

Biobanking and biospecimen management with Thermo Fisher Platform for Science software

Cloud-based platform to drive biobanking and biospecimen workflows

Key benefits

- Complete biospecimen lifecycle management with chain-of-custody records
- Streamlines specimen, study, and inventory management procedures
- Securely manages patient and study data
- Shortens implementation timelines by using apps
- Enables increased reliability, consistency, and efficiency with Thermo Fisher™ Platform for Science™ software

Platform for Science software, a platform you can rely on

To drive life science research and discovery forward, accurate, compliant and efficient management of biospecimens is critical. The biobanking solution on Platform for Science software is specifically designed to address the unique challenges of specimen collection, analysis, tracking, and storage for biopharmaceutical R&D and clinical operations, academia and biosciences, research centers, medical institutions and contract organizations.

Platform for Science software facilitates data capture and workflow management, while also managing specimen chain-of-custody, inventory, laboratory and study protocols, and shipment records. Whether you are storing or tracking whole blood, tissues, cellular lysates, DNA, RNA, proteins, etc., Platform for Science software can support your specimen type. Platform for Science software's cloud-native capabilities provide centralized global access in a secure environment.



Streamlining biobanking workflows with the Platform for Science software

The biobanking solution on the Platform for Science software provides complete traceability from sample preparation, specimen shipment and retrieval, specimen accessioning, assay setup and execution, inventory management, through final reporting and biobank operations management. Biobank managers can standardize specimen requests, annotations, accessioning, and study management procedures to help ensure process reproducibility and data quality. The solution is capable of handling complex specimen relationships with associated metadata (e.g shipping information, assay results, date/time stamps of specimen movement, instruments and reagents used when processing the sample).

Platform for Science software's hierarchical structure simplifies chain-of-custody for biobanking facilities and laboratories. The use of detailed hierarchical location management, aliquot/derivative and pooled sample tracking, along with specimen audit trails help ensure that each movement or process that the specimen has gone

through is captured. Patient informed consent forms can also be attached to a specimen's record enabling visibility into the level of consent provided by a patient. If a patient decides to withdraw consent, a system administrator can trigger the destruction of those samples within Platform for Science software.

Assay request management is also streamlined by using the software. Scientists and lab managers can easily generate and manage requests, assign priority and status, and associate samples to assays. Configurations are easily performed in the system for assays such as nucleic acid extraction, whole blood fractionation, nucleic acid normalization, and sequencing, providing scientists the ability to capture all related specimen data in one system. Laboratory instruments can be integrated with Platform for Science software streamlining the workflow and minimizing the risk of manual transcription errors. By utilizing system dashboards and reports, lab managers can quickly report on what the status of a sample is and identify any bottlenecks in their laboratory workflows.

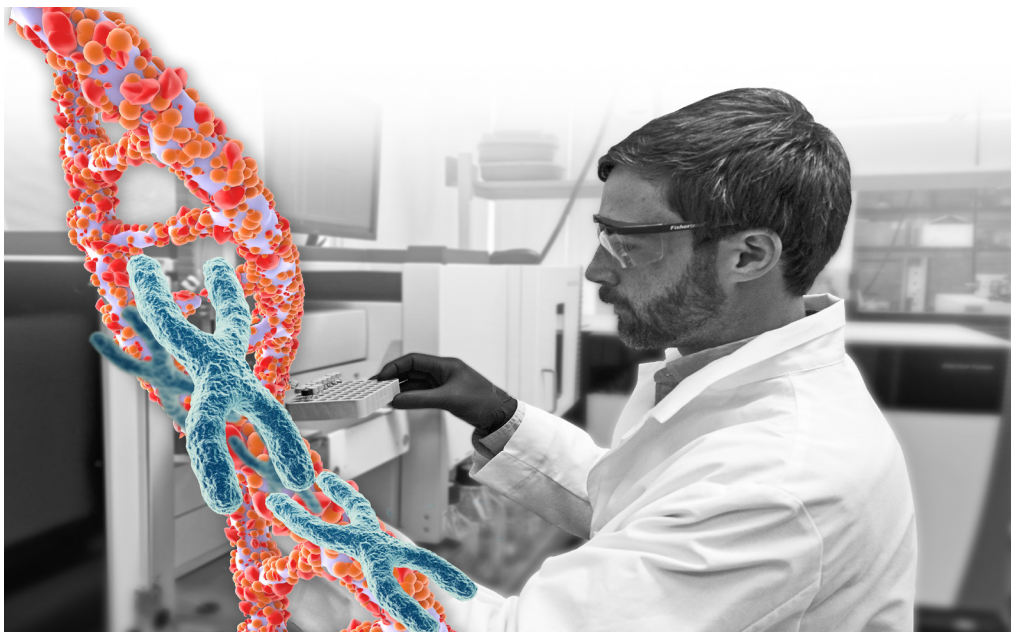
The screenshot displays two main components of the Platform for Science software. On the left is the 'Whole Blood Fractionation Dashboard', which includes a navigation menu with 'Home', 'Query Fractionation', and 'Published Fractionation'. Below this is a table titled 'Whole Blood Samples Ready for Fractionation' with columns for Container, Barcode, Date, Published, and Amount. A 'Start Fractionation' button is located below the table. Underneath is another table titled 'Experiments in Progress' with columns for Name, Barcode, Projects, Derivative Type, Creation Date, and Assay.

