

Brian P. Timko

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Education

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|-----------|-------------------------------------|--|
| 2002-2009 | Harvard University
Cambridge, MA | <ul style="list-style-type: none">• Ph.D. in Chemistry (2009)• A.M. in Chemistry (2004) |
| 1998-2002 | Lehigh University
Bethlehem, PA | <ul style="list-style-type: none">• B.S. in Chemistry with Highest Honors (2002)• B.S. in Chemical Engineering with Highest Honors (2002)• Elected to Phi Beta Kappa and Tau Beta Pi honor societies |

Work Experience

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| 2016 - | Assistant Professor | Tufts University, Dept. of Biomedical Engineering, Medford MA |
| 2016 - | Research Affiliate | Boston Children's Hospital, Harvard Medical School, Boston MA |
| 2013-2016 | Instructor in Anaesthesiology | Boston Children's Hospital, Harvard Medical School, Boston MA |
| 2009-2013 | Postdoctoral Fellow | MIT Koch Institute for Integrative Cancer Research, Cambridge MA |

Awards and Honors

- 2018** Nano Research Young Innovators Award (NR45)
- 2016** MIT Sloan Healthcare Innovations Prize
- 2016** Anesthesia Foundation Distinguished Trailblazer Award
- 2016** Finalist, MIT 100k Accelerate Competition
- 2015** Grand Prize and Audience Choice Award, MIT 100k Pitch Competition
- 2011** NIH Ruth L Kirschstein National Research Service Award (NRSA) recipient
- 2008** Gold Award, Materials Research Society
- 2007** Finalist, National Collegiate Inventors Competition
- 2006** William H. Peterson Award
- 2002** NSF Graduate Research Fellowship Program (GRFP) recipient
- 2000** Barry M. Goldwater Scholarship
- 2000** Rotary Foundation Ambassadorial Scholarship
- 1996** Eagle Scout

Teaching and Mentoring Activities

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| 2016 - | Course Instructor at Tufts University: Junior Research and Design (BME 5), Senior Design Project (BME 7/8) and Quantitative Physiology (BME 121) |
| 2009-2015 | Research Mentor for undergraduate students in Kohane and Langer Groups, MIT / Boston Children's Hospital |
| 2002-2009 | Research Mentor for undergraduate students in Lieber Group, Harvard University |
| 2002 | Teaching Fellow at Harvard University: Principles of Physical Chemistry (CHM 60) |

Other Professional / Service Experience

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| Editorial Board Member: | Young Star Editor, <i>Nano Research</i> |
| Symposium organizer: | 2019 Fall Meeting, "Light-matter interactions at the Interface with Living Cells" |
| Membership in professional societies: | American Chemical Society, Materials Research Society, American Institute of Chemical Engineers, Alpha Chi Sigma, Sigma Xi |
| Peer reviewer for journals: | <i>Nano Letters</i> , <i>ACS Nano</i> , <i>PNAS</i> , <i>Nature Medicine</i> , <i>Biomacromolecules</i> , <i>Acta Biomaterialia</i> , <i>Nanoscale</i> , <i>Nanomedicine</i> , <i>Current Opinion in Biotechnology</i> |
| First-round Judge: | National Collegiate Inventors Competition |
| Session co-chair: | World Biomaterials Conference (2016), Materials Research Society (Fall 2018) |
| Reviewer (ad hoc): | NIH NANO Study Section |

