

# John W. Hickey

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## EDUCATION

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08/2013-02/2019 **Johns Hopkins University**, Baltimore, MD  
Ph.D. in Biomedical Engineering: GPA of 4.0  
Completed: 02/28/2019, Awarded 05/23/2019

08/2007-04/2013 **Brigham Young University**, Provo, UT  
B.S. in Chemical Engineering  
Graduated Cum Laude: GPA of 3.93

## RESEARCH/INDUSTRY EXPERIENCE

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03/2019-04/2019 **Cancer Immunoengineering: Johns Hopkins Biomedical Engineering Dept.**  
Postdoctoral Fellow Baltimore, MD

- Transition postdoctoral fellow following completion of PhD requirements

08/2013-03/2019 **Cancer Immunoengineering: Johns Hopkins Biomedical Engineering Dept.**  
PhD Advisors: Dr. Jonathan Schneck & Hai-Quan Mao Baltimore, MD

- Engineering novel materials to improve immunotherapy and develop diagnostics: electrospun nanofibers, nanoparticles, hydrogels, and composite materials.
- Personal fellowships received: NIH INBT, NSF GRFP, ARCS, and Siebel
- Laboratory grants assisted in writing and collecting data:
  - R01 for particle-based malarial vaccines
  - JHU Discovery grant for pioneering artificial lymph nodes
  - R01 for biodegradable artificial antigen presenting cells
  - P41 for new Immunoengineering center at Johns Hopkins
  - R33 for T cell diagnostic development for cancer patients
- Presented research as oral and poster presentations nationally and locally
- Trained and managed 6 graduate, 8 undergraduate, and 4 high school students
- Collaborate with laboratories resulting in a co-authored publication and patent

08/2012-04/2013 **Biomaterials: Brigham Young University Chemical Engineering Dept.**  
Advisor: Dr. William Pitt Provo, UT

- Characterized the lipid and protein sorption to contact lenses to quantify fouling rates and lens cleaning solution efficiency. Leading to 2 co-authored publications
- Developed non-pulsatile pump for slow fluid flow through microfluidic devices.
- Engineered a controlled temperature cell to high-speed image microemulsions.

- 05/2012-08/2012     **Petroleum Engineering:** *ExxonMobil Research & Engineering Projects*  
Baytown, TX
- Created fluid flow model for gas scrubber exchange, steam optimization, and economic models—\$10,000,000 in project savings.
- 04/2011-08/2011     **Pharmaceutical Chemistry:** *Huntsman Cancer Institute, Tolero Pharmaceutical*  
Dr. Dave Bearss     Salt Lake City, UT
- Developed several novel BRAF inhibitor molecules for potential pharmacological use in cancer therapy and presented at an Undergraduate Research Conference.
- 04/2010-04/2011     **Nanotechnology:** Brigham Young University Chemical Engineering Dept.  
Dr. John Harb     Provo, UT
- Helped develop, optimize, and perform procedures to metalize DNA in order to create nanowires. Leading to 1 co-authored publication.

