CURRICULUM VITAE FOR JENNIFER ELISSEEFF

Personal Data
Smith Building 5035
400 N. Broadway
Baltimore, MD 21287
443-413-2821
jhe@jhu.edu

Education and Training

Undergraduate

9/91-5/94 **Honors Bachelor of Science in Chemistry**, Carnegie Mellon University, University and Departmental Honors, Polymer Science Option

Doctoral/Graduate

9/94-5/99 **Ph.D. in Medical Engineering,** Harvard-MIT Division of Health Sciences and Technology**,** Advisor: Robert S. Langer**,** Dissertation: *Transdermal Photopolymerization of Hydrogels for Cartilage Tissue Engineering***,** Coursework: Standard MIT organic chemistry and Harvard Medical School 1st and 2nd year curriculum

Postdoctoral

99-01 **Postdoctoral Fellowship (PRAT),** Developmental Biology, Advisor: Yoshi Yamada, National Institute of Dental and Craniofacial Research, National Institutes of Health, Bethesda Maryland

Professional Experience

2023-present	Interim Chair, Chemical and biomolecular engineering, Johns Hopkins School of Engineering
2010-present	Full Professor, Johns Hopkins School of Medicine
2010-present	Founder and Director, Translational Tissue Engineering Center
2007-2010	Associate Professor with tenure
2001-2007	Assistant Professor, Johns Hopkins University, Department of Biomedical Engineering, Baltimore, MD
1999-6/2001	Pharmacology Research Associate Fellow, National Institute of General Medical Sciences, NIH, Bethesda, MD. Laboratory of Yoshi Yamada, Molecular Biology Section, National Institute of Dental and Craniofacial Research
1/1992-5/1994	Undergraduate Research, Laboratory of Krzysztof Matyjaszewski, Carnegie Mellon University, Pittsburgh, PA (Internship**,** Laboratoire de Macromolécules, University of Paris VI, France, 1993)

Member

National Academy of Medicine, National Academy of Engineering, National Academy of Sciences, National Academy of Inventors, and American Academy of Arts and Sciences.

RESEARCH ACTIVITIES

Peer Reviewed Original Science Publications
As of 1-2024 h-index 86

1. **J. Elisseeff,** K. Anseth, R. Langer, and J. Hrkach, "Synthesis and Characterization of Photocrosslinked Polymers Based on Poly(L-lactic acid-co-L-aspartic acid)", *Macromolecules*, 1997, 30(7):2181-2184.

2. T. Hadlock, **J. Elisseeff**, R. Langer, J. Vacanti, and M. Cheney, "A Tissue-Engineered Conduit for Facial Nerve Repair", *Arch Otolaryngol Head Neck Surg*, 1998, 124(10):1081-6.

3. V. Ting, CD Sims, LE Brecht, JG Kasabian, AK Connelly, **J. Elisseeff,** GK Gittes, and MT Longaker, "*In vitro* prefabrication of human cartilage shapes using fibrin glue and human chondrocytes." *Ann Plast Surg*, 1998, 40(4):413-420.

4. RP Silverman, **J. Elisseeff**, D. Passaretti, W. Huang, MA Randolph and MJ Yaremchuck, "Transdermally Photopolymerized Adhesive for Seroma Prevention", *Plastic and Reconstructive Surgery,* 1999, 103:531-535.

5. **J. Elisseeff**, K. Anseth, W. McIntosh, D. Sims, M. Randolph and R. Langer, "Transdermal Photopolymerization for Minimally Invasive Implantation", *Proc. Nat. Acad. Sci., USA*, 1999, 96(6):3104.

6. **J. Elisseeff**, K. Anseth, W. McIntosh, D. Sims, M. Randolph, M. Yaremchuk, and R. Langer, "Transdermal Photopolymerization of PEO-Based Injectable Hydrogels for Tissue Engineering Cartilage", *Plastic and Reconstructive Surgery*, 1999, 104(4):1014-1022.

7. **J. Elisseeff**, W. McIntosh, K. Anseth, S. Riley, P. Ragan, and R. Langer, "Photoencapsulation of chondrocytes in Poly(ethylene oxide)-based Semi Interpenetrating Networks", *Journal of Biomedical Materials Research,* 2000, 51(2):164-71.

8. **J. Elisseeff**, W. McIntosh, K. Fu, T. Blunk and R. Langer, "Controlled Released IGF-I and TGF- on Bovine Chondrocytes Encapsulated in a Photopolymerizing Hydrogel", *Journal of Orthopedic Research*, 2001, 19(6):1098-104.

9. KS Anseth, PJ Martens, AT Metters, SJ Bryant, **J. Elisseeff**, and CN Bowman, "*In situ* forming degradable networks and their application in tissue engineering and drug delivery", *J Control Release*, 2002, 78(1-3):199-209.