Peer-reviewed Publications

27. O.A. Bolonduro, B.A. Duffy, A.A. Rao, L.D. Black, **B.P. Timko**, "From Biomimicry to Bioelectronics: Smart Materials for Cardiac Tissue Engineering." *Nano Res.*, Accepted, in press.
26. H. Liu, B. Haider, H.R. Fried, J. Ju, O. Bolonduro, V. Raghuram, **B.P. Timko**, "Nanobiotechnology: 1D nanomaterial building blocks for cellular interfaces and hybrid tissues," *Nano Res.*, **11**, 5372 (2018).
25. C. Zhan, W. Wang, C. Santamaria, B. Wang, A. Rwei, **B.P. Timko**, D. Kohane, "Ultrasensitive Phototriggered Local Anesthesia," *Nano Lett.*, **17**, 660 (2017).
24. C. Zhan, W. Wang, J.B. McAlvin, S. Guo S, **B.P. Timko**, C. Santamaria, *et. al.*, "Phototriggered Local Anesthesia," *Nano Lett.*, **16**, 177 (2016).
23. I.P. Monteiro, D. Gabriel, **B.P. Timko**, M. Hashimoto, S. Karajanagi, R. Tong, A.P. Marques, R.L. Reis, D.S. Kohane, "A two-component pre-seeded dermal-epidermal scaffold," *Acta Biomater.*, **10**, 4928 (2014).
22. **B.P. Timko**, M. Arruebo, S.A. Shankarappa, J. B. McAlvin, O.S. Okonkwo, B. Mizrahi, C. Stefanescu, L. Gomez, J. Zhu, A. Zhu, J. Santamaria, R. Langer & D.S. Kohane, "Near-infrared Actuated Devices for Remotely Controlled Drug Delivery," *Proc. Natl. Acad. Sci. USA*, **111**, 1349 (2014). **Featured as "Editors' Choice," *Science Translational Medicine* (12 Feb. 2014) and in "The Distillery," *Nature / Science-Business eXchange (SciBX)*.**
21. **B.P. Timko** & D.S. Kohane (Editorial): "Prospects for near-infrared technology in remotely-triggered drug delivery," *Expert Opin. Drug Del.*, **12**, 4928 (2014).
20. **B.P. Timko** & D.S. Kohane, "Drug Delivery Systems for Customized and Localized Drug Release," *Isrl. J. Chem.*, **53**, 728 (2013).
19. B. Mizrahi, S.A. Shankarappa, J. Hickey, J. Dohman, **B.P. Timko**, K.A. Whitehead, J-J. Lee, R. Langer, D.G. Anderson & Daniel S. Kohane, "A Stiff Injectable Biodegradable Elastomer," *Adv. Funct. Mater.* **23**, 1527 (2013).
18. **B.P. Timko** & D.S. Kohane, "Materials to Clinical Devices: Technologies for Remotely-triggered Drug Delivery," *Clin. Ther.* **34**, S25 (2012).
17. **B.P. Timko***, T. Dvir*, M.D. Brigham, S.R. Naik, S.S. Karajanagi, O. Levy, H. Jin, K.K. Parker, R. Langer & D.S. Kohane, "Nanowired three-dimensional cardiac patches," *Nat. Nanotechnol.* **6**, 720 (2011). (*I am listed second on this paper but with equal first contribution.)
16. T. Dvir, **B.P. Timko**, D.S. Kohane & R. Langer, "Tissue engineering in the era of nanotechnology," *Nat. Nanotechnol.* **6**, 13 (2011).
15. **B.P. Timko**, K. Whitehead, W. Gao, D. Kohane, O. Farokhzad, D. Anderson & R. Langer, "Advances in Drug Delivery," *Ann. Rev. Mater. Res.*, **41**, 1 (2011).
14. **B.P. Timko**, T. Dvir & D.S. Kohane, "Remotely triggerable drug delivery systems," *Adv. Mater.* **22**, 4925 (2010).
13. **B.P. Timko**, T. Cohen-Karni, Q. Qing, B. Tian & C.M. Lieber, "Design and implementation of functional nanoelectronic interfaces with biomolecules, cells and tissue using nanowire device arrays," *IEEE Trans. Nanotechnol.* **9**, 269 (2010).
12. **B.P. Timko***, T. Hoare, J. Santamaria, G.F. Goya, S. Irusta, S. Lau, C.F. Stefanescu, D. Lin, R. Langer & D.S. Kohane, "Magnetically Triggered Nanocomposite Membranes: A Versatile Platform for Triggered Drug Release," *Nano. Lett.* **11**, 1395 (2011). (*I am listed second on this paper but with equal first contribution)
11. T. Dvir, M.R. Banghart, **B.P. Timko**, R. Langer & D.S. Kohane, "Photo-Targed Nanoparticles," *Nano. Lett.* **10**, 250 (2010).
10. **B.P. Timko**, T. Cohen-Karni, Guihua Yu & C.M. Lieber, "Electrical Recording from Hearts using Flexible Nanowire Device Arrays." *Nano. Lett.* **9**, 914 (2009).
9. T. Cohen-Karni, **B.P. Timko**, L.E. Weiss & C.M. Lieber, "Flexible electrical recording from cells using nanowire transistor arrays," *Proc. Natl. Acad. Sci. USA* **106**, 7309 (2009).

