Pranam Chatterjee

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Education

MIT Media Lab June 2018
Candidate for M.S. in Media Arts and Sciences
- Research Focus: Genome Engineering, DNA Synthesis, Deep Learning

Massachusetts Institute of Technology (MIT) June 2016
S.B. in Computer Science and Molecular Biology
- Relevant Coursework: Biological Circuits Engineering, Molecular Biology, Software Construction, Advanced Algorithms, Immunology, Biochemistry, Quantitative and Computational Biology, Cancer Biology, Cell Biology, Genetics, Organic Chemistry, Biophysics, Molecular Biomechanics

Experience

MIT Media Lab January 2015 – present
Research Student
- Currently developing novel genome engineering applications, employing both experimental and computational methodologies

Pfizer June 2014 – October 2014
Immunoscience Intern
- Developed and assessed T cell co-inhibitory receptor PD-1 agonist antibodies for immunotherapy

Harvard Medical School/Beth Israel Deaconess Medical Center June 2011 – June 2014
Immunology Research Student
- 2013-2014: Assessed the interaction of PD-1 with downstream phosphatases, SHP-2 and SHP-1
- 2012: Determined the metabolic profile of CD4+ T cells downstream of PD-1 signaling
- 2011: Ascertained the role of various cytokines in thymopoietic reconstitution after double Umbilical Cord Blood Transplantation in patients with hematological malignancies

MIT Koch Institute for Integrative Cancer Research August 2013 – March 2014
Immunobioengineering Research Student
- Developed a targeted lipid nanoparticle delivery system for T cell activation in the tumor microenvironment by utilizing novel immunobioengineering techniques

Dartmouth Hitchcock Medical Center January 2012 – May 2013
Cancer Genetics Research Student
- Studied the modulation of mitochondrial biogenesis by Glutaminase-2 (GLS2) in glioma

Fort Valley State University June 2010 – May 2011
Agricultural Biotechnology Research Student
- Conducted individual research on *Scutellaria* genus plants, performing micropropagation and genetic transformation protocols

Columbus High Space Program August 2007 – May 2011
Team Captain and Student Director
- Led independent, student-run laboratory conducting high altitude balloon research, competing in national engineering and robotics competitions, and performing astrophysics research for NASA

Articles

1. Patsoukis N, Bardhan K, **Chatterjee P**, Sari D, Liu B, Bell L, Karoly E, Freeman G, Petkova V, Seth P, Li L, Boussiotis VA. PD-1 alters T cell metabolic reprogramming by inhibiting glycolysis and promoting lipolysis and fatty acid oxidation. Nature Communications, Jan 2015.
2. Boussiotis VA, **Chatterjee P**, Li L. Biochemical Signaling of PD-1 on T Cells and Its Functional Implications. The Cancer Journal, Jul/Aug 2014; 20, 4: 265-71.

3. Zhang Z, Rahme G, **Chatterjee P,** Havrda M, Israel M. ID2 promotes survival of glioblastoma cells during metabolic stress by regulating mitochondrial function. Cell Death and Disease, Feb 2017; 8:e2615.
4. Jakimo N, **Chatterjee P**, Jacobson, JM. Chimeric CRISPR guides enhance Cas9 target specificity. bioRxiv, June 2017.

Short Articles and Proceedings

1. **Chatterjee P**, Patsoukis N, Sari D, Boussiotis VA. PD-1 Couples Glucose Starvation and Survival Through AMPK-mediated Phosphorylation of Ulk1. Blood, Nov 2012; 120:836.
2. **Chatterjee P**, Patsoukis N, Boussiotis VA. Distinct Roles of PD-1 ITSM and ITIM In Regulating Interactions With SHP-2, ZAP-70, and Lck, and PD-1-Mediated Inhibitory Function. Blood, Nov 2013; 122:191.
3. Patsoukis N, **Chatterjee P**, Sari D, Petkova V, Li L, Boussiotis VA. PD-1 Induces Metabolic Reprogramming of Activated T Cells from Glycolysis to Lipid Oxidation. Blood, Nov 2013; 122:187.
4. Bardhan K, Patsoukis N, Sari D, Anagnostou T, **Chatterjee P**, Freeman G, Li L, Boussiotis VA. PD-1 Inhibits TCR Proximal Signaling By Sequestering SHP-2 Phosphatase and Facilitating CSK-Mediated Inhibitory Phosphorylation of Lck. Blood, Nov 2015; 120:283.

Scientific Honors and Awards

• MIT CSAIL Big Data Prize Winner – HackMIT	2014
• Top Undergraduate Abstract – American Society of Hematology	2012
• Outstanding Achievement Award – American Society of Hematology	2012, 2013
• Harvard Summer Immunology Research Fellowship	2012, 2013
• Howard Hughes Medical Institute Research Fellowship	2012, 2013
• Lemelson-MIT InvenTeams Grant Recipient	2010
• Conrad Spirit of Innovation International Finalist	2010

Technical Skills

Biology: Flow Cytometry, ELISA, Western Blotting, Immunoprecipitation, Cell Culture (Primary and Cell Line), LNP Nanoparticle Synthesis, Mouse Models, Live Animal Imaging, Live Animal Injections, Confocal Microscopy, Transfection, Nucleofection, Assessment of Incorporation of Radioactive Thymidine and Radioactive Glucose, Miniprep/Midiprep, DNA Isolation, DNA Quantification, DNA Sequencing, Genetic Transformation, Polymerase Chain Reaction (PCR) and Purification, Immunostaining, RNA Isolation and Purification, Cell Cycle Analysis, Protein Purification

Computer Science and Technology: Deep Learning, Keras, TensorFlow, Android development, Python, Java, C, HTML/CSS, MATLAB, and Mathematica

References

- **Vassiliki A. Boussiotis, MD, PhD**: vboussio@bidmc.harvard.edu
- **Micah J. Benson, PhD**: micah.benson@pfizer.com
- **Joseph M. Jacobson, PhD:** jacobson@media.mit.edu
- **Mark A. Israel, MD**: mark.a.israel@hitchcock.org
- **Nirmal Joshee, PhD**: josheen@fvsu.edu
- **Luther Richardson**: richardson.luther.w@muscogee.k12.ga.us