NYC Emerging Technologies Showcase, New York NY
219. November 16, 2011. Key Opinion Leaders, Life Sciences Summit 2011
220. January 25-27, 2012. Bioengineering platforms for stem cell delivery. Seventh Annual International Conference on Cell Therapy for Cardiovascular Diseases, New York NY
221. March 21, 2012 Tissue Engineering. TachTalk lecture. Columbia University, New York NY
222. March 29, 2012. Novel technologies for tissue engineering of cardiac tissue. Biomedical Technologies in Cardiovascular Disease. NIH, Bethesda MD
223. April 19, 2012. Cell-instructive biomaterials for tissue engineering and regenerative medicine. Biomedica, Liege, Belgium. Keynote lecture.
224. April 20, 2012. Engineering heart and bone. Master class. Columbia University, New York NY
225. April 21-25, 2012 Tissue engineering of functional grafts for heart repair. AAA, Sn Diego CA
226. May 31-June 1, 2012. Imaging requirements in regenerative medicine, Keynote lecture, *NIH/NSF/FDA/NIST Workshop on Imaging for Regenerative Medicine*, NIH Bethesda MD
227. June 25, 2012. Engineering complex tissue systems. Interrogations at the Interface. Barcelona, Spain.
228. July 8-13, 2012. Native matrix as a template for engineering functional cardiac and bone tissues. Signal Transduction By Engineered Extracellular Matrices. Gordon Research Conference, University of New England, Biddeford, Maine
229. August 5-8, 2012 Biomimetic platforms for human stem cell repair. *International Bone and Mineral Society*, Sun Valley Workshop, Sun Valey, Idaho
230. September 5-8, 2012 Tissue engineering strategies for regenerating the heart. Keynote lecture. *World Congress of TERMIS*, Vienna, Austria. Keynote lecture.
231. September 11, 2012. Life and work and how to keep the balance. *Lunch seminar for GradSWE*, Columbia University
232. September 19, 2012 Engineering human cartilage and bone. Distinguished lecture. *Mayo Clinic*, Rochester MN
233. October 4, 2012 Engineering human tissues. *Grand Rounds*, Department of Rehabilitation and Regenerative Medicine, Columbia University.

234. October 5, 2012. Tissue engineering of bone using adipose derived stem cells – translational study of facial reconstruction in pig. *IFATS 2012, International Federation for Adipose Therapeutics and Science*. Keynote lecture.
235. October 18, 2012. Tissue engineering: the challenges ahead. University of Texas at Austin TX.
236. January 17, 2013. Creating the future: Tissue engineering and regenerative medicine. Womensphere Emerging Leaders Global Summit. Columbia University, New York NY
237. February 2, 2013. *ASME 2013 2<sup>nd</sup> Global Congress on Nanoengineering for Medicine and Biology (NEMB)*, Boston, MA. "Tissue Engineering for High Content Analysis", Keynote lecture.
238. Stem Cells and Cell Therapies in Lung Biology and Diseases. Plenary lecture. University of Vermont, Burlington VT, July 29-Aug 1, 2013.
239. November 1, 2012 Columbia University, Stem Cell Initiative, "Doc talks" for high-level donors.
240. November 5, 2012. Biomedical Engineering to Aid Clinical Scale Tissue Formation. American Heart Association's annual Scientific conference, November 3-7, 2012, Los Angeles CA.
241. November 19, 2012. Advances in tissue engineering. Metro Section of the AIChE, Pfizer, NYC
242. January 17, 2013. Womensphere Emerging Leaders Global Summit 2013, Columbia University, New York NY
243. January 25-27, 2013. Biophysical regulation of cardiac tissue reconstruction. *8<sup>th</sup> International Conference on Cell Therapy for Cardiovascular Disease*. New York NY
244. February 1, 2013. Craniofacial tissue engineering. *Department of Plastic Surgery*, Columbia University New York NY
245. March 6, 2013, Engineering human tissues. *TIME Symposium*, Temple University, Philadelphia PA
246. March 22, 2013. Functional tissue engineering for regenerative medicine, human stem cell research, and study of disease. *2013 Rushmer Lecturer*. University of Washington Seattle
247. March 26, 2013. A day in the life of lab. *Society of Women Engineers*, Columbia University. New York NY
248. April 16, 2013. Facial reconstruction using tissue engineered bone. *New York Investment Fund*, New York NY
249. April 19, 2013. Tissue engineering. *Master class*, Columbia University
250. April 29, 2013. Engineering human tissues. Stem Cell Summit 2013, Boston MA
251. April 30, 2013. Tissue engineering tutorial: Microtissue platforms for studying disease. *NIH Workshop - In vitro Tissue Models for Infectious Diseases*, NIH campus, Bethesda MD
252. May 6, 2013. Engineering human tissues. *Leadership Seminar Series*, University of Florida, Gainesville.
253. May 10, 2013. Bioengineering in Surgery: Reconstructing head and face. *New Technologies in Surgery*, Columbia University Medical Center
254. May 15, 2013 Can tissue engineering help us better understand (and use) LVAD?. *CATCH-UP 2013: Heart Failure, Devices, and Interventions*, Columbia University, New York NY
255. May 31, 2013. Engineering human tissues. *26<sup>th</sup> Annual international Symposium of the Hunter College Center for Study of Gene Structure & Function*
256. June 26, 2013. Tissue engineering for medical application. *Sarbian Academy of Sciences and Arts*, Belgrade.
257. June 27, 2013. Personalized reconstruction of bones in head and face. *Military Hospital*, Belgrade.
258. July 10, 2013. Engineering anatomically shaped living bone for reconstructing head and face. *Department of Surgery grand rounds at St. Luke's Roosevelt hospital center*. New York NY
259. July 22, 2013. Craniofacial bone and osteochondral composites. *Programmatic Consultation panel*, NIDCR, NIH campus
260. July 23-25, 2013. HeLiVa chip, *UH2/UH3 investigators meeting*, Arlington VA
261. August 14, 2013 Bioreactor technologies for tissue engineering. Opening lecture, *21st annual short course on Advances in Tissue Engineering*, Rice University, Houston TX
262. June 26, 2013. Tissue engineering for medical application. *Serbian Academy of Engineering*, Belgrade.
263. September 16, 2013. Engineering human tissues for regenerative medicine and modeling disease. *SUNY at Stony Brook NY*
264. September 17, 2013. Engineering human osteochondral grafts. Penn Center for Musculoskeletal Disorders, *University of Pennsylvania*, Philadelphia PA
265. September 21, 2013. epiBone, *FABlab*, Belgrade, Serbia
266. September 30, 2013. Creating the future: bioengineering for human health. *Womensphere*, Columbia University, New York NY



267. September 30, 2013. The art and science of tissue engineering. *Curiosity<sup>3</sup>*, Columbia University, New York NY
268. October 16, 2013. The art and science of tissue engineering. *Variations on art and science*. Columbia University, New York NY
269. October 22, 2013. Engineering human tissues. University of Miami FL, College of Engineering, Distinguished Speaker.
270. October 20-24, 2013. Bioengineering human cardiac tissue. *North American Vascular Biology Organization, Vascular Matrix Biology and Bioengineering Workshop*, Hyannis Cape Cod MA
271. November 1, 2013. *Strategies for growing 3D tissues*. NIH Bethesda MD
272. November 6-7, 2013. *4<sup>th</sup> AIMBE/NIH Workshop on Validation and Qualification of New In Vitro Tools and Models for The Pre-clinical Drug Discovery Process*. NIH, Bethesda MD
273. November 10, 2013. Mentoring and enhancing careers of young women. *Women in tissue engineering and regenerative medicine. TERMIS*, Atlanta GA
274. November 19, 2013. Engineering functional tissues from human stem cells. *New York University School of Medicine*, New York NY
275. November 20, 2013. *epiBone Life Science Summit*, New York NY
276. January 25-27, 2014. iPS cell derived human cardiac microtissues. *9<sup>th</sup> International Conference on Cell Therapy for Cardiovascular Disease*. New York NY
277. February 7, 2014 Women in Science and Engineering, New York Stem Cell Foundation, New York NY
278. February 18, 2014. Engineering human tissues for regenerative medicine and study of disease. Memorial Sloan-Kettering Cancer Center, New York NY
279. February 20, 2014. What entrepreneurs can learn from Tesla. Harlem biospace, New York NY
- February 26, 2014. Tissue engineered models of bone tumor progression. *Biomimetic Tissue Engineered Systems for Advancing Cancer Research*, National Cancer Institute, Bethesda MD
280. February 26, 2014. Biomimetic tissue models of human tumors. *National Cancer Institute Biomimetics Workshop*, February 26, 2014, National Cancer Institute, Shady Grove MD
281. March 15, 2014. Tissue Engineering Strategies for Bone Vascularization via Modulation of Macrophages. Workshop on Immune Modulation as Therapeutical Strategy in Bone Regeneration. *60<sup>th</sup> Annual Meeting of the Orthopaedic Research Society*, March 15-18, 2014 New Orleans LA
282. April 12, 2014. Engineering human tissues. *Master class*, Days on campus, Columbia University
283. April 24-26, 2014 Tissue regeneration by human stem cells on extracellular matrix scaffolds. *8<sup>th</sup> Symposium on Biologic Scaffolds for Regenerative Medicine*, Silverado Resort, Nappa Valley CA
284. April 29, 2014 "Raising the bar", NYC lecture, New York NY
285. May 15-16, 2014 *CATCH-UP 2014: Heart Failure, Devices, and Interventions*, Columbia University, New York NY
286. July 6-11, 2014. *Gordon Research Conference "Signal Transduction by Engineered Extracellular Matrices"* July 6-11, 2014, Bentley University in Waltham, MA
287. July 6-11, 2014 Recent advances in bioreactor design for engineering complex tissues. *7<sup>th</sup> World Congress of Biomechanics*, Boston MA
288. June 16, 2014. *Global Biotechnology Congress 2014 (WBC 2014): Drug Discovery & Therapy World Congress (DDTWC 2014)*, Special invited lecture, Boston MA
289. August 2-3, 2014. Engineering tissue function: Stem cells, native matrix, physical cues. *Gordon Research Conference "Musculoskeletal Biology and Bioengineering – Bridging the Disciplines"* August 2-3, 2014, Proctor Academy, Andover NH (Keynote lecture)
290. August 3-11, 2014. *Gordon Research Conference "Musculoskeletal Biology and Bioengineering – Identifying and Overcoming Barriers to Translation"* August 3-11, 2014, Proctor Academy, Andover NH
291. September 1, 2013. Meeting keynote: Tissue regeneration by human stem cells on biological scaffolds. *YUCOMAT 2014*, Herceg Novi, Montenegro
292. September 4, 2013. Plenary: Entrepreneurship at Columbia University □ approach, impact and lessons learned. *Technology, Culture and Development*, Tivat, Montenegro.
293. September 8-9, 2014. *Frontiers in Bioengineering* University of Illinois at Urbana-Champaign
294. October 7, 2014. New Jersey Symposium on Biomaterials, Rutgers University, NJ
295. October 22-25, 2014. Biomaterials design for enhanced vascularization and healing. *Annual meeting of the BMES*, San Antonio TX
296. November 6, 2014 Tissue engineering 3.0: into the era of personalized medicine. *1754 Society*, Columbia University, New York NY