## PUBLICATIONS

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- Hickey, JW, Isser, A, Salathe S, Gee K, Hsiao MH, Shaikh W, Mao HQ, Schneck JP. Increasing the Throughput and Adaptability of Nanoparticle Tools to Isolate and Identify Many Antigen-specific T cells. ***In Preparation***.
- Bessell CA, Isser A, Havel J, Lee S, Bell DR, Hickey JW, Sidhom JW, Zhou R, Chan TA, Schneck JP. Commensal bacteria Bifidobacterium stimulates anti-tumor response via cross-reactivity. ***Cancer Discovery***. In Revision.
- Hickey JW, Dong, Y, Chung, JW, Salathe, S., Li, X, Bessel, C., Mao HQ, Schneck J.P. Engineering an Artificial T-Cell Stimulating Matrix for Immunotherapy. ***Advanced Materials***. In press.
- Pruitt HC, Lewis D, Ciccaglione M, Connor S, Smith Q, Hickey JW, Schneck JP, Gerecht S. Collagen fiber structure guides 3D motility of cytotoxic T lymphocytes. ***Matrix Biology***. 2019 Feb 16. <https://www.sciencedirect.com/science/article/pii/S0945053X1830458X>
- Hickey, JW, Schneck JP. Making Artificial Antigen-presenting Cells to Enrich and Expand Rare Antigen-specific T cells. ***Journal of Visualized Experiments***. 141 (2018): e58640. <https://www.jove.com/video/58640/enrich-expand-rare-antigen-specific-t-cells-with-magnetic>
- Hickey, JW, Isser, A, Vicente F, Warner S, Mao HQ, Schneck JP. Efficient Magnetic Enrichment of Antigen-specific T cells for Immunotherapeutic Applications. ***Biomaterials***. 187 (2018): 105-116. <https://www.sciencedirect.com/science/article/pii/S0142961218306665>
- Hickey, J.W., Kosmides, A.K., Schneck J.P. Engineering Platforms for T cell Modulation. ***International Review of Cell and Molecular Biology***. 341 (2018): 277-362. <https://www.sciencedirect.com/science/article/pii/S1937644818300674?via%3Dihub>
- Kosmides, A.K., Nechoa, K, Hickey, J.W., Schneck J.P. Separating T cell signaling components onto distinct magnetically-clustered nanoparticles boosts activation. ***Nano Letters***. 18.3 (2018): 1916-1924. <https://pubs.acs.org/doi/abs/10.1021/acs.nanolett.7b05284>

9. Hickey, J.W., Vicente F, Howard, G.P., Mao H.Q., Schneck J.P. Biologically Inspired Design of Nanoparticle Artificial Antigen-Presenting Cells for Immunomodulation. **Nano Letters**. 17.11 (2017): 7045-7054. <https://pubs.acs.org/doi/abs/10.1021/acs.nanolett.7b03734>
10. Kosmides, A.K., Meyer, R.A., Hickey, J.W., Aje, K., Cheung, K.N., Green, J.J. and Schneck, J.P. Biomimetic biodegradable artificial antigen presenting cells synergize with PD-1 blockade to treat melanoma. **Biomaterials**. 118 (2017): 16-26. <https://www.sciencedirect.com/science/article/pii/S0142961216306639>
11. Hickey JW, Santos JL, Williford JM, Mao HQ. Control of Polymeric Nanoparticle Size for Improved Therapeutic Delivery. **Journal of Controlled Release**. 219 (2015): 536-547. <https://www.sciencedirect.com/science/article/pii/S0168365915301759>
12. Tam NK, Pitt WG, Perez KX, Handy E, Glenn AA, Hickey JW, Larsen BG. The role of multi-purpose solutions in prevention and removal of lipid depositions on contact lenses. **Contact Lens and Anterior Eye**. 37.6 (2014): 405-414. [https://journals.lww.com/optvissci/Fulltext/2014/12000/Prevention\\_and\\_Removal\\_of\\_Lipid\\_Deposits\\_by\\_Lens.11.aspx](https://journals.lww.com/optvissci/Fulltext/2014/12000/Prevention_and_Removal_of_Lipid_Deposits_by_Lens.11.aspx)
13. Tam NK, Pitt WG, Perez KX, Hickey JW, Glenn AA, Chin J, Liu XM, Maziarz EP. Prevention and Removal of Lipid Deposits by Lens Care Solutions and Rubbing. **Optometry and Vision Science**. 91.12 (2014): 1430-1439. <https://www.sciencedirect.com/science/article/pii/S1367048414000757>
14. Liu J, Geng Y, Pound E, Gyawali S, Ashton JR, Hickey J, Woolley AT, Harb JN. Metallization of branched DNA origami for nanoelectronic circuit fabrication. **ACS Nano**. 5.3 (2011): 2240-2247. <https://pubs.acs.org/doi/abs/10.1021/nn1035075>

