Ellie Hasenohr

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EDUCATION

Doctor of Philosophy (PhD) – Molecular Biology *2024-Present*
University of Colorado – Anschutz Medical Campus, Aurora CO

Bachelor of Science - Microbiology *2015-2019*
University of Vermont, Burlington VT
• Dean's List: 2019

LABORATORY WORK EXPERIENCE

Scientist I *June 2023-June 2024*
Strategic Innovations Laboratory, Advanced Diagnostics, National Jewish Health, Denver, CO

- Performed, researched, developed, and validated diagnostic assays for clinical laboratory use within National Jewish Health
    - Alpha-1 Antitrypsin (A1AT) deficiency 20 single nucleotide polymorphisms (SNPs) genotyping clinical assay
    - Development and validation of A1AT whole exon sequencing assay for detection of new *SERPINA1* mutations
    - Sample tracking and reporting using SCC Soft Computer LIS systems (SoftMol, SoftLabMic)
- Performed and optimized validation and verification studies for external contracts
    - Detection of *Mycobacterium tuberculosis* (Mtb) in bone matrix products using PCR/MALDI-TOF Mass spectrometry technology
    - Respiratory Pathogen and Antibiotic Resistance identification using RNA-Enrichment Next Generation Sequencing assay and analysis
- Skills and Accomplishments:
    - DNA and RNA extractions, PCR, hybridizations, Next Generation Sequencing library preparation, MALDI-TOF mass spectrometry
    - Inoculation and cell culture of Mycobacteria, Microbacteria, and fungi
    - Primer design for whole exon sequencing assays using Geneious Prime
    - Review, understanding, and compliance with HIPAA, CLIA, CAP, GLP/GDP
    - Competency and training to work in BSL-3 laboratories
    - Experimental design, planning, execution, data analysis and presentation
    - Protocol and SOP writing, validation plan and report writing
    - Collaboration and communication with clinical laboratories, directors, management, and outside vendors
    - Troubleshooting of assays and instrumentation
    - Training of technicians on new clinical laboratory assays

Research Associate II *October 2022-May 2023*
Department of Assay Development, LightDeck Diagnostics, Boulder, CO

- Developed and optimized immunoassays utilizing planar waveguide technology in the field of veterinary diagnostics
- Skills and Accomplishments:
    - Antibody conjugations, HPLC, ELISAs, lyophilized pellet formation

- Experimental design, planning, execution, data analysis and presentation
- GraphPad PRISM data generation and analysis
- Ran multiple immunoassay stability studies
- Wrote test protocols, SOPs, validation plans and reports
- Wrote kinetic scripts for LightDeck Analyzer assay software
- Performed preventative maintenance and instrument repairs on LightDeck Analyzers
- General laboratory maintenance and organization

Research Associate II *March 2022-September 2022*
Research Associate I *February 2021-March 2022*
Department of In-Vitro Diagnostics Assay Development, Invitae Corporation, Boulder, CO

- In Vitro diagnostic assay development and optimization in the field of cancer diagnostics
- Skills and Accomplishments:
    - Next-Generation Sequencing Assays, PCR, DNA, RNA and ctDNA extractions and library preparations
    - Sample and library quantification using Qubit, NanoDrop, and qPCR
    - Illumina Miseq and NextSeq instrument sample sheet generation, loading, maintenance, and troubleshooting
    - RStudio data generation and analysis
    - Experimental design, planning, execution, data analysis and presentation
    - Protocol writing, SOPs, validation plan and report writing in concordance and compliance with regulatory standards for United States and foreign regulatory bodies
    - FDA submission documentation and writing
    - Review, understanding, and compliance with Invitae HIPAA security policies and procedures
    - General laboratory maintenance and organization

Lead Clinical Laboratory Scientist I *October 2020-February 2021*
Clinical Laboratory Scientist I *September 2020-October 2020*
Advanced Diagnostics Laboratory, National Jewish Health, Denver, CO

- Worked in a SARS-CoV-2 clinical laboratory running RT-qPCR COVID-19 assay for clinical diagnostics
- Development and validation of COVID-19 MassARRAY PCR/MALDI-TOF Mass Spectrometry assay
- Skills and Accomplishments:
    - Sample aliquoting, RNA extractions, RT-qPCR assays
    - MALDI-TOF Mass Spectrometry assay development and optimization
    - Clinical data analysis and resulting
    - Sample tracking and reporting using SCC Soft Computer LIS systems (SoftMol, SoftLabMic)
    - In charge of training new technicians and communicating with management, clients, and other laboratory personnel
    - Problem solving and troubleshooting instrumentation with in-house IST and outside vendors
    - BioFire Respiratory 2.1 panel operation on BioFire FilmArray Torch

