

**Armon Sharei, PhD**  
CEO and Founder · Portal Biotechnologies

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**Experience**

**Portal Biotechnologies, MA**

CEO and Founder Jan 2023 – Present

- o Leading innovation, strategy, and execution of Portal’s mission to democratize access to cell therapies by solving for critical challenges in intracellular delivery and RNA-based cell modulation.
- o Raised over \$14M in seed financing to-date and recruited 15 full-time team members
- o Established over 50 large pharma, biotech and academic partnerships within the first two year of operating

**Genenta Science, IT (NASDAQ:GNTA)**

Board Member May 2024 – Present

- o Advising the management team on business and scientific matters
- o Fulfilling fiduciary duties of oversight and governance for a publicly traded company

**SQZ Biotechnologies, MA (NYSE: SQZ)**

CEO and Founder 2013 – Dec 2022

- o Drove innovation, strategy, and execution of SQZ Biotech’s mission to create novel cell therapies for patients. Led company from founding to a public organization with 3 clinical programs and a unique manufacturing platform for rapid, cost-effective cell therapy production
- o Developed SQZ from start-up to a clinical stage, cell-therapy platform company with over 100 employees and \$300M in equity financing
- o Led the company to its IPO in 2020
- o Established partnerships with multiple biopharmaceutical companies, including a +\$1B partnership with Roche

**Harvard Medical School, MA**

Ragon Institute Postdoctoral Associate (Advisors: U. von Andrian and D. Irvine) 2013 – 2015

- o Development of a novel methods to engineer immune cell function
- o Implementation of cellular vaccines for immunotherapy applications

**Massachusetts Institute of Technology, MA**

Graduate Student & Postdoctoral Associate (Advisors: K.F. Jensen and R. Langer) 2008 – 2013

- o Development of a novel microfluidic intracellular delivery system
- o Implementation of the new method in cell reprogramming, cancer diagnostic and cancer vaccine applications

**PureTech Ventures, MA**

Consultant 2010 – 2012

- o Assessment of the commercial viability and technical feasibility of new biomedical technologies based on existing literature and patents

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**Koch School of Chemical Engineering Practice, Sienna, Italy & Denver, CO**

Student Consultant 2009

- o Design and implementation of engineering solutions to various industrial problems
- o Completed four projects, two at Novartis Vaccines and Diagnostics, two at the National Renewable Energy Labs

**Stanford University, CA**

Research Assistant (Advisor: Z. Bao) 2006 – 2008

- o Development of a novel patterning method for organic semiconductors

**Cobalt Biofuels, CA**

Staff Scientist 2007

- o Modeling CO<sub>2</sub> emission and energy requirements of various biofuel feedstocks
- o Investigating potential biofuel recovery and separation techniques

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**Education**

**Harvard Medical School, MA**

Post-Doctoral Fellow, Immunology January 2015

Research on therapeutic vaccine mechanisms, T cell function modulation, NK cell reprogramming and other immune engineering concepts. Advisors: Professors Uli von Andrian and Darrell Irvine. Funding through a fellowship from the Ragon Institute of Harvard, MIT, and MGH.

**Massachusetts Institute of Technology, MA**

PhD, Chemical Engineering GPA: 4.8 / 5.0 · June 2013

Dissertation: A vector-free microfluidic platform for intracellular delivery. Developed a novel microfluidic platform for intracellular delivery of biomolecules which operates through the physical disruption of cell membranes. Advisors: Professors Klavs Jensen and Robert Langer

MS, Chemical Engineering Practice June 2013

**Stanford University, CA**

BS, with Honors and Distinction, Chemical Engineering GPA: 3.95 / 4.0 · June 2008

Thesis: Solution Patterning of High Performance Organic and Inorganic Semiconductors. Developed a novel patterning technique for organic semiconductors that uses shear forces to selectively deposit material on functionalized surfaces. The method has been used to deposit a range of materials including organic semiconducting crystals, carbon nanotubes and semi-conducting polymers.