297. November 7, 2014 Tissue engineering 3.0: into the era of personalized medicine. *Egleston scholars*, Columbia University, New York NY
298. December 13-16, 2014. Keynote lecture: Cardiac Tissue Engineering for Modeling of Disease and Drug Screening. *TERMIS*, Washington DC
299. January 8, 2015. Bioengineering human lung. Invited Lecture, *At the Leading Edge: New Frontiers in Pulmonary Hypertension and ECMO*. New York-Presbyterian/Columbia University Medical Center, New York NY
300. January 19, 2015. Bioengineering metastatic prostate cancer. *Herbert Irving Comprehensive Cancer Center*, Columbia University, New York NY
301. January 22-23, 2015. Lung decellularization and repopulation. Invited Lecture, *Lung Engineering*, San Diego CA
302. February 9, 2015. Nikola Tesla. *Harvard University*, Boston MA
303. February 17, 2015. What can tissue engineering do for our health and wellness? *Health and Wellness discussion forum*, Columbia University School of Engineering, New York NY
304. March 1-6, 2015. Bioengineering human heart tissue: maturation and utility for drug studies. Invited Lecture, *Keystone Symposium on Heart Disease and Regeneration: Insights from Development (X1)*, Copper Mountain CO
305. March 6, 2015. Craniofacial tissue engineering. Invited Lecture, *Columbia Division of Plastic Surgery*, New York NY
306. March 9, 2015. Tissue engineering: Into the era of personalized medicine. Distinguished Lecturer, *McGowan Institute for Regenerative Medicine*, Nemaquin Resort, Farmington, PA
307. March 16, 2015. Bioengineering metastatic prostate cancer. *Herbert Irving Comprehensive Cancer Center*. Columbia University.
308. March 29, 2015. Cracking the cartilage conundrum: a bioengineer's view. *Annual Meeting of the Orthopaedic Research Society*, Special Lecture, *ORS Translational Research Symposium: Cartilage repair – is it possible?* Las Vegas NV
309. March 29, 2015. Gaining national and international reputation. *Annual Meeting of the Orthopaedic Research Society*, New investigator networking session. Las Vegas NV
310. April 2, 2015. Engineering human tissues for regenerative medicine and modeling of disease. *Brown University*, Providence RI
311. April 22, 2015. Regenerative medicine. *National Academy of Engineering 2015 Regional Symposium on The Engineering in Medicine*. Columbia University, New York NY
312. April 24, 2015. Cardiac regeneration – constantly pushing the envelope. Updates from the Lisa and Mark Schwartz Program to Reverse Heart Failure. *Catch-up 2015*, Columbia University, New York NY.
313. April 30, 2015. Engineering patient-tailored tissues. *Archimedes Lecture*. Columbia University, New York NY.
314. May 1, 2015. Critical roles of mechanical signals in engineering functional human heart tissue. *MechanoMedicine Symposium*, Columbia University.
315. May 13-16, 2015. Engineering human tissues for regenerative medicine and modeling of disease. *Nerem Lecture, Hilton Head Regenerative Medicine Workshop*, Hilton Head NC
316. May 22, 2015. Engineering human tissues for regenerative medicine and study of disease *California Institute of Regenerative Medicine Symposium*, Keynote Lecture, Stanford University, Palo Alto CA
317. July 27-30, 2015. Bioengineering Human Lung: From Screening Platforms to Whole-Lung Approaches and Functional Assays. Featured Speaker, *Stem Cells, Cell Therapies, and Bioengineering in Lung Biology and Lung Diseases*, University of Vermont, Burlington VT
318. July 27-30, 2015. Diversity panel. Featured Speaker, *Stem Cells, Cell Therapies, and Bioengineering in Lung Biology and Lung Diseases*, University of Vermont, Burlington VT
319. August 7, 2015. Engineering human tissues. *Master Class*. Columbia University, New York NY
320. September 8-11, 2015. Tissue Engineered Pumps: from Cartoons to Reality. *4<sup>th</sup> World Congress of TERMIS*, Boston MA
321. October 9, 2015. Mentoring and enhancing careers of young women. *BMES*, Tampa FL
322. October 15-16, 2015. Engineering human tissues for regenerative medicine and modeling of disease. Keynote Speaker, *Annual meeting of the North Carolina Tissue Engineering and Regenerative Medicine Society (NCTERMS)*.
323. Nov. 29- Dec. 4, 2015. Materials Science, Technology and Devices for Cancer Modeling, Diagnosis and Treatment. *Materials Research Society*, Boston, MA
324. December 7, 2015. Engineering human tissues. Department of Chemical Engineering, *City College of New York*, New York NY

325. December 9, 2015. Engineering human tissues. Grand Rounds in Medicine, Columbia University
326. Jan 8, 2016, Biomanufacturing human tissues. Keynote Lecture, *2016 Annual Conference of the BMES Cell and Molecular Bioengineering*, New Orleans LA
327. February 7-10, 2016. Invited Speaker. Adult-like human heart muscle bioengineered in vitro from iPS cells. *Transdifferentiation and Tissue Plasticity in Cardiovascular Rejuvenation*. Steyning, West Sussex, UK
328. February 11, 2016. Engineering human tissues: Growing your own bones, hearts and lungs. *Research at P&S Seminar Series (RAPS)*. Columbia University, New York NY
329. March 7, 2016. Engineering human tissues. Biomedical Engineering Distinguished Seminar Series, George Washington University, Washington DC
330. March 19, 2016. Updates from the Lisa and Mark Schwartz Program to Reverse Heart Failure. CATCH-UP 2016 - Heart Failure, Devices and Interventions, Columbia University, New York NY
331. April 6, 2016. Engineering human tissues. Sigma Kappa Tau lecture. City College of New York, NY
332. April 12, 2016. Tissue engineering for regenerative medicine. Cardiovascular Research Seminar series, Massachusetts General Hospital, Boston MA
333. May 10, 2016. Engineering personalized human tissues. Keynote lecture. Annual meeting of the NYSTEM< New York NY
334. May 26, 2016. Engineering human tissues for regenerative medicine and study of disease. Biomedical Engineering seminar series. Northwestern University, Evanston IL
335. August 4-8, 2016. Invited Speaker. Joint meeting of the Society for Developmental Biology (75<sup>th</sup> Annual Meeting) and International Society of Differentiation (19<sup>th</sup> Conference), Boston MA
336. September 5, 2016. TBD. Keynote lecture. *6th Annual Conference of the Yugoslav Materials Research Society* Herceg Novi, Serbia and Montenegro
337. September 12, 2016. TBD Frontiers in Bioengineering. Columbia University, New York NY
338. TBD Topics in Bioengineering (TIB), School of Engineering and Applied Sciences (SEAS) at Harvard University, Boston MA
339. TBD Corrine Bahr Memorial Lecture. University of Wisconsin, Madison WI.
340. TBD Frontiers in Health Research Speaker Series, The George Washington University, Washington DC
341. TBD Seminar series at the University of Michigan School of Dentistry, Ann Arbor MI

## PUBLICATIONS

<b>Science citations (ISI Web of Science):</b>	Total citations (>1992):	<b>17,422</b>
	Average citations per item:	<b>53</b>
	h index:	<b>81</b>

Search criteria: [Vunjak-Novakovic OR Vunjaknovakovic OR vunjak OR vunjakg]

<b>Google Scholar:</b>	Total citations:	<b>28,711</b>
	h index:	<b>96</b>
	i10 index	<b>237</b>

Search criteria: [Vunjak-Novakovic]

## Books

1. Vunjak-Novakovic G. and I. Freshney (editors): *Culture of cells for tissue engineering*. J. Wiley, 2006.
2. Mao JJ, Vunjak-Novakovic G, Mikos A and Atala A (editors) *Translational Approaches in Tissue Engineering* Artech House, 2007.
3. Vunjak-Novakovic and Turksen. *Biomimetics and Stem Cells: Methods and Protocols. Methods in Molecular Biology Series*, Springer Verlag, 2014.