10. DA Wang, J. Ji, YH Sun, JC Shen, LX Feng, and **J. Elisseeff**, "*In situ* Immobilization of Proteins and RGD Peptide on Polyurethane Surfaces via Poly(ethylene oxide) Coupling-polymers for Human Endothelial Cell Growth", *Biomacromolecules*, 2002, 3(6):1286-95.

11. **J. Elisseeff**, A. Lee, HK Kleinman, and Y. Yamada, "Biological Response of Chondrocytes to Hydrogels", *Annals of the New York Academy of Sciences*, 2002, 961:118-22.

12. DA Wang, LX Feng, J. Ji, YH Sun, XX Zheng, and **J. Elisseeff**, "Novel Human Endothelial Cell-engineered Polyurethane Biomaterials for Cardiovascular Biomedical Applications ", *J. Biomed. Mater. Res*., 2003, 65A(4):498-510.

13. Q. Li, DA Wang, and **J. Elisseeff**, "Heterogenous-phase Reaction of Glycidyl Methacrylate and Chondroitin Sulfate: Mechanism of Ring-open and Transesterification Competition", *Macromolecules,* 2003, 36(7):2556-2562.

14. CG Williams, TK Kim, A. Taboas, A. Malik, P. Manson, and **J. Elisseeff,** "In Vitro Chondrogenesis of Bone Marrow-Derived Mesenchymal Stem Cells in a Photopolymerizing Hydrogel", *Tissue Engineering,* 2003, 9(4):679-88.

15. DA Wang, CG Williams, Q.Li, B Sharma, and **J. Elisseeff**. "Synthesis and Characterization of a Novel Degradable Phosphate-containing Hydrogel", Biomaterials, 2003, 24(22):3969-3980

16. L. Lum, N. Cher, CG Williams, and **J. Elisseeff**, "An extracellular matrix extract for tieeus-engineered cartilage", IEEE EMB Engineering in Medicine and Biology, 2003, 22(5):71-6.

17. Kim TK, Sharma B, Williams CG, Ruffner MA, Malik A, McFarland EG, **Elisseeff JH**., "Experimental model for cartilage tissue engineering to regenerate the zonal organization of articular cartilage." *Osteoarthritis Cartilage*. 2003 Sep;11(9):653-64.

18. Q. Li, CG Williams, DN Sun, J. Wang, DA Wang, B. Sharma, KW Leong, and **J. Elisseeff**, "Photocrosslinkable polysaccharides based on chondroitin sulfate for tissue engineering", *Journal of Biomedical Materials Research*, 2004, 68A(1):28-33.

19. DA Wang, CG Williams, F. Yang, and **J. Elisseeff**, "Tissue-Initiated Integration of Biomaterials", Advanced Functional Materials, 2004, 14(12): 1152-1159

20. A. Alhadlaq, **J. Elisseeff**, L. Hong, CG Williams, AI Caplan, B. Sharma, D. Lennon, RA Kopher, S. Tomakoria, PA Clark, RV Patel, NT Lewis, A. Peptan, S. Chaieb, S. Shah and J. Mao, "

21. A. Alhadlaq, **J. Elisseeff**, L. Hong, CG Williams, AI Caplan, B. Sharma, D. Lennon, RA Kopher, S. Tomakoria, PA Clark, RV Patel, NT Lewis, A. Peptan, S. Chaieb, S. Shah, and J. Mao, "Adult StemCell Driven Genesis of Human-Shaped Articular Condyle", *Annals of Biomedical Engineering,* 2004, 32(7):911-23.

22. **J. Elisseeff**, "Injectable Cartilage Tissue Engineering," *Expert Opinion on Biological Therapy*, 2004, 4(12):1849.

23. B. Sharma and **J. Elisseeff**, "Engineering structurally organized cartilage and bone tissues", *Annals of Biomedical Engineering*, 2004, 32(1):148-59.

24. **Elisseeff, J**. "Regenerating organized tissues and understanding cell-cell interactions," *FASEB J*, 2004, 18(4):A405-6.

25. Miles-Thomas J, **Elisseeff J**, Morales N, et al., "Human stem cells in a photopolymerizable hydrogel – The next generation of engineered tissue," *Journal of Urology,* 2004, 171(4):46.

26. J. Elisseeff, C. Puleo, F. Yang, and B. Sharma, "Advances in Skeletal Tissue Engineering with Hydrogels", Ortho Craniofac Res, 2005, 8(3):150.

27. CG Williams, A. Malik, TK Kim, P. Manson, and **J. Elisseeff**, 'Variable Cytocompatibility of Six Cell Lines with Photoinitiators used for Polymerizing Hydrogels and Cell Encapsulation", *Biomaterials*, 2005, 26:1211-8.

28. DA Wang, CG Williams, N. Cher, HJ Lee, B. Sharma, and **J. Elisseeff**, "Bioresponsive Phosphoester Hydrogels for Bone Tissue Engineering", *Tissue Engineering,* 2005, 11(1/2):201.

