Benjamin Ferland:

Summary: A highly experienced Histology Manager with 15+ years in histology and 8 years of LIMS & SQL Database Administration and development. Expertise in advanced histology techniques, lab management, image analysis and LIMS development. Strong problem-solving, administrative and technical skills, combined with an education background in healthcare administration, computer science and histology with ASCP HT certification.

Histology: Highly Skilled Histology Technician and Manager with extensive experience in clinical, academic, and industry laboratories. Proficient in a wide range of histological techniques including enzyme histochemical staining, special staining, IHC (immunohistochemistry) and IF (immunofluorescent) multiplexing, advanced chromogenic IHC multiplexing, ISH/FISH (in situ hybridization) single and multiplex assay development. Skilled in robust assay development, optimization, validation, troubleshooting and recordkeeping, with a primary focus on providing stakeholders with reliable histology and imaging-based methods to answer key scientific questions via pathology review or image analysis quantification.

Tissue Handling: Proficient in cryostat and paraffin sectioning of fixed and unfixed tissue or cells, grossing, necropsy, fixation, processing, embedding, histogel methods, necropsy animal recordkeeping, gross finding documentation, sample shipment and intake coordination, and chain of custody documentation. Vast experience with all normal tissue types, various tumor types, biopsies, decalcification protocols, sample measurements and organ weights, sucrose and snap freezing protocols, storage and shipment standards, chain of custody documentation and experience training scientist in histology tissue handling methods.

Equipment Expertise: Highly experienced in utilizing and vendor certified in the operation of a wide range of histology laboratory equipment, including Ventana (ROCHE) Discovery Ultra and XT, Benchmark, Leica Bond and Bond RX, Leica Versa, Leica Aperio, Akoya Mantra and Inform, Leica Peloris and Pearl processors, Leica Spectra, and Leica 5010 and 5030 CV.

Imaging and Image Analysis: Skilled in whole slide imaging, image analysis software Qpath, Imagescope, Halo, Inform, LASx and custom imaging automation via Windows, Python and VBA to enhance laboratory efficiency and accuracy. Experienced in developing and executing image analysis pipelines and presenting data to facilitate collaboration with scientists. Possess in-depth knowledge of normal and diseased tissue microscopy. Highly experienced identifying histology artifacts and possess high level understanding of staining assay limitations and multiplex panel design. Built and implemented slide bar coding LIMS for two core facilities to streamline in lab histology work and image file naming and file management during whole slide imaging. Developed rapid bulk image review and PowerPoint presentation building LIMS system.

Data Analytics: Proficient in Microsoft Office Suite, VBA coding, MS Access, Power Automate, Dataverse, Power Apps, Forms, Excel, Word, Python, Halo (Indica Labs), Imagescope (Leica), Qpath, LASX (Leica), and InForm/Mantra (Akoya). Experienced in using data analytics to identify trends, patterns, and insights to drive laboratory decision-making and enhance laboratory operations. Prepared histology PowerPoints for pathologist and scientist review and presentation to include representative images and image analysis quantification results.

LIMS & SQL Database Administration and Development: Skilled in designing and deploying LIMS software and database infrastructure for histology departments at two corporations. Database development, administration and efficiency monitoring. Proficient in front and backend development, maintenance, digital histology equipment records, microscope scan file and whole slide image LIMS integration, digital reagent inventory and lot recordkeeping. Skilled in Microsoft SQL, PostgreSQL, MS Access/Excel, VBA, python, ZPL, QR, 3D and 2D barcoding expertise to streamline laboratory operations and increase safety.

LIMS & SQL Database Administration and Development: Skilled in designing and deploying LIMS software and database infrastructure for histology departments at two corporations. Database development, administration and efficiency. Proficient in front and backend development, maintenance, digital histology equipment records, microscope scan file and whole slide image LIMS integration, digital reagent inventory and lot recordkeeping. Skilled in Microsoft SQL, PostgreSQL, MS Access/Excel, VBA, python, ZPL, QR, 3D and 2D barcoding expertise to streamline laboratory operations and increase safety.

Collaboration and Project Management:

Collaborative Team Player: Skilled in collaborating with cross-functional teams to achieve shared goals and objectives. Ability to effectively communicate and work with team members at all levels of the organization to drive results.

Strong Interpersonal Skills: Possess exceptional interpersonal skills, able to establish and maintain positive relationships with colleagues, clients, and stakeholders.

Project Management: Experienced in leading and managing complex projects, from planning to implementation. Skilled in coordinating resources, identifying critical paths, and executing project plans to achieve successful outcomes.

Quality Management: Skilled in quality management systems to ensure compliance with industry standards and regulations. Experience in developing and implementing quality control programs to maintain elevated levels of accuracy, precision, and consistency in laboratory operations.

Process Improvement: Skilled in identifying and implementing process improvements to enhance laboratory efficiency, reduce costs, and improve quality. Experienced in using data-driven approaches to identify areas for improvement and in developing and implementing action plans to achieve desired outcomes.