**Book chapters (in chronological order)**

4. Vunjak-Novakovic, G. Phase Dispersions, in *Chemical Engineering Handbook*, Vol. V, Ch. III, 234, Rad, Belgrade, 1987.
5. Vunjak-Novakovic, G.V., L.E. Freed, S. Ayyadurai, H. Bernstein, R. Langer and C.L. Cooney, A Fluid-Dynamic Study of the Enzymatic Fluidized Bed Reactor for Blood Deheparinization, in *Fluidization IV*, J.R. Grace, L.W. Shemilt, M.A. Bergougnou, eds., Engineering Foundation, New York, pp. 483-490, 1989.
6. Jovanovic, G.N., Z.R. Jovanovic, G. Vunjak-Novakovic and D.V. Vukovic, Bubble Size in Magnetically Controlled Fluidized Beds, in *Fluidization IV*, JR Grace LW Shemilt, M.A. Bergougnou, eds., Engineering Foundation, New York, pp. 237-244, 1989.
7. Bugarski B., G. Vunjak-Novakovic, G. Jovanovic, K. Cuperlovic and M.F.A. Goosen, Operation of an Air-Lift Bioreactor for Production of Immunochemicals by Immobilized Hybridoma Cells, in *Animal Cell Culture and Production of Biologicals*, R. Sasake and K. Ikura, eds., Kluwer Academic Publishers, Netherlands, pp. 135-141, 1991.
8. Bugarski B., D.V. Vukovic, G. Jovanovic, G. Vunjak-Novakovic and M.F.A. Goosen, Design and Operation of the Bioreactor for the Production of Immunochemicals, in *Biologicals from Recombinant Microorganisms and Animal Cells, Production and Recovery*, M.D. White, S. Reuveny and A. Shafferman, eds. VCH, Philadelphia, pp. 69-73, 1991.
9. Vunjak-Novakovic G., G. Jovanovic, Lj. Kundakovic and B. Obradovic, Flow Regimes and Liquid Mixing in a Fluidized Bed Bioreactor with an Internal Draft Tube, in *Fluidization VII*, Engineering Foundation, New York, pp. 433-444, 1992.
10. Bugarski B., G. Jovanovic and G. Vunjak-Novakovic, Bioreactor Systems Based on Microencapsulated Animal Cell Cultures, in: *Fundamentals of Animal Cells Immobilization and Microencapsulation*, M.F.A. Goosen ed., CRC Press, pp. 267-296, 1993.
11. Sajc, L., R. Pesic P. Bursac, G. Vunjak-Novakovic, B. Bugarski and D.V. Vukovic, Liquid Dispersion in a Magnetically Stabilized Two- and Three-Phase Fluidized Bed Bioreactors, in *Fluidization VIII*, C. Laguerie and J.F. Large, eds., pp. 425-432, 1995.
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## Patents

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20. Cartilage implant plug with fibrin glue and method for implantation. US patent 10/424,765 (issued)
21. Silk fibroin biomaterials and the use of thereof. International application PCT/US2004/000255, (January 7, 2004). Published on July 29, 2004 as Int. Publication No WO 2004/062697 A2.
22. Silk fibroin materials and the use of thereof. US patent # 7,842,780, issued November 30, 2010. Inventors: David L. Kaplan, Rina Nazarov, Gordana Vunjak-Novakovic, and Lorenz Meinel
23. Silk fibroin biomaterials and the use of thereof. US patent # 8,361,617, issued February 3, 2013. Inventors: David L. Kaplan, Rina Nazarov, Gordana Vunjak-Novakovic, and Lorenz Meinel
24. Application of electrical stimulation for functional tissue engineering in vitro and in vivo. U.S. Patent No. 8,367,410, issued February 5, 2013.
25. pH control for animal cell culture. US patent application, September 2004
26. Smart well plates. US patent application, March 1, 2005
27. Propagation of undifferentiated human embryonic stem cells in hyaluronic acid hydrogel. U.S. Provisional Patent Application No. 60/692,915 (June 22, 2006)
28. Propagation of undifferentiated human embryonic stem cells in hyaluronic acid hydrogel. International patent application PCT/US2006/024965 (April 1, 2007)
29. Vascular progenitor cells isolated from human embryonic stem cells. U.S. Patent Application (October 15, 2005)
30. Formation of vascular networks using embryonic stem cells. US National Phase Application No 12/300419
31. Method to create covalently immobilized protein gradients within three-dimensional scaffolds/foams. U.S. Patent Application (November, 2004); Utility application April 20, 2006. U.S. Patent Application No. 13/775,328 filed on February 25, 2013.
32. Cartilage Implant Assembly and Method for Implantation. World patent application, International publication number WO 2007/024238 A1, March 1, 2007
33. Pre-vascularized modular tissue engineering system. US patent application (May 2007)

34. Composite Biopolymer Microtubes – Manufacture and Application via Novel Gel Spinning Technique US patent application (October 29 2007)
35. System and methods for making biomaterials structures. Provisional application No. 61/043,343, filed on Apr. 8, 2008; Published US 2011/0076384 A1, Mar. 31, 2011.
36. Gel-matrix biological scaffolds. US Provisional Application No: 61/083,476, Filed 24 July 2008.
37. Tubular silk compositions and the use of thereof. International patent application WO 2009/023615 A1; publication date February 19, 2009.
38. System and method for making biomaterial structures. US Patent #9,068,282, issued June 30, 2015
39. Bioreactor, devices, systems and methods. US patent application June 9, 2011.
40. Bioreactor for the engineering of anatomically shaped tissue constructs. U.S. Provisional Patent Application No. 13/148,735, August 10, 2011.
41. Methods, devices and systems for bone tissue engineering using a bioreactor. U.S. Patent Application No. 61/157,019, October 8, 2009.
42. Bioreactor for the engineering of anatomically shaped tissue constructs. Worldwide application No T4356-16874US01, August 10, 2011.
43. Human bone tissue produced in vitro from pluripotent cells in perfusion culture. Patent pending, 28 October 2011. Inventors: Warren Grayson, Keith Yeager, Gordana Vunjak-Novakovic. Licensed to epiBone.
44. Micro-assay for detection and drug screening by measuring cell chirality. Invention Report #2869 (November 18, 2010) Provisional patent application filed June 22, 2011
45. Software for determining cell chirality on micro-patterned surfaces. Invention Report (IR) # 2959 (May 23, 2011) Provisional patent application filed June 22, 2011; patent application pending
46. Reversible immortalization of cardiac myocytes enabling cell expansion in culture. Inventors: Yue Zhang and Gordana Vunjak-Novakovic. Patent pending. Licensed to Advanced Biological Materials Inc, Richmond BC, Canada
47. Microfluidic microbioreactor array generating stable concentration gradients for biological applications. Invention Report (August 26, 2011)
48. Three-dimensional printing of scaffolds composed of drug-loaded microparticles. Provisional patent application (January 2012)
49. Development of a human derived multi-organ tissue engineered perfusion device and uses thereof. Technology disclosure (January 2012)
50. Bioreactor for engineering a chimeric, functional human lung. Technology disclosure (January 2012)
51. Chimeric, functional human lung engineered using a partially decellularized lung scaffold as a base. Technology disclosure (January 2012)
52. Imaging compatible bioreactor for the engineering of anatomically shaped tissue constructs. Technology disclosure (January 2012)
53. Adipose Cell Enhanced Bone Grafts, Invention Report (IR) # CU12215 (January 21, 2012)
54. Microarray-gradient platform. Provisional patent application, Docket number T4356-18679PV01 (May 17, 2012).
55. Three-dimensional printing of scaffolds composed of drug-loaded particles. Provisional patent application, Portugal (May 17, 2012).
56. Biomarkers for wound healing and nonhealing. Invention Report (IR) (July 24, 2012)
57. Region-Specific Kidney Extracellular Matrix Hydrogels. Invention report (IR) (August 2012) Application for US patent letter filed on August 2, 2013 as Application No. 61/861,958 and on August 6, 2013 as Application No. 61/862,933
58. System and method for high-throughput assessment of cellular cardiotoxicity, drug screening, and cardiogenic factors via on-line physiological measurements. Provisional patent application 61/842,559 filed on July 3, 2013. Inventors: Nina Tandon, Elisa Cimetta, Kacey Ronaldson, James Patten, Gordana Vunjak-Novakovic. Licensed to TARA Biosystems.
59. Scaffolds with attached immunomodulatory cytokines for tissue engineering. Invention Report (IR) (November 28, 2012); provisional patent application filed 8/26/2013, # 61/870,213
60. Method and technology for functional recovery of human lungs for transplantation. Invention Report (IR) (December 1, 2012); Patent application April 4, 2014.
61. Perfusion bioreactor with control of flow and transport inside the tissue and live imaging compatibility. Patent pending, April 18, 2014. Inventors: Sarindr Bhumiratana, Keith Yeager, Gordana Vunjak-Novakovic. Licensed to epiBone.
62. Right Angle Cannula Probe for Coronary Sinus Cannulation. Technology disclosure IR# CU14007.

63. Tissue engineered model of Ewing's sarcoma. US patent letter application filed on August 2 2013 No 61/861,957 and on August 5 2013 No 61/862,447
64. Right Angle Cannula Probe for Coronary Sinus Cannulation. Invention Report #CU14007. Patent application filed. November 2013.
65. Biomaterials derived from healthy, diseased, or transgenic region-specific tissue extracellular matrix. Application for US patent filed on August 2, 2014.
66. Tissue engineered models of cancer. IR#14010 (Our ref.: 011827-58101) Application No. PCT/US14/49416 August 1, 2014.
67. Biomaterials derived from tissue extracellular matrix. IR#13209 (Our ref. 011827-56300) Application No. 14/450,020 August 1, 2014.
68. IN SITE™ Delivery System for site-specific delivery of therapeutic cells via injectable organ-specific extracellular matrix hydrogels. November 30, 2014, IR#CU15129
69. A method for engineering mechanically functional human cartilage by condensation of mesenchymal stem cells. Patent filed January 23, 2015, Application No. 62/107,256; International patent application
70. Electromechanical intensity training regimen and bioreactor for the formation and accelerated maturation of engineered heart tissue for personalized cardiotoxicity screening and disease modelig. IR, May 9, 2015.
71. Biomaterials derived from healthy, diseased, or transgenic region-specific tissue extracellular matrix. # CU16111 October 30, 2015.
72. Bioreactor, devices, systems and methods (plug & play bioreactor). Patent application 12/961,309 (December 6, 2010). US patent #9,206,383. Issued December 8, 2015.
73. Tissue-engineered model of human tumors for studying exosomes. Invention report, Jan 4, 2016.