29. MS Kim, NS Hwang, J. Lee, TK Kim, KW Leong, MJ Shamblott, J. Gearhart, and **J. Elisseeff,** "Musculoskeletal Differentiation of Cells Derived from Human Embryonic Germ Cells", *Stem Cells,* 2005, 23(1):113-123.

30. J MG Reyes, S. Herretes, A. Pirouzmanesh, DA Wang, J. Elisseeff, Albert Jun, MD, Peter J. McDonnell, Roy S. Chuck, Ashley Behrens, "A Modified Chondroitin Sulfate Aldehyde Adhesive for Sealing Corneal Incisions", Invest. Ophth, Vis. Sci, 2005, 46(4):1247.

31. Sikder S., Reyes, JM, Moon CS, Suwan-apichon O., Elisseeff, JH, Chuck, RS, "Noninvasive mitochondrial imaging", Photochem Photobiol., 2005, 81(6):1569-71.

32. L. H. Holton, Hafez Haerian, Ronald P. Silverman, Thomas Chung, **Jennifer H. Elisseeff**, Nelson H. Goldberg, and Sheri Slezak*, "*Improving Long-Term Projection in Nipple Reconstruction Using Human Acellular Dermal Matrix: An Animal Model", Annals of Plastic Surgery, 2005, 55(3):304.

33. Yang F, Williams CG, Wang DA, Lee H, Manson PN, **Elisseeff J., "**The effect of incorporating RGD adhesive peptide in polyethylene glycol diacrylate hydrogel on osteogenesis of bone marrow stromal cells," *Biomaterials,* 2005, 26 (30):5991-5998.

34. Y. L. Wang, R. Xiao, F. Yang , BO Karim, A. J. Iacovelli, J.L. Cai , C.P. Lerner, J.T. Richtsmeier, J.M. Leszl, C.A. Hill, K. Yu, D.M. Ornitz, **J. Elisseeff**, D.L. Huso, and E.W. Jabs, "Apert syndrome $FGFR2^{+/S252W}$ mouse model reveals abnormal chondrogenesis and osteogenesis", *Development,* 2005, 132(15):3537.

35. B.Sharma, C. G. Williams, M. Khan, P. Manson, and J. Elisseeff, "In vivo photoencapsulation of mesenchymal stem cells in an injectable hydrogel for cartilage tissue engineering", Plastic and Reconstructive Surgery, 2007, 119(1):112-20.

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39. Lee, H.J., Lee, J., Chansakul T., Yu, C., **Elisseeff, J.**, Yu, S.M., "Collagen Mimetic Peptide-Conjugated Photopolymerizable PEG Hydrogel", *Biomaterials*. 2006 Oct;27(30):5268-76.

40. Qiang Li, Jun Wang, Shilpa Shahani, Danny D.N. Sun, Blanka Sharma, **Jennifer H. Elisseeff**, and Kam W. Leong, "Biodegradable and photocrosslinkable phosphoester hydrogel," *Biomaterials*, 2006, 27(7):1027-34.

41. Ramaswamy, S., DA Wang, KW Fishbein, JH Elisseeff, RG Spencer, "An analysis of the integration between articular cartilage and nondegradable hydrogel using magnetic resonance imaging," J Biomed Mater Res B Appl Biomater, 2006, April; 77(1):144-8.

42. Nathaniel S. Hwang, Shyni Varghese and **Jennifer Elisseeff**, "Enhanced Chondrogenic Differentiation of Murine Embryonic Stem Cells in Hydrogels with Glucosamine", *Biomaterials,* 2006 Dec;27(36):6015-23.

43. J MG Reyes, S. Herretes, S. Fermanian, F. Yang, DB Murphy, and J. Elisseeff, Chuck RS, "Metabolic Changes in Mesenchymal Stem Cells in Osteogenic Media Measured by Autofluorescence Spectroscopy", Stem Cells, 2006. May;24(5):1213-7.

44. Schmidt O, Mizrahi J, **Elisseeff J**, and D Seliktar, "Immobilized fibrinogen in PEG hydrogels does not improve chondrocyte-mediated matrix deposition in response to mechanical stimulation", *Biotechnol Bioeng*. 2006, 95(6):1061-9.

45. Zhang Z, Messana J, Hwang NS, **JH Elisseeff**, "Reorganization of actin filaments enhances chondrogenic differentiation of cells derived from murine embryonic stem cell", *Biochem Biophys Res Commun.*, 2006 Sep 22; 348(2):421-7.

46. Hwang NS, Varghese S, Zhang Z, **Elisseeff J**., "Chondrogenic differentiation of human embryonic stem cell-derived cells in arginine-glycine-aspartate-modified hydrogels." *Tissue Engineering* 2006 Sep;12(9):2695-706.

47. Hwang, N., Kim, M.S, Sampattavanich, S., Baek, J.H., Zhang, Z., and **Elisseeff, J**. "Effects of Three Dimensional Culture and Growth Factors on the Chondrogenic Differentiation of Murine Embryonic Stem Cells" *Stem Cells,* 2006 Feb;24(2):284-91.

