

Craig S. Lange

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Curriculum Vitae

PROFILE

M.S. with twenty years of academic, clinical and industrial experience. Eight years in the biotechnology sector including R&D, assay development, viral testing, cDNA library construction technology advancement, microarray manufacture and analysis, gene discovery, and population genetics. Academic research in Zebrafish vascular development, bacterial genetics, and mammalian gene expression.

3 years experience in BSL-2 plus labs, including CLIA/CAP certified labs.

Interests: molecular biology, assay development, establishing proof of principle, research, diagnostics

EDUCATION

Queens College Bachelor of Arts, Chemistry: Biochemistry

New York University Master of Science, Biology Concentration in Physiology, Cell and Cancer Biology, Protein Chemistry, Enzymology

University of Massachusetts Medical School Completed all coursework in Ph.D. program in Biochemistry and Molecular Biology. Research in protein structure and function of RecA protein using site-directed mutagenesis, FPLC purification, and electron microscopy. Research in epistatic interactions in blood vessel development using zebrafish and confocal microscopy.

Stuyvesant High School One of the most competitive secondary schools in the world

WORK EXPERIENCE

Northeastern University

Adjunct Faculty Lecturer 2021-present

Biotechnology Applications Laboratory including CRISPR, ÄKTA FPLC, transfection, cell culture, PCR

Nexus Medical Labs

General Supervisor 2022-2023

(laid off due to downturn in COVID testing)

- Resulted and released SARS-CoV-2 Nexus High Throughput and TaqPath assay results to clients.
- Performed all aspects of assays.
- Trained and supervised employees.
- Worked alone on third shift to fulfil the needs of the company.
- Research and development of new high throughput diagnostic assays.

Northeastern University *Clinical Laboratory Scientist 2020-2022*

(laid off due to downturn in COVID testing)

- First member of the third shift to broaden operation to 24/7.
- Performed high-complexity COVID-19 diagnostic testing for educational and commercial clients.

Diagnostics Firm Operating in Stealth Mode (identity of firm available by email or phone request)

Scientist 2020

- Worked one-on-one with Senior Scientist to successfully develop new assay for SARS-CoV-2 diagnostics toward FDA EUA approval.

Community College System of New Hampshire

Adjunct Faculty Lecturer including laboratory in Biology and Anatomy and Physiology 2006-2016

Mount Ida College

Adjunct Assistant Professor Mathematics 2007

Peoples Genetics, Inc.

Senior Associate Scientist 2002-2003

- Gene scanning team leader for enrichment and identification of heritable mutations in human populations.
- Designed oligonucleotide primers for target amplification.
- Team member that established validation of adaptability of Peoples Genetics capillary electrophoresis technology to Beckman-Coulter capillaries and matrix. This was key to the acquisition of Peoples Genetics by Beckman-Coulter.
- Product development work with a team of molecular biologists, engineers, and business leaders.
- Inspired collaboration between academic and industrial leaders, which earned enthusiastic approval from a key Jamaican politician. The proposed study would involve collection of blood samples from the Jamaican population to discover genetic variants associated with an endemic type of diabetes.

AlphaGene, Inc.

Senior Research Associate IV, Lab Manager 1998-2002

- Principal technical associate in the development and production of standard and normalized Flex™ cDNA libraries.
- Worked on microarray printing, hybridization, and analysis using a variety of instruments.
- Established proof of principle for an NIH/SBIR Phase I grant.
- Measured gene expression in normal vs. diseased tissues using microarrays.
- Assisted in the discovery of differentially spliced prostate-specific carcinoembryonic antigen (PCEA) variants.
- Inspired and provided leadership for successful collaborations between academic and industrial leaders resulting in enlightened discovery and ultimate publication.

Columbia University College of Physicians and Surgeons, Pediatrics, Autoimmunity Centers of Excellence

Senior Research Associate 1990-1992

- Developed macroarray technology to study gene expression patterns in human rheumatoid and osteo-arthritic tissues.

Cornell University Medical College, Department of Cell Biology and Anatomy

Senior Research Technician 1989-1990

- Sole employee of a startup lab.
- Cloned tight junction protein cingulin from chicken intestine by making phage libraries and using cDNA probes and antibodies.
- Performed Northern blotting, Western blotting, plasmid and phage DNA preparation.

