

WORK HISTORY

2008 – present

Quicksilver Consultants LLC

Founding Member

Roles and Responsibilities

- Founding and Managing member.
- Provide consulting services enabling the development and commercialization of transformative genomic and proteomic analytical technologies for the biotechnology, pharmaceutical, diagnostics, and healthcare industries.
- Establish projects and grow the project portfolio.

Accomplishments

- Provided services to a biotechnology start-up company in support of the development of a label-free detection method for the monitoring of infectious diseases.
- Selected as a mentor for Boston University's Kindle Mentoring Program.

2004 – 2008

Wyeth Pharmaceuticals

Senior Director, Biological Technologies Department

Roles and Responsibilities

- Oversight of scientific teams with the responsibility of implementing genomic and proteomic technologies and biological studies in support of disease-focused therapeutic programs.
- Provide oversight and critical review of all Discovery Research microarray-based gene expression studies.
- Creation of a strategy for the evaluation of proteomics/mass spectrometry proposals in support of neuroscience research projects.
- Define the requirements for a proteomic mass spectrometry data management system.
- Support new target identification, compound selection, and animal model validation for the women's health and musculoskeletal therapeutic area.
- Support Biological Technologies Department goal of defining new therapeutic applications for the BMP/GDF growth factor family.
- Contribute to the goal of defining biomarkers in support of neuroscience development programs.
- Monitor the quality of GeneChip® expression data generated from blood samples of patients participating in clinical trials; data was generated by a contract service provider.
- Evaluate the outsourcing of microarray analyses as a resource reallocation opportunity.
- Performance management, including goal-setting and career development.
- Budget development and management of spending for the group.
- Participation in Department's senior management team.
- Leadership of a team of 11 scientists, including four PhDs, six RAs, and one postdoctoral fellow.

Accomplishments

- Reviewed all microarray-based projects and in collaboration with bioinformatics/statistics colleagues suggested improvements in the experimental design to increase the study's success.
- Managed \$3 – 5 million dollar per year budget for oligonucleotide arrays.
- Received postdoctoral fellowship funding from the Michael J. Fox Foundation for a mass spectrometry-phosphoproteomics approach for the study of a mechanism of disease for the leucine-rich repeat kinase 2 (LRRK2) and its role in Parkinson's disease.
- In support of Wyeth's Parkinson's disease program, the postdoctoral fellow has identified a phosphor-motif for the kinase and has identified several putative disease pathways. Preliminary results presented as a poster at the 2008 Society for Neuroscience national meeting, Washington, D.C.
- Expanded the rapamycin franchise to include uterine leiomyomata; discovered the dysregulation of the mTOR signaling pathway in this disease.

- Developed a strategy utilizing transcriptomics to identify a biomarker of exposure for a new stroke therapeutic agent.
- Identified a type II receptor for BMP-3 and generated a dimeric receptor construct to test its inhibitory activity.
- Developed an outsourcing program for the generation of transcriptomics data.
- Assisted colleagues in setting up a transcriptomics capability in Wyeth's translational medicine facility in Scotland.

2002 – 2004

Wyeth Pharmaceuticals

Senior Director, Expression Profiling Sciences, Genomics Department

Roles and Responsibilities

- Oversight of scientific teams within a matrix organization contributing gene expression profiling and biological expertise to Discovery Research target identification and target validation programs.
- Supervision of the "distributed model" for the generation of gene expression data with the GeneChip® platform.
- Strategic planning with bioinformatics colleagues to expand gene expression data analysis and visualization tools to extract more biological information from the Wyeth database of gene expression data.
- Supervise the contractual agreement and enhance the value of a database subscription to gene expression information.
- Contribute transcriptional profiling expertise and resources to the Wyeth external collaboration with the Applied Neurotherapeutics Research Group, Conway Institute, University College Dublin.
- Support Wyeth's male contraception program and its external collaboration with the University of Virginia and the Johns Hopkins School of Public Health.
- Performance management, career development, goal setting, and budget development of the group.
- Participation in Department's senior management team.
- Leadership of a team of 10 scientists, including three PhDs, six RAs, and one postdoctoral fellow.

Accomplishments

- Changed the focus of my research group to emphasize biology and mechanism of disease.
- Identified two protein kinase drug targets for the oncology therapeutic disease program; identification based on a novel gene expression data analysis method; patent application filed.
- In collaboration with Wyeth's Musculoskeletal Biology Department and Creighton University demonstrated that Wnt/ β -catenin signaling was a normal physiological response to mechanical loading in bone; Wnt/ β -catenin pathway was targeted in a screen to identify compounds for the treatment of osteoporosis.
- Identified new targets for the treatment of colon cancer using data extracted from the subscription database; patent application filed.
- Identified and validated novel androgen-related genes in prostate cancer.
- In collaboration with the Inflammation Department identified a series of novel drug targets for treatment of B cell mediated diseases; patent application filed.
- Bioinformatics colleagues created a series of software tools/applications that visualized the expression pattern of a gene or a set of genes across all the tissue/ cells in the Wyeth database.
- In collaboration with the Wyeth Neuroscience Department and the Applied Neurotherapeutics Research Group, University College Dublin, characterized the temporal transcriptional programs accompanying memory consolidation in the hippocampus; results presented as a poster at the 2007 Society for Neuroscience national meeting, San Diego, CA.
- Managed the multi-million dollar per year budget for oligonucleotide arrays and gene expression information.