48. Sharma B, Williams CG, Kim TK, Sun D, Malik A, Khan M, Leong K, **Elisseeff JH**. "Designing zonal organization into tissue-engineered cartilage", *Tissue Eng*. 2007 Feb;13(2):405-14.

49. Wang DA, Varghese S, Sharma B, Strehin I, Fermanian S, Gorham J, Fairbrother DH, Cascio B, Elisseeff JH., "Multifunctional Chondroitin Sulfate for Tissue Integration", Nature Materials 2007, 6(5):385-92. Featured in News and Views, Science, Commentary in Nature Materials.

50. Varghese S., Sahani S., Theprungsirikul P., Hwang N. S., Yarema, K., **Elisseef J. H.** "Glucosamine Modulates Chondrocyte Proliferation, Matrix Synthesis and Gene Expression", *Osteoarthritis Cartilage,* 2007, 15(1):59-68. *Rated as the fourth "hottest" paper that appeared in Osteoarth. Cartilage in the field of Medicine and Dentistry by* ***Science Direct*** (http://top25.sciencedirect.com/)

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53. Terraciano V, Hwang N, Moroni L, Park HB, Zhang Z, Mizrahi J, Seliktar D, **Elisseeff J**. "Differential Response of Adult and Embryonic Mesenchymal Progenitor Cells to Mechanical Compression in Hydrogels", *Stem Cells*. 2007, 25(11):2730-8.

54. Hwang NS, Varghese S, Lee HJ, Zhang Z, **Elisseeff J**, "Biomaterials-directed in vivo commitment of mesenchymal cells derived from human embryonic stem cells", *FASEB J,* 2007, 21(5): A145.

55. Hwang, NS, Varghese, S., **Elisseeff, J**., "Cartilage tissue engineering: Directed differentiation of embryonic cells in three dimensional hydrogel culture," *Methods Mol Biol,* 2007, 407:351-73.

56. Varghese S, Hwang NS, Canver AC, Theprungsirikul P, Lin DW, **Elisseeff J**. "Chondroitin sulfate based niches for chondrogenic differentiation of mesenchymal stem cells," *Matrix Biol*. 2008, 581(22):4172.

57. Lee, H.J., Yu, C., Chansakul, T., Hwang, N.S., Varghese, S., **Elisseeff, J**., "Enhanced Chondrogenesis of Mesenchymal Stem Cells in Collagen Mimetic Peptide-modified Microenvironment", *Tissue Engineering* Part A, 14(11):1843-51, 2008.

58. N. Garagorri, S. Fermanian, OD Schein, S. Chakravarti, and J. Elisseeff, "Keratocyte Behavior in Three-Dimensional Photopolymerizible Poly(Ethylene Glycol) Hydrogels," Acta Biomater, 2008, 4(5):1139.

59. Lee, H.J., Yu, C., Chansakul, T., Varghese, S., Hwang, N.S., **Elisseeff, J**., "Enhanced Chondrogenic Differentiation of Embryonic Stem Cells by Coculture with Hepatic Cells", *Stem Cells and Development* 2008 Jun;17(3):555-63.

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61. Yang, F, Y. Wang, Z. Zhang, B. Hsu, EW Jabs, and **J. Elisseeff**, "The study of abnormal bone development in Apert syndrome Fgfr2 (+/S252W) mouse using a 3D hydrogel culture model," *Bone,* 43(1):55-63 (2008).

62. N. Hwang, S. Varghese, and **J. Elisseeff**, "Derivation of chondrogenically-committed cells from human embryonic cells for cartilage tissue regeneration", *PLoSOne*, 2008 3(6), p2498.

63. N. Hwang, S. Varghese, H. J. Lee, Z. Zhang, Z. Ye, J Bae, L. Cheng, and **J. Elisseeff**, "In vivo commitment and functional tissue regeneration using human embryonic stem cell-derived mesenchymal cells," *Proceedings of the National Academy of Sciences,* 2008, 105(52):20641-6.

64. Messana, J., Hwang, NS, Coburn, J, **Elisseeff, JH**, Zhang, Z., "Size of embryoid body influences chondrogenesis of mouse embryonic stem cells, " *J Tissue Eng Regen Med*, 2008, 2(8):499-506.

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67. Deans TL, **Elisseeff, JH**., "Stem Cells in Musculoskeletal Engineered Tissue," *Curr. Opin Biotechnology*. 2009 Oct;20(5):537-44.

68. Strehin IA, **Elisseeff JH**, "Characterizing ECM production by cells encapsulated in hydrogels," *Methods Mol Biol.* 2009;522:349-62.

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77. Shyni Varghese, Angela Ferran, Nathaniel Hwang Alexander Hillel, Parnduangjai Theprungsirikul, Adam C Canver, Zijun Zhang, Michael Shamblott, John Gearhart, and **Jennifer Elisseeff**, "Engineering musculoskeletal tissues with human embryonic germ cell derivatives", *Stem Cells,* 2010 Apr;28(4):765-74 (journal cover).