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**Awards**

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American Institute for Medical and Biological Engineering, Member, 2023  
Inaugural Charles L. Cooney Lecturer, MIT, 2022  
National Iranian American Council, 40 Under 40, 2021  
Xconomy, "Big Idea" Award Finalist, 2020 (SQZ Biotech)  
JDRF, Nancy Jones Diabetes Champion Award, 2019 (SQZ Biotech)  
Endpoints, 40 Under 40, 2018  
World Economic Forum, Technology Pioneer, 2017 (SQZ Biotech)  
Xconomy, Young Innovator Award, 2017  
INC. Magazine, 30 Under 30, 2016  
Forbes Magazine, 30 Under 30 in Healthcare, 2015  
Scientific American top 10 world changing ideas, 2014  
Ragon Institute Postdoctoral Fellowship, 2014  
National Finalist for the NIH Director's Early Independence Award, 2013  
MIT's Outstanding Graduate Student UROP Mentor Award, 2013  
Hertz Fellowship Finalist, Hertz Foundation, 2009  
David M. Kennedy Honors Thesis Prize, Stanford University, 2008  
Firestone Medal for Excellence in Undergraduate Research, Stanford University, 2008  
Tau Beta Pi Engineering Honor Society, Stanford University, 2008  
Mason Marsden Award, Chemical Engineering, Stanford University, 2007  
Channing Robertson Award, Chemical Engineering, Stanford University, 2006

**Publications**

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## Armon Sharei, PhD

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1. Blagovic K, Smith CK, Ramakrishnan A, Moore L, Soto DR, Thompson Z, Stockmann AP, Kruszelnicki S, Thakkar A, Murray J, Torres S, Wondimagegnhu B, Yi R, Dadgar M, Paracha AM, Page C, Clear L, Chaudhry OA, Myint M, Bridgen DT, Gilbert JB, Seidl KJ, Sharei A, Loughhead S, Bernstein H, Yarar D. *Engineered red blood cells (activating antigen carriers) drive potent T cell responses and tumor regression in mice.* Frontiers in Immunology. 2022.
2. Raposo, C., Cserny, J., Serena, G., Chow, J., Cho, P., Liu, H., Kotler, D., Sharei, A., Bernstein, H., and John, S. *Engineered RBCs Encapsulating Antigen Induce Multi-Modal Antigen-Specific Tolerance and Protect Against Type 1 Diabetes.* Frontiers in Immunology. 2022.
3. M. Booty, K. Hlavaty, A. Stockmann, E. Ozay, C. Smith, L. Tian, E. How, D. Subramanya, A. Venkitaraman, C. Yee, O. Pryor, K. Volk, K. Blagovic, I. Vicente-Suarez, D. Yarar, M Myint, A. Merino, J. Chow, T. Abdeljawad, H. An, S. Liu, S. Mao, M. Heimann, L. Talarico, M. Jacques, E. Chong, L. Pomerance, J. Gonzalez, U. von Andrian, K. Jensen, R. Langer, H. Knoetgen, C. Trumpfheller, P. Umana, H. Bernstein, A. Sharei, and S. Loughhead. *Microfluidic Squeezing Enables MHC Class I Ag Presentation by Diverse Immune Cells to Elicit CD8+ T Cell Responses With Antitumor Activity.* Journal of Immunology. 2022.
4. DiTommaso, T., Cole, J., Cassereau, L., Buggé, J., Hanson, J., Bridgen, D., Stokes, B., Loughhead, S., Beutel, B., Gilbert, J., Nussbaum, K., Sorrentino, A., Toggweiler, A., Schmidt, T., Gyuelveszi, G., Bernstein, H., and Sharei, A. *Cell engineering with microfluidic squeezing preserves functionality of primary immune cells in vivo.* Proc Natl Acad Sci U S A. 2018.
5. Jing, J, Wang, B., Juba, B., Vazquez, M., Kortum, S., Pierce, B., Pacheco, M., Roberts, L., Strohbach, J., Jones, L., Hett, E., Thorarensen, A., Telliez, J., Sharei, A., Bunnage, M., Gilbert, J. *Microfluidic-Enabled Intracellular Delivery of Membrane Impermeable Inhibitors to Study Target Engagement in Human Primary Cells.* ASC Chemical Biology. 2017.
6. Ding, X., Stewart, M., Sharei, A., Weaver, J., Langer, R., Jensen, K.F. *High-throughput nuclear delivery and rapid expression of DNA via mechanical and electrical cell-membrane disruption.* Nature Biomedical Engineering. 2017.
7. Saung, M.T., Sharei, A., Adalsteinsson, V.A., Cho, N., Kamath, T., Ruiz, C., Kirkpatrick, J., Patel, N., Mino-Kenudson, M., Thayer, S., Langer, R., Jensen, K.F., Liss, A., Love, C. *A Size-Selective Intracellular Delivery Platform.* Small. 2016.
8. Stewart, M.P\*, Sharei, A\*, Ding, X., Sahay, G., Langer, R., Jensen, K.F. *In vitro and ex vivo strategies for intracellular delivery.* Nature. 2016.
9. Sharei, A., Mao, S., Langer, R., Jensen, K.F. *Intracellular Delivery of Biomolecules by Mechanical Deformation.* Micro-and Nanosystems for Biotechnology. 2016.
10. Kollmannsperger, A., Sharei, A., Raulf, A., Heilemann, M., Langer, R., Jensen, K.F., Wieneke, R. and Tampé, R. *Live-cell protein labelling with nanometre precision by cell squeezing.* Nature Communications, 2016.
11. Griesbeck, M., Ziegler, S., Laffont, S., Smith, N., Chauveau, L., Tomezsko, P., Sharei, A., Kourjian, G., Porichis, F., Hart, M. and Palmer, C.D. et al. *Sex Differences in Plasmacytoid Dendritic Cell Levels of IRF5 Drive Higher IFN- $\alpha$  Production in Women.* The Journal of Immunology, 2015.