Undergraduate Research Assistant *June 2017-September 2019*
Department of Biomedical and Health Sciences, University of Vermont, Burlington, VT

- Principal Investigator: Dr. Seth Frietze

- Research Project/honors thesis: "Genomic organization of the herpesvirus genome within the host cell nucleus"
    - Studied the three-dimensional chromatin structure of Human Herpes Virus 6 (HHV-6) genome in latently infected human cells using circular chromosome confirmation capture coupled with high-throughput sequencing (4C-Seq) to determine the genome-wide maps of the integrated HHV-6 genome within sub-telomeric regions of human chromosomes
- Skills and Accomplishments:
    - DNA and RNA column extractions, PCR assay development, Next Generation Sequencing library preparation, Gel electrophoresis, mammalian cell culture and media preparation
    - Quantification using Qubit, NanoDrop, and Bioanalyzer platforms
    - Primer design using Geneious Prime and BLAST
    - Experimental design, planning, execution, data analysis, and presentation
    - Data analysis using NextGENe
    - Wrote protocols and SOPs utilizing peer-reviewed journals and documents
    - Managed stock room supplies, made buffers and gels, and ordered new reagents and supplies
    - Trained new undergraduate laboratory assistants in basic laboratory techniques and protocols

AWARDS

Distinguished Undergraduate Research Award *May 2019*
College of Agriculture and Life Sciences, University of Vermont, Burlington, VT

- "Genomic organization of the herpesvirus genome within the host cell nucleus"

PUBLICATIONS

Published:
Mariani M, Zimmerman C, Rodriguez P, **Hasenohr E**, Aimola G, Gerrard DL, Richman A, Dest A, Flamand L, Kaufer B, Frietze S. Higher-Order Chromatin Structures of Chromosomally Integrated HHV-6A Predict Integration Sites. Front Cell Infect Microbiol. 2021 Feb 26;11:612656. doi: 10.3389/fcimb.2021.612656. PMID: 33718266; PMCID: PMC7953476.

DeCurtis EK, Kuss-Duerkop SK, Stewart ZP, Machado IMP, Jackson M, **Hasenohr E**, Crumby JL, Groshong SD, Coeshott CM, Harbeck RJ, Sandhaus RA, Wang Y. Pathogenic Mutations Conferring α_1-Antitrypsin Deficiency Are Identified Accurately by a Novel Multiplexed Molecular Assay. CHEST Pulmonary, 2024,100076, ISSN 2949-7892, https://doi.org/10.1016/j.chpulm.2024.100076.

PRESENTATIONS

Poster Presentation: "Genomic organization of the herpesvirus genome within the host cell nucleus", University of Vermont Student Research Conference, Burlington, VT, 17 April 2019

Submitted abstract to American Thoracic Society Conference: ATS 2023
"A Novel Two-tier Genotyping and Whole Exon Sequencing Testing Algorithm to identify Alpha-1 Antitrypsin Deficiency (AATD)," Yongbao Wang, Sharon K Kuss-Duerkop, Emily Decurtis, **Ellie Hasenohr**, Steve Groshong, Ron Harbeck, Claire Coeshott, Jared Eddy, Robert Sandhaus

OTHER EXPERIENCE AND ACTIVITIES

Food Preparation and Line Cook *November 2019-March 2020*
Big Fig, Wanaka, New Zealand
- Lived and worked in New Zealand on a one-year working holiday visa

Club Ultimate Frisbee *August 2015-Present*
Ruckus, University of Vermont Women's A Team, Burlington, VT
- August 2015-May 2019

Flight Club, Denver Mixed Team, Denver, CO
- April 2021-October 2022

Love Tractor, Denver Mixed Team, Denver, CO
- April 2023-Present

Study Abroad *January 2018-June 2018*
University of Adelaide, Adelaide, Australia

SOFTWARE COMPETENCY

- RStudio
- NextGENe
- Geneious Prime
- Agena Typer4 Suite
- Illumina BaseSpace sequencing hub
- ABI Sequencing Analyzer
- SCC Soft Computer LIS systems (SoftMol, SoftLabMic)
- GraphPad PRISM, statical analysis and data presentation
- Microsoft Office Suite
- SPSS Statistical Software