<b>Teaching experience</b>
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**Columbia University**

<u>JOUR J6950</u>	<b>Science seminar</b> School of Journalism Instructor Enrolment: 6	Spring 2016
<u>PATH 6100</u>	<b>Stem Cell Course</b> Instructor Enrolment: 20 students	Spring 2016
<u>PSLG 6003</u>	<b>How to make a drug</b> Instructor Enrolment: 18 students	Fall 2015
<u>JOUR J6950</u>	<b>Science seminar</b> School of Journalism Instructor Enrolment: 6	Spring 2015
<u>PATH 6100</u>	<b>Stem Cell Course</b> Instructor Enrolment: 20 students	Spring 2015
<u>BMEN E6003</u>	<b>Computational Modeling of Physiological Systems</b> Instructor. Transport module. Enrolment: 40 students	Fall 2014
<u>BMEN E3500</u>	<b>Biological transport and rate processes</b> Instructor Enrolment: 25 students	Fall 2014

<u>PATH 6100</u>	<b>Stem Cell Course</b> Instructor Enrolment: 22 students	Spring 2014
<u>BMEN E3500</u>	<b>Biological transport and rate processes</b> Instructor Enrolment: 20 students	Spring 2014
<u>BMEN E3500</u>	<b>Biological transport and rate processes</b> Instructor Enrolment: 17 students	Spring 2013
<u>BMCH E3500</u>	<b>Biological transport and rate processes</b> Instructor Enrolment: 27 students	Spring 2012
<u>BMEN E6003</u>	<b>Computational Modeling of Physiological Systems</b> Instructor. Transport module. Enrolment: 38 students	Fall 2012
<u>BMEN E6003</u>	<b>Computational Modeling of Physiological Systems</b> Instructor. Transport module. Enrolment: 38 students	Fall 2011
<u>BMEN E3500</u>	<b>Biological transport and rate processes</b> Instructor Enrolment: 55 students	Spring 2011
<u>BMEN E3920</u>	<b>Senior Design</b> Instructor. Enrolment: 45 students	Spring 2010
<u>BIOL G4700.001</u>	<b>Seminar in stem cell biology</b> Instructor. Enrolment: 20 students	Spring 2010
<u>BMEN E6003</u>	<b>Computational Modeling of Physiological Systems</b> Instructor. Transport module	Fall 2010
<u>BMEN E3920</u>	<b>Senior Design</b> Instructor. Enrolment: 55 students	Spring 2009
<u>BIOL G4700.001</u>	<b>Seminar in stem cell biology</b> Instructor. Enrolment: 20 students	Spring 2009
<u>BMEN E3820</u>	<b>BME Lab II – Biomaterials module</b> Instructor. Enrolment: 55 students	Fall 2009
<u>BMEN E3920</u>	<b>Senior Design</b> Instructor. Enrolment: 35 students	Spring 2008
<u>BMEN E4550</u>	<b>Dental and craniofacial tissue engineering</b> Instructor. Bioreactor module. Enrolment: 30 students	Spring 2008
<u>BMEN E3820</u>	<b>BME Lab II – Biomaterials module</b> Instructor. Enrolment: 55 students	Fall 2008
<u>C2908</u>	<b>First Year Seminar in Modern Biology</b>	Fall 2008





graduate course offered in the spring semester  
Enrollment: ~80 students  
Guest lecturer

ChE 60	<b><i>Process Design</i></b> Department of Chemical Engineering under graduate course offered in the spring semester Enrollment: ~40 students (developed the course materials and computer lab for process synthesis using ASPEN software) Course instructor	1998 – 2000
ChE 114	<b><i>Advanced Transport Phenomena</i></b> Department of Chemical Engineering (graduate course offered in the fall semester) Enrollment: ~25 students, Course instructor	1995 – 1998
ChE 24	<b><i>Unit Operations Lab</i></b> Department of Chemical Engineering (undergraduate course offered in the fall semester) Enrollment: ~40 students Lab instructor	1994 – 1995

#### Postdoctoral associates, doctoral students, research students (last 10 years)

Currently supervising 39 members of the ***Stem Cell and Tissue Engineering Laboratory*** (10 post docs, 1 lab manager, 1 program administrator, 5 MD/PhD students, 12MS/PhD students, 10 research students)

#### Junior faculty

1. **Lu Jonathan** (2009-), Assistant Professor, Department of Medicine – research mentor
2. **Yazawa Masa** (2012-), Assistant Professor, Department of Medicine – research mentor
3. **Topkara Veli** (2014-), Assistant Professor, Department of Cardiology – research mentor
4. **Guenthart Brendan** (2015-) Fellow, Cardiothoracic Surgery – research mentor
5. **Fine Barry** (2014-), Fellow, Department of Cardiology – research mentor
6. **Myers Kristin** (2015-), Assistant Professor, Department of Mechanical Engineering, Mentoring Committee
7. **Dorrello N. Valerio** (2013-), Assistant Professor, Department of Pediatrics – research mentor

#### 8. Support staff

1. Szeto Jason – Program coordinator
2. **Dragana Djuknic**, program coordinator
3. **Halligan Susan** – Lab manager
4. Jean-Louis Pascale – Program coordinator
5. Sokolov Anna – Lab manager
6. **Trawick Emma** (2014-) Research assistant
7. **Yeager Keith** (2015-) Research engineer

#### Postdoctoral fellows (current lab members shown in bold)

**At Columbia** (current lab members shown in bold)

1. D'Amico Maria Angela (2013)visiting postdoctoral scientist, University G. d'Annunzio of Chieti-Pescara, Italy
2. Bax Noortje(2013) visiting postdoctoral scientist, Technische University Eindhoven, Netherlands
3. Bax Noortje (2015-) visiting postdoctoral scientist, Technische University Eindhoven, Netherlands
4. Bhumiratana, Sarindr (2012-2014) Postdoctoral scientist
5. Chao Grace (2005 – 2008), Postdoctoral scientist, Arthritis Foundation Fellow; Assistant Profession at the National University of Taiwan, from February 1, 2008
6. Cimetta Elisa(2010 - 2013) Associate research scientist
7. **Dorello Valerio** (2013 - ) Postdoctoral scientist, clinical fellow in pulmonary medicine
8. Duan Yi (2009 – 2011), Postdoctoral scientist
9. **Fine Barry** (2013-) Postdoctoral scientist, clinician
10. Freytes Donald (2008 - 2013) Postdoctoral scientist, stipend from NIH T32 training grant, Fellow to Faculty award, independent investigator at the New York Stem Cell Foundation
11. Gadjanski Ivana (2010-2012), Postdoctoral scientist, Fulbright Fellow, now faculty at the Metropolitan University, Belgrade, Serbia
12. Grayson Warren (2005 - 2009), Postdoctoral scientist, Mandl Foundation Fellow, Assistant Professor at the Johns Hopkins University, Department of Biomedical Engineering, from September 1, 2009
13. **Kim Jinho** (2013 -) Postdoctoral scientist
14. Marcos, Ivan (2009-2012), Postdoctoral scientist, Aragon Health Institute fellowship, Spain
15. Marolt Darja (2006 - 2012), Postdoctoral scientist, New York Stem Cell Foundation Fellow
16. Martins Ana(2011-2012) Postdoctoral fellow, University of Minho, Portugal
17. Marsano Anna (2006 – 2009), Postdoctoral scientist; Research Fellow, University Hospital of Basel, from March 1, 2009
18. Mirkovic Nebojsa (2009 - 2011) Postdoctoral scientist, Program coordinator
19. **Parsa Hesam** (2013-) Postdoctoral scientist
20. Roshan-Ghias, Alireza (2011-2014) Postdoctoral scientist, Swiss National Science Foundation fellowship
21. Spiller Kara(2011-2013), Postdoctoral scientist, now faculty at Drexel University
22. **Sirabella Dario** (2011 - ) Associate research scientist
23. Tandon Nina(2010-) Associate research scientist
24. **Topkara Veli** (2014) Postdoctoral Scientist, Instructor at Columbia University Medical Center
25. **Vila Olaia** (2014-) Postdoctoral Scientist,
26. **Villasante Aranzazu** (2011-) Postdoctoral scientist; Alfonso Martin Escudero Fellowship
27. Wan Leo (2007 - 2011) Associate research scientist; Assistant Professor of Biomedical Engineering, Rensselaer Polytechnic Institute, Troy NY
28. **Wei Yiyang** (2013 -) Postdoctoral scientist, surgeon
29. Zhang Qi, MD (2009 – 2011)– Lab manager

#### At MIT

1. Augst Alexander (2004 – 2005); Intellectual Property Office at Harvard
2. Berzin, Isaac (2000 – 2003); Founder and president of GreenFuel; now at the University of Tel Aviv, Israel as the Director of the Institute for Environmental Technologies; voted Times Magazine 2008 one of the 100 most influential people today
3. Boublik, Jan (2003-2004); Fellow in Anesthesia, Columbia Medical School; resident at the Brigham and Woman's Hospital in Boston MA
4. Cannizzaro, Christopher (2003 – 2007); Research Professor at Tufts University, currently work for US government on the board fro alternative energy
5. Chen, Fen (2002 – 2004); Research scientist at Genzyme
6. Gerecht, Sharon (2004 – 2006), Assistant Professor at Johns Hopkins Univerrisity
7. Gooch, Keith (1995 – 1997); Assistant professor at U Penn, now Assistant Professor at Ohio State University

