

Curriculum Vita – Diane Hoffman-Kim, Ph.D.

Diane Hoffman-Kim, Ph.D.

Associate Professor of Medical Science
Associate Professor of Engineering
Department of Neuroscience
Carney Institute for Brain Science
Center for Biomedical Engineering
Center for Alternatives to Animals in Testing
Box G-B387
Brown University
Providence, RI 02912
(401) 863-9395
dhk@brown.edu

Education

1988 B.S. *cum laude*, University of Rochester – Optics Engineering
1993 Ph.D., Brown University – Medical Science
Dissertation title: *Nerve Regeneration in the Septo-Hippocampal System: Enhancement by Polymer and Cellular Technology*

Professional appointments

1993-1996 Post-doctoral Fellow (National Research Service Award), Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology
1996-1997 Post-doctoral Fellow (National Research Service Award), Department of Molecular and Cellular Biology, Harvard University
1997-1998 Science Scholar, The Bunting Institute of Radcliffe College and Department of Molecular and Cellular Biology, Harvard University
1998-2001 Assistant Professor (Research), Department of Surgery, Brown University
2001-2007 Assistant Professor of Medical Science, Department of Molecular Pharmacology, Physiology, and Biotechnology; Assistant Professor of Engineering, Division of Engineering, Brown University
2007-2010 Director, Graduate Program in Biomedical Engineering, Brown University
2007-present Associate Professor of Medical Science, Division of Biology and Medicine; Associate Professor of Engineering, School of Engineering; Brown University
2022-present Director, NIH-Brown Graduate Partnerships Program, Brown University

Research and scholarship

Refereed journal articles

1. Child SZ, **Hoffman D**, Strassner D, Carstensen EL, Gates AH, Cox C, and Miller MW. A test of I2T as a dose parameter for fetal weight reduction from exposure to ultrasound. *Ultrasound in Medicine & Biology* 15(1): 39-44, 1989.
2. Miller MW, Azadniv M, Pettit SE, Church, Carstensen EL, and **Hoffman D**. Sister chromatid exchanges in chinese hamster ovary cells exposed to high intensity pulsed ultrasound: inability to confirm previous positive results. *Ultrasound in Medicine & Biology* 15(3): 255-262, 1989.
3. Carstensen EL, Campbell DS, **Hoffman D**, Child SZ, and Ayme-Bellegarda EJ. Killing of *drosophila* larvae by the fields of an electrohydraulic lithotripter. *Ultrasound in Medicine & Biology* 16(7): 687-698, 1990.
4. **Hoffman D**, Wahlberg L, and Aebischer P. NGF released from a polymer matrix prevents loss of ChAT expression in basal forebrain neurons following a fimbria-fornix lesion. *Experimental Neurology* 110: 39-44, 1990.
5. **Hoffman D**, Breakefield XO, Short MP, and Aebischer P. Transplantation of a polymer encapsulated cell line genetically engineered to release NGF. *Experimental Neurology* 122: 100-106, 1993.

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6. **Hoffman-Kim D**, Lander AD, and Jhaveri S. Regional differences in immunostaining for chondroitin sulfate in the developing tectum reflect differential GAG biosynthesis. *Journal of Neuroscience* 18: 5881-5890, 1998. PMID: 9671675.
7. Hong T, Maish MS, Cohen J, Fitzpatrick P, Bert AA, Harper J, Feng D, **Hoffman-Kim D**, and Hopkins RA. Reproducible echocardiography in juvenile sheep and its application in the evaluation of a pulmonary valve homograft implant. *Contemporary Topics in Laboratory Animal Science* 39: 15-21, 2000. PMID: 11040870.
8. **Hoffman-Kim D**, Kerner J, Chen A, Xu A, Wang T-F, and Jay DG. pp60c-src is a negative regulator of laminin-mediated neurite outgrowth in chick sensory neurons. *Mol Cell Neurosci* 21(1): 81-93, 2002. PMID: 12359153.
9. Maish MS, **Hoffman-Kim D**, Krueger P, Souza J, Harper J, and Hopkins RA. Tricuspid valve biopsy – a potential source of cardiac myofibroblast cells for tissue engineered cardiac valves. *Journal of Heart Valve Disease* 12:264-269, 2003.
10. **Hoffman-Kim D**, Maish MS, Krueger P, Lukoff H, Bert A, Hong T, and Hopkins RA. Comparison of three myofibroblast cell sources for tissue engineering cardiac valves. *Tissue Engineering* 11: 288-301, 2005.
11. Song HK, Toste B, Ahmann K, **Hoffman-Kim D***, and Palmore GTR*. Micro-patterns of positive guidance cues anchored to polypyrrole doped with polyglutamic acid: a new platform for characterizing neurite extension in complex environments. *Biomaterials* 27(3): 473-484, 2006. [*Corresponding authors]
12. Goldner JS, Bruder JM, Li G, Gazzola D, and **Hoffman-Kim D**. Neurite bridging across micropatterned grooves. *Biomaterials* 27(3): 460-472, 2006. PMID: 16115675.
13. Bruder JM, Monu N, Harrison M, and **Hoffman-Kim D**. Fabrication of polymer replicas of cell surfaces with nanoscale resolution. *Langmuir* 22(20): 8263-8265, 2006. (Article featured on the websites of Biocompare, The Engineer Online, Materials Research Society, Medical News Today, PhysOrg, Science Daily, and Scientific Frontline.). PMID: 16981733.
14. Li G, Livi LL, Gourd CM, Deweerd ES, and **Hoffman-Kim D**. Genomic and morphological changes of neuroblastoma cells in response to three-dimensional matrices. *Tissue Engineering* 13: 1035-1047, 2007. (Article featured in *Genome Technology* July/August 2007.)
15. Bruder JM, Lee A, and **Hoffman-Kim D**. Biomimetic materials replicating Schwann cell topography enhance neuronal adhesion and neurite alignment in vitro. *Journal of Biomaterials Science, Polymer Edition* 18: 967-982, 2007. (Special issue on “Materials for Neural Engineering”). PMID: 17705993.
16. Li G and **Hoffman-Kim D**. Tissue engineered platforms of axon guidance. *Tissue Engineering B* 14(1): 33-51, 2008. PMID: 18454633.
17. Li G, Liu J, and **Hoffman-Kim D**. Multi-molecular gradients of permissive and inhibitory cues direct neurite outgrowth. *Annals of Biomedical Engineering* 36(6): 889-904, 2008. PMID: 18392680.
18. Abe TK, Honda T, Takei K, Mikoshiba K, **Hoffman-Kim D**, Jay DG, and Kuwano R. Dynactin is essential for growth cone advance. *Biochemical and Biophysical Research Communications* 372: 418-422, 2008.
19. Li GN and **Hoffman-Kim D**. Evaluation of neurite outgrowth using a novel application of circular analysis. *J Neurosci Methods* 174: 202-214, 2008.
20. Kofron CM, Fong VJ, and **Hoffman-Kim D**. Neurite outgrowth at the interface of 2D and 3D growth environments. *J Neural Engineering* 6: 016002, 2009. PMID: 19104140.
21. Kofron CM and **Hoffman-Kim D**. Optimization by response surface methodology of confluent and aligned cellular monolayers for nerve guidance. *Cellular and Molecular Bioengineering* 2(4): 554-572, 2009. PMID: 20625538.
22. Kofron CM, Liu Y-T, Lopez-Fagundo CY, Mitchel JA, and **Hoffman-Kim D**. Neurite outgrowth at the biomimetic interface. *Annals of Biomedical Engineering* 38(6): 2210-2225, 2010. doi:10.1007/s10439-010-0054-y. PMID: 20440561.