12. Szeto, G.L., Van Egeren, D., Worku, H., Sharei, A., Alejandro, B., Park, C., Frew, K., Brefo, M., Mao, S., Heimann, M., Langer, R., Jensen, K., and Irvine D. *Microfluidic squeezing for intracellular antigen loading in polyclonal B-cells as cellular vaccines*. Scientific Reports, 2015.
13. Sharei, A.\*, R. Trifonova\*, S. Jhunjhunwala\*, G. C. Hartoularos, A. T. Eyerman, A.I Lytton-Jean, M. Angin, S. Sharma, R Poceviciute, S. Mao, M. Heimann, S. Liu, T. Talkar, O. F. Khan, M. Addo, U. H. von Andrian, D. G. Anderson, R. Langer, J. Lieberman, K. F. Jensen. *Ex vivo cytosolic delivery of functional macromolecules to immune cells*. PLOS One, 2015.
14. Sharei, A.\*, R. Poceviciute\*, E. Jackson, N. Cho, S. Mao, G.C. Hartoularos, D.Y. Jang, S. Jhunjhunwala, A. Eyerman, T. Schoettle, R. Langer, K.F. Jensen, *Plasma membrane recovery kinetics of a microfluidic intracellular delivery platform*. Integrative Biology, 2014.
15. Sharei, A., N. Cho, S. Mao, E. Jackson, R. Poceviciute, A. Adamo, J. Zoldan, R. Langer, K.F. Jensen, *Rapid mechanical deformation of cells as a robust microfluidic delivery platform*. Journal of Visualized Experiments, 2013.
16. Adamo, A., O. Roushdy, R. Dokov, A. Sharei, and K.F. Jensen, *Microfluidic jet injection for delivering macromolecules into cells*. Journal of Micromechanics and Microengineering, 2013. 23(3): p. 35026-35033.
17. Sharei, A.\*, J. Zoldan\*, A. Adamo\*, W.Y. Sim, N. Cho, E. Jackson, S. Mao, S. Schneider, M.J. Han, A. Lytton-Jean, P.A. Basto, S. Jhunjhunwala, J. Lee, D.A. Heller, J.W. Kang, G.C. Hartoularos, K.S. Kim, D.G. Anderson, R. Langer, and K.F. Jensen, *A vector-free microfluidic platform for intracellular delivery*. Proc Natl Acad Sci U S A, 2013. 110(6): p. 2082-7. Featured in: Nature , Nature Materials, Nature Methods, MIT news, MIT homepage, BioTechniques, New Scientist, The Scientist, Lab on a Chip, Drug Discovery News, Lab Times, and R&D Magazine.
18. Adamo, A., A. Arione, A. Sharei, and K.F. Jensen, *Flow-through comb electroporation device for delivery of macromolecules*. Anal Chem, 2013. 85(3): p. 1637-41.
19. Lee, J.\*, A. Sharei\*, W.Y. Sim, A. Adamo, R. Langer, K.F. Jensen, and M.G. Bawendi, *Nonendocytic Delivery of Functional Engineered Nanoparticles into the Cytoplasm of Live Cells Using a Novel, High-Throughput Microfluidic Device*. \*Co-first author. Nano Letters, 2012. 12(12): p. 6322-6327.
20. Adamo, A., A. Sharei, L. Adamo, B. Lee, S. Mao, and K.F. Jensen, *Microfluidics-Based Assessment of Cell Deformability*. Analytical Chemistry, 2012. 84(15): p. 6438-6443.
21. Mannsfeld, S.C.B., A. Sharei, S. Liu, M.E. Roberts, I. McCulloch, M. Heeney, and Z. Bao, *Highly Efficient Patterning of Organic Single-Crystal Transistors from the Solution Phase*. Advanced Materials, 2008. 20(21): p. 4044-4048.