Education: Bachelor of Science in Health Care Administration (BS) Southern New Hampshire University (SNHU)

Associates of Science (AS), Histotechnology Program Community College of Rhode Island (CCRI)

Certification: Histotechnologist (HT) ASCP certified

Work Experience

Sana Biotechnology (2021 - Present) Histology and Imaging Core Lab Manager, LIMS Developer. Built histology lab from scratch at new facility to support multiple drug development platforms including onboarding of equipment, SOP generation, assay development, histology method training, budgeting, project management, CRO support coordination, necropsy training and support, CD19, CD20 and CD22 CAR-T and Allo-T cell, NHP and humanized mouse research histology, IND FDA submissions, routine and advanced histology support. H&E, whole slide imaging, necropsy support, IHC, multiplex fluorescent IHC, dual IHC and ISH fluorescent assay development, PBMC (Blood Sample) CAR-T cell detection histology method development. OTC Liver disease advanced histology support. Beta Islet diabetes histology support. Image Analysis Quantification Algorithm Development using Halo (Indica Labs) to support single and multiplex staining assays, Halo AI hardware and software implementation to support advanced program goals. Developed LIMS system front end and back end (PostgreSQL) to support internal and external (CRO) histology end points including chain of custody for GLP studies.

Laboratory for Bio-Micro Devices (2019-2021) Histotechnician for Microdevice Drug Delivery Analysis via histology methods. Developed advanced multiplex assay and imaging pipeline to support image analysis end points to assess multi drug microdosing in human tumor models and clinical research trials.

Brigham and Women's Hospital / Dana-Farber Cancer Institute / Harvard Medical School Specialized Histology Core (2016 - 2021) Imaging & Advanced Staining Lead Histotechnician, LIMS Developer, Database Administrator, developed 500+ IHC, ISH, IF, FISH and multiplex assays to support core lab clients and collaborating pathologist. Championed the fluorescent assay imaging included Thermo Fisher Evos training for core clients and Leica Versa fluorescent whole slide imaging. Worked with core clients to establish relationships between stakeholders and support histology staff. Developed LIMS system front end and back end (Microsoft SQL Server) to support both clinical trials and animal research histology end points, replacing commercial LIMS system with tailor made high throughput and customizable platform to reduce cost, improve turnaround time, increase accuracy and provide recordkeeping and reports to core clients and department leadership.

Harvard Medical School Rodent Histology Core (2018 - 2019) Histotechnician, provided high quality research histology support to supplement Rodent Histology Core staff under heavy workload and/or staff shortages.

Beth Israel Deaconess Medical Center (2016 - 2018) Histotechnician, provided clinical histology support on regular scheduled part time basis.

Children's Hospital Boston (2011 - 2016) Histotechnician, 80% clinical 20% core research histology technician with moderate administrative duties. Advanced Enzyme Histochemistry Assay Development to support Nueropath Muscle

and GI diagnostic end points. Clinical validation of high volume immunohistochemistry assay development, championed documentation, validation, vendor training and technical support for immunostaining lab equipment overhaul: moving from older Roche/Ventana platform to cross validate on newer Leica Bond platform to meet department goals. Specialized Histochemical staining to support routine pathology department daily needs. Developed integrated lab reagent and supply ordering system to support histology lab manager. Cytology lab staffing rotation to include routine cytology staining, cytospin preparation, pap smear support, histogel preparation and staining. Chain of custody documentation, snap freezing and shipment of frozen muscle samples. Surgical suite frozen section support, lab setup and maintenance and pathology resident and fellow frozen section training.

Histologistics (2012 - 2021) Co-Founder, Histotechnician & IHC Special Techniques Consultant.

Mass Histology (2009 - 2011) Histotechnician, histochemical special staining specialist.

Myomics (2008) Constructed silicon rubber molds and cleanroom for tissue engineering muscle cells

Rissco Fabrication (2005 - 2007) Team Leader - Fabricated and installed solid surface products

Top of the Line Fabricators (2003 - 2009) Fabricated and installed solid surface products

Cell Based Delivery (2001-2003) Performed cryostat sectioning, cell counts and digital imaging.

Histology Internships: Rhode Island hospital (CCRI) & Miriam Hospital (Cell Based Delivery).

Publications, Articles, Posters and Technical Histology Support Acknowledgments:

Tsai, Lillian L. MD*; Phillips, William W. MD*; Hung, Yin P. MD, PhD†; Dominas, Christine MS‡; Deans, Kyle MS‡; Ahn, Sebastian BA‡; Ferland, Benjamin BS‡; Weiss, Kathleen MD*; Lanuti, Michael MD*; Auchincloss, Hugh MD*; Schumacher, Lana MD*; Jonas, Oliver PhD‡; Colson, Yolonda L. MD, PhD*. First-in-Human Intrathoracic Implantation of Multidrug-Eluting Microdevices for In Situ Chemotherapeutic Sensitivity Testing as Proof of Concept in Nonsmall Cell Lung Cancer. Annals of Surgery 277(5):p e1143-e1149, May 2023. | DOI: 10.1097/SLA.0000000000005385

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Ahn SW, Ferland B, Jonas OH. An Interactive Pipeline for Quantitative Histopathological Analysis of Spatially Defined Drug Effects in Tumors. J Pathol Inform. 2021 Sep 16; 12:34. doi: 10.4103/jpi.jpi_17_21. PMID: 34760331; PMCID: PMC8529341.

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