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23. **Hoffman-Kim D**, Mitchel JA, and Bellamkonda RV. Topography, cell response, and nerve regeneration. *Annual Review of Biomedical Engineering* 12: 201-231, 2010. 10.1146/annurev-bioeng-070909-105351. PMID: 20438370.
24. Kim S, Kim K-M, **Hoffman-Kim D**, Song H-K, and Palmore G. Quantitative control of neuron adhesion at a neural interface using a conducting polymer composite with low electrical impedance. *ACS Applied Materials & Interfaces* 3(1): 16-21, 2011. PMID: 21142128.
25. Kim K-M, Kim S-Y, Minxha J, Richardson J, **Hoffman-Kim D**, and Palmore GTR. A novel method for analyzing images of live nerve cells. *J Neurosci Methods* 201: 98-105, 2011.
26. Richardson J, Rementer C, Bruder J, and **Hoffman-Kim D**. Guidance of dorsal root ganglion neurites and Schwann cells by isolated Schwann cell topography on poly(dimethyl siloxane) conduits and films. *J Neural Eng* 8. 046015, 2011. PMID: 21673394.
27. Mitchel JA and **Hoffman-Kim D**. Cellular scale anisotropic topography guides Schwann cell motility. *PLoS ONE* 6(9): e24316. doi:10.1371/journal.pone.0024316. 2011. PMID: 21949703.
28. Mitchel JA, Martin IS, and **Hoffman-Kim D**. Neurient: An algorithm for automatic tracing of confluent neuronal images to determine alignment. *J Neurosci Methods* 214(2): 210-222, 2013. doi: 10.1016/j.jneumeth.2013.01.023.
29. Lopez-Fagundo C, Mitchel JA, Ramchal TD, Dingle Y-TL, and **Hoffman-Kim D**. Navigating neurites utilize cellular topography of Schwann cell somas and processes for optimal guidance. *Acta Biomaterialia*. 2013. doi: 10.1016/j.actbio.2013.03.032.
30. Toyjanova J, Bar-Kochba E, Lopez-Fagundo C, Reichner J, **Hoffman-Kim D**, and Franck C. High resolution, large deformation 3D traction force microscopy. *PLoS One*. 9(4): e90976. 2014. doi: 10.1371/journal.pone.0090976.
31. Lopez-Fagundo C, Bar-Kochba E, Livi LL, **Hoffman-Kim D***, and Franck C*. Three-dimensional traction forces of Schwann cells on compliant substrates. *J Royal Soc Interface*. 11(97): 20140247. 2014. doi: 10.1098/rsif.2014.0247.
32. Boutin ME and **Hoffman-Kim D**. Application and assessment of optical clearing methods for imaging of tissue-engineered neural stem cell spheres. *Tissue Eng Part C Methods*. 21(3):292-302. 2015. doi: 10.1089/ten.TEC.2014.0296.
33. Dingle Y-TL, Boutin ME, Chirila AM, Livi LL, Labriola NR, Jakubek LM, Morgan JR, Darling EM, Kauer JA and **Hoffman-Kim D**. Three-dimensional neural spheroid culture: an in vitro model for cortical studies. *Tissue Eng Part C Methods*. 21(12):1274-83. 2015. Doi: 10.1089/ten.tec.2015.0135.
34. Lopez-Fagundo C, Livi LL, Ramchal T, Darling EM and **Hoffman-Kim D**. A biomimetic synthetic feeder layer supports the proliferation and self-renewal of mouse embryonic stem cells. *Acta Biomater* 39: 55-74. 2016. Doi: 10.1016/j.actbio.2016.04.047. PMID: 27142253.
35. Sadick JS, Boutin ME, **Hoffman-Kim D**, and Darling EM. Protein characterization of intracellular target-sorted, formalin-fixed cell subpopulations. *Sci Rep* 7: 33999, 2016. Doi: 10.1038/srep33999. PMID: 27666089.
36. Boutin ME, Kramer LL, Livi LL, Brown T, Moore C, **Hoffman-Kim D**. A three-dimensional neural spheroid model for capillary-like network formation. *J Neurosci Methods* 2017. Doi: 10.1016/j.jneumeth.2017.01.014.
37. Evans EE, Brady SW, Tripathi A, **Hoffman-Kim D**. Schwann cell durotaxis can be guided by physiologically relevant stiffness gradients. *Biomaterials Res* 22: 14. 2018. Doi: 10.1186/s40824-018-0124-z.
38. Lizarraga SB, Ma L, Maguire AM, van Dyck LI, Wu Q, Ouyang Q, Kavanaugh BC, Nagda D, Livi LL, Pescosolido MF, Schmidt M, Alabi S, Cowen MH, Brito-Vargas P, **Hoffman-Kim D**, Garnsiz Uzun ED, Schlessinger A, Jones RN, Morrow EM. Human neurons from Christianson syndrome iPSCs reveal mutation-specific responses to rescue strategies. *Sci Transl Med* 2021. Doi: 10.1126/scitranslmed.aaw0682.
39. Sevetson JL, Theyel B, **Hoffman-Kim D**. Cortical spheroids display oscillatory network dynamics. *Lab Chip* 21(23): 4586-4595. 2021. Doi: 10.1039/d1lc00737h.

