NATHANIEL MAYNARD, Ph.D.
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SUMMARY OF QUALIFICATIONS

- Scientist and biotech leader with a proven ability to translate complex synthetic DNA/RNA solutions into high-value commercial opportunities and strategic partnerships.
- 10+ years of industry leadership in synthetic DNA/RNA and DNA sequencing, driving innovation, operational excellence, and commercial success across R&D, manufacturing, and strategic business development.
- Successfully lead high-impact, technically complex projects that drive product adoption, customer engagement, and commercial growth in competitive biotech markets
- Built and led high-performing scientific and operational teams, optimizing workflows to enhance product adoption, customer success, and revenue growth in synthetic DNA services.
- Experienced in cross-functional collaboration, aligning R&D, sales, and corporate strategy to drive innovation, strategic partnerships, and market expansion.

WORK & RESEARCH EXPERIENCE

Telesis Bio

Manager, Field Application Scientist
APR 2025 – current

Lead the technical commercial team for the synthetic DNA/RNA portfolio, acting as the strategic bridge between customer needs and the internal Product and R&D teams.

- Collaborated with Product to define pricing and promotional strategies around BioXp reagents, in particular focusing on libraries and mRNA.
- Evaluate customer workflows and material requirements to prescribe the optimal synthetic biology solution. Triage opportunities across BioXp, Biofoundry Services (BFS), and Gibson SOLA technology to ensure customer success.

Principal Scientist, Research and Innovation & Corporate Development
OCT 2021 – JULY 2024

Key contributor to corporate development strategy, identifying and engaging strategic partners for SOLA enzymatic DNA synthesis technology, expanding market opportunities and partnership pipelines.

- Developed cost and throughput models to articulate SOLA's value proposition, supporting sales, licensing negotiations, and strategic business cases.
- Proactively engaged potential partners via industry networking and targeted outreach, driving discussions for technology adoption and market expansion.
- Collaborated with stakeholders to identify and qualify automation partners, enhancing workflow scalability and commercial viability.
- Developed custom NGS pipelines to validate product specifications around SOLA synthesis fidelity.

Director, Biofoundry Services & Manufacturing
JUL 2018 – OCT 2021

Directed Biofoundry Services, delivering customized DNA solutions to clients, expanding service offerings, and supporting sales engagements for BioXp™ system adoption.

- Expanded Biofoundry Services portfolio, introducing high-value DNA library synthesis offerings and optimizing workflows to enhance customer experience and revenue streams.
- Served as technical liaison in sales engagements, advising clients on DNA library design, optimizing quoting strategies, and influencing purchasing decisions.
- Rapidly launched DNA Library Services product line, aligning R&D, manufacturing, and commercial teams to meet aggressive timelines and market demand.
- Managed technology transfer of DNA synthesis and plasmid verification to GMP contractors, ensuring scalability and regulatory compliance for commercial production.

Led manufacturing, process development, and quality teams to ensure scalable production and high-quality delivery of BioXp™ and Gibson Assembly reagents.

- Responsible for the performance of the manufacturing of BioXp™ custom oligo pool plates and off-the-shelf reagents.
- Responsible for new product validation and technical transfer to manufacturing, for both bench-top and BioXp™ reagents.
- Validated new liquid handling technologies with the manufacturing team for flagship BioXp™ product lines.

- Added quality processes to critical reagents manufacturing, improving first-time pass rate from 54% to 100%.
- Identified and implemented cost savings for a critical DNA synthesis reagent, reducing COGS ~15% annually
- Key contributor to multi-domain team in charge of resolving a critical reagent issue related to error correction, significantly enhancing product performance and quality

Senior Scientist
JAN 2017 – JUL 2018

Project Manager and scientific subject matter expert for the launch of the first GMP manufacturing facility of synthetic DNA for personalized immunotherapy.

- Developed a Synthesis Optimization Tool (SOT) to perform codon optimization while minimizing synthesis complexity, leading to the win of SGI-DNA's first GMP customer
- As Project Manager, led the team through the engineering runs required for our customer's successful IND submission
- Updated and validated sequence complexity engine, improving BioXp^{TM} build prediction accuracy from ~80 to >95%

Scientist / Manager, Operational and Technical Support
JAN 2013 – JUN 2017

Member of the founding team of SGI-DNA which spun-out of Synthetic Genomics. Helped build, lead, train and manage a DNA synthesis and sequencing services group to reach annual revenues of over $8M.

- Worked closely with business development team and customers to evaluate project deliverables and associated pricing and timelines. Responsible for providing regular updates to clients and internal stakeholders for each project.
- Managed team of technical experts manufacturing large and/or complex DNA synthesis orders
- Improved on-time ship more than 20% as interim VP of Operations
- Provided technical sales support, including complexity assessment, quoting, and design for high-priority DNA synthesis.
- Initiated transition of project-based synthetic DNA manufacturing to work station-based manufacturing

STANFORD UNIVERSITY, MARKUS COVERT LABORATORY, DEPARTMENT OF BIOENGINEERING

Post-Doctorate Fellow
APR 2008 – DEC 2012

Synthetic Biology: Created a synthetic ecosystem consisting of two strains of *E. coli* and bacteriophage lambda to better understand how phage shape microbial communities. This system provides the framework for addressing phage's role in fundamental questions such as programmed cell death, task allocation (optimal death rate), frequency-dependent selection, and cell-to-cell communication.

