SCIENTIST, BAUER CORE FACILITY

Professional Summary

Sought after molecular genomics professional with 20+ years of experience with a demonstrated achievement record of spearheading fast-growing life sciences programs in start-up environments four times. Initiated alternative Next Generation Sequencing (NGS) strategies and client-focused solutions for interdisciplinary academic laboratories and mid-sized to smaller biotechnology and pharmaceutical firms. Highly adept at leading research teams (one to five individuals at student, PhD, or MD levels) through quarterly to half-year projects to solve complex genomics problems by expanding the breadth of the available scientific and technical portfolio to accomplish basic research and clinical discovery goals.

Core Qualifications

- Scientific Liaison for Genomics Applications
- Project Management
- Key platforms: Illumina NGS, Fluidigm C1, Biomark HD, Automation, ddPCR
- Budget, Capacity, and Timeline Optimization
- Technical Writing
- Talent Mentoring

Education

HBX Harvard Business School 2015 Certificate, pilot cohort : Disruptive Strategy with Clayton Christensen City , State
Northeastern University, University College 2001 Bioinformatics Essentials Certificate : Computational Biology Graduate Studies City , State
The Johns Hopkins Bloomberg School of Public Health 1997 Sc.M : Molecular Microbiology and Immunology City , State Thesis: Characterization of the sigma factor rpoN in *M. tuberculosis*
Wesleyan University 1993 B.A : Molecular Biology and Biochemistry City , State Molecular Biology and Biochemistry

Professional Experience

Department Of Agriculture July 2012 to Current Scientist, Bauer Core Facility
Cedar City , UT

- Created sustainable and effective teaching and training models for experimental design, technical expertise, and troubleshooting sample prep and data collection by catering to flexible client needs.
- Increased individual and team success for 850+ students, post-docs, professors, and biotechnology professionals for various NGS applications: DNA-Seq, RNA-Seq, and Chip-Seq library constructions
- Project management of hundreds of samples annually using automation, Apollo 324 (Wafergen; IntegenX) and HiSeq 2500, NextSeq 500, and MiSeq (Illumina)
- Small sample and single cell genomics (SCG) focus (Fluidigm C1 and Biomark HD) and pursuing an interest in research and clinical personalized medicine applications, such as Wafergen's SmartChip for the ICELL8 Single-Cell System
- Cultivate seminal relationships with vendors for early access to products, for beta-testing, and for collaborating on scripts for sample preparation to meet changing customer demands and challenges
- Restructured sample intake and processes to increase workflow efficiency by more than 81%, reduced attrition to less than 2%, and improved sequencing data capacity resulting in annual cost-savings of more than US$26K and time-savings of at least 16 weeks
- Accountable for overall performance process, ensure adherence to quality control and quality assurance metrics, and on-time delivery of results
- Manage monthly invoicing records, comply with audits, set quarterly and annual financial projections, negotiate prices for high-volume consumables for an additional 12% to 23% annual cost-savings
- Develop, author, and review SOPs, custom protocols, and peer-reviewed manuscripts
- Invited speaker for RNA Seq applications at Harvard Bioinformatics Workshop 2014 and 2015.

Apex Systems July 2002 to June 2012 Research Manager, Microarray Technology, Bauer Core Facility
Burlington , VT
Pa Democratic Party August 2000 to June 2002 Research Assistant, Microarray Technology, Bauer Core Facility
Philadelphia , PA

- Recruited to establish and manage all aspects of the daily laboratory operation of the University's first Affymetrix Core dedicated to serving the Harvard research community with a focus on genomics and proteomics microarray technology
- Supervised, trained, and mentored one Research Assistant and set priorities for expression profiling services
- Successfully led thousands of students and post-docs through highly successful training courses for experimental design, DNA/RNA handling, trouble-shooting microarray protocols, and analysis of microarray data from custom and next-generation Affymetrix GeneChips
- Collaborated in 50+ research projects (animal models of essential hypertension/salt-sensitivity, immunology, cancer, cardiology, yeast genetics, plant biology, NHLBI Program for Genomics Applications, among others)
- Co-authored grants, manuscripts, and molecular cardiogenomics book chapter (Humana Press)

Illinois Institute Of Technology Research Institute January 2000 to August 2000 Research Biologist
City , STATE

- Established and managed a "start-up" molecular genetics and diagnostics laboratory for the molecular differentiation of pathogens (BSL 1, 2, 3) by developing assays with Taqman probes.

Glaxo Wellcome, Inc January 1997 to January 2000 Associate Scientist
City , STATE

- Identified new & validated potential drug targets in R&D therapeutics for cancer, diabetes, and lipid metabolism via RTPCR and Taqman probes and the early adoption of proprietary and commercially available arrays and software.

- Evaluated antisense oligonucleotides (ODN) derived from phosphorothioate skeletons for oncology therapeutics.

Columbia University Medical Center, Medicine/Cardiology June 1993 to August 1994 Research Assistant
City , STATE

- Investigated one of the earliest applications of molecular markers to predict episodes of graft rejection in heart-transplant recipients in an IRB-approved clinical study by targeting inflammatory pathways.