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83. Reid, Branden; Tzeng, Stephany; Warren, Andrew; Kozielski, Kristen; **Elisseeff, Jennifer**, "Development of a PEG Derivative Containing Hydrolytically Degradable Hemiacetals", *Macromolecules*, 2010, *43* (23), pp 9588–9590.

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85. Li H, Feng F, Bingham CO, **Elisseeff JH**. "Matrix metalloproteinases and inhibitors in cartilage tissue engineering", *J Tissue Eng Regen Med*., Volume 6, Issue 2, pages 144–154, February 2012. PMID: 21351376

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93. Jeannine M. Coburn, Matthew Gibson, Sean Monagle, Zachary Patterson, **Jennifer H. Elisseeff**, "Bioinspired Nanofibers Support Chondrogenesis for Articular Cartilage Repair," *Proceedings of the National Academy of Sciences,* 2012 Jun 19;109(25):10012-7.

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190. Erika M. Moore, David R. Maestas Jr., Hannah Y. Comeau, and **Jennifer H. Elisseeff,** The Immune System and Its Contribution to Variability in Regenerative Medicine. Tissue Engineering Part B: Reviews, Vol. 27, No. 1, 2021, DOI: 10.1089/ten.TEB.2019.0335.

191. Xiaokun Wang, Liam Chung, Joshua Hooks, David R. Maestas Jr., Andriana Lebid, James I. Andorko, Luai Huleihe, Alexander F. Chin, Matthew Wolf, Nathaniel T. Remlinger, Mary Ann Stepp, Franck Housseau, **Jennifer H. Elisseeff,** Type 2 immunity induced by bladder extracellular matrix enhances corneal wound healing. April 2021Science Advances 7(16) doi:10.1126/ sciadv.abe 2635

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193. **Elisseeff J**, Badylak SF, Boeke JD. “Immune and Genome Engineering as the Future of Transplantable Tissue”, N Engl J Med. 2021 Dec 23;385(26):2451-2462. doi: 10.1056/NEJMra1913421.PMID: 34936741 Review. No abstract available.

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201. David R. Maestas Jr., Liam Chung, Jin Han, Xiaokun Wang, Sven D. Sommerfeld, Erika Moore, Helen Hieu Nguyen, Joscelyn C. Mej?as, Alexis N. Pe?a, Hong Zhang, Joshua S. T. Hooks, Alexander F. Chin, James I. Andorko, Cindy Berlicke, Kavita Krishnan, Younghwan Choi, Amy

E. Anderson, Ronak Mahatme, Christopher Mejia, Marie Eric, JiWon Woo, Sudipto Ganguly, Donald J. Zack, Franck Housseau, Drew M. Pardoll, Jennifer H. Elisseeff, “Helminth egg derivatives as pro-regenerative immunotherapies”, Proc Natl Acad Sci U S A. 2023 Feb 21;120(8):e2211703120. doi: 10.1073/pnas.2211703120. Epub 2023 Feb 13.PMID: 36780522.

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208. Cottrill E, Pennington Z, Wolf MT, Dirckx N, Ehresman J, Perdomo-Pantoja A, Rajkovic C, Lin J, Maestas DR, Mageau A, Lambrechts D, Stewart V, Sciubba DM, Theodore N, Elisseeff JH, Witham T.J Creation and preclinical evaluation of a novel mussel-inspired, biomimetic, bioactive bone graft scaffold: direct comparison with Infuse bone graft using a rat model of spinal fusion. Neurosurg Spine. 2023 Mar 31;39(1):113-121. doi: 10.3171/2023.

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based vitrigel for remodeling porcine corneas. Arq Bras Oftalmol. 2023 Mar 24:S0004-27492023005002307. doi: 10.5935/0004-2749.2022-0128. PMID: 36995816

210. Zhang S, Yuan L, Danilova L, Mo G, Zhu Q, Deshpande A, Bell ATF, Elisseeff J, Popel AS, Anders RA, Jaffee EM, Yarchoan M, Fertig EJ, Kagohara, LT. Spatial transcriptomics analysis of neoadjuvant cabozantinib and nivolumab in advanced hepatocellular carcinoma identifies independent mechanisms of resistance and recurrence. Genome Med. 2023 Sep 18;15(1):72. doi: 10.1186/s13073-023-01218-y.

211. Yang B, Rutkowski N, Elisseeff, The foreign body response: emerging cell types and considerations for targeted therapeutics. J.Biomater Sci. 2023 Dec 5;11(24):7730-7747. doi:10.1039/d3bm00629h.

212. A Ruta, K Krishnan, JH Elisseeff, Single-cell transcriptomics in tissue engineering and regenerative medicine, Nature Reviews Bioengineering, 1-19, 2023.