Host-Virus Interactions: Linked host susceptibility to viral infection to a network encompassing sulfur metabolism, tRNA modification, competitive binding, and programmed ribosomal frameshifting. This work identified a novel antiviral strategy applicable to all viruses that use programmed ribosomal frameshifting (i.e. HIV, SARS-coronavirus, influenza, etc.).

UNIVERSITY OF CALIFORNIA SAN DIEGO, BING REN LABORATORY, LUDWIG INSTITUTE FOR CANCER RESEARCH

PhD Candidate
JUN 2001 – APR 2008

ChIP-SNP: Developed an assay that combines chromatin immunoprecipitation and Illumina's genotyping arrays to analyze allele-specific binding of proteins to chromatin

RNA Digital Expression Profiling (RDEP): Developed a novel approach to more accurately quantify DNA or RNA molecules in a high-throughput microarray format by combining rolling circle amplification and microarray technology to detect single mRNA transcripts

TRAINING

Computer**:** Python, AWS, R, Perl, MySQL, CLC Genomics Workbench, and MatLab

Laboratory**:** DNA ("Gibson") assembly, DNA synthesis, GoldenGate assembly, Sanger and MiSeq sequence analysis, suicide plasmid directed mutagenesis, conditional-replication, integration, and modular (CRIM) plasmid mutagenesis, lambda Red recombination, P1 transduction, bacterial conjugation, ChIP-on-chip, ChIP-SNP, fluorescence microscopy, live-cell tracking and image analysis, FACS analysis, bacteriophage techniques, bacterial culture, quantitative RT-PCR, quantitative western blots, northern blots, mammalian tissue culture, lentiviral transduction, and clonal selection of lentiviral transduced cells

PUBLICATIONS

Steven Thomas, Nathaniel D. Maynard, and John Gill. (2015) ***DNA library construction using Gibson Assembly®.*** Nature Methods. 29 Oct 2015.

Christine Chen, Steven Thomas, Nathaniel D. Maynard (2015) ***Next-Gen Shotgun Cloning Using the Gibson Assembly Method.*** 1 Jul 2015.

Sarah W. Bird, Nathaniel D. Maynard, Markus W. Covert, and Karla Kirkegaard. (2014) ***Nonlytic Viral Spread Enhanced by Autophagy Components.*** PNAS. 10.1073.1401437111.

Eric C. Freundt, Nathaniel D. Maynard, Eileen Clancy, Shyamali Roy, Luc Bousset, Yannick Sourigues, Markus Covert, Ronald Melki, Karla Kirkegaard, and Michel Brahic. (2012) ***Neuron-to-Neuron Transmission of α-Synuclein Fibrils Following Axonal Transport****. Annals of Neurology* 72(4): 517-24.

Nathaniel D. Maynard, Derek Macklin, Karla Kirkegaard, and Markus W. Covert. (2011) ***Competing Metabolic Pathways Control Viral Frameshifting and Host Resistance.*** *Molecular Systems Biology* 8:567; doi:10.1038/msb.2011.101. Research Highlight in leading systems biology blog ittakes30.wordpress.com (http://ittakes30.wordpress.com/2012/03/02/learning-from-the-enemy/).

Nathaniel D. Maynard, Miriam V. Gutschow, Elsa W. Birch, and Markus W. Covert. (2010) ***The Virus as a Metabolic Engineer.*** *Biotechnol J.* Jul;5(7):686-94.

Nathaniel D. Maynard, Elsa W. Birch, Jayodita C. Sanghvi, Lu Chen, and Markus W. Covert. (2010) ***A Forward-Genetic Screen and Dynamic Analysis of Lambda Phage Host-Dependencies Reveals an Extensive Interaction Network and a New Anti-Viral Strategy.*** *PLoS Genet* 6(7):e1001017.

Timothy K. Lee, Elissa M. Denny, Jayodita C. Sanghvi, Jahlionais E. Gaston, Nathaniel D. Maynard, Jacob J. Hughey, and Markus W. Covert (2009) ***A Noisy Paracrine Signal Determines the Cellular NF-{kappa}B Response to Lipopolysaccharide***. *Sci. Signal* Oct 20;2(93):ra65.

Marco Terzer, Nathaniel D. Maynard, Markus W. Covert, and Jörg Stelling. (2009) ***Genome-scale metabolic networks****. Wiley Interdisciplinary Reviews: Systems Biology and Medicine*. 1(3):285-197.

Nathaniel D. Maynard, Jing Chen, Rhona K. Stuart, Jian-Bing Fan, and Bing Ren. (2008) ***Genome-wide Mapping of Allele-specific Protein-DNA Interactions in Human Cells***. *Nature Methods* Apr;5(4):307-9. Research Highlight in Nature Review Genetics (May 2008).

EDUCATION

Stanford University, Department of Bioengineering, Stanford, California
Post-Doctoral Fellow, April 2008 – December 2012

University of California, San Diego, Jacobs School of Engineering, La Jolla, California
Doctor of Philosophy in Chemical Engineering, June 2008
Master of Science in Chemical Engineering, December 2003

Tufts University, College of Engineering, Medford, Massachusetts
Bachelor of Science in Chemical Engineering, May 2001