

Department of Pathology

Laboratory Updates



Pictured (l-r): Brenda O'Brien, Anna Kielasinski, and Ree Kidd in front of the new Sebia Capillarys 3 Octa.

Hemoglobin Electrophoresis Go-Live

The Hematology laboratory is excited to announce the addition of the Capillarys 3 Octa to our instrument lineup. This updated automated capillary electrophoresis platform uses eight capillaries and can run up to 120 samples per run. With direct sampling of the primary tubes, automatic mixing and cap piercing for whole blood samples, RFID identification for all reagents and advanced software, this new instrument offers increased efficiency and standardization. The Capillarys 3 Octa has the ability to perform seven separate capillary electrophoresis-based techniques including SPEP and UPEP testing. The staff is pleased to use this new technology to perform hemoglobin electrophoresis testing for our patients.

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A Momentous Milestone: First Radioactive Seed Case Successfully Completed

BIDMC recently achieved an important milestone with its first radioactive seed case, marking a significant event for the Pathology Department, BIDMC, and for the Dana-Farber Beth Israel Deaconess Cancer Collaboration. This technology allows surgeons to more precisely locate and remove targeted tissue, supporting a more streamlined surgical experience for patients. The Pathology Department's role included ensuring safe, efficient handling of a specimen that contains radioactive material.

After months of working alongside surgical and perioperative counterparts developing the new workflow for radioactive seeds in breast specimens, **Kacie Fraser**, along with the help of the Cutting Room PAs **Taylor St Jacques**, **Alice Sedlak**, and **Zekiel Wicks** completed the first radioactive seed removal at BIDMC expertly and flawlessly.

Thank you to all who contributed to making this moment possible and for adopting this new workflow and continuously working hard to meet the demands of our exceptional growth. These efforts have helped establish a new capability that will benefit our patients and further advance the care we provide.



Photo above (l-r): Alice Sedlak, Taylor St Jacques, Zekiel Wicks (seated at back of room), Jordan Karnyski, and Kacie Fraser.

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A Major Milestone for Digital Pathology at BIDMC

We are excited to share that the first fleet of whole slide scanners for the BIDMC Digital Pathology transformation has officially arrived! This initial deployment includes four Hamamatsu S540 scanners, marking an important milestone in our journey toward digital pathology. More scanner purchases are in progress. The implementation team is now busy with scanner installation, cybersecurity and firewall configuration, and system integration. Once these steps are complete, the formal validation process will begin in preparation for clinical deployment.

This is an exciting moment for our department and a significant step toward a modern, fully digital pathology workflow. We look forward to sharing more updates as the project progresses.



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First Dana-Farber Pathology Service Transition Began Sept. 1

On Sept. 1, BIDMC Pathology achieved a significant milestone in its highly anticipated collaboration with Dana-Farber Cancer Institute (DFCI) with the successful go-live transition of all outside consultation cases for breast oncology transfer of care.

As part of the Dana-Farber Beth Israel Deaconess Cancer Collaboration, this accomplishment follows months of planning and preparation, including the renovation of a dedicated workspace at DFCI Smith 2, located just steps from Dana-Farber's Central Pathology Processing team. The transition also required extensive collaboration among technical, operational, planning, and administrative teams across both institutions, as well as the recruitment and onboarding of three new Consultation Coordinator positions to support the growing service.

Since launch, the team has already processed dozens of consultations while implementing enhanced administrative workflows designed to facilitate efficient pathologist review and sign-out. This success and efficiency represents major advances in the ultimate goal of providing excellent patient care and experience.

Special thanks to the Breast Pathologist team for their outstanding responsiveness and rapid turnaround times, and to the Consultation Coordinators whose flexibility, dedication, and hard work have been instrumental as they adapted to new workflows and processes. Their collective efforts have laid a strong foundation for the continued success of this important partnership and future efforts between BIDMC Pathology and DFCI.

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Beyond the Lab Door: Microbiology

Medical microbiology is a branch of medicine focusing on the study, diagnosis, treatment, and prevention of infectious diseases caused by bacteria, viruses, fungi, and parasites. Microbiologists analyze patient samples (blood, swabs, urine) in hospital labs to determine the best antimicrobial therapies and manage infection control, playing a crucial role in combating antibiotic resistance.

With the seemingly endless growth of superbugs and other antibiotic-resistant bacteria, the analytical and inquisitive minds of medical microbiologists are vital in healthcare today – both for treating infections and for fighting the spread of disease.

Microbes fun facts! They outnumber your own cells, existed billions of years before humans, and can survive in extreme environments like boiling water.



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Beyond the Lab Door: Lab Control Sendouts

Central Processing function includes receiving specimens, centrifuging, labeling and aliquoting to appropriate tubes, and organizing specimens for appropriate areas, including sendout testing.

A laboratory sendout center manages the logistical process of sending specialized, uncommon, or high-complexity lab tests to external reference laboratories. These departments ensure correct patient identification, proper specimen collection, and accurate referral testing to prevent diagnostic delays.