RECOGNITION

Awards, Honors

Recipient of the Warner Prize for Juniors in Chemistry, 1993
Monteverdi Award for top female student in Mellon College of Science, 1994
Pittsburgh Society of Analytical Chemists University Award, 1994
Whitaker Scholarship to attend 42nd American Society for Artificial Organs Meeting, May1996,
Whitaker Scholarship to attend the International Society of Internal Organs, May, 1997, Providence, RI
Pharmacology Research Associate Fellow, NIGMS, 2000
Arthritis Investigator Award, Arthritis Foundation, 2001
TR100 Honoree (Technology Review Magazine) top 100 innovators under age 35, 2002
TR10 Honoree: Ten Technologies that will change the future (Technology Review Magazine), 2003
Nominated to World Technology Network, Medicine Category, 2003
Young Alumni Award, Carnegie Mellon, 2003
Society for Physical Regulation in Biology and Medicine, Iwao Yasuda Award, 2005
Elected Fellow of American Institute of Medical and Biological Engineering (AIMBE), 2009
Young Global Leader, The World Economic Forum, 2008-2013
Tilghman Travel Fellowship, JHU for Sabbatical at Ecole Polytechnique Federale de Lausanne, Switzerland (2013)
Swiss National Foundation Visiting Fellowship (2013)
National Academy of Inventors (2014)
National Academy of Engineering (2018)
National Academy of Medicine (2018)
NIH Pioneer Award (2019)
American Academy of Arts and Sciences (2022)
National Academy of Medicine (2023)
National Academy of Sciences (2023)

Inventions, Patents, Copyrights

Additional Table Available on Request

Research Program Building/Leadership

Cell and Tissue Engineering Undergraduate Curriculum
TTEC, Translational Tissue Engineering Center

EDUCATIONAL ACTIVITIES

Books and Selected Book Chapters/Commentaries/Reviews

"Scaffolding in Tissue Engineering" JH Elisseeff and P Ma (editors), Marcel Dekker, 2005.

"Stem Cells and Tissue Engineering," Song Li, Nicolas L'Heureux, and J. Elisseeff (editors), World Scientific Publishing, 2013.

"Immunomodulatory Biomaterials: Regulating the Immune Response with Biomaterials to Affect Clinical Outcome-9780128214404," Stephen Badylak and Jennifer Elisseeff, ELSEVIER, 2021.

Selected Chapters

1. **J. Elisseeff**, K. Anseth, W. McIntosh, and R. Langer, "Cogelation of Hydrolyzable Cross-Liners and Poly(ethylene oxide) Dimethacrylate and Their Use as Controlled Release Vehicles", *Intellingent Materials for Controlled Release,* ACS Symposium Series 728*,* Ch. 1, S. Dinh, J. DeNuzzio and A. Comfort (ed.), 1999.

2. S. Bryant, P. Martens, **J. Elisseeff**, M. Randolph, R. Langer, and K. Anseth , in *Chemical and Physical Networks: Formation and Control of Properties,* "Transtissue Photopolymerization of Poly(Vinyl Alcohol) Hydrogels," The Wiley Polymer Networks Group Review Series, Vol. 2, edited by B.T. Stokke and A. Elgsaeter (Wiley, New York, 1999) p.395.

3. **J. Elisseeff**, R. Langer and Y. Yamada, "Biomaterials for Tissue Engineering," in Tissue Engineering and Biodegradable Equivalents: Scientific and Clinical Applications. Lewandrowski, Wise, Trantolo, Gresser, Yaszemski and Altobelli, (ed), 2002.

4. **J. Elisseeff,** "Tissue Engineering", in McGraw-Hill, Yearbook of Science and Technology, 2004.

5. DA Wang and **J. Elisseeff,** "Photopolymerization", In *"Encyclopedia of Biomaterials and Biomedical Engineering" (EBBE)*, Wnek, G. E., Bowlin G. L., Eds; Marcel Dekker, Inc.: New York, 2004, p.1212-1225.

6. **J. Elisseeff,** "Embryonic Stem Cells: More Potential for Impact", *Trends in Biotechnology,* 2004, 22(4):155.

7. L. Lum and **J. Elisseeff,** "Injectable hydrogels for cartilage tissue engineering". In Ashammakhi N and Waris T (Eds.), Topics in Tissue Engineering. [ebook] http://www.tissue-engineering-oc.com.

8. F, Yang, **J. Elisseeff**, "Cartilage Tissue Engineering". *Biomedical Engineering Handbook*, Tissue Engineering Section, 2006.

9. **J. Elisseeff,** TK Kim, M. Ruffner and CG Williams**, "**Cellular Photoencapsulation in Hydrogels", Chapter 9, in Culture of Cells for Tissue Engineering. Ian Freshney and Gordana Vunjak-Novakovic (ed), John Wiley and Sons, 2006.

10. Hwang, N., Varghese, S., and **Elisseeff, J**. "Cartilage Tissue Engineering: Directing Differentiation of Embryonic Stems Cells in Three-Dimensional Culture," Humana Press: Methods in Molecular Biology-Stem Cell Assays (in press).