The Population Council, Rockefeller University

Research Technician 1987-1989

- Sole Research Technician for both the Recombinant DNA Core Facility and an Endocrinology research lab.
- Oligonucleotide synthesis and processing, synthesizer maintenance.
- Cloning, plasmid preparation, cDNA library screening, Southern blotting, handling of rabbits for antibody production, and mouse dissection for multiple tissues.

Max Planck Institute for Biochemistry, University of Munich, Germany

Research Technician 1986-1987

- Performed molecular biological techniques to elucidate carcinogenesis

PUBLICATIONS

Mutat. Res. (2005) Mar 1;570(2):267-80. Detection and frequency estimation of rare variants in pools of genomic DNA from large populations using mutational spectrometry. Li-Sucholeiki, X.-C., Tomita-Mitchell, A., Arnold, K., Glassner, B.J., Thompson, T., Murthy, J.V., Berk, L., **Lange, C.**, Leong-Morgenthaler, P.-M., MacDougall, D., Munro, J., Cannon, D., Mistry, T., Miller, A., Dekka, C., Karger, B., Gillespie, K.M., Ekstrom, P.O., Todd, J.A., and Thilly, W.G.

American J. Hypertension (2001) Oct;14(10):1058-66. Spontaneous pregnancy-induced hypertension and intrauterine growth restriction in rats. Sharkey, L.C., McCune, S.A., Yuan, O., [Lange, C.](#) and Fray, J.
Protein Sci. **6** (suppl.2) 108. The Protein Society, Eleventh Symposium (1997) The oligomeric state of mutant RecA proteins. [Lange, C.](#), Logan, K., Gherbesi, N., Craig, R. and Knight, K.L.

FASEB J. **11** (9), A1369 (1997) The oligomeric state of mutant RecA proteins. [Lange, C.](#), Logan, K., Gherbesi, N., Craig, R. and Knight, K.L.

Molecular Microbiology **25**(5), 967-978. (1997) Mutational analysis of the RecA protein L1 region identifies this area as a probable part of the co-protease substrate binding site. Nastri, H.G., Guzzo, A., [Lange, C.S.](#), Walker, G.C. and Knight, K.L.

PATENT

1998 *Single library analysis of gene expression. US provisional patent Serial No 60/092,180. Valenzuela, D. and [Lange, C.S.](#)*

PROFESSIONAL SKILL SET

(years/ expertise scale 1-10/ last used)

Design and microinjection of morpholino oligonucleotides into Zebrafish embryos (3 years/ 10/ 2006)

In situ hybridization, immunostaining (3 years/ 10/ 2006)

Electron and confocal microscopy and imaging (7 years/ 10/ 2006)

Protein purification using column chromatography, BioRad and ÄKTA FPLC (5 years/ 8/ Oct 2023)

Real-time RT-qPCR using ABI7500 and QuantStudio 5 and 7 thermocyclers (3 years/ 10/ March 2023)

Use of Agilent Bravo and Hamilton Liquid Handlers (2.5 years/ 10/ March 2023))

cDNA library construction (4 years/ 10/ April 2002)

Standard and PCR-based cloning and subcloning, plasmid construction, plasmid preparation and analysis (4 years/ 8)

RNA isolation from multiple tissue sources, including human tissue and cell lines (4 years/ 10)

Electrophoresis, including:

Northern Blot Analysis (4 years/ 10/ 2002)

Western blot analysis (2 years/ 8/ Oct 2023)

Genomic DNA preparation and Southern blot Analysis (2 years/ 10)

Constant denaturant capillary electrophoresis (CDCE), high throughput mutational spectrometry (HTMS) (2 years/ 10/ Sep 2004)

Use of Axon, GMS, and Perkin-Elmer Life Sciences (ScanArray) microarray equipment (4 years/ 10/ Apr 2002)

Use of microarray manufacturing equipment from Affymetrix (GMS) and Intelligent Automation Systems (2 years/ 8/ Apr 2002)

DNA sequencing and sequence data analysis (6 years/ 7/ Apr 2002)

Mammalian cell culture (1 year/ 5)

Site-directed mutagenesis (4 years/ 10)

Plasmid and bacteriophage DNA preparation (10 years/ 10)

cDNA and genomic library screening (2 years/ 10)

Tissue dissection from mice (2 years/ 8/ 1989)

Running and maintaining oligonucleotide synthesizers; evaluation and optimization of Pharmacia prototype (3 years/ 10/ 1989)