## ORAL PRESENTATIONS

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1. Hickey JW, Dong, Y, Chung, JW, Salathe S, Mao HQ, Schneck JP. How to Make T cells Comfortable: Engineering Artificial Lymph Nodes for Effective Tumor Immunotherapy. *Biomedical Engineering Society Annual Conference*. October 2018.
2. Hickey JW, Jiang T, Fernandes G, Clark K. The Engineering Design Process Applied to Teaching: Development of Mobile Application to Increase Student-Teacher Communication. *Biomedical Engineering Society Annual Conference*. October 2018.
3. Hickey JW. Development of Mobile Application to Enhance Student-Teacher Communication. *National Online CIRTl TAR Meeting*. November 2017.
4. Hickey JW, Mao HQ, Schneck JP. Engineering Nanoparticle Artificial Antigen Presenting Cells Based on T cell Biology Improves T cell Enrichment and Activation for Cancer Immunotherapy. *American Institute of Chemical Engineers Annual Conference*. November 2017.
5. Hickey JW, Chung, JW, Mao HQ, Schneck JP. Biomimetic Design of Artificial Lymph Nodes for T cell Immunotherapy. *Biomedical Engineering Society Annual Conference*. October 2017.
6. Hickey JW, Vicente F, Schneck JP. The Importance of Nanoparticle Size and Ligand Density in Cell Modulation. *Biomedical Engineering Society Annual Conference*. October 2016.

7. Hickey JW, Mao HQ, Schneck JP. Engineering Artificial Lymph Nodes. *Biomedical Engineering Society Annual Conference*. October 2016.
8. Hickey JW. Increasing the Diversity of Final Projects and Enabling Students with In-class Workshops. *National Online CIRTl TAR Meeting*. April 2016.
9. Hickey JW, Mao HQ, Schneck JP. Biodegradable Hydrogels as a New CD8+ T Cell Stimulation Platform. *Biomedical Engineering Society Annual Conference*. October 2015.
10. Hickey JW. Looking Back: What to do as an undergrad to get to where you want to go. *Brigham Young University Biomedical Engineering Seminar*. Provo, UT. February 2014.
11. Hickey JW. Development of Novel Mutated-BRAF Inhibitors. *University of Utah Summer Research Conference*. Salt Lake City, UT. July 2011.

## POSTERS

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1. Isser A, Hickey JW, Mao HQ, Schneck JP. Optimizing Output and Throughput of Enrichment of Rare Antigen Specific CD8+ T Cells. *Biomedical Engineering Society Annual Conference*. October 2018.
2. Hickey JW, Dong Y, Chung, JW, Salathe S, Li X, Mao HQ, Schneck JP. Engineering a T Cell Stimulating Extra-Cellular Matrix for Immunotherapy. *Society for Immunotherapy of Cancer Annual Meeting and Conference*. November 2018.
3. Hickey JW, Isser A, Mao HQ, Schneck JP. Engineering a Platform to Enable Rare Antigen-specific CD8+ T Cell Characterization. *EMBL Microfluidics 2018: New Technologies and Applications in Biology, Biochemistry and Single-Cell Analysis*. July 2018.
4. Hickey JW, Dong Y, Chung, JW, Salathe S, Li X, Mao HQ, Schneck JP. Nature-inspired Design of Artificial Lymph Nodes For Improved Immunotherapy. *Institute for Nanobiotechnology Symposium on Advanced Biomanufacturing*. May 2018.
5. Hickey JW, Isser A, Vicente F, Gee K, Mao HQ, Schneck JP. Efficient Enrichment and Activation of Antigen-specific T Cells by Probing the Nanoparticle Engineering Design Space. *Institute for Nanobiotechnology Symposium on Advanced Biomanufacturing*. May 2018.
6. Hickey JW, Isser A, Gee K, Salathe S, Dong Y, Mao HQ, Schneck JP. Optimizing Output and Throughput of Enrichment of Rare Antigen-specific CD8+ T Cells. *Institute for Nanobiotechnology Symposium on Advanced Biomanufacturing*. May 2018.
7. Hickey JW, Jiang, T., Fernandes, G., Clark, K. Tcrunch: Development of Mobile Application to Enhance Student-Teacher Communication. *ASEE Mid-Atlantic Spring Conference*. April 2018.
8. Hickey JW, Isser A, Mao HQ, Schneck JP. High Throughput Enrichment and Identification of Rare Antigen-specific CD8+ T cells. *Johns Hopkins Department of Pathology Young Investigators' Day*. March 2018.
9. Hickey JW, Isser A, Mao HQ, Schneck JP. High Throughput Enrichment and Identification of Rare Antigen-specific CD8+ T cells. *Society for Laboratory Automation and Screening Annual Meeting and Conference*. February 2018.