11. Shah P, Hillel AT, **Elisseeff JH.** "Cartilage Tissue Engineering." *Principles of Regenerative Medicine*. Eds. Atala A, Lanza R, Thomson JA, Nerem RM. Philadelphia, Elsevier.

12. Hillel AT, Shah P, **Elisseeff JH**. "Hydrogels." *Biomedical Polymers*. Ed. Jenkins M. Cambridge, England, Woodhead.

13. Lee, H.J., Varghese, S., Hwang, N., **Elisseeff, J**., Nanoengineered Hydrogels for Stem Cell Cartilage Tissue Engineering, *Micro- and Nanoengineering of the Cell Microenvironment: Technologies and Applications*, Artech House Publishing Inc.

14. Varghese, S. and **Elisseeff, J. H.**, "Hydrogels for Musculoskeletal Tissue Engineering", *Polymers for regenerative medicine*, 2006, 95-144.

15. **J Elisseeff**, "Hydrogels: structure starts to gel," *Nature Materials,* 2008, 7(4):271-3.

16. Moroni L, **Elisseeff JH**, "Biomaterials engineered for integration," *Materials Today,* 2008, 11(5):44-51.

17. Deans TL, and **Elisseeff, JH**, "The life of a cell: probing the complex relationships with the world," *Cell Stem Cell,* 2010 Jun 4;6(6):499-501.

18. Unterman SA, Marcus NA, **Elisseeff JH**. "Injectable polymers", Biodegradable polymers in clinical use and clinical development. Ed. Domb A, Kumar N, Ezra A. John Wiley and Sons, New Jersey. (in press).

19. Ashley Rothenberg, **Jennifer Elisseeff**. "Bone and Cartilage" in Tissue Engineering for the Hand: Research Advances and Clinical Applications. Editors: James Chang, M.D. and Gaurav Gupta, MSE. World Scientific Publishing (in press).

20. Jeannine Coburn, **Jennifer Elisseeff**. "Engineering cartilage: From materials to small molecules". Stem Cell and tissue Engineering. Ed. Song Li, Nicholas L'Heureux and Jennifer Elisseeff. World Scientific Publisher (in press).

21. **Elisseeff J**, Madrid MG, Lu Q, Chae JJ, Guo Q. Future perspectives for regenerative medicine in ophthalmology. Middle East Afr J Ophthalmol. 2013 Jan-Mar;20(1):38-45.

22. Lu Q, Al-Sheikh O, **Elisseeff JH**, Grant MP., Biomaterials and Tissue Engineering Strategies for Conjunctival Reconstruction and Dry Eye Treatment. Middle East Afr J Ophthalmol. 2015 Oct-Dec;22(4):428-34. doi: 10.4103/0974-9233.167818. PMID: 26692712.

23. Jeon OH, **Elisseeff J**., "Orthopedic tissue regeneration: cells, scaffolds, and small molecules," Drug Deliv Transl Res. 2015 Dec, PMID: 26625850

24. Sommerfeld SD, **Elisseeff JH**, "Time to Relax: Mechanical Stress Release Guides Stem Cell Responses," Cell Stem Cell. 2016 Feb 4;18(2):166-7. PMID: 26849301

Teaching

1. Tissue engineering (co-instructor Kevin Yarema), (offered every year Spring semester)

2. Cell and tissue engineering laboratory (organized laboratory and first course, currently teach 1st lecture and one lab module). Course runs now fall and spring semester with two sections each semester

3. Participating faculty, NIH-sponsored human embryonic stem cell training course (PI: Itskovitz-Eldor, Rao), 2004-2009

4. F1000 Medicine, Faculty in Orthopedic Repair and Regeneration, 2005-2011

5. Orthopedic Surgery, Resident training lecture in cartilage repair (2004)

6. Initiated the Global Engineering Innovations Course and Projects 2013- current

Mentoring

Table of all fellows and graduate students available on Request
As of 2019, 33 postdoc/fellows, 32 PhD students, 22 MS Students

CLINICAL ACTIVITIES

Two technologies developed in the laboratory have been translated to clinical testing (in collaboration with start up companies); Chondux (cartilage repair device) and ATX-104 (photofiller for soft tissue reconstruction). Preclinical work for UBX101 now in clinical testing as a senolytic for arthritis by Unity Biotechnology. Currently holding an IND for Phase 1 and Phase 2 studies of Acellular Adipose Tissue.