1994 – 2002

Genetics Institute, Inc. /Wyeth Pharmaceuticals

Senior Scientist-Director, Expression Profiling Sciences

Roles and Responsibilities

- Collaborate with Affymetrix, Inc. and develop the GeneChip® platform for global mRNA analysis.
- Demonstrate the value of transcriptional profiling in biomedical research and develop a strategy for its utilization in pharmaceutical R&D.
- Define a strategy for converting gene expression data into biological information.
- Performance management, career development, goal setting, and budget development of the group.
- Leadership of a team of 10 scientists, including four PhDs, five RAs and one postdoctoral fellow.

Accomplishments

- Performed the first experiments with the GeneChip® platform to demonstrate its capabilities for quantitative global mRNA analysis.
- Implemented a “distributed model” across all of Wyeth Research for the generation of gene expression data in biopharmaceutical research.
- Led a program with internal and external bioinformatics experts that created and distributed a first-of-its-kind database and an analytic tool-set that enhanced the value of gene expression data.
- Worked with the VP of Genomics to establish a gene expression data analysis division within the Department’s Bioinformatics division.
- Recipient of the Wyeth Research President’s Award and Team of the Year Award for extraordinary effort and commitment.
- Defined a normalization procedure for oligonucleotide array data based on spiked cRNA controls.
- Collaborated with a Harvard University team and published the first genome-wide gene expression analysis of the nematode, *C. elegans*, during the course of development.
- Collaborated with Affymetrix, Inc. to improve the sensitivity and reproducibility of the GeneChip® platform.
- Designed and implemented a robotic system for the preparation of biotinylated cRNA samples suitable for expression analysis on the GeneChip® platform.
- Managed the multi-million dollar per year budget for oligonucleotide arrays.

1986 – 1994

Genetics Institute, Inc.

Senior Scientist, Director, Organic Chemistry

Roles and Responsibilities

- Manage a DNA Synthesis Core.
- Contribute to a cytokine-antigenic peptide T cell response program.
- Create and manage a Peptide Synthesis Core.
- Chemical modification of recombinant proteins to impact their pharmacokinetic properties.
- Target cytotoxic agent to tumor cells through the creation of growth factor ricin conjugates.
- Performance management, including goal-setting and evaluation based on goals reached.
- Leadership of a team of six scientists, one PhD and five RAs.

Accomplishments

- Synthesized thousands of high quality oligonucleotides per year using two Applied Biosystems DNA synthesizers.
- Implemented an electronic requesting system eliminating a “paper trail” for ordered oligonucleotides.
- Collaborated with the Protein Chemistry Group and introduced tandem mass spectrometry for peptide sequencing.
- With tandem mass spectrometry characterized the peptide binding motif for the murine MHC class I H-2K^k molecule.
- Developed a protocol for the pegylation of interleukin-3 mutants.
- Using Fmoc-chemistry began to supply synthetic peptides to colleagues in Genetics Institute.

1981 – 1986

Genetics Institute, Inc.

Senior Scientist

Roles and Responsibilities

- Create a DNA synthesis capability to support cloning, manipulation, and expression of recombinant proteins.
- Define best chemical method for DNA synthesis.
- Automate the process with a DNA synthesizer when a reliable instrument becomes available.
- Identify analysis resource for characterization of in-house synthesized nucleoside phosphoramidites.
- Contribute to a DNA-based diagnostic program through the creation of novel DNA attachment/immobilization methods.

Accomplishments

- Built a highly valued DNA synthesis group; hired staff of three RAs and one postdoctoral fellow.
- Defined the phosphoramidite approach as the preferred method for oligonucleotide synthesis.
- Synthesized nucleoside phosphoramidites before their commercial availability.
- Designed and synthesized long probes for the isolation of a genomic clone for factor VIII.
- Immobilized DNA via oligonucleotides containing an aldehyde or carboxylic acid group at the 5' terminus.
- Collaborated with Applied Biosystems, Inc. on the development and commercialization of the first DNA synthesis instrument.

1979 - 1981

Syntex Research

Staff Scientist, Recombinant DNA Section

Roles and Responsibilities

- Chemical synthesis of oligonucleotide probes for recombinant DNA program.
- Train a research associate in the chemical synthesis of DNA.

Accomplishments

- Created the infrastructure for the chemical synthesis of oligonucleotide probes.
- Synthesized, purified, and characterized two oligonucleotide probes.
- Provided probes to molecular biologists responsible for cloning of interferon genes.

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA – Postdoctoral Fellow with Nobel laureate H. Gobind Khorana; Key member of the team that achieved the first chemical synthesis of a functional tRNA gene.

University of Chicago, Chicago, IL – Ph.D. Organic Chemistry; Thesis title: “Total Synthesis of C-Nor-D-Homosteroids: The use of the enzymes of *Arthrobacter simplex* in Organic Synthesis.

Saint Norbert College, De Pere, WI – Bachelor of Science, Chemistry.