8. Kim, Hyeon Joo (2003 – 2006)
9. Martin, Ivan (1996 - 1999); Professor at the University of Basel, Switzerland
10. Meinel, Lorenz (2002 – 2003); Humboldt Fellow; Director, Tissue Engineering Laboratory, Novartis, Switzerland
11. Obradovic Bojana (2001; 2004); Professor of Chemical Engineering; Chair, Department of Chemical Engineering 2004-2006); Associate Dean for Undergraduate Studies (2006 – present), University of Belgrade, Serbia
12. Park, Hyoungshin (2001 – 2006); Instructor at Harvard Medical School, Boston MA
13. Pei, Ming (1999-2002); Assistant Professor, West Virginia University
14. Radisic Milica (2004 – 2005); Assistant Professor, University of Toronto
15. Riesle, Jens (1995-1997); Research Scientist at CellCo, Netherlands
16. Schaefer, Dirk (1998-2000; 2003); Orthopaedic Surgeon at the University Hospital in Basel; died in 2004
17. Sun, Liping (1999-2003); Chief Scientist at Payload Systems Inc, Cambridge MA
18. Tognana, Enrico (2003-2004); Research Scientist at Fidia, Italy
19. Williams, Shane (1996-1998); Consultant in New York, NY
20. Yang, Liming (2000-2003); Physician in New York, NY

<b>Graduate students</b>
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#### **At Columbia**

1. Anfang Rachel (2011-2014) graduate student
2. **Bernhard Jonathan** (2011-) PhD student, Presidential Fellowship, NSF Fellowship
3. \*Bhumiratana, Sarindr (2007 - 2012) PhD student, *Columbia University*; thesis advisor, defended May 9, 2012.
4. **Charensook Surapon** (2011-) PhD student
5. **Chen Timothy** (2013-) MD/PhD student, *Columbia University*
6. Cimetta Elisa (2006 – 2007), *Columbia University*, PhD student, Visiting Scholar at Columbia, Department of Chemical Engineering, University of Padua, Italy; thesis co-advisor, *defended March 15, 2009*
7. Condie Russel (2008) PhD student, University of Utah, summer internship
8. Correia Cristina (2009-2011) visiting PhD student from Portugal; Portuguese Science Foundation Fellowship, defended
9. De Berardinis Elio(2011-2012) MS student, visiting from Politecnico di Milano, Italy, defended
10. Eng, George (2006 –2014), MD/PhD student, *Columbia University*; thesis advisor; stipend and tuition provided by the Columbia University School of Medicine, F32 fellowship; defended, now resident at MGH/Harvard
11. Godier-Furnemont, Amandine (2009–2015), PhD student, *Columbia University*; thesis advisor; NSF fellowship; F31 NIH Fellowship; defended July 18, 2014
12. Felker Anastasia (2011) PhD student, visiting from the Karolinska Institutet, Sweden
13. Fenioux Charlotte(2011-2012), MD/PhD student, visiting from Pierre et Marie Curie University in Paris, France
14. Froehlich Mirjam (2006 - 2008), PhD student, Visiting Scholar, University of Ljubljana, Slovenia, Research Fellowship from University of Ljubljana, thesis co-advisor
15. Jallerat, Quentin (2009-2011), Masters student continuing to PhD, Department of Biomedical Engineering, advisor
16. Jiao Jiao(2011) PhD student, visiting from University of Sydney, Australia
17. Kang, Jen (2008 – 2010), PhD student, Tufts University; thesis co-advisor, defended September 29, 2009, now working at the research department of Johnson & Johnson
18. Kang Manman (2007- 2009) PhD student, *Columbia University*; thesis advisor; left program because of family reasons
19. **Lee Benjamin** (2011-) MD/PhD student
20. **Li Ang** (2012 - ) MD/PhD student
21. **Li Ming** (2013 - 2014) Visiting graduate student, Peking University
22. **Liu David** (2014-) PhD student
23. **Llucià-Valldeperas Aida** (2013 - 2014) Visiting graduate student, Universitat de Barcelona

24. **Lu Bohao** (2014) MD/PhD student, lab rotation
25. **Ma Stephen** (2012 - ) MD/PhD student
26. Maidhof, Robert (2005 - 2010), PhD student, *Columbia University*; thesis advisor; stipend from NIH T32 training grant; defended April 29, 2010
27. \*Martens, Timothy (2005 - 2009) MD/PhD student *Columbia University*; thesis advisor; stipend and tuition provided by the Columbia University School of Medicine; defended June 1, 2009 Currently doing his residency in cardiac surgery at NYU
28. **Marturano Alessandro** (2012-) graduate student
29. **Ng Jonathan** (2012-) PhD student, A-Star fellowship
30. **O'Neill John** (2010-) PhD student, Department of Biomedical Engineering, *Columbia University*, advisor
31. Petrides, Petros (2012-2014) PhD student, NSF Fellowship; now a medical student at Columbia University
32. **Ronaldson Kacey** (2010-) PhD student, Department of Biomedical Engineering, *Columbia University*, advisor
33. Saccenti, Laetitia (2012), Visiting MS student, Faculte de Medecine Paris Descartes, "Transient support system for perfusion of a cardiac patch in vivo", defended on September 17, 2012.
34. Serena, Elena (2007 - 2008), PhD student Visiting Scholar at Columbia, Department of Chemical Engineering, University of Padua, Italy; thesis co-advisor
35. **Shih Ying** (2014-) MS student
36. Tandon, Nina (2004 - 2009) PhD student *Columbia University*; thesis advisor; Columbia University Presidential Fellowship, defended May 4, 2009.
37. **Taubman Alanna** (2012 -) research student
38. Tchao, Jason (2009-2011), MS student, Department of Biomedical Engineering, *Columbia University*, advisor
39. **Teles Diogo** (2015-) MD/PhD student, US-Portugese collaboration
40. Trkov Sasha (2008) PhD student, Visiting Scholar, Department of Chemical Engineering, University of Padua, Italy; thesis co-advisor, Fellowship from the University of Padova, defended April 15, 2009
41. **Wobma Holly** (2012 -) MD/PhD student
42. Wook, Jung (2009-2011), (2010-) MS student, Department of Biomedical Engineering, *Columbia University*, advisor
43. Yeager, Keith (2010-2011) Research associate, *Columbia University*
44. Yodmuang, Supansa (2006 - 2013) PhD student *Columbia University*; thesis advisor; stipend and tuition provided by the Royal Thai Scholarship; defended in May 2013; now postdoc at the Hospital for Special Surgery
45. Yuan Jenny (2008-2014) MD/PhD student, *Columbia University*; thesis advisor; stipend and tuition provided by the Columbia University School of Medicine; defended November 26, 2013
46. Zhang Ting(2008-) PhD student, Tsinghua University, Chinese Government Scholarship, Visiting scholar
47. Zhang, Yue (Shelby) (2006 - 2011) PhD student *Columbia University*; thesis advisor; Assistant Professor at the University of Singapore
48. **Zen, Liu** (2010) PhD student *Columbia University*; thesis advisor; NSF fellowship
49. Zigon Sara (2013-2014) visiting PhD student

**Thesis committee member (Columbia):**

1. Alex Cigan (2014) *Columbia University* (advisor Gerad Athesian)
2. Bashour Keenan (2012) *Columbia University* (advisor Lance Kam)
3. Cheung Yukkee (2009-), *Columbia University* (advisor Sam Sia), June 24, 2010.
4. Chin Sao Yin (2009-2015) Novel Microfabrication Techniques Towards Next-Generation In Vitro and In Vivo Medical Devices. Columbia University, PhD student (advisor Sam Sia), defended May 5, 2015
5. Fomovskiy Gregory (2008 - present), PhD student, Columbia University
6. Gillette Brian (2005-2010), Columbia University, PhD student (advisor Sam Sia), defended December 15, 2010
7. Green Mykel (2013-), PhD student, Columbia University
8. Haggart Charles (2008 - present), PhD student, Columbia University

9. Hariharan Venkatesh (2008-2014) The Effects of Arrhythmogenic Right Ventricular Cardiomyopathy-Causing Mutant Proteins on the Mechanical and Signaling Properties of Cardiac Myocytes. PhD student (advisor Hayden Huang)
10. Jiang Jie (2001-2006), Columbia University, PhD student (advisor Helen Lu), defended July 21, 2006
11. Lima Eric (2008) PhD student Columbia University, (advisor: Clark Hung)
12. Lee, Chang Hun (2006 –) PhD student *Columbia University*, (advisor: Jeremy Mao)
13. Kim Do Eun (2008) PhD student *Columbia University*, (advisor: Kevin Costa), defended April 29, 2009
14. Mendelson, Avital: Chondrogenesis of Stem/Progenitor Cells by Chemotaxis Using Novel Cell Homing Systems, thesis committee chair, defended April 18, 2012.
15. Michaelson, Jarett (2013) PhD student *Columbia University*, (advisor: Hayden Huang)
16. Ng Keneth (2006) PhD student *Columbia University*, (advisor: Clark Hung)
17. Ostrov Nili (2012) PhD student *Columbia University*, (advisor: Virginia Cornish), defended June 7, 2012
18. Parsa Hesam (2007-2013) Leveraging Microtechnology to Study Multicellular Microvascular Systems and Macromolecular Interaction. PhD student (advisor: Sam Sia) Defended July 15, 2013.
19. Robert Nims (2014) *Columbia University* (advisor Gerard Athesian)
20. Shah Bhranti (2007-2012) Pyrintegrin Induced Adipogenesis: Biology, Bioengineering and Therapeutics (advisors Mao and Vunjak-Novakovic) defended April 25, 2012.
21. Tassaneewan Laksanasopin (2009-2015) Microfluidic-based Point-of-Care Testing for Global Health (advisor Sam Sia), defended May 4, 2015
22. Wei Qi (2013) PhD student *Columbia University*, (advisor: Hayden Huang)
23. Weinreb, Chani (2007) PhD student *Columbia University* (advisor Andrey Rzetsky), May 15, 2007