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40. McLaughlin RM, LaMastro R, Frazer C, Shukla A, Bennett R, Harrington E, **Hoffman-Kim D**. In vitro model of pulmonary candidiasis for testing novel therapeutics. *FASEB J* 2022. 08926638.

Chapters in books

1. **Hoffman-Kim D**, Diefenbach TJ, Eustace BK and Jay DG. Chromophore-assisted laser inactivation (CALI). *Methods in Cell Biology* 82, 2007. PMID: 17586263.

Non-refereed journal articles

1. **Hoffman-Kim D**. On being a postdoctoral scientist. *Science and Engineering Ethics* 1(3): 3-4, 1995.
2. Jhaveri S and **Hoffman-Kim D**. Unilateral containment of retinal axons by tectal glia: a possible role for sulfated proteoglycans. *Progress in Brain Research* 108: 135-148, 1996. PMID: 8979799.
3. Bird SJ and **Hoffman-Kim D**. Damned if you do, damned if you don't: what the scientific community can do about whistleblowing. *Science and Engineering Ethics* 4(1): 3-5, 1998.
4. **Hoffman-Kim D**. Women scientists in laboratory culture – perspectives from an academic scientist in training. *Annals of the New York Academy of Sciences* 869: 106-109, 1999.
5. **Hoffman-Kim D**. Comment on “Normative Orientations of University Faculty and Doctoral Students.” *Science and Engineering Ethics* 6: 463-465, 2000.
6. Hopkins RA, **Hoffman-Kim D** and Maish MS. Commentary on “Prospective randomized trial of azathioprine in cryopreserved valved allografts in children.” *Ann Thorac Surg* 71: 47-48, 2001.
7. **Hoffman-Kim D**. Heart Valves. *Science and Medicine* 8(2): 62-64, 2002.
8. Richardson J and **Hoffman-Kim D**. The importance of defining ‘data’ in data management policies. *Science and Engineering Ethics* 16(4): 749-751, 2010. doi:10.1007/s11948-010-9223-5. PMID: 20853179.
9. Dingle Y-TL, Xiong K, Machan JT, Seymour KA, Ellisor D, **Hoffman-Kim D**, Zervas M. Quantitative analysis of dopamine neuron subtypes generated from mouse embryonic stem cells. bioRxiv beta. December 13, 2016. Doi: 10.1101/093419.
10. McLaughlin RM, Laguna A, Top I, Hernandez C, Livi LL, Kramer L, Zambuto S, **Hoffman-Kim D**. Cortical spheroid model for studying the effects of ischemic brain injury. bioRxiv. Doi: 10.1101/2021.10.16.464587.

Invited lectures (2001 – present)

1. Brown University. Brown Corporation Meeting. Providence, RI. September 2001.
2. Brown University. Biomedical Engineering Seminar Series. Providence, RI. April 2002.
3. Connecticut College. Department of Biology Seminar Series. New London, CT. April 2004.
4. Montreux, Switzerland. Nanotech 2004. November 2004.
5. Harvard Medical School and Massachusetts General Hospital. Seminar Series in Biomedical Sciences and Engineering. Center for Engineering in Medicine. Boston, MA. December 2004.
6. University of Massachusetts, Lowell. Seminar Series in Biomedical Engineering. Lowell, MA. January 2005.
7. American Society for Neural Transplantation and Repair Annual Meeting. Presidential Lecture. Clearwater, FL. April 2005.
8. Clemson University. NIH/NSF BCBI Seminar Series in Biomedical Engineering. Clemson, SC. July 2005.
9. University of Louisville Spinal Cord Research Center. Neurology Grand Rounds. Louisville, KY. October 2005.
10. Brown University. Brain Science Program Seminar Series. Providence, RI. November 2005.
11. Rensselaer Polytechnic Institute. Department of Biomedical Engineering Seminar Series. Troy, NY. April 2006.
12. University of Texas, Austin. Department of Biomedical Engineering NSF/IGERT Seminar Series. Austin, TX. September 2006.