10. Hickey JW, Mao HQ, Schneck JP. Engineering Artificial Lymph Nodes for Immunotherapy. *Society for Immunotherapy of Cancer Annual Meeting and Conference*. November 2017.
11. Hickey JW, Vicente F, Schneck JP. Bio-inspired Design of Nanoparticle Artificial Antigen-presenting Cells for Immunotherapy. *Biomedical Engineering Society Annual Conference*. October 2017.
12. Hickey JW, Jiang, T., Fernandes, G., Clark, K. Creating an Exit-Ticket App: Real-time Teacher-Student Communication. *2017 CIRT National Meeting*. October 2017.
13. Hickey JW, Jiang, T., Clark, K. Creating an App to Enable More Frequent Student-Teacher Communication: Tcrunch. *2017 Technology Fellowship Showcase*. May 2017.
14. Hickey JW, Chung, JW, Mao HQ, Schneck JP. Design of Hydrogel Composite Artificial Lymph Node for T Cell Immunotherapy. *Institute for Nanobiotechnology Symposium on Engineering Vascularization*. May 2017.
15. Hickey JW, Vicente F, Mao HQ, Schneck JP. Biologically-inspired Design of Artificial Antigen Presenting Cell Nanoparticles for Immunotherapy. *Institute for Nanobiotechnology Symposium on Engineering Vascularization*. May 2017.
16. Hickey JW, Jiang, T., Clark, K. Enabling Real-time Teacher-Student Communication by Making an Exit Ticket Mobile App. *The Institute for Excellence in Education Medical Education Conference*. March 2017.
17. Hickey JW, Vicente F, Mao HQ, Schneck JP. Biologically-inspired Design of Artificial Antigen Presenting Cell Nanoparticles for Immunotherapy. *Johns Hopkins Department of Pathology Young Investigators' Day*. March 2017.
18. Hickey JW, Mao HQ, Schneck JP. Modulation of the T-cell Stimulating Environment. *Institute for Nanobiotechnology Symposium on Precision Medicine*. April 2016.
19. Hickey JW, Vicente F, Schneck JP. The Importance of Nanoparticle Size and Ligand Density in Cell Modulation. *Institute for Nanobiotechnology Symposium on Precision Medicine*. April 2016.
20. Hickey JW., Doyle K., Call L. T., Vankayalapati H., Bearss D. J. Fragment-Based Design, Synthesis and Biological Evaluation of a Series of Novel BRAF Kinase Inhibitors. *University of Utah Summer Research Conference*. Salt Lake City, UT. July 2011.

## ABSTRACTS

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1. Xia, Meyer, Belcaid, Kim, Patel, Mashouf, Casaos, Rhodes, Hickey, Schneck, Green, and Lim. Using Artificial Antigen Presenting Cells to Enhance Antigen Presentation in the Treatment of Glioblastoma. *American Society for Clinical Investigation (ASCI) and HHMI conference*. April 2018.
2. Meyer, R.A., Hickey, J.W., Kosmides, A.K., Rhodes, K.R., Bartkowski, A.J., Schneck, J.P and Green, J.J.. Biomimetic Biodegradable Artificial Antigen Presenting Cells for Enhanced "Off-The-Shelf" Melanoma Immunotherapy. *Biomedical Engineering Society Annual Conference*. October 2017.
3. Meyer, R.A., Kosmides, A.K., Hickey, J.W., Rhodes, K.R., Green, J.J. and Schneck, J.P. Biomimetic anisotropic nanoparticle shape enhances the activity of nano artificial antigen presenting cells at

extending survival of melanoma in combination with an immune checkpoint inhibitor. *Controlled Release Society Annual Meeting*. July 2017.