ORGANIZATIONAL ACTIVITIES

Selected Institutional Administrative Appointments

TERMIS National Meeting Cochair (2014), JHU Innovation Hub CoChair (2013-14), Graduate Education Committee (2009), ESCRO review committee (2009-current), Stem Cell Bioethics Group (2009), Young Inventor's International Advisor Canada (2003-present), Chair of Academic panel for HST 35th Reunion (2004), Hopkins Biotech Network Advisory Board (2004), High School Internet Science and Technology Fair Advisor (2003), Baltimore Poly High School women serious about science and mentoring program (2002-present), Vice Chair, Tissue Characterization, ASTM Tissue Engineered Medical Products Standards (2002) Member of Harvard-MIT Division of Health Sciences and Technology, Admissions and Graduation Committee (1997, 1998). University committees (2015/16): ISCRO (embryonic stem cell committee), COI (conflict of interest), TAG (technology assessment, devices).

Editorial Activities

Journal Reviews: Biomacromolecules, Biomaterials, FASEB J, J of Dental Research, Tissue Engineering, ASTM, Pharmaceutical Research, PNAS, Annals of Biomedical Engineering, Nature Biotechnology, Journal of Polymer Science, Acta Biomateriala, Journal of the American Chemical Society, Nature, Science, Nature Materials, Nature Methods, Nature Communications

Tissue Engineering (Editorial Board 2005-2009)
International Journal of Medical Implants and Devices (2005)

Editor-in-chief, Biomaterials Science
Associate Editor, Journal of Immunology and Regenerative Medicine

Selected Advisory Committees and Community Service

2001	NIH Study Section, Regenerative Medicine Special Emphasis Panel
2001	American Chemical Society, Co-Chair, Polymeric Biomaterials for Tissue Engineering Session, Chicago
2002	NASA Biomaterials Review Study Section
9/2002	NIH Study Section, Surgery and Biotechnology, Ad hoc
11/2002	NIH Study Section, Regenerative Medicine Special Emphasis Panel

2003	NIDCR-RFA, NIH Special Study Section
2003	Department of Health and Human Services, Workshop on Tissue Engineering and Regenerative Medicine, Washington DC
2003	Biomaterials Tissue Engineering, Cold Spring Harbor Conference, Session Chair, Tennessee
2003	NSF SBIR Study Section
2003	NEI Study Section
2003	AIBS, army review and site visit
8/2003	NIBIB Advanced Biomaterials Study Section
2003	Cryolife, Inc. Advisory Panel, Atlanta, Georgia
2004	Biomedical Engineering Society, Orthopedic Tissue Engineering, Philadelphia, Session Chair
2004	Biomedical Engineering Society, Enabling Technologies in Tissue Engineering, Philadelphia, Session Chair
2004	AIChE Annual Meeting, Session Chair
2004	Biomedical Engineering Society Meeting, Austin Texas, Chair, Stem Cells in Tissue Engineering
2004	Pennsylvania Greenhouse Fund, Connecticut Innovations, Reviewer
2004	(NSERC) Natural Sciences and Engineering Research Council of Canada
2003, 2004	NIH, Career Development Awards and T32 Institutional Training Grants Review,
2004	Singapore Biomedical Research Council, Grant reviewer
2004, 2005	NIDCR, NIBIB Advanced Materials Special Study Section, Training Grant Study and Section, Special Study Section
2004, 2005	NIDCR, NIBIB Advanced Materials Special Study Section, Training Grant Study and Section, Special Study Section
2005	NIDCR, Special Emphasis Panel – Bone
2005	BMES, Chair, Tissue Engineering Track (with Dave Mooney)
2006	Polytechnique, Stem Cell Workshop, Site Visit, NSERC Industrial Chair
2006	Biomedical Engineering Society, Education Committee Nominee
2006	Skeletal Biology Study Section, Ad hoc reviewer
2007	DoD Review Panel
	AAAS-National Academy of Engineering Ohio Awards
	Canadian research chair evaluation team
	ad hoc NIH Nanotechnology Panel
6/2007	NIH Quantum Grant Review
4/2007	AIBS, New Jersey Stem Cell Grant Review
5/2007	NIAMS, Musculoskeletal Program Project Review
2008-2012	NIH Study Section BMBI Standing Member
2009-current	Multiple NIH ad hoc review panels
2009	NSERC Awards Review Committee, Canada
2009-2011	AIMBE Election Committee
2009-2011	BMES Awards Committee
2009-10	TATRC PLR Panel

Professional Societies

Biomedical Engineering Society, Materials Research Society, American Association for the Advancement of Science, Orthopedic Research Society, American Chemical Society, International Society for Stem Cell Research, Co-chair Tissue Engineering Committee in the Alliance for Regenerative Medicine.

Boards and Consultantships

SAB Member, Kythera Biopharmaceuticals, CA
CoFounder and Consultant, Cartilix, Inc., San Carlos, CA (2004-2009)
SAB Member, Bausch and Lomb, Rochester, NY (Pharmaceutical and Vision Care Boards)
SAB Member, CBI Cellular Bioengineering Inc., Honolulu, HA

SAB Member, Histogenics, Massachusetts 2015
CoFounder, Aegeria (2009-current)
Board Member, Maryland TEDCO (Technology Development Corporation) and secretary of executive board.
Board, Association for Women in Science