#### **Graduate students at other schools**

1. Al Obeedallah, Hadeel: The synthesis of hydroxyapatite and hydroxyapatite/polycaprolactone composite for bone tissue engineering. University of Sydney, Australia, December 25, 2010. Thesis committee member.
2. Alkian, Mannix: Physical Modulation of Muscle Cell growth and Function. *Tufts University*, Department of Chemical Engineering, December 1999 (first reader).
3. Altman, Gregory: Tissue engineering of an Anterior Cruciate Ligament with Mechanical Stimulation. *Tufts University*, Department of Chemical Engineering, April 23, 2002 (first reader)
4. Aw, Moom Sin: Mesoporous materials for implantable drug delivery applications. University of South Australia (external thesis committee member)
5. Bashour Keenan Tali (2008-2013) Columbia University (advisor: Kam, thesis committee member), defended in April 2013.
6. Bauwens Celine: Geometric control of cardiomyogenic induction from human pluripotent stem cells. University of Toronto (external thesis committee member), defended May 2010
7. Bilgen, Bahar: Flow modeling of mixed bioreactor for suspension cell culture. *Northeastern University*, January 2006 (first reader)
8. Bueno, Ericka: Novel bioreactor for cartilage tissue engineering. *Northeastern University*, December 19, 2005 (first reader)
9. Bursac, Nenad: Engineered cardiac tissue: a novel in vitro model for electrophysiological studies of cardiac muscle. Boston University, September 2000 (reader)
10. Bursac, Predrag: Structure-Function Relationships in Tissue Engineered Cartilage, *Boston University*, Department of Biomedical Engineering, June 2001 (sponsor)
11. Carrier, Rebecca: Cardiac Tissue Engineering: Bioreactor Cultivation Parameters, *M.I.T.*, Department of Chemical Engineering, May 2000 (sponsor)
12. Casper Michelle: TBD, Mayo (thesis committee member)
13. Cheung Yuk Kee (2005–2010), PhD student, Columbia University (advisor: Sia, thesis committee member), defended in May 2010.
14. Choi Jennifer Hagyoung Kang (2004-2009), Tufts University (advisor: Kaplan, thesis committee member) defended in November 2009.

15. Correia Cristina: Engineering osteochondral tissues with human adipose tissue derived stem cells under precise biomechanical and biochemical *in vitro* environments. External opponent. Defended March 2, 2012.
16. De Berardinis Elio(2011-2012) PhD student, visiting from Politecnico di Milano, Italy
17. Figallo Elisa (2005 – 2006), PhD student at the Department of Chemical Engineering, University of Padua, Italy; visiting graduate student (sponsor)
18. Froehlich Mirjam (2006-2009) PhD student, University of Ljubljana, Bone tissue engineering using adult human stem cells (thesis committee member), defended in June 2009
19. Gigout, Anne (June 2008), PhD student, University of Montreal, Bioreactor cultivation of chondrocytes in cell aggregates. University of Toronto (thesis committee member)
20. Goldenberg Michael (October 2007) PhD student, Ben Gurion University, Israel, Cardiac tissue engineering: Exploring Engineering and Molecular Strategies to Enhance cell viability and muscle tissue formation, thesis advisors Smadar Cohen and Jonathan Leor (thesis evaluator)
21. Green Mykel (2013-) City College (advisor: Gilda Barabino)
22. Jacobson Elena (2015 -), PhD student, Tufts University (advisor: David Kaplan), Thesis committee member
23. Khong Yuet Me: Intra-Tissue Perfusion Of Liver Slice Using Microneedles Array. University of Singapore, December 2007 (thesis evaluator)
24. Kundakovic, Ljiljana: Conversion of Synthesis Gas to Acetic Acid via Anaerobic Fermentation Using *Peptostreptococcus Productus*-Strain U-1, *Tufts University*, Department of Chemical Engineering, March 1995 (first reader).
25. Lee, Cynthia: Tissue engineering of articular cartilage. *M.I.T.*, Department of Mechanical Engineering, September 2001 (first reader)
26. Lee Whitak David: Tissue engineering of multi-zonal, osteochondral-like constructs with bone marrow stromal cells. *University of Toronto*, August 2015 (thesis committee member).
27. Lovett Michael: Silk fibroin microtubes for blood vessel engineering, PhD thesis, *Tufts University, Medford*, December 22, 2008 (thesis committee member)
28. Mahmoudifar, Nastaran: Tissue engineering of human cartilage. The University of New South Wales, Australia, December 2004 (thesis examiner)
29. Mauney Joshua: *Tufts University*, Department of Chemical Engineering, June 3, 2004 (first reader)
30. McGrath Victoria C.: A Microstructural Model of Cartilage Elasticity, *Boston University*, Department of Biomedical Engineering, May 1997 (second reader).
31. Mcguigan, Alison: Design and Fabrication of a Vascularized modular tissue-engineered construct. University of Toronto. July 2005 (thesis examiner)
32. Mendelson Avital, PhD thesis, *Columbia University* (advisor: Mao, thesis committee member), defended April 2012
33. Nazarov, Rina: Preparation and study of porous three-dimensional scaffolds from silk fibroin. *Tufts University*, Department of Chemical Engineering, April 2003 (first reader).
34. Hadeel Al Obeedallah: The synthesis of hydroxyapatite and hydroxyapatite/polycaprolactone composite for bone tissue engineering. PhD thesis, University of Sydney Australia, External committee member, defended in December 2010
35. Lima Eric Gevork (2003-2008) PhD student, Columbia University (advisor: Hung, thesis committee member), defended in May 2008
36. Lovett Michael (2004-2009), PhD student, Tufts University (advisor: Kaplan, thesis committee member) defended in February 2009.
37. Obitz, Toby: Mechanical Properties of Articular Cartilage and Tissue Engineered Constructs: a Transversely Isotropic Biphasic Analysis, *Boston University*, Department of Biomedical Engineering, March 1996 (first reader).
38. Obradovic, Bojana: Hydrogen Permeability of PdAg Membranes in the Conditions of Steam Reforming of Methanol, *Tufts University*, Department of Chemical Engineering, May 1996 (first reader).
39. Obradovic, Bojana: Bioreactor Studies of Tissue Engineered Cartilage, *Tufts University*, Department of Chemical Engineering, September 1999, advisor
40. Parsa Hesam (2008-2013) Columbia University (advisor: Sia, thesis committee member), defended in April 2013

41. Photopoulos, Alexis: Bioprocessing of Synthesis Gas by butyry bacterium methylotrophicum: Conversion of CO<sub>2</sub> /H<sub>2</sub> to Acetic Acid, *Tufts University*, Department of Chemical Engineering, September 1995 (second reader).
42. Pike, Darlene J.: Packed-Bed reactors for Mammalian Cell Culture: Effects of Flow Rate on Nutrient and Product Concentration Gradients, *Tufts University*, Department of Chemical Engineering, November 1995 (second reader).
43. Radisic Milica: Oxygen delivery to engineered cardiac muscle. *M.I.T.*, Department of Chemical Engineering, July 19, 2004 (sponsor)
44. Reem Tali: Design of Cell Microenvironment for Controlled Osteochondral Differentiation of Human Mesenchymal Stem Cells. Ben-Gurion University, sponsor: Smadar Cohen (thesis committee member), defended in June 2012
45. Rice, William (2005-2009) Optical noninvasive monitoring of engineered tissues. *Tufts University* (thesis committee member) defended August 25, 2009.
46. Sucosky, Philippe: Flow characterization and tissue growth modeling of cartilage growth in bioreactors. *Georgia Institute of Technology*, February 2005, (co-supervised, with Paul Neitzel; reader)
47. Seidel, Joachim: 3-D Regeneration of Bone Using Cells and Polymer Scaffolds, *E.T.H.* (Swiss Federal Inst. of Technology), Zurich, Switzerland, June 2003 (sponsor)
48. Sundelacruz, Sarah: Effects of electrophysiological manipulation on differentiation and wound healing capacity of human mesenchymal stem cells (external committee member), defended May 2011.
49. Tandon Nina: Biomimetic electrical stimulation for cardiac tissue engineering. Massachusetts Institute of Technology, Department of Electrical Engineering and Computer Science. August 2006 (sponsor and thesis advisor)
50. Tupaj, Marie: Electrical stimulation on of human mesenchymal stem cells differentiating into osteoblasts. Department of Biomedical Engineering, Tufts University, expected in early 2008 (thesis committee member)
51. Vepari Charu: Spatial surface functionalization to control cell responses. PhD thesis, *Tufts University, Medford*, December 15, 2008 (thesis committee member)
52. Wang Yongzhong. Stem cell responses to protein matrix substrates. *Tufts University* April 24, 2006 (first reader)

#### Research associates (last 10 years)

**At Columbia** (current lab members shown in bold)

1. Marsh Brandi (2005 – 2006), technician

**At MIT**

2. Barry, John (1997-1999); Research Fellow, Harvard Medical School
3. Biron, Robert (1993-1995); in industry
4. Bordonaro, Julie (1999 – 2001); Research Scientist, Genzyme
5. Elvassore Nicola (2005); Assistant Professor, University of Padua, Italy; visiting as a Fulbright Fellow for one year
6. Eulath, Michelle (1999 – 2001); Research Scientist in a company in Canada
7. Jackson, Valerie 1996-1997; MD/PhD at the UCSD
8. Miller Birte (2002); Graduate student in Berlin, Germany
9. Preda, Carmen (1999 – 2006); Research Fellow at Tufts University
10. Vilacorta Carla (1996-1998)
11. Zeng, Li (1999 - 2002); Research Scientist in a State Laboratory, Albany NY