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13. Case Western Reserve University. Department of Biomedical Engineering Neural Engineering Seminar Series. Cleveland, OH. October 2007.
14. University of Rochester. Department of Biomedical Engineering Seminar Series. Rochester, NY. December 2007.
15. Brown University School of Medicine. Department of Clinical Neurosciences Grand Rounds. Providence, RI. April 2008.
16. Brown University School of Medicine. Cardiovascular Research Center Seminar Series. Providence, RI. May 2008.
17. New England Complex Fluids Symposium. University of Rhode Island. Kingston, RI. June 2008.
18. University of California, Irvine. Department of Pathology & Laboratory Medicine. Seminars in Experimental Pathology Series. Irvine, CA. May 2009.
19. Brown University School of Medicine. Department of Orthopedics Seminar Series. Providence, R.I. June 2009.
20. Brown University School of Medicine. Department of Surgical Research Seminar Series. Providence, R.I. January 2010.
21. University of Rochester. Nanotechnology Symposium. Rochester, NY. May 2011.
22. National Science Foundation. CBET Grantees Conferences. Baltimore, MD. June 2012.
23. Worcester Polytechnic Institute. Seminar Series in Biomedical Engineering. Worcester, MA. April 2013.
24. Conference on Biotechnology. Burlington, MA. June 2015.
25. World Congress on Biotechnology. Boston, MA. June 2017.
26. Harvard Medical School. Cambridge, MA. July 2017.

U.S. Patents

1. Dionne KE, Emerich DF, **Hoffman D**, Sanberg PR, Christenson L, Hegre OD, Scharp DW, Lacy PE, Aebischer P, Vasconcellos AV, Lysaght MJ, and Gentile FT. Implantable biocompatible immunoisulatory vehicle for delivery of selected therapeutic products. U.S. patent #5,798,113. Issued 8/25/98.
2. Dionne KE, Emerich DF, **Hoffman D**, Sanberg PR, Christenson L, Hegre OD, Scharp DW, Lacy PE, Aebischer P, Vasconcellos AV, Lysaght MJ, and Gentile FT. Implantable biocompatible immunoisulatory vehicle for delivery of selected therapeutic products. U.S. patent #5,800,828. Issued 9/1/98.
3. Dionne KE, Emerich DF, **Hoffman D**, Sanberg PR, Christenson L, Hegre OD, Scharp DW, Lacy PE, Aebischer P, Vasconcellos AV, Lysaght MJ, and Gentile FT. Methods for coextruding immunoisulatory implantable vehicles with a biocompatible jacket and a biocompatible matrix core. U.S. patent #5,800,829. Issued 9/1/98.
4. Dionne KE, Emerich DF, **Hoffman D**, Sanberg PR, Christenson L, Hegre OD, Scharp DW, Lacy PE, Aebischer P, Vasconcellos AV, Lysaght MJ, and Gentile FT. Methods for making immunoisulatory implantable vehicles with a biocompatible jacket and a biocompatible matrix core. U.S. patent #5,834,001. Issued 11/10/98.
5. Dionne KE, Emerich DF, **Hoffman D**, Sanberg PR, Christenson L, Hegre OD, Scharp DW, Lacy PE, Aebischer P, Vasconcellos AV, Lysaght MJ, and Gentile FT. Methods for treating diabetes by delivering insulin from biocompatible cell-containing devices. U.S. patent #5,869,077. Issued 2/9/99.
6. Dionne KE, Emerich DF, **Hoffman D**, Sanberg PR, Christenson L, Hegre OD, Scharp DW, Lacy PE, Aebischer P, Vasconcellos AV, Lysaght MJ, and Gentile FT. Methods for treatment or prevention of neurodegenerative conditions using immunoisulatory implantable vehicles with a biocompatible jacket and a biocompatible matrix core. U.S. patent #5,871,767. Issued 2/16/99.
7. Dionne KE, Emerich DF, **Hoffman D**, Sanberg PR, Christenson L, Hegre OD, Scharp DW, Lacy PE, Aebischer P, Vasconcellos AV, Lysaght MJ, and Gentile FT. Methods for making immunoisulatory implantable vehicles with a biocompatible jacket and a biocompatible matrix core. U.S. patent #5,874,099. Issued 2/23/99.

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8. Hopkins RA and **Hoffman-Kim D.** Cardiac valve replacement. U.S. patent #6,652,583. Issued 11/25/03.
9. Dionne KE, Emerich DF, **Hoffman D,** Sanberg PR, Christenson L, Hegre OD, Scharp DW, Lacy PE, Aebischer P, Vasconcellos AV, Lysaght MJ, Gentile FJ. Implantable biocompatible immunoisulatory vehicle for delivery of selected therapeutic products. U.S. patent #6,960,351. Issued 11/1/05.
10. Bruder JM and **Hoffman-Kim D.** Topographical templating of polymeric materials using cellular morphology. Patent allowed in Canada and Europe. Patent pending in US. PCT application #60/707,912. Filed 8/4/06.

Service

a. Service to the University

Undergraduate Honors Advisor, Concentration in Biomedical Engineering, 2001-2007

Strategic Planning Team, Division of Biology and Medicine - Biomedical Engineering Focus Area, March – April 2002

Graduate Program Committee, Biomedical Engineering, 2003-2018

Graduate Program Committee, Biotechnology, 2003-present

Search Committee, Brain Science Program, Faculty position in neurotechnology, 2005-2006

Tissue Engineering Working Group, Brown University, 2005-present

Public Disclosure Subcommittee of NEASC Accreditation Self-Study, Brown University, 2007

Health Careers Advisory Committee, Brown University, 2007-2008

Search Committee, Chair of Obstetrics and Gynecology, 2007-2008

Director, Graduate Program in Biomedical Engineering, 2007-2010

Academic Priorities Committee, 2008-2011

Research Advisory Board, 2008-2011

Office of Women in Science and Medicine Advisory Board, 2009-present

Internal Advisory Board, Nanotechnology GAANN, 2010-present

Engineering and Applied Sciences Building Planning Committee, 2010-2011

Search Committee, Engineering School, Faculty position in biomedical engineering, 2010-2011