Leadership & Awards

- **Inaugural Member, Experts on Demand** , The Science Advisory Board, February 2016
- **1st Place Recognition by the Association of Biomolecular Research Facilities (ABRF)** for interlaboratory nucleic acids measurements best practices study across more than 40 core labs, publication under review, March 2016
- **Harvard University SPOT Awards** : Special Contribution Award, January and June 2015
- **Invited judge** at the **12th Annual National Undergraduate Bioethics Conference (NUBC)** , National Bioethics Bowl at Harvard University, Edmond J. Safra Center for Ethics, Cambridge, MA (April 2009)
- **Co-founder, Officer, & MSPCA Volunteer** at Phinney's Friends, Inc., a 501(c)(3) nonprofit corporation serving the Greater Boston area dedicated to keeping people & their pets together during times of crisis (2008 - 2013)
- **FASEB MARC Achievement Award Recipient** , at the American Physiological Society Meeting, Experimental Biology Meeting, "Effects of Dietary Salt on Gene Expression in the Rat Kidney"
- **Identified ten novel candidate genes** associated with salt sensitivity and hypertension in rats (APS, April 2002)
- **Awarded the Genomics Symposium's Best PosterÂ Winner** and highlighted **news release** by the AmericanÂ Association for the Advancement of Science (AAAS)Â (APS, April 2002)

Professional Development

- Harvard Business School iLabs education & workshops for management, business, and entrepreneurship (2015- present)
- Broad Institute Workshops: Genome Engineering 3.0, Advances in Genome Engineering Using CRISPR-Cas9, Microfluidics and Single Cell Genomics (2015 - present)
- SPARK: The Student Entrepreneurship Conference at Harvard Business School (2015)

Interests

- Global STEM Alliance Mentor, 1000 Girls - 1000 Futures, a Clinton Global Initiative Commitment to Action at The New York Academy of Sciences, New York, NY (2015 - present)
- Massachusetts Medical Reserve Corps (MMRC) Volunteer, Boston, MA (2008 - present)

Life Sciences & Bioinformatics Skills

- HiSeq 2000/2500, MiSeq and NextSeq 500 Sequencing System (Illumina)
- F luidigm C1, Fluidigm Biomark HD, digital QPCR
- Whole Genome, Whole Exome, Transcriptome, De Novo Seq DNA Seq (gDNA, ChIP-Seq, ATAC, WGBS), RNA Seq (total RNA, mRNA, small RNA, CLIP-Seq, single cell)
- Recombinant BSL 1,2,3 bacteria and virus production / transfection in non-tumor & tumor cells and mice
- Ilumina HCS, SAV, Basespace, R algorithm, d-Chip, Broad GATK, NCBI BLAST, PSI-BLAST, PHI-BLAST, Vector NTI, ExPASy, PDB, SWISS-PROT, SWISS-MODEL, PROSITE

Publications

- Kerley-Hamilton JS, Shanker S, Geskes J, Nicolet CM, Wright C, Thimmapuram J, Adams M, Gaudenz K, Fleharty B,Â **Couget JA** , Warner D, Herbert ZT, Grove DS, Chiuttur S, Wilcox E, Beckloff N, Levine SS. Inter-Laboratory Comparisons of DNA and RNA Quality Assessment. Biotechniques. Revised & Resubmitted, March, 2016.
- Schinke-Braun M,Â **Couget JA** . Expression Profiling Using Affymetrix GeneChip Probe Arrays. Cardiac Gene Expression: Methods and Protocols. Methods in Molecular Biology, 366: 13-40. Humana Press, March 2007.
- Wang F, Liu R, Lee SW, Sloss CM,Â **Couget J** , Cusack JC. Heparin-binding EGF-like growth factor is an early response gene to chemotherapy and contributes to chemotherapy resistance. Oncogene. (2007) Mar 29; 26(14):2006-2016. Epub 2006 Sep 25.
- Del Monte F, Dalal R, Tabchy A,Â **Couget J** , Bloch KD, Peterson, R, Hajjar, RJ. Transcriptional changes following restoration of SERCA2a levels in failing rat hearts. FASEB Journal. 2004 Sep;18(12):1474-6. Epub 2004 Jul 9.
- Wells SI, Aronow BJ, Wise TM, Williams SS,Â **Couget JA** , Howley PM. Transcriptome signature of irreversible senescence in human papillomavirus-positive cervical cancer cells. Proc Natl Acad Sci USA. 2003 Jun 10;100(12):7093-8. Epub 2003 May 19.

Communications

- **Couget, JA.** Â Automated Library Construction for Next Generation Sequencing. Bioinformatics Workshop, Oral Presentation, Harvard University,Â Cambridge, MA. (2014 and 2015)
- **Couget JA** , Farjah M, Li C, Geenen D, Danziger RS.Â (American Journal of Hypertension, April, 2002, Vol. 15, No. 4, Part 2). P347: Analysis of salt-adaptation in the rat brain and kidney by transcriptional profiling. Seventeenth Meeting & Exposition of the American

Society of Hypertension, Abstract, New York, NY.

- **Couget JA** , Farjah M, Li C, Yuzkov D, Geenen D, Wong W, Danziger RS. Effects of dietary salt on gene expression in the rat kidney. American Physiological Society Annual Meeting at the Federation of American Societies for Experimental Biology (FASEB) Meeting 2002, Translating the Genome, Winner Poster Presentation, New Orleans, LA. (April 2002)
- **Couget, JA.Â** Introduction to Affymetrix GeneChips and Microarrays. Dedication of Bauer Laboratories, Oral Presentation and Demonstration, Harvard University, Cambridge, MA. (March 2002)
- Farjah M, **Couget JA** , Li C, Wong W, Geenen D, Danziger RS Computational analysis and transcriptional profiling for identification of candidate genes in the brain for salt adaptation. Cell Signaling, Transcription and Translation as Therapeutic Targets. (Oral Session 6B: Transcriptional Regulation II). Kirchberg, Luxembourg. (January 2002)
- **Couget, JA.Â** Introduction to Affymetrix GeneChips. Oral Presentation, Department of Neurobiology, Brigham & Women's Hospital, Boston, MA. (December 2001)