#### Research students

**At Columbia** (current lab members shown in bold)

1. Agarwal Monica(2011-2014) research student, undergraduate at *Columbia University*, now astudent at Mt Sinai Medical School
2. Anandappa Annabelle (2011- 2014) research student, undergraduate at *Columbia University*, now astudent at Harvard Medical School, HST program
3. Arkonac, Derya (2009-2012), research student, undergraduate at *Columbia University*

4. **Burapachaisri Aonnicha** (2014-) research student, undergraduate at *Columbia University*
5. **Boudapati Mounika** (2014-) Resarch student, Egleston scholar
6. Briganti, Chelsea (2009-2010), artist in residency
7. Burke Kelly (summer 2010) – undergraduate at Georgia Tech, Amgen program
8. Castaneda, Andrea (2009-) undergraduate at SEAS, research student, received NIH research supplement from NIDCR, summer 2009
9. Chen Jasmin(2011) summer student, Amgen program
10. Choodnovsky Naomi (2006 - 2007), undergraduate at SEAS, research student
11. Dhuldhoya, Jay (2010-2012) undergraduate at Columbia University, research student
12. Djuknic Stefan (2010-) (2011-) research student, highschool student, now an undergraduate at *Columbia University*
13. Eton, Ryan (2010-2013) undergraduate at Columbia University, SURF program; now medical student at Harvard
14. Godier Amandine (2006 – 2008), DBME senior, 2-yearNHLBI research supplement, summer 2009 extension; awarded DAAD fellowship for a research stay (1 year) in Germany; awarded F32 fellowship
15. Heng Elbert (2008) High school student, summer intern
16. Ge Daning(2010-) undergraduate at SEAS, research student
17. Goh Brian(2008) Undergraduate, Louisiana State University, summer intern
18. Feliz, Juani (2009) Harvard undergraduate, summer student
19. Fu Michael(2008-) ChemE senior, continuing as a Yale University Medical School student, Fall 2009
20. Jakolev Deryn(2011-) undergraduate at Columbia University, research student
21. John, Mira (2010-) undergraduate at Columbia University, research student
22. **Kang June Hwan** (2014-), undergraduate at Columbia University, General studies – Biological Sciences, research advisor
23. **Kanai Mariko** (2014-) undergraduate at Columbia University, General studies – Biological Sciences, research advisor
24. Kearns Jamie (2007-2008) MD student, Columbia
25. Kim Yoo-na (2008-2010) SEAS undergraduate, shared with Ann-Marie Schmidt
26. **Kim Nathan** (2014-) undergraduate at Columbia University, research advisor
27. Kichline Tiffany (2011-) undergraduate at Columbia University, research student
28. Koeckert, Michael (2006 –) MD student, Columbia
29. Koren, Ana (2009-2010) – visiting student from University of Ljubljana, Slovenia
30. Leong Wei (2010-) undergraduate at Columbia University, research student
31. Linkov Gary (2007 - ), MD student, Columbia, NIH Summer Research Fellowship
32. Mosca Matthew (2007) High school student, summer intern
33. Nakazawa Kenneth(2011-2013) research student, now astudent at Mt Sinai Medical School
34. Ong, Luvena (2009) undergraduate at MIT, Summer student, Amgen program
35. Pena-Alcantara, Amnahir (2014), Summer student
36. Petrides, Petros (2010-2012) undergraduate at Columbia University, research student
37. **Plushinsky Adam** (2015-) undergraduate at Columbia University, research student
38. Rapaport Eliot (2013-2014) Research student
39. Roxas, Nichole (2007 - 2008) High school student, worked in lab for 2 years
40. Schoeneck, Nathan (2006-2007) DBME undergraduate
41. Schneider Jesse (2009-) visiting student, CUNY
42. Simon Joseph(2011) summer student, Amgen program
43. Stern, Ali (2005 – 2006) CUNY undergraduate
44. Subramanian Sneha (2011-2014) research student, undergraduate at *Columbia University*; now medical student at Mt Sinai School of Medicine
50. Tajnssek Uraska (2008) Visiting Scholar, undergraduate student, University of Ljubljana, Slovenia
45. Tan Susan (2006) High school student, worked in lab for 2 years
46. **Tang William** (2012-) research student, undergraduate at *Columbia University*
47. Taylor, Grace (summer 2010) – Undergraduate at MIT, NYSTEM program
48. Zupancic Klemen (2008-2009) Visiting Scholar, undergraduate student, University of Ljubljana, Slovenia
49. **Wang Bryan** (2013-) SEAS, transfer student from Berkeley, research student



50. Wertz Laura (2009-2010), SEAS undergraduate, research student

**At MIT**

- 51. Gray, Bradley (1997); Executive at Genzyme
- 52. Ianculescu, Alexandra (2001-2002); MD/PhD at the UCSF
- 53. Krishnan, Anita (1997-1998)
- 54. Leslei Julia (2004); PhD student at the University of Houston
- 55. Peterson Lindy (2004 – 2005)
- 56. Reese, Shaina (1999-2000)
- 57. Salazar-Lazaro, Johanna (2003 – 2005)

<b>RESEARCH FUNDING</b>
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**Active**

<p>2R01 DE016525 (Vunjak-Novakovic)  <u>Craniofacial Tissue Engineering</u>            The goal is to engineer and evaluate complex tissue grafts for craniofacial reconstructions.</p>	<p>4/1/13 – 3/31/18</p>	<p>\$2,517,108</p>
<p>2R01 HL076485-07 (Vunjak-Novakovic)            NIH/NHLBI  <u>Vascularized cardiac muscle</u>            The goal is to engineer human vascularized cardiac muscle and investigate cardiac development.</p>	<p>4/17/13 – 4/01/18</p>	<p>\$2,098,047</p>
<p>R01 HL120046-01 (Vunjak-Novakovic and Snoeck)  <u>Bioengineering a chimeric human lung</u>            The goal is to engineer a functional chimeric human lung starting from lungs rejected for transplantation</p>	<p>8/7/13 – 5/31/18</p>	<p>\$2,708,942</p>
<p>4UH3EB 17103-03 (Vunjak-Novakovic)  <u>Integrated heart-liver-vascular systems for drug testing in human health and disease</u>            The goal is to develop a screening platform with heart, liver and vascular organoids for testing of drugs in settings representative of normal and pathological whole-body human physiology.</p>	<p>7/1/14-6/30/17</p>	<p>\$2,092,321</p>
<p>3UH3EB017103-04S1  <u>Integrated heart-liver-vascular systems for drug testing in human health and disease</u>            This is a supplement to develop common perfusates for multi-tissue platforms.</p>	<p>8/24/15-6/30/16</p>	<p>\$121,000</p>
<p>3UH3EB017103-04S2  <u>Integrated heart-liver-vascular systems for drug testing in human health and disease</u>            This supplement is to integrate skin constructs into the existing platform</p>	<p>7/1/15-6/30/16</p>	<p>\$200,000</p>
<p>3UH3EB017103-04S3  <u>Integrated heart-liver-vascular systems for drug testing in human health and disease</u>            This supplement is to develop tissue chip for bone cancer research</p>	<p>7/1/15-6/30/16</p>	<p>\$239,688</p>
<p>3 P41 EB002520 (Kaplan)  <u>Tissue Engineering Resource Center – Bioreactor Core</u>            The goal is to establish tools (stem cells, scaffolds, bioreactors, imaging) for engineering functional human tissues for regenerative medicine, study of disease and drug testing.</p>	<p>08/1/14 – 07/31/19</p>	<p>\$2,746,425</p>
<p>1R01 AR061988 (Vunjak-Novakovic, Hung, Kaplan and Levin)            NIAMS  <u>Electrotherapeutic strategies for connective tissue repair</u>            The goal is to utilize electrical signals to guide and enhance the regeneration of skeletal tissues</p>	<p>7/1/11-6/30/16</p>	<p>\$1,673,617</p>
<p>C028119 (Vunjak-Novakovic)</p>		

New York State Department of Health (NYSTEM) <u>Spatial-Temporal Studies of Stem Cells using a Microbioreactor Platform</u> The goal is to investigate early cardiac differentiation using an advanced cell culture platform.	03/1/13 – 02/28/16	\$1,077,793
TBD NYSTEM (Vunjak-Novakovic) <u>Columbia training program in stem cell research</u> This training grant is to establish new modalities for predoctoral and postdoctoral training in all areas of stem cell science and technology.	07/01/16 – 06/30/21	\$1,869,055
R01 AR060361-01 (Ateshian PI, role: Co-I) <u>Optimizing Nutrient Supply in Large Engineered Cartilage Tissue Constructs</u> The goal is to enhance the <i>in vitro</i> development of cartilage constructs through enhanced nutrient supply.	1/1/11 – 12/31/15	\$1,366,348
R43 DE024671 (Bhumiratana) <u>Engineered Personalized Osteochondral Grafts</u> Role: Co-I	9/15/15 – 12/31/15	\$149,684
NYSTEM training grant (Vunjak-Novakovic, Sussel) <u>Columbia training program in stem cell research</u>	9/1/16 – 8/31/21	\$1,869,505
T32 (Hardy) <u>Cardiology-Surgery training grant</u> Role: mentor	1/1/2011 – 12/31/16	
T32 (Ateshian) <u>Multidisciplinary Engineering Training in Musculoskeletal Research</u> Role: mentor	1/1/2012 – 12/31/17	
T32 (Bickers) <u>Genetic Mechanism in Skin Disease Training Grant</u> Role: mentor	1/1/2012 – 12/31/17	
T32 (Shelanski) <u>Medical Scientist Training Program</u> Role: mentor	1/1/2012 – 12/31/17	
T35 HL007616-34(Leibel) <u>Medical Scientist Training Program</u> Role: mentor	5/1/2011 – 4/30/16	
K12 grant (Mao) <u>Multidisciplinary Training in TMJD: Basic, Translational and Clinical Science</u> Role: mentor	7/1/13 – 6/30/16	
Coulter Foundation (Vunjak-Novakovic and Eisig) <u>AlloSafe:Increasing cell viability of fresh osteochondral allografts during storage and transport.</u>	8/1/14 – 5/31/15	\$103,185
<u>Lisa and Mark Schwartz Program to Reverse Heart Failure</u> Role: Scientific Director	1/1/13 – 12/31/17	\$5,000,000