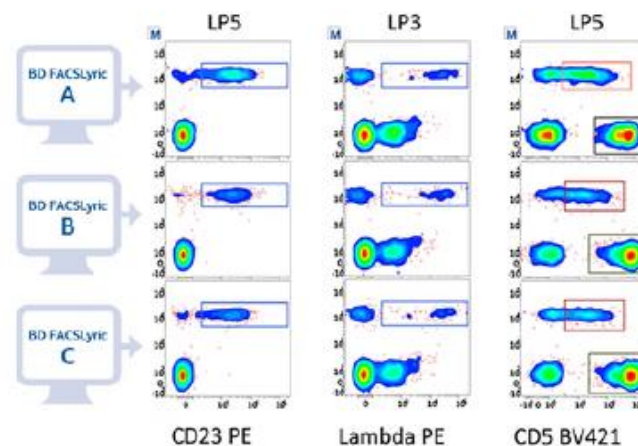
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Beyond the Lab Door: Flow Cytometry

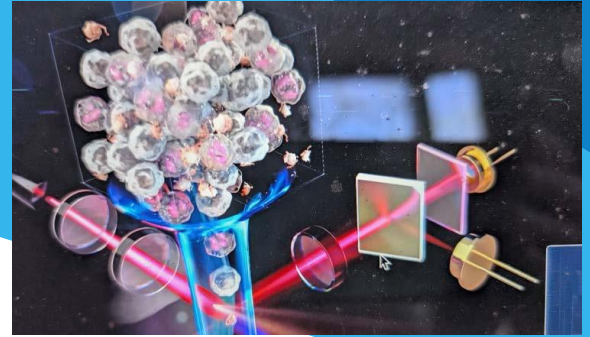
Flow cytometry is a high-throughput, laser-based technology that analyzes the physical and chemical characteristics (size, complexity, fluorescence) of individual cells or particles while they flow in a liquid stream. It enables rapid, quantitative, multiparameter analysis of thousands of cells per second, widely used for immune profiling, cancer diagnosis, and cell sorting.

Flow Cytometry is used for diagnosing and monitoring leukemia, lymphoma, and hematologic disorders. The lab offers rapid, on-site testing utilizing FACS Lyric instruments for enhanced patient management and minimal residual disease detection.



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Beyond the Lab Door: Hematology

The Hematology Lab specializes in diagnosing and treating blood disorders, such as anemia, clotting issues, and blood cancers, by analyzing blood cell morphology (shape), count, and function. Common tests include the Complete Blood Count (CBC) with differential, peripheral smear reviews, and coagulation studies (PT, PTT). They also perform the complete analysis of urine with microscopic and fluid analysis.

The Latest and Greatest!

Hematology has a new automated analyzer. Sysmex XN: A fully automated analyzer that uses core detection technology and fluorescent flow cytometry for a complete blood count.

- Advanced clinical parameters: Leukopoietic indicators—Immature granulocytes with every differential
- Erythropoietic indicators—Nucleated RBC with every CBC, reticulocyte hemoglobin (RET-He) and immature reticulocyte fraction (IRF)
- Thrombopoietic indicators—Immature platelet fraction (IPF) and a fluorescent platelet count (PLT-F) designed for very low platelet counts

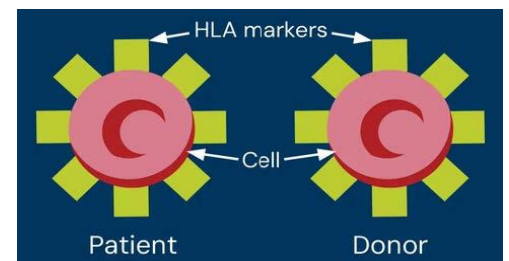
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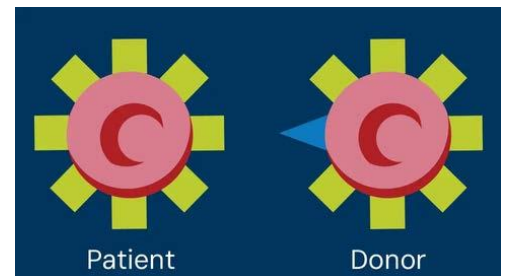
Beyond the Lab Door: Human Leukocyte Antigens (HLA)

Human leukocyte antigens (HLA) are proteins found on the surface of most cells in the body, encoded by genes on chromosome 6 (the major histocompatibility complex). They are essential for the immune system to distinguish between "self" and foreign substances. HLA typing is used in organ and stem cell transplantation to match donors and recipients, minimizing graft rejection.

When a patient and donor share all the same HLA markers, it is considered a full match.



In a partial match type, the donor matches most, but not all of the recipient's HLA.



For other patients, a haploidentical (haplo) match is the best option. A haplo match is when a patient and donor share half of the same HLA.

