

# CORBAN N. SWAIN

77 MASSACHUSETTS AV, BLDG 56-651, CAMBRIDGE MA 02139

(256) 654 2117 C\_SWAIN@MIT.EDU

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## EDUCATION

- Massachusetts Institute of Technology 2017 –
- PhD Student in Biological Engineering
  - National Science Foundation Graduate Research Fellow
  - Lemelson Presidential Fellow
- Washington University in St. Louis 2012 – 17
- BS in Biomedical Engineering, Magna Cum Laude
  - Cumulative GPA: 3.84 / 4
  - John B. Ervin and James E. McLeod Scholar
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## PUBLICATIONS & PRESENTATIONS

- Nanoparticle-macrophage interactions: a balance between clearance and cell-specific targeting – *Bioorganic & Medicinal Chemistry* 2017
- Hydrolytic charge-reversal of PEGylated polyplexes enhances intracellular unpacking and activity of siRNA – *Journal of Biomedical Materials Research Part A* 2015
- A strategy for combating melanoma with oncogenic c-Myc inhibitors and targeted nanotherapy – *Nanomedicine* 2014
- Surface passivation of carbon nanoparticles with branched macromolecules influences near-infrared bioimaging – *Theranostics* 2013
- Platform presentation at the Biomedical Engineering Society Annual Meeting 2013
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## RESEARCH EXPERIENCE

- Washington University – *Nano Research Facility* 2016 – 17
- Investigated graphene oxide nano-complexes for their biosensing ability
  - Employed aptamers and crumpled graphene oxide for metabolite sensors.
  - Mentored by Dr. Pratim Biswas and Dr. Ramesh Raliya
- University of Alabama in Huntsville – *Polymer Synthesis Laboratory* 2015
- Developed novel methods to synthesize and purify glutamine homopolymers
  - Mentored by Dr. Carmen Scholz and Dr. David Ulkoski

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| University of Michigan - <i>MNIMBS</i>   | 2014      |
| <ul style="list-style-type: none"> <li>• Probed the effects of surface passivation on uptake and toxicity of dendrimers</li> <li>• Mentored by Dr. Sascha Goonewardena and Dr. Ryan Tsuchida</li> </ul>  |           |
| Vanderbilt University - <i>Advanced Therapeutics Laboratory</i>  | 2013      |
| <ul style="list-style-type: none"> <li>• Applied endosomolytic nanopolyplexes for enhanced delivery of siRNA</li> <li>• Mentored by Dr. Craig Duvall and Dr. Christopher Nelson</li> </ul>   |           |
| Washington University School of Medicine - <i>C-TRAIN</i>  | 2012 - 14 |
| <ul style="list-style-type: none"> <li>• Developed facile syntheses of a novel c-Myc/Max inhibitor</li> <li>• Studied a STAT3 inhibitor prodrug for targeted melanoma treatment</li> <li>• Mentored by Dr. Gregory Lanza and Dr. Dipanjan Pan</li> </ul> |           |

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**HONORS**

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| • Sloan Scholar, Alfred P. Sloan Foundation's Minority PhD Program | 2017      |
| • Alpha Eta Mu Beta, biomedical engineering honor society member   | 2017      |
| • Tau Beta Pi, engineering honor society member                    | 2016      |
| • Maximizing Access to Research Careers U-STAR Fellow              | 2014 - 17 |
| • National Barry M. Goldwater Scholarship Honorable Mention        | 2014      |
| • James M. McKelvey Undergraduate Research Scholar                 | 2013 - 17 |

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**TEACHING EXPERIENCE**

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| • "Introduction to Biomedical Engineering" teaching assistant          | 2013 - 16 |
| • "Organic Chemistry I" teaching assistant                             | 2015      |
| • 150+ hours as an independent tutor in science, math, and programming | 2013 -    |

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**PROFESSIONAL PHOTOGRAPHY**

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| • Photographing headshots, portraits, and events. <a href="http://CORBANSWAINPHOTO.COM">CORBANSWAINPHOTO.COM</a> | 2012 - |
| • St. Louis Arch Photo Contest Grand Prize Winner  | 2015   |

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**VOLUNTEER WORK**

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| • 65+ hours cleaning patient rooms and preparing beds, Huntsville Hospital | 2015      |
| • Brittany Woods Middle School mentor and tutor, St. Louis MO              | 2012 - 13 |
| • Sci-Quest: Hands-on Science Center educational assistant, Huntsville AL  | 2008 - 15 |