Knowledge District Working Group, 2011-2013

Internal Advisory Board, TRAINing for Success in Biomedical Research Careers, 2011-present

Frank Fellowship Selection Committee, 2013-2021

Search Committee, Department of Pathology, 2015-2016

Public Narrative Project, Office of the Provost, 2016-2017

NRMN-Trained Mentor-Facilitator, 2017-present

Director, NIH-Brown Graduate Partnerships Program, 2022-present

Freshman Advisor, 2002-2004, 2019-present

Leadership Alliance Advisor, 2003

Sophomore Advisor, 2003-2004, 2018-present

Undergraduate Honors Theses Advisor, 2001 - present

Ph.D. Comprehensive Examination Committee Member, 2005 - present

Biomedical Engineering, Biotechnology, Neuroscience graduate programs

Ph.D. Thesis Committees

Mary Ellen Sandor, 2001

Daniele Abramson, 2002

Jennifer Godbee, 2003

Nausheen Rahman, 2003

Diana Ferris, 2004

Edwin Edwards, 2006

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Haitao Qian, 2007
Ana Jaklenec, 2007
Stacia Furtado, 2007
Anthony Napolitano, 2007
John Jarrell, 2008
Dylan Dean, 2008
Jan Bruder, 2008
Grace Li, 2008
Celinda Kofron, 2009
Bryan Laulicht, 2010
Brian Bao, 2012
Julie Richardson, 2012
Jennifer Mitchel, 2013
Cristina Lopez-Fagundo, 2013
Toni-Marie Achilli, 2014
Eyal Bar-Kochba, 2014
Yu-Ting Dingle, 2015
Olivia Beane, 2015
Molly Boutin, 2016
Jonathan Estrada, 2017
Jessica Sadick, 2018
Rafael Gonzalez-Cruz, 2018
Elisabeth Evans, 2018
Mark Scimone, 2019
Lauren Hazlett, 2020
Verida Leandre, 2020
Jessica Sevetson, 2020
Elaina Atherton, 2021
Harry Cramer, 2021
Aurora Washington, 2022

Service to the Profession

Editorial board member, *Science and Engineering Ethics*, 2002-present.

Reviewer, Center for Scientific Review ZRG1 SSS-M (56), R21 Advanced Biomaterials RFA, 2003.

Reviewer, Biomedical Engineering Program, regular proposals, National Science Foundation, 2006-present.

Reviewer, Center for Scientific Review ZRG1 MDCN-K(50), 2007-2013.

Reviewer: *Advanced Functional Materials*, *Biomaterials*, *Biotechnology and Bioengineering*, *Journal of Biomedical Biomaterials Research A*, *Journal of Neural Engineering*, *Langmuir*, *Tissue Engineering*

Mentor-Facilitator Trainer, National Research Mentoring Network

Academic honors, research grants, fellowships

a. Previous

The Rhode Island Foundation

Title: Tissue Engineered Cardiac Valve Replacement

PI: D. Hoffman-Kim

Project Period: 1/1/99 – 12/31/99

The Children's Heart Foundation

Title: Tissue Engineered Pediatric Cardiac Valve Replacement.

PIs: D. Hoffman-Kim and R.A. Hopkins

Project Period: 6/1/99 – 12/31/02

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Salomon Faculty Research Award, Brown University

Title: Following Directions in the Central Nervous System: Incorporation of Multiple Cues

PI: D. Hoffman-Kim

Project Period: 3/1/02 – 2/28/03

Seed Funding Grant, Brown University

Title: Seed Funds in the Area of Bio-Materials

PI: C. Briant

Co-PIs: K. Breuer, **D. Hoffman-Kim**, J. Morgan, G.T.R. Palmore, T. Powers

Project Period: 7/1/03 – 3/31/05

Center Of Biomedical Research Excellence Award, National Institutes of Health

Title: Center for Genetics and Genomics (Project C)

PI: J. Sedivy (E. Hawrot - Project leader Core C)

Sub-project leader: D. Hoffman-Kim

Project Period: 9/1/03 – 8/31/05

Hood Foundation Child Health Research Grant, Charles H. Hood Foundation

Title: Axon Guidance by Permissive and Inhibitory Molecular Gradients

PI: D. Hoffman-Kim

Project Period: 1/1/04 – 6/30/06

Biomedical Engineering Research Grant, Whitaker Foundation

Title: Following Instructions for Nerve Regeneration: Incorporation of Permissive and Inhibitory Cues

PI: D. Hoffman-Kim

Project Period: 5/1/03 – 4/30/06

Seed Funding Award

Title: Nanoscale Biomimetic Materials for Nerve Regeneration

PI: D. Hoffman-Kim

Project Period: 2/1/06 – 1/31/07

1 R21 EB004506-01, National Institute of Biomedical Imaging and Bioengineering, National Institutes of Health

Title: Composite Biomaterials for Neurite Outgrowth

PI: D. Hoffman-Kim

Project Period: 3/1/06 – 2/28/09

Center for Restorative and Regenerative Medicine Research and Development Award, Department of Veterans Affairs

Title: Engineering Nerve Repair with Nanoscale Biomimetic Materials

PI: D. Hoffman-Kim

Project Period: 9/1/08 – 9/30/09

ADVANCE Career Development Award, National Science Foundation

Title: ADVANCEment of a Multi-Dimensional Female Leader in Academic Biomedical Engineering

PI: D. Hoffman-Kim

Project Period: 1/1/08 – 6/30/11

ADVANCE Scientific Leadership Award, National Science Foundation

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Title: Scientific Leadership Award For a Woman Scientist-Engineer to Walk the Walk