8. N.A. Kotov, I. Clements, J. Winter, **B.P. Timko**, E. Jan, S. Campidelli, S. Pathak, R.V. Bellamkonda, A. Mazzatenta, L. Ballerini, M. Prato, F. Patolsky, C.M. Lieber, D. Da Silva, N.W.S. Kam, A. Curtis, A. Beattie, C.D.W. Wilkinson & M. Riehle, "Nanomaterials for Neural Interfaces," *Adv. Mater.* **21**, 3970 (2009).
7. F. Patolsky, **B.P. Timko**, G. Zheng & C.M. Lieber, "Nanowire-Based Nanoelectronic Devices in the Life Sciences," *MRS Bull.* **32**, 142 (2007).
6. **B.P. Timko**,* F. Patolsky,* G. Yu, Y. Fang, A.B. Greytak, G. Zheng & C.M. Lieber, "Detection, Stimulation, and Inhibition of Neuronal Signals with High-Density Nanowire Transistor Arrays," *Science*. **313**, 1100 (2006). (*I am listed second on this paper but with equal first contribution) **Featured as one of the "Top Five Nanotech Breakthroughs of 2006" in the *Forbes/Wolfe Nanotechnology Report* and "The Top 100 Science Stories in 2006" in *Discover Magazine*.**
5. Q. Qing, S. K. Pal, B. Tian, X. Duan, **B.P. Timko**, T. Cohen-Karni, V.N. Murthy & C.M. Lieber, "Nanowire transistor arrays for mapping neural circuits in acute brain slices," *Proc. Natl. Acad. Sci. USA* **107**, 1882 (2010).
4. W. Lu, J. Xiang, **B.P. Timko**, Y. Wu & C.M. Lieber, "One-dimensional hole gas in germanium/silicon nanowire heterostructures," *Proc. Natl. Acad. Sci. USA* **102**, 10046 (2005).
3. D. C. Bell, Y. Wu, C. J. Barrelet, S. Gradecak, J. Xiang, **B.P. Timko** & C. M. Lieber, "Imaging and Analysis of Nanowires," *Microsc. Res. Techniq.* **64**, 373 (2004).
2. T. Reuther, V. M. Hultgren, **B.P. Timko**, A. M. Bond, W. R. Jackson & A. G. Wedd. "Electrochemical Investigation of Photooxidation Processes Promoted by Sulfo-polyoxometalates: Coupling of Photochemical and Electrochemical Processes into an Effective Catalytic Cycle," *J. Am. Chem. Soc.* **125**, 10133 (2003).
1. M. C. Henry, C.-C. Hsueh, **B.P. Timko**, & M. S. Freund. "Reaction of Pyrrole and Chlorauric Acid: a New Route to Composite Colloids," *J. Electrochem. Soc.* **148**, K155 (2001).

Articles and Book Chapter

3. T.D. Nguyen, **B.P. Timko**. "Bionics in Tissue Engineering." In: Hasan A, editor. *Tissue Engineering for Artificial Organs*. 2. Darmstadt, Germany: Wiley-VCH; 2017. p. 717.
2. **B.P. Timko**, D.S. Kohane, "Remote Controlled Drugs," *The Medicine Maker*, Issue #0315, April 9, 2015.
1. **B.P. Timko**, D.S. Kohane, Research Highlights, *Nanomedicine* **7**, 315 (2012).

Patents

3. T. Dvir, D.S. Kohane, R.S. Langer & **B.P. Timko**, "Nanowired Three Dimensional Tissue Scaffolds," U.S. Patent Application 13/997,939 filed 28 December 2011.
2. F. Patolsky, **B.P. Timko**, G. Yu & C.M. Lieber, "Nanobioelectronics," U.S. Patent Application 12/225,142 filed 15 September 2008.
1. C.M. Lieber, W. Lu, J. Xiang, Y. Wu, **B.P. Timko** & H. Yan, "Nanowire Heterostructures," U.S. Patent Application 11/807,186 filed 25 May 2007.