Sonia Timberlake

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Biotech R&D leader with unique ability to integrate AI and high throughput technologies with company strategy from early platform conception through Phase 3.

- 7 years' experience in biotech executive teams and >10 years of experience in biotech leading multi-disciplinary projects in oncology and immunology therapeutics, with a focus on cell therapies. Proven ability to build industry-leading research teams and to formulate, communicate and execute research strategies, adapting to the evolving constraints of the business.
- >15 years of experience in genomics, with deep hands-on expertise developing discovery and translational platforms using NGS, single-cell technologies, and machine learning. Expert in leveraging high throughput technologies and AI to accelerate both pre-clinical and clinical development.
- Three years' experience running an R&D consulting business, working with VC firms and as an operator proficient at integrating into and leading diverse global biotech teams.

Education

Ph.D. Biological Engineering, Massachusetts Institute of Technology **2012**
B.S. Biology, California Institute of Technology **2003**

Professional Experience

Timberlake & MacIsaac Biopharma Consulting — Dec 2022 - present

Founder and Freelance Consultant (Dec 2022-present)
Providing research and development strategy consulting in the life sciences, with a focus on high throughput technology platforms and AI. Example projects:

- **Design and build R&D platform and lead candidate** at a new cell therapy startup, including indication prioritization and target identification, R&D platform build, asset licensing, IP and investor material creation.
- **Advise software company** on AI-enabled clinical research product.
- **Create diagnostic and therapeutic co-development strategy for NewCo** built around a new NGS technology platform, including assessment of patient populations, MoAs, targets and therapeutic concept, trial endpoints and market opportunity.
- **Develop biomarker strategy and statistical analysis plan for Phase 2 oncology trial** aligned with regulatory, clinical development, and value inflection strategies. Execute analytical method development and Qualification.
- **Advise VC firm on AI/ML platform build** to accelerate portfolio company and venture studio.

Finch Therapeutics — July 2016 – May 2024

Head, Scientific Advisory Board (Dec 2022-May 2024)
SVP Research (March 2021 – Dec 2022)
VP Research (Feb 2018 – March 2021)

Lead scientific strategy of a 200-employee clinical stage biotech, reporting directly to the CEO. Member of executive and leadership teams of publicly traded company with peak market cap >$1B. Key scientific expert on a Phase 3 asset in a novel therapeutic modality.

Scientific responsibilities:

- Developed Finch's innovative scientific strategy and the company's product pipeline. Flexibly adapted the strategy to evolving manufacturing, regulatory, and business constraints.
- As preclinical lead for an asset partnered with pharma, selected targets, leads and delivered data package, earning investments totaling >$50M and resulting in development candidate nomination and regulatory submissions.
- Managed >15 investigator-sponsored interventional studies for target validation and proof of concept.

Executive responsibilities:

- As Employee #9, helped build the company to 200 and supported >$380M raised, including a $120M IPO.
- As the external face of Finch R&D, worked extensively with current and prospective business partners, Board of Directors, and investors, and presented as frequent speaker at scientific and business conferences. Contributor to and signatory on public disclosures and publications from sponsored clinical studies.
- Built and mentored a team of 25 scientists spanning technical fields (machine learning, immunology, microbiology, metabolomics) and program leadership, of which three are now C-level executives.

Director of Data Science (July 2016 – Jan 2018)

- Built an industry-leading computational biology team driving discovery, and supporting analytics across clinical and CMC. Designed algorithms for multi-omics data and an integrated translational research and discovery platform utilizing cloud HPC infrastructure.
- Oversaw execution of large consulting contracts with pharma providing IND-enabling analyses and precision medicine strategy.

Juno Therapeutics (following acquisition of AbVitro, Inc) Jan 2016 – July 2016

Head of Data Science (Jan 2016- Jul 2016)

- Developed the scientific and analytical strategy around application of single-cell readouts to target ID and hit ID for engineered cell therapies (e.g. CAR-T and engineered TCR).
- Oversaw development-to-production transition bringing Abvitro computational analysis pipelines into clinical stage drug company.

AbVitro, Inc Aug 2013 – July 2016

Head of Bioinformatics (Jun 2014 – Dec 2015)
Senior Data Scientist (Aug 2013 – Jun 2014)

Key scientific contributor and computational lead for a novel single-cell technology platform subsequently acquired by Juno Therapeutics for $130M

- Built and managed AbVitro's computational capabilities (including analysis algorithms, computing infrastructure, and hiring strategy) supporting multiple ultra-high throughput single-cell platforms.

- Made crucial contributions to the company's scientific strategy. Collaborated with clinical and academic partners to apply AbVitro's novel immune repertoire sequencing platform to discover targets, biomarkers, and therapeutics in a variety of disease areas.
- Presented AbVitro's technology portfolio to potential investors and scientific partners through conferences, publications, and investor forums.

Academic Experience

Postdoctoral research at MIT **2013**

- Developed algorithms for analysis of NGS metagenome/metatranscriptome datasets to interrogate epigenetic-environmental associations.

Doctoral research at MIT **2006-2012**

- Developed novel algorithms for new NGS technologies for comparative genomics and transcriptomics.

Patents

Inventor with more than a dozen provisional patents and several issued patents, including:

- HIV antibody compositions and methods of use
- Broadly neutralizing anti-HIV-1 antibodies that bind to an N-glycan epitope on the envelope
- Methods of sequencing, determining, pairing, and validating therapeutic agents and disease specific antigens
- Compositions and methods for providing secondary bile acids to a subject
- Methods and compositions for treatment of gastrointestinal disorders
- Methods and compositions for treatments of immune-oncology.

Publications

For full list, please see: https://scholar.google.com/citations?user=5vwBXQEAAAAJ&hl=en

- Depletion of key gut bacteria predicts disrupted bile acid metabolism in inflammatory bowel disease. D Peterson et al. Microbiology Spectrum 13 (2), e01999-24, 2025
- Fecal microbiota transplantation capsules with targeted colonic versus gastric delivery in recurrent Clostridium difficile infection: a comparative cohort analysis of high and lose dose. JR Allegretti, et al. Digestive diseases and sciences, 2019
- Tumor-infiltrating immune repertoires captured by single-cell barcoding in emulsion. *BioRXiv* 2017. (*equal contribution) Briggs AW*, Goldfless SG*, **Timberlake SC***, Belmont BJ, Clouser CR, Sok D, Heiden JAV, Tamminen MV, Kleinstein SH, Burton DR, Church GM, and Vigneault F.
- Population Genomics of Early Events in the Ecological Differentiation of Bacteria. Science 2012. Shapiro BJ, Friedman JF, Cordero OX, Preheim SP, **Timberlake SC**, Szabo G, Polz MF, Alm EJ
- Unlocking short read sequencing for metagenomics. Rodrigue S, Materna AC, **Timberlake SC**, Blackburn MC, Malmstrom RR, Alm EJ, Chisholm SW. PLoS One. 2010 Jul 28;5(7):e11840
- Acute neuroprotective synergy of erythropoietin and insulin-like growth factor I. Digicaylioglu M, Garden G, **Timberlake SC**, Fletcher L, Lipton SA. Proc Natl Acad Sci U S A. 2004 Jun 29;101(26):9855-60. Epub 2004 Jun 21