PI: D. Hoffman-Kim

Project Period: 11/15/10 – 6/30/11

Center for Restorative and Regenerative Medicine Research and Development Award, Department of Veterans Affairs

Title: Engineering Nerve Repair with Nanoscale Biomimetic Materials

PI: D. Hoffman-Kim

Project Period: 9/1/10 – 9/30/11

Center for Restorative and Regenerative Medicine Research and Development Award, Department of Veterans Affairs

Title: Engineering Nerve Repair with Nanoscale Biomimetic Materials

PI: D. Hoffman-Kim

Project Period: 9/1/11 – 9/30/12

CAREER Award, National Science Foundation

Title: CAREER: Axon Guidance by Multiple Cues

PI: D. Hoffman-Kim

Project Period: 2/1/06 – 1/31/13

1 R01 EB005722-01, National Institute of Biomedical Imaging and Bioengineering, National Institutes of Health

Title: Quantifying Axon Growth in Complex Environments

PI: D. Hoffman-Kim

Project Period: 9/1/07 – 6/30/12

Seed Funding Award, Brown University

Title: Novel Micropatterned Culture Model for Developing New Therapeutic Strategies for Sudden Cardiac Death

PI: D. Hoffman-Kim

Project Period: 2/1/11 – 1/31/12

BIBS Pilot Grant, Brown University

Title: A Bioengineered Model of Stem Cell Manipulation and Cell Transplantation for Neurological Disorders

PI: D. Hoffman-Kim

Project Period: 5/1/13 – 4/30/14

R21, NIH

Title: Cardiac Myocyte and Fibroblast Cross-Regulation

PI: U. Mende, **Collaborating Investigator: D. Hoffman-Kim**

Project Period: 12/1/11 – 11/30/14

BME-RAPD Award, NSF

Title: Axon Guidance by Critical Cues – Engineering Nerve Growth In Vitro and Observing From Afar

PI: D. Hoffman-Kim

Project Period: 4/1/11 - 3/31/15

DEANS Award, Brown University

Title: Tissue Engineering Neuroma Prevention and Nerve Repair

PI: D. Hoffman-Kim

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Project Period: 07/01/14 – 12/15/15

Seed Funding Award, Brown University

Title: Tissue Engineering for Personalized Medicine – 3D Human iPSC-Neuronal Microtissues

PI: D. Hoffman-Kim

Project Period: 04/01/15-03/31/16

R01, NIH NHLBI

Title: A Multi-Scale Approach to Cardiac Arrhythmia: from the Molecule to the Organ

PI: G. Koren, Collaborating Investigator: D. Hoffman-Kim

Project Period: 08/01/13 – 05/31/18

BIBS/NPNI New Frontier, Brown University

Title: Tissue Engineered Platform for Stroke Investigation - 3D Human iPSC-Neuronal Microtissues

PI: D. Hoffman-Kim

Project Period: 05/01/16 – 04/30/18

Brown University OVPR

Title: Pulmonary Artery Endothelial Cell Phenotypes During Pulmonary Hypertension

PI: E. Harrington, Collaborating Investigator: D. Hoffman-Kim

Project Period: 02/01/21 – 01/31/22

b. Active

BRP, NIH NIEHS

Title: Human 3D Microtissues for Toxicity Testing via Integrated Imaging, Molecular and Functional Analyses

PI: K. Boekelheide, Collaborating Investigator: D. Hoffman-Kim

Project Period: 07/01/17 – 07/31/23

ONR

Title: Development of a Predictive Multiscale Traumatic Brain Injury Model

PI: C. Franck, Collaborating Investigator: D. Hoffman-Kim

Project Period: Phase I: 07/01/17 – 06/30/20; Phase II: 07/01.2020 – 12/30/23

R01, NIH NCI

Title: Label-Free, Longitudinal, Multi-Metric Viability Imaging of 3D Tissue Spheroid Array

PI: J. Lee, Collaborating Investigator: D. Hoffman-Kim

Project Period: 07/01/2021 - 06/30/2026

ONR

Title: DURIP - Confocal Microscope for Imaging of Brain Imaging Progression

PI: D. Hoffman-Kim

Project Period: 04/01/22 – 03/31/23

ONR

Title: Impact of Mechanical Microenvironment on Neural Connectivity

PI: A. Armani, Collaborating Investigator: D. Hoffman-Kim

Project Period: 07/01/22 – 06/30/25

NSF

Title: Collaborative Research: Electromagnet-Integrated Optical Microscope Stage with Biocompatible Magnetogel for Investigating Mechanobiology in 2D and 3D

Curriculum Vita – Diane Hoffman-Kim, Ph.D.

PI: A. Armani, **Collaborating Investigator: D. Hoffman-Kim**

Project Period: 10/01/22 – 09/30/25

Academic honors

National Research Service Award, National Eye Institute of The National Institutes of Health, 1994-1997
Bunting Fellowship, The Bunting Institute of Radcliffe College, 1997-1998, 1998-1999 (declined)
CAREER Award, National Science Foundation, 2006-2011

Teaching (2001 – present)

Regular Courses

Spring 2001. BI 108 *Organ Replacement*. Enrollment: 28.

Lecture – Tissue engineered cardiac valves.

Fall 2001. BI 017 *Biotechnology*. Enrollment: 72.

Lecture – Cardiac valve replacement.

Fall 2002. BI 223 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 11.

1 of 3 course leaders.

Spring 2003. BI 114 *Tissue Engineering*. Enrollment: 11.

Sole course leader.

Fall 2003. BI 183 *Group Research Project*. Enrollment: 7.

Sole course leader.

Spring 2004. BI 114 *Tissue Engineering*. Enrollment: 20.

Sole course leader.

Spring 2004. BI 184 *Group Research Project*. Enrollment: 7.

Sole course leader.

Spring 2004. BI 224 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 13.