4. Meyer, R.A., Kosmidis, A.K., Hickey, J.W., Aje, K., Cheung, K.N., Green, J.J. and Schneck, J.P. Biomimetic Artificial Antigen Presenting Cells Synergize with Anti-PD1 in the Treatment of Melanoma. *ASGCT*. May 2017.
5. Meyer, R.A., Hickey, J.W., Kosmidis, A.K., Rhodes, K.R., Sunshine, J.C., Perica, K., Green, J.J. and Schneck, J.P. Enhanced Tumor Immunotherapy Mediated by Nanoellipsoidal Artificial Antigen Presenting Cells. *Society for Biomaterials Annual Meeting*. April 2017.

## DEPARTMENT TALKS

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1. Hickey JW, Mao HQ, Schneck JP. Biomimetic Design of Artificial Cells and Lymph Nodes for T Cell Immunotherapy. *Johns Hopkins Biomedical Engineering Seminar Series*. December 2017.
2. Hickey JW, Mao HQ, Schneck JP. Biomimetic Design of Artificial Cells and Lymph Nodes for T Cell Immunotherapy. *Johns Hopkins Immunology Seminar Series*. December 2017.
3. Hickey JW, Mao HQ, Schneck JP. Biomimetic Design of Artificial Cells and Lymph Nodes for T Cell Immunotherapy. *Johns Hopkins Immunopathology Seminar Series*. December 2017.
4. Hickey JW, Vicente F, Mao HQ, Schneck JP. How to Mimic Cells with Nanoparticles: Particles for immunomodulation. *The Institute for Nanobiotechnology Mini Symposium*. March 2017.
5. Hickey JW, Vicente F, Schneck JP. Mimicking cells with Nanoparticles: The importance of size and ligand density for immunomodulation. *Johns Hopkins Immunopathology Seminar Series*. January 2017.
6. Hickey JW, Vicente F, Schneck JP. Controlling T cells with Nanoparticles: The importance of size & ligand density. *Johns Hopkins Immunology Seminar Series*. December 2016.
7. Hickey JW. Final Project Diversity: Teaching as Research Project. *TAR Final Meeting*. February 2016.
8. Hickey JW, Schneck JP. Using Hydrogels to Stimulate CD8+ T Cells. *Johns Hopkins Immunopathology Seminar Series*. November 2015.

## HONORS AND FELLOWSHIPS

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| 2019 | Young Investigators' Day Hans J. Prochaska Award<br><i>Given to top research contributions made JHU trainees: medical and graduate students, postdoctoral and clinical fellows and residents</i> |
| 2018 | Siebel Scholar: \$35,000 scholarship<br><i>Given to top 100 graduating graduate students worldwide</i>   |
| 2018 | Schmidt Science Fellows Program Nominee<br><i>Selected by Johns Hopkins to apply for 2019 Schmidt Science Fellows Program</i>  |