On the right is an 'IMAGING Report: IMA9'. It features a toolbar with icons for navigation and editing. Below the toolbar are tabs for 'Samples', 'Containers', 'Export to Excel', 'Report', and 'Unpublish'. A secondary toolbar includes 'Printable View', 'Export', 'Functions', and 'Charts'. The main content area is a grid of images. The first row shows 'PXP59-18' with an 'Imaging Protocol' image and an 'Imaging Assay' image. The second row shows 'VAE14-4' with an 'Imaging Protocol' image and an 'Imaging Assay' image.

Leveraging apps to shorten LIMS implementation timelines

The workflow for biobanking can differ from organization to organization or change as requests come in from new sponsors. The Platform for Science software can be quickly configured, with no custom code, to the latest workflow change and to your organization's specific needs. By leveraging the Platform for Science software and its Marketplace, organizations can quickly and easily deploy preconfigured applications to support changing processes and inclusion of new laboratory techniques.

The preconfigured applications for the biobanking solution range from study to biobank operations management. The applications provide functionality for specific functions i.e. specimen accessioning, specimen shipment management, and whole blood fractionation. When combined, they form a solution to manage a complete process. The deployment of preconfigured applications within a solution shortens implementation timelines and helps reduce the amount of overhead needed to deploy an informatics solution.



A solution to meet your organization's needs

Thermo Fisher is offering 3 deployment options of Platform for Science software to meet your biobank's needs. Each solution offering provides a varying degree of functionality. Whether your organization only needs to manage

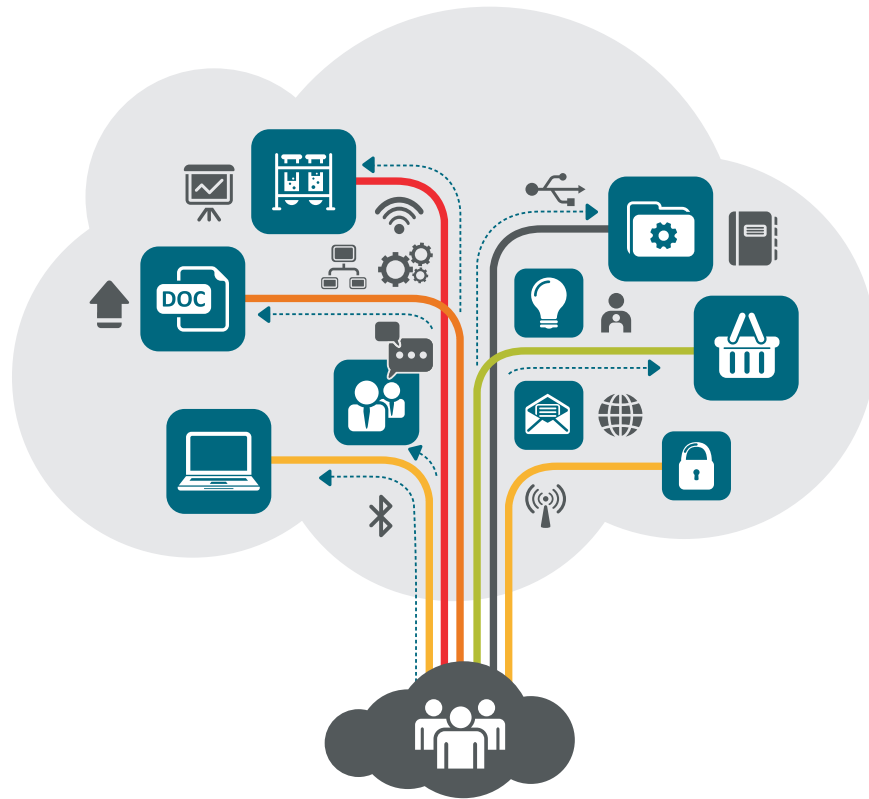
accessioning samples or complex analyses such as next generation sequencing, there is an offering that will meet those needs. Below is a breakdown of the functionality provided with each option:

Benefit	Biospecimen management	Biospecimen management & lab workflows	Custom solution
Inventory and location management	✓	✓	✓
Specimen accessioning	✓	✓	✓
1D and 2D barcodes	✓	✓	✓
Shipment manifest tracking	✓	✓	✓
Laboratory operations dashboards and reporting	✓	✓	✓
Request management	✓	✓	✓
Freeze/thaw tracking	✓	✓	✓
Inventory dashboards and reporting	✓	✓	✓
Sample preparation- Pathology, Whole blood fractionation, Immunohistochemistry, Nucleic acid extraction		✓	✓
Study management		✓	✓
NGS Analysis workflows			✓
Sanger analysis workflows			✓
qPCR analysis workflows			✓
Microarray analysis workflows			✓
Laboratory analysis assays- Gel electrophoresis, PCR, rt-qPCR, PCR			✓
Method management			✓

A cloud-based platform for biobanking

Organizations are under increasing pressure to create more with less in a shorter amount of time. Business leaders are looking for new approaches and external partnerships to accelerate their throughput, increase ROI, and reduce risk. The Platform for Science software can be deployed in the cloud or on-premises. A cloud-based infrastructure allows teams to be more agile, help reduce control costs, and shorten timelines all within a secure environment.

Platform for Science software deployed on Amazon Web Services (AWS), provides a secure, flexible, and scalable solution. As biobank organizations often need to perform their work in a regulated environment to ensure adherence with HIPAA and data privacy rules, Platform for Science software offers a validated cloud offering, providing those customers the additional security parameters that their organization needs.



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