1 of 3 course leaders.

Fall 2004. BI 223 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 10.

1 of 3 course leaders.

Spring 2005. BI 224 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 14.

1 of 3 course leaders.

Fall 2005. BI 113 *Cell Structure and Movement*. Enrollment: 7.

Lecture – Axon Guidance.

Fall 2005. BI 223 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 14.

1 of 3 course leaders.

Spring 2006. BI 114 *Tissue Engineering*. Enrollment: 18.

Sole course leader.

Spring 2006. BI 224 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 13.

1 of 3 course leaders.

Fall 2006. BI 223 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 11.

1 of 3 course leaders.

Spring 2007. BI 114 *Tissue Engineering*. Enrollment: 21.

Sole course leader.

Spring 2007. BI 224 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 13.

1 of 3 course leaders.

Fall 2007. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 12.

1 of 3 course leaders.

Spring 2008. BIOL 2240 *Artificial Organs, Biomaterials and Cellular Technology Seminar*.

Enrollment: 11. 1 of 3 course leaders.

Spring 2008. BIOL 1140 *Tissue Engineering*. Enrollment: 17.

Sole course leader.

Fall 2008. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 11.

1 of 3 course leaders.

Curriculum Vita – Diane Hoffman-Kim, Ph.D.

- Spring 2009. BIOL 2240 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 16. 1 of 3 course leaders.
- Spring 2009. BIOL 1140 *Tissue Engineering*. Enrollment: 21.
Sole course leader.
- Fall 2009. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 14.
1 of 3 course leaders.
- Spring 2010. BIOL 2240 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 12. 1 of 3 course leaders.
- Spring 2010. BIOL 1140 *Tissue Engineering*. Enrollment: 21.
Sole course leader.
- Fall 2010. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 15.
1 of 3 course leaders.
- Fall 2011. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 32.
1 of 3 course leaders.
- Spring 2011. BIOL 1140 *Tissue Engineering*. Enrollment: 20.
Sole course leader.
- Spring 2011. BIOL 2240 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 18. 1 of 3 course leaders.
- Fall 2012. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 32.
1 of 3 course leaders.
- Spring 2012. BIOL 1140 *Tissue Engineering*. Enrollment: 20.
Sole course leader.
- Spring 2012. BIOL 2240 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 18. 1 of 3 course leaders.
- Fall 2012. BIOL 1140 *Tissue Engineering*. Enrollment: 20.
Sole course leader.
- Fall 2013. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 40.
1 of 3 course leaders.
- Fall 2013. BIOL 1140 *Tissue Engineering*. Enrollment: 20.
Sole course leader.
- January 2014. *Navigating a Successful Graduate Career: Professionalism & Etiquette*. IMSD Module. Enrollment: 9.
Sole course leader.
- Fall 2014. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 40.
1 of 2 course leaders.
- Fall 2014. BIOL 1140 *Tissue Engineering*. Enrollment: 20.
Sole course leader.
- Fall 2015. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 40.
1 of 2 course leaders.
- Fall 2015. BIOL 1140 *Tissue Engineering*. Enrollment: 20.
Sole course leader.
- Fall 2016. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 48.
1 of 2 course leaders.
- Fall 2016. BIOL 1140 *Tissue Engineering*. Enrollment: 20.
Sole course leader.
- Fall 2018. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 41.
1 of 2 course leaders.
- Fall 2018. BIOL 1140 *Tissue Engineering*. Enrollment: 18.
Sole course leader.
- Fall 2019. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 42.
1 of 2 course leaders.
- Fall 2019. BIOL 1140 *Tissue Engineering*. Enrollment: 20.

Curriculum Vita – Diane Hoffman-Kim, Ph.D.

Sole course leader.

Fall 2020. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 25.
1 of 2 course leaders.

Fall 2020. BIOL 1140 *Tissue Engineering*. Enrollment: 20.

Sole course leader.

Fall 2021. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 24.
1 of 2 course leaders.

Fall 2021. BIOL 1140 *Tissue Engineering*. Enrollment: 20.

Sole course leader.

Fall 2022. BIOL 2230 *Artificial Organs, Biomaterials and Cellular Technology Seminar*. Enrollment: 17.
1 of 2 course leaders.

Fall 2022. BIOL 1140 *Tissue Engineering*. Enrollment: 20.

Sole course leader.

Independent Studies

[Fellowship awards: Karen T. Romer Undergraduate Teaching and Research Award (UTRA), Program in Liberal Medical Education Summer Research Assistantship (PLME SRA), and National Science Foundation Research Experience for Undergraduates (NSF REU) programs]

Meera Shah, Biomedical Engineering, 2001-2002

Mathangi Subramanian, Biochemistry, 2001-2002

Millicent Ford, Biomedical Engineering, 2002-2003 (Hughes fellowship)

Pearl Yu, Biomedical Engineering, 2002-2004 (UTRA fellowship)

Shaily Kapur, Biomedical Engineering, 2003-2004 (UTRA fellowship)

Beth Toste, Neuroscience, 2003-2004 (PLME SRA fellowship)

Alex Toy, Biomedical Engineering, 2003-2004 (UTRA fellowship)

Joshua Goldner, Biomedical Engineering, 2003-2005 (UTRA, NSF REU fellowships)

Nhu-An Le, Biomedical Engineering, 2004-2005

Jeffrey Liu, Neuroscience, 2004-2005 (PLME SRA fellowship)

Beverly See, Biology, 2003-2005 (UTRA fellowship)

Caitlin Elgarten, Biology, 2005-2006 (UTRA fellowship)

Vivian Fong, Biomedical Engineering, 2005-2006 (UTRA, NSF REU fellowships)