- 2018 Top Clinical Research Poster Award  
*Won top poster at Johns Hopkins Department of Pathology Young Investigators' Day*
- 2018 SLAS Conference Top 3 Poster Award  
*Won poster competition with over 400 posters and focused in society's podcast*
- 2017 JCM Foundation ARCS Scholar: \$15,000 scholarship  
*Given to only 3 top graduate students at Johns Hopkins University*
- 2017 Alpha Eta Mu Beta Member: International Biomedical Engineering Honor Society  
*Required to be in top 1/3 of BME graduate students at Johns Hopkins University*
- 2016 Preparing Future Faculty Teaching Academy Fellow  
*Completed 3 phase teaching program*
- 2016 Teaching Academy Shark Tank Winner  
*One of 3 winners and \$2,000 awarded towards teaching technology development*
- 2015 Teaching As Research Fellow (PFFTA at Johns Hopkins)  
*\$1,500 for teaching research project*
- 2015 Discovery Award from Johns Hopkins University Provost Research  
*1 year \$100,000 grant for novel collaborative projects*
- 2015 National Science Foundation Graduate Research Fellowship Program Recipient  
*Given to top 2,000 graduate students for 3-year fellowship \$34,000/year*
- 2014 NIH Cancer Nanotechnology Training Center Predoctoral Fellowship  
*Given to 3 graduate students is a 1 year fellowship \$22,000/year (Johns Hopkins University Institute for Nanobiotechnology)*
- 2014 NSF Graduate Research Fellowship Program Honorable Mention Recipient
- 2013 First-year graduate student award biomedical engineering student nominee  
*One nominee for School of Medicine award*
- 2013 NIH Biomedical Engineering Training Fellowship  
*1 year fellowship from JHU Biomedical Engineering Department*
- 2013 AIChE Most Outstanding Senior Award  
*Voted by classmates and professors in BYU Chemical Engineering Department*
- 2012 Douglas N. Benion: Most Outstanding Junior Award  
*Top grades of BYU Chemical Engineering class*
- 2011 Bill J. Pope: Most Outstanding Sophomore Award  
*Top grades of BYU Chemical Engineering class*
- 2010 Business Strategy Competition Semifinalist

*BYU Marriott School of Business case study on Microsoft's Bing*

2010 Most Outstanding Freshman Award

*Top grades of BYU Chemical Engineering class*

2007 Heritage scholarship

*Four-year full tuition scholarship to BYU*

2006 Eagle Scout (Boy Scouts of America)

## TEACHING EXPERIENCE

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- 2017-present **Engineering for Professionals – Applied Biomedical Engineering Lecturer:** *Johns Hopkins Whiting School of Engineering*  
Baltimore, MD
- Created, recorded, and teaching new *Immunoengineering* course for online Masters degree program (EN.585.751) - 22 students
- 2016-present **Shark Tank Winner: Preparing Future Faculty Teaching Academy**  
Baltimore, MD
- One of 3 winners - awarded \$2,000 to develop teaching feedback technology
  - Managed 2 undergraduate developers to complete Android and iOS versions of the app, with over 500 current users.
  - Forming a start-up to partner with larger non-profit educational companies
  - Published article in *Innovative Instructor*, highlighted in online educational blog, and featured in a *JHU HUB* article.
  - Presented technology both at local and national education conferences
- 2016-2018 **Johns Hopkins Instructor:** *Johns Hopkins Whiting School of Engineering*  
Baltimore, MD
- Developed original curriculum for and taught *Immunoengineering: A New Frontier* to 38 (2016) and 44 (2017) and 34 (2018) undergraduates Johns Hopkins students during Intersession.
- 2016-2017 **Johns Hopkins HEART Instructor:** *Johns Hopkins Whiting School of Engineering*  
Baltimore, MD
- Developed original curriculum for and taught *Immunoengineering: Fighting Disease in Developing Countries* to 19 (2016) and 24 (2017) undergraduates Johns Hopkins students during Fall semester.
- Fall 2016 **Head Teaching Assistant:** *Johns Hopkins Whiting School of Engineering*  
Baltimore, MD



- Led and taught labs for a class of 144 Biomedical Engineering Freshman
- Helped manage and coordinate 28 undergraduate TA mentors and 28 faculty mentors.

2015-2016

**Fellow:** *Preparing Future Faculty Teaching Academy*

Baltimore, MD

- Completed a three-phase program that aims to educate, train, and give opportunities to PhD students to teach in preparation for becoming professors.