**Pending**

Children’s Heart Foundation (Vunjak-Novakovic) Modeling Systemic Right Ventricles Through Tissue Engineering and Genomics.	1/1/16-12/31/17	\$200,000
NIH R01 (Maran PI, role: Co-I)) 2-Methoxyestradiol-mediated Activation of PKR and Local Targeting of Osteosarcoma	7/1/16 – 6/30/21	\$2,000,000

<b>Recently completed</b>
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R01 AR061988-03S1 (Vunjak-Novakovic) <u>Enabling quantitative technologies for imaging engineered bone and cartilage</u>	7/1/13 – 6/30/14
NSF conference grant CBET 1242233 <u>NIH/MATES Workshop: Functional Imaging for Regenerative Medicine</u> Role: conference chair	6/1/12 – 5/31/13
<u>Summer fellowship program</u> (Heiklen and Vunjak-Novakovic) New York State Department of Health (NYSTEM)	5/10/10 – 4/30/13
J&J CU10-0162 (Vunjak-Novakovic) Johnson & Johnson Effects of Galvanic Electricity on Human Fibroblasts	12/1/11 – 11/30/12
1 R21EB011869 (Vunjak-Novakovic) NIBIB Silk hydrogel for functional cartilage tissue engineering	03/01/10 – 02/28/13
5 R01 HL076485 (Vunjak-Novakovic) NIH/NHLBI Vascularized cardiac muscle	7/1/05 – 6/30/13
NASA Microgravity Tissue Engineering (PI: Freed) Co-PI	5/1/03 – 4/30/07
Contained sample handling and analysis system (de Luis) NASA and Payload systems Co-I	9/1/04 – 8/30/05
Design and Development of the Cell Culture Unit for the International Space Station (PI: Vunjak-Novakovic) NASA and Payload Systems Inc.	5/1/03 – 4/30/07
Sponsored research (PI: Vunjak-Novakovic) Musculoskeletal Transplant Foundation, Edison NJ	11/1/03 – 5/1/05
Vascularization of a cardiac tissue patch using hESC (PI: Vunjak-Novakovic) Juvenile Diabetes Research Foundation	11/1/05 – 10/31/06
Smart Well Plates (PI: Vunjak-Novakovic) CIMIT (Center for Minimally Invasive Technologies)	11/1/05 – 10/31/06
R21 AR 052801-01 Tissue engineering of the intervertebral disc (PI: Kandel) NIAMS, Subcontract PI	10/1/06 – 9/30/07
CO21631 Derivation of new embryonic stem cell lines (PI: Landry) New York State Department of Health Subcontract PI	4/1/07 – 10/31/08

W911NF-08-1-0045 Smart gill (PI: Vunjak-Novakovic) DARPA seeding proposal	3/1/08 – 1/31/09
CO 23061 Functional imaging core for stem cell research (PI: Vunjak-Novakovic) New York State Department of Health	1/1/08 – 12/31/08
R01 HL076485-S1 (PI: Vunjak-Novakovic) Supplement for undergraduate student (Amandine Godier)	7/01/07 – 6/30/09
R01 HL076485-S2 (PI: Vunjak-Novakovic) Supplement for stem cell research	7/01/08 – 6/30/09
R01 DE16525 Administrative supplement (PI: Vunjak-Novakovic) Summer research experience for Andrea Castaneda	5/15/09 – 8/31/09
P41-EB002520 Tissue Engineering Resource Center (PI: Kaplan) (PI: Kaplan) Co-Director of the Center; PI of the Bioreactor Core	8/15/04 – 7/31/09
T32 HL087745 Multidisciplinary Training in Translational Cardiovascular Research (PI: Marks) Group leader for Bio- and Tissue Engineering and Computational Biology	4/1/07 – 3/31/10
C023891 Molecular, genetic and biophysical regulation of human stem cells for medical impact (PI: Vunjak-Novakovic) Consortium planning grant	11/1/08 – 4/30/10
R21 HL088913-02 (Vunjak-Novakovic) NIH/NHLBI Controlled gene delivery for in vivo vascularization of an engineered cardiac patch	03/01/08 – 02/28/11
CaMPr Planning Grant(Sonett and Vunjak-Novakovic, Co-PIs) Phase I planning grant Cellular Repopulation and Orthotopic Transplantation of a Bioengineered Lung	12/1/2010-4/1/2011
3 R01 HL076485-06S1 (Vunjak-Novakovic) <u>Administrative supplement</u> for undergraduate student (Amandine Godier)	7/1/09 – 6/30/10
3 P41 EB002520-06 A1S1 (Vunjak-Novakovic) <u>Administrative supplement</u>	08/15/09 – 07/31/11
<u>CU09-3055</u> (Vunjak-Novakovic) New York Stem Cell Foundation (NYSCF) <u>Pilot studies of human stem cell differentiation into bone</u>	07/1/09 – 06/30/11
<u>Gift funding</u> (Vunjak-Novakovic) Corning Life Sciences <u>EPIC platform</u> Grant to purchase a high-throughput platform for non-label imaging of cells and biologicals.	11/20/09
<u>RC2 DE020767</u> (PI: Mao; Co-PI: Vunjak-Novakovic) <u>Regeneration of clinically relevant orofacial tissues in preclinical models</u>	9/25/09 – 8/31/11
<u>J&amp;J CU10-0162</u> (Vunjak-Novakovic)	04/1/10 – 06/30/11

Johnson & Johnson  
Effects of Galvanic Electricity on Human Fibroblasts

Conference grant (Zreiqet and Vunjak-Novakovic) 01/01/10 – 12/31/11  
International Program Development Fund

T 32 HL087745 (Marks) 4/1/07-3/31/10  
NIH/NHLBI  
Multidisciplinary Training in Translational Cardiovascular Research  
Role: group leader for Bio- and Tissue Engineering and Computational Biology

Columbia Technology Ventures Office (PI) 11/1/10-10/31/11  
Starter funding  
Establish library of human tissue hydrogels

3 R01 DE16525-S1 (Vunjak-Novakovic) 09/1/09 – 08/31/12  
Administrative supplement

UL1RR024156 (Sonett and Vunjak-Novakovic, Co-PIs) 4/1/2011-3/31/2012  
Phase II Irving Institute Collaborative and Multidisciplinary Pilot Research (CaMPR) Award  
Cellular Repopulation and Orthotopic Transplantation of a Bioengineered Lung

CU11-0138 (PI: Vunjak-Novakovic) 3/1/11-9/30/13  
Helmsley Stem Cell Start Grant  
Differentiation of human iPS cells into cardiovascular lineages using a bioengineered niche  
The goal is to direct cardiac differentiation of human iPS cells using an in vitro bioengineered niche.

5 R01 DE016525 (Vunjak-Novakovic) 9/1/05 – 8/31/12  
Craniofacial Tissue Engineering

C026449 (Vunjak-Novakovic) 09/01/10 – 02/28/14  
New York State Department of Health (NYSTEM)  
Phenotypic maturation of human cardiomyocytes by electrical stimulation  
The goal is to determine the role of electrical signals in cardiac differentiation of hES and iPS cells.

1 R21 EB015888 (Vunjak-Novakovic) 02/15/10 – 01/31/14  
NIBIB  
Plug and Play Bioreactor  
The goal is to develop a radically novel bioreactor system for biophysical regulation of human cells.

R21 HL108668 (Vunjak-Novakovic and Santambrogio Co-PIs) 8/15/11 - 7/31/13  
Improving survival and function of engineered cardiac grafts

1S10OD012338 (Vunjak-Novakovic and Kass) 7/1/12 – 6/30/13  
Nanon SynchroPatch  
The grant is for the SyncroPatch 96 (Nanon Technologies), an automated giga-seal patch with high-throughput capability to study electrophysiological properties of electrically excitable cells.

Coulter Foundation (Spotnitz, Yeager and Vunjak-Novakovic) 7/1/12 – 6/30/13  
An intracardiac localization system to cannulate the coronary sinus for left ventricular lead insertion

UH2 EB 17103 (Vunjak-Novakovic) 9/1/12-6/30/14 \$1,560,000  
Integrated heart-liver-vascular systems for drug testing in human health and disease  
The goal is to develop a screening platform with heart, liver and vascular organoids for testing of drugs in settings representative of normal and pathological whole-body human physiology.

Coulter Foundation (Brenner and Vunjak-Novakovic) 6/1/13 – 5/31/14 \$62,500

Differential UV Sterilizer for Inactivating Bacteria Relative to Mammalian Cells to Reduce Surgical Site Infections

2 P41 EB002520 (Kaplan) 08/1/09 – 07/31/14 \$2,610,836  
NIH/NIBIB

Tissue Engineering Resource Center

The goal is to provide resources for fundamental and applicative studies of tissue engineering. The Columbia core has focus on advanced bioreactors and imaging capability.

Role: Center co-director, PI of the Columbia core.

UH2 EB 17103-S1 (Vunjak-Novakovic) 9/1/13-6/30/14 \$160,500

Integrated heart-liver-vascular systems for drug testing in human health and disease

Administrative supplement

NYCPF CU11-1915 (Vunjak-Novakovic) 4/1/11 – 1/31/14 \$250,000

New York City Partnership Foundation

Personalized bone grafts for craniofacial reconstruction

The goal is to conduct a pig study of the safety and efficacy of engineered bone grafts.