Jillian Harrison, Biomedical Engineering, 2005-2006

Julia Keith, Biology, 2005-2006

Nicholas Monu, Neuroscience, 2005-2006 (PLME SRA fellowship)

Elise Cheng, Biochemistry, 2006-2007

Andrea Lee, Biology, 2006-2008 (UTRA fellowships)

Julie Richardson, Biomedical Engineering, 2006-2007 (UTRA fellowship)

Johnathon Rollo, Neuroscience, 2006-2007 (NSF REU fellowship)

Michael Angelo Santos, Biomedical Engineering, 2006-2007 (UTRA, NSF REU fellowships)

Jennifer Pallay, Biomedical Engineering, 2007-2008 (UTRA, NSF REU fellowships)

Matthew Finn, Biology, 2007-2008 (UTRA fellowship)

Christina Johnson, Biomedical Engineering, 2007-2009 (UTRA, NSF REU fellowships)

Jesse Thon, Neuroscience, 2007-2009 (UTRA fellowships)

Carmichael Ong, Biomedical Engineering, 2008 (UTRA fellowship)

Curriculum Vita – Diane Hoffman-Kim, Ph.D.

Cameron Rementer, Biomedical Engineering, 2008-2009 (UTRA fellowship)
Nupur Shridhar, Biochemistry, 2008 (NSF REU fellowship)
Talisha Ramchal, Biology, 2009, 2010 (UTRA, NSF REU fellowships)
Danielle Chau, Neuroscience, 2010, 2011 (UTRA, PLME SRA fellowships)

Emily Hsieh, Biomedical Engineering, 2010, 2011 (Bard, UTRA fellowships)
Cindy Oh, Biology, 2011-2012 (UTRA fellowship)
Ryan Din, Neuroscience, 2011-2012 (UTRA fellowship)
Renan Ribeiro e Ribeiro, 2012 (Bard fellowship)
Michael Kader, 2013 (UTRA fellowship)

Samantha Brady, 2013-2014 (Bard, UTRA fellowships)
Lyndsay Stapleton, 2014 (Leadership Alliance fellowship)
Hayley McClintock, 2014 (UTRA fellowship)
Liana Kramer, 2015-2016 (UTRA fellowship)
William Sheeran, 2015 (UTRA fellowship)

Aurora Washington, 2015 (Tougaloo College, RI Space Grant fellowship)
Taylor Pullinger, 2017 (UTRA fellowship)
Rachel Walker, 2019
Ilayda Top, 2020 (UTRA fellowship)
Christien Hernandez, 2020 (SPRINT fellowship)

Amanda Laguna, 2020 (SPRINT fellowship)
Revanna Navarro, 2020, 2021 (UTRA fellowship)
Rasheedat Ekiyoyo, 2020 (Leadership Alliance fellowship)
Harrison Katz, 2021, 2022 (UTRA fellowship)
Austin Roy, 2022 (UTRA fellowship)

Francesca Vecchio, 2022 (UTRA fellowship)

Honors Theses

Meera Shah, Biomedical Engineering 2002, Outstanding Biomedical Engineering Senior Award
Mathangi Subramanian, Biochemistry 2002
Shaily Kapur, Biomedical Engineering 2004
Beth Toste, Neuroscience 2004
Joshua Goldner, Biomedical Engineering 2005
Jeffrey Liu, Neuroscience 2005
Caitlin Elgarten, Biology 2006
Vivian Fong, Biomedical Engineering 2006
Nicholas Monu, Neuroscience 2006
Elise Cheng, Biochemistry, 2007
Julie Richardson, Biomedical Engineering, 2007
Jonathon Rollo, Neuroscience, 2007
Michael Angelo Santos, Biomedical Engineering, 2007
Matthew Finn, Biology, 2008
Andrea Lee, Biology, 2008
Jennifer Pallay, Biomedical Engineering, 2008
Christina Johnson, Biomedical Engineering, 2009
Cameron Rementer, Biomedical Engineering, 2010
Talisha Ramchal, Biology, 2011
Danielle Chau, Neuroscience, 2012

Curriculum Vita – Diane Hoffman-Kim, Ph.D.

Cindy Oh, Biology, 2013, Brown University Thesis Prize
Ryan Din, Biology, 2014
Michael Kader, Neuroscience, 2014
Ilayda Top, Neuroscience, 2020
Christien Hernandez, Neuroscience, 2021
Amanda Laguna, Biology, 2021
Lisa Okazaki, Biomedical Engineering, 2021
Revanna Navarro, Biology, 2022

Master's Theses

Elizabeth Deweerd, Biomedical Engineering 2006
Jennifer Pallay, Biomedical Engineering 2009
Talisha Ramchal, Biotechnology 2012
Cindy Oh, Biotechnology 2014
Samantha Brady, Biomedical Engineering 2016
Payal Patel, Biomedical Engineering 2016
Kari Truong, Biotechnology 2016
Matthew Luminais, Biotechnology 2017
Liana Kramer, Biotechnology 2017
Samantha Zambuto, Biomedical Engineering 2017
Victor Cox, Biotechnology 2018
Lisa Okazaki, Biomedical Engineering 2022

Ph.D. Theses

Jan Bruder, Artificial Organs, Biomaterials, and Cellular Technology 2008
Grace Li, Biomedical Engineering 2008
Celinda Kofron, Biomedical Engineering 2009
Julie Richardson, Biomedical Engineering 2012
Jennifer Mitchel, Biomedical Engineering 2012
Cristina Lopez-Fagundo, Biomedical Engineering 2013
Yu-Ting Liu Dingle, Biomedical Engineering 2015
Molly Boutin, Biomedical Engineering 2016
Elisabeth Evans, Biotechnology 2018
Verida Leandre, Pathobiology 2020
Jessica Sevetson, Neuroscience 2020
Aurora Washington, Biotechnology 2022

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