Spring 2016

**Adjunct Professor:** *Towson University*

Towson, MD

- Co-Taught 2 sections of 20 students in BIO-190: Introductory Biology For The Health Professions
- 4 credit class which includes biology lab component

2015-2016

**Teaching Researcher:** *Johns Hopkins University Teaching as Research Program*

Baltimore, MD

- Received a grant to research how classroom workshop interventions can facilitate nontraditional final projects (e.g. podcasts and YouTube videos) in engineering.
- Presented at national online *Center for the Integration of Research, Teaching, and Learning Teaching as Research* meeting

2011-2012

**Greek Teacher:** *Missionary Training Center*

Provo, UT

- Prepared multiple groups of missionaries from European countries to learn Greek, manage time and plan, teach creatively, collaborate effectively.
- Co-authored a customized Greek grammar book.
- Over 400 hours of teaching experience and training.

## MENTORING EXPERIENCE

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2015-present

**1<sup>st</sup> year graduate students:** *Johns Hopkins University*

Baltimore, MD

- **BME students:** Ariel Isser, Mary Omootoso, Natalie Livingston
- **Immunology Students:** Ian Bettencourt, Yi Dong, Meng-Hsuan Hsiao, Mekha Thomas

2017-present

**Kayla Gee:** *Johns Hopkins University Undergraduate Mentoring*

Baltimore, MD

- Biomedical Engineering undergraduate's first laboratory experience
- Presented poster at Johns Hopkins Institute for Nanobiotechnology Symposium

- 2017-present      **Sebastian Salathe:** *Johns Hopkins University Undergraduate Mentoring*  
Baltimore, MD
- Molecular Biology undergraduate's first laboratory experience
  - Presented poster at Johns Hopkins Institute for Nanobiotechnology Symposium
- Summer 2018      **Wasamah Shaikh:** *Summer Research Intern Undergraduate Mentoring*  
Baltimore, MD
- Presented poster at Johns Hopkins FARMS Undergraduate Symposium
- 2016-2018      **Jae Chung:** *Johns Hopkins University Undergraduate Mentoring*  
Baltimore, MD
- Advised and directed to write and receive Provost's Undergraduate Research Award (PURA) for independent undergraduate research
  - Helped apply, receive, and give oral presentation at the national *Biomedical Engineering Society Conference*
- 2016-2017      **Johns Hopkins Tacrolimus Monitoring Design Team:** *Johns Hopkins University*  
*BME Design Team Program*  
Baltimore, MD
- Acted as technology and scientific adviser to provide direction in microfluidic technology development and current assay protocols.
  - Met monthly with other advisers to monitor progress, give feedback, and strategize next steps for the team's success.
- 2015-2017      **Fernando Vicente:** *Johns Hopkins University Undergraduate Mentoring*  
Baltimore, MD
- Biomedical Engineering undergraduate's first laboratory experience
  - Advised and directed to write and receive *Provost's Undergraduate Research Award* (PURA) for independent undergraduate research
  - Helped apply and receive Goldwater Scholarship
  - Helped apply, receive, and give oral presentation at the national *Biomedical Engineering Society Conference*
- Summer 2016      **Manjari Sriparna:** *Johns Hopkins University Undergraduate Mentoring*  
Baltimore, MD
- Public Health undergraduate's first laboratory experience
- Summer 2016      **Eliot Sachsenmeier:** *Summer Research Intern Undergraduate Mentoring*  
Spring 2016      **Giacomo Taylor:** *Johns Hopkins University Undergraduate Mentoring*  
Baltimore, MD

- Materials Science and Engineering undergraduate's first laboratory experience
- Helped complete 3 credits research and complete 15-page final report

2013-2015

**WISE (Women in Science and Engineering) Mentoring Program**

- Trained and mentored 4 female high school students each for a semester from Baltimore to excite them to perform research in science and engineering.
- Trained other graduate students how to be effective mentors

ACADEMIC LEADERSHIP

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2014-present

**NGO Vice President:** *MEP (Medical and Educational Perspectives)*

Baltimore, MD

- Oversee class to teach PhD students how to bring biomedical research to market
- Managed and helped run a business competition with a total of about \$25,000 in prizes.
- Collaborated with other student business groups to organize talks, networking events, and activities for commercialization of research
- Applied and won \$20,000 from Johns Hopkins' *IdeaLab* crowd-sourced competition
  - Created a program to create public awareness campaigns for issues in Baltimore
  - Solicited over 50 ideas surrounding public health issues, awarded top 5, and formed teams around 3 of the ideas to further the campaign.
  - Organized and produced 6 workshops to train teams to make effective campaigns
  - Ran a final public campaign competition and implemented an intervention surrounding promoting bicycle helmet safety in Baltimore.

2017-present

**Academic Adviser:** *Johns Hopkins Alpha Eta Mu Beta BME Honor Society*

Baltimore, MD

- Provide direction to club leadership about club activities and help to organize activities surrounding interest in academia

2014-2015

**Co-president:** *Johns Hopkins Biomedical Engineering Ph.D. Council*

Baltimore, MD

- Organized multiple department wide activities including welcome BBQs, fall retreat, recruiting event, holiday parties, etc.
- Developed department wide weekly emails providing a link between two campuses informing about activities, lectures, and departmental happenings.
- Established a hierarchical organization for future presidencies still in effect.

2013-2014

**Graduate Representation Organization (GRO) Representative**

Baltimore, MD

- Acted as liaison for BME students to get access to conference travel funds.

- 2010-2013 **President:** Biomedical Engineering Club  
Provo, UT
- Developed the first annual *Emerging Ideas in Biomedical Research Conference* at BYU and published 18 abstracts accepted to the conference in an open source journal.
  - Acted as the student representative on a panel of judges for the poster presentation
  - Wrote two grants for \$4,500 to fund the club's yearly activities including blood drives, social events, and field trips to companies.

## COMMUNITY LEADERSHIP

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### Community

- 2015-present **Maryland STEM Specialist:** *Maryland Business Roundtable for Education*  
Baltimore, MD
- Lead STEM outreach events at Baltimore high schools and libraries
- 2014-2018 **Volunteer Welfare Coordinator:** *The Church of Jesus Christ of Latter Day Saints*  
Baltimore, MD
- Coordinate services and efforts for disabled, homeless, and single parent families.
- 2015-2016 **Tutor:** *Morgan State University*  
Baltimore, MD
- Provided math tutoring to single-mother who was in first semester of special program for students who dropped out of high school
- 2013-2015 **Mentor:** *Thread*  
Baltimore, MD
- Mentored an underperforming Baltimore high school student to advance academically and to become a self-reliant, responsible citizen
  - Met monthly with other mentors to coordinate activities and plan next steps

### International

- 2014 **Inventor Team Member:** *MEP (Medical and Educational Perspectives)*  
India
- Took course on creating biomedical devices for developing countries
  - Helped RightFit evaluate need and obtain design feedback for a new prosthetic limb for low resource settings from hospitals, businesses, and NGOs within India.
- 2010-2013 **Member:** *Global Engineering Outreach*  
Provo, UT & Peru
- Developed inexpensive water pump in coordination with local Peruvian leaders

- Taught in low resource areas of Peru how to build and use the pump for water access

2007-2009

**Missionary:** *The Church of Jesus Christ of Latter-day Saints*

- Was an assistant to the President of the mission and supervised and trained approximately 50 other missionaries.
- Worked with local service volunteers from different municipalities to organize service projects such as the Special Olympics.

## GRADUATE COURSES TAKEN

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### Engineering

- Biosensing and Biomems
- Tissue Engineering
- MEP/Medical design initiative
- Fundamental Physics and Chemistry of Nanomaterials
- Cellular Engineering
- Biomaterials II

### Biology

- Macromolecules
- Cell Physiology
- Metabolism
- Genetics
- Pharmacology
- Histology & Pathobiology
- Immunology

### Other

- Grant Writing: NIH and other funding sources
- Service-Learning in STEM

## LANGUAGES

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English (native), Greek (proficient reading, writing, and speaking)