



Advancing the lab? look to LIMS



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Translational science is an emerging area of medical practice, integrating research inputs from the basic sciences, social sciences and political sciences to optimize patient care. This process, often described as “bench-to-bedside,” is at its core a relatively simple concept. By taking a focused point of view, the biomedical community is able to translate what it has learned in the laboratory into the diagnosis and clinical treatment of patients. To translate information from the clinic to the laboratory and back, researchers and clinicians have to collaborate with pharmaceutical and biotechnology companies, hospitals and academia. The sheer volume of data from these organizations poses an enormous challenge, which is why informatics tools are an essential component of the translational

science process, ensuring that all organizations are connected and have access to critical information, data and reports. A novel and flexible LIMS (Laboratory Information Management System) can address the challenges faced by researchers in their day to day operations and facilitate collaboration across all organizations by creating a unified global research information network.

PHARMACEUTICAL AND BIOTECHNOLOGY REQUIREMENTS

Drug manufacturers need to demonstrate as early as possible the efficacy and safety of their compounds, and they employ translational medicine to learn more about their compounds and how they interact with the human body. To do this, cross-disciplinary collaboration with peers



TURN-KEY BIOBANKING SOLUTIONS

THERMO FISHER SCIENTIFIC has the world's largest breadth of offerings for biobanks, from biospecimen collection, processing, testing and storage to sample and data management. The end-to-end portfolio includes the centrifuges, concentrators, freezers, robotics, 2-dimensional barcodes, microplate readers, mass spectrometers and comprehensive services to enable turn-key biobanking solutions. The company's innovative services and software for biorepositories - including laboratory information management systems (LIMS), laboratory equipment, and storage and related services - are marketed under its Thermo Scientific and Fisher BioServices brands.

FISHER BIOSERVICES is the world leader in biological specimen management supporting life science and clinical research industries. The company's global capabilities span the spectrum from collection to repository, including transportation, inventory, biorepository services, biological lab processing and other support services. Along with Thermo Scientific Nautilus biospecimen tracking software, Fisher BioService's robust offering of sample management services address the scaling needs of laboratories worldwide.

IN TRANSLATIONAL MEDICINE efficient cataloging and archiving of samples is crucial and customized sample retrieval systems can greatly improve workflow and eliminate potential errors. Companies who chose to outsource this activity free up valuable space and capital while benefiting from state of the art laboratories for their specimen preparation needs. Fisher Bioservices and Thermo Fisher Scientific as a whole can help achieve the goals of translational science, allowing organizations to make faster, more informed decisions about advancing science and developing drugs that save and improve the quality of lives. Visit www.thermo.com/biobanking



TRISH MEEK, Director of Product Strategy, Life Sciences, Informatics at **Thermo Fisher Scientific**, and **Dennis Fallen**, Vice President and General Manager at **Fisher BioServices**, explain how creating a next-generation research information network can spur breakthroughs in medicine

inside and outside of the organization is a key requirement. Extensive amounts of data, results and reports need to be collated from a variety of partner and Contract Research Organizations (CROs). The timely and accurate flow of information and samples is essential, and pharmaceutical companies can extend the use of their LIMS by making it the central point to manage information from partner organizations as well. This is not a trivial task since the information is

in different formats and is not easily translated. A LIMS's sophisticated integration capabilities greatly simplifies this process and connects organizations with partners to form a research information network.

CLINICAL REQUIREMENTS

Research hospitals and academia are balancing their desire to move medicine forward through sponsor- or grant-funded research studies

ADVANCING THE LAB? LOOK TO LIMS

with their main goal of improving the health of their patients. It is important to keep the study results separate from the patient records to ensure that the patient's privacy is maintained under HIPAA regulations and the science is unbiased. Managing this information and samples in a secure manner requires a comprehensive LIMS to gather, store, sort and retrieve data. Researchers can query patient demographic and sample type information and request the correct samples without violating the patient's privacy. LIMS also provides:

- Equipment and personnel availability to help scientists prioritize work.
- Visibility to information across the study for real-time trending of results, locally or from remote locations.
- An intuitive interface so nurses and doctors can see the tests they need to perform and input without interrupting patient care.
- Chain of custody records to ensure that samples are tracked from the patient to the laboratory for in-house and sponsored studies.

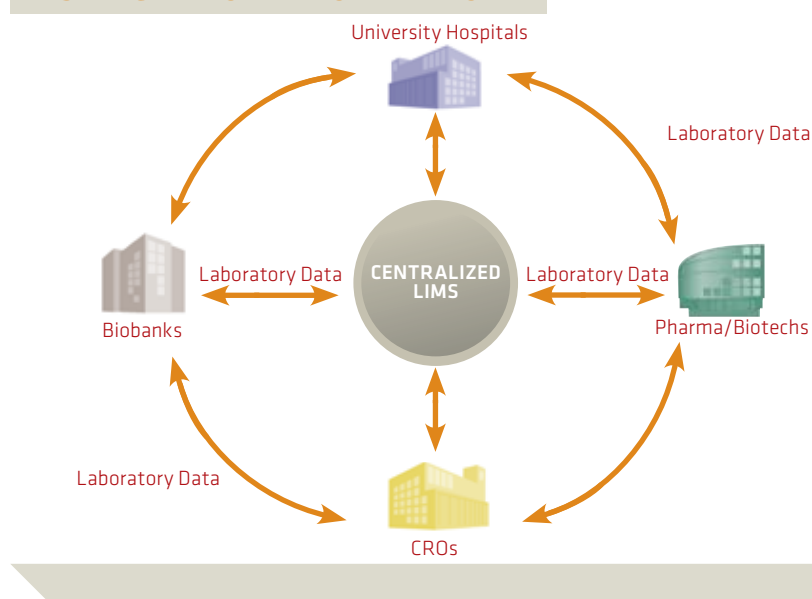
CRO INDUSTRY REQUIREMENTS

CROs play a key role in this process. They deliver value to customers by providing highly skilled analysts to supplement in-house capabilities in a cost-effective way. To do this, they must be incredibly efficient and provide advanced sample, result and report management services to their customers. A LIMS not only drives operational objectives and information exchange with sponsors, it also ensures that regulatory and quality procedures are followed. This is crucial for pharmaceutical customers who need to ensure that all of the data used in their regulatory submissions is in compliance. A LIMS enhances a CRO's ability to service their clients better and be viewed as a strategic partner by facilitating faster, more informed decisions about a study's progress.

THE ROLE OF BIOREPOSITORIES

Translational medicine connects the research laboratory to the patient (bench-to-bedside) to help drive potential drug candidates through the drug development lifecycle. This increased focus on epidemiology and translational

RESEARCH INFORMATION NETWORK



science has led to a surge in the number of samples generated for research and analysis. As a result, biospecimen management has become a key component of drug development research and clinical trial activities. In addition, a significant increase and focus on high quality sample yields and how they are accurately and efficiently managed is a key issue for researchers who are charged with managing enormous volumes of samples and their relevant data.

Biobanks play a critical role in a research information network and requires an advanced LIMS to manage biospecimen locations, online requests, chain of custody and patient demographics. The benefits of properly managed data can be significant and reduce the time to develop a lifesaving drug or diagnostic by providing the critical samples and information in a timely and accurate manner. By optimizing logistical and operational support for researchers, a LIMS ensures that samples are available when and where needed. Finally, well-organized, accurate and timely availability of data provides scientific and business users with the information they need in their daily decision-making processes.

A UNIFIED RESEARCH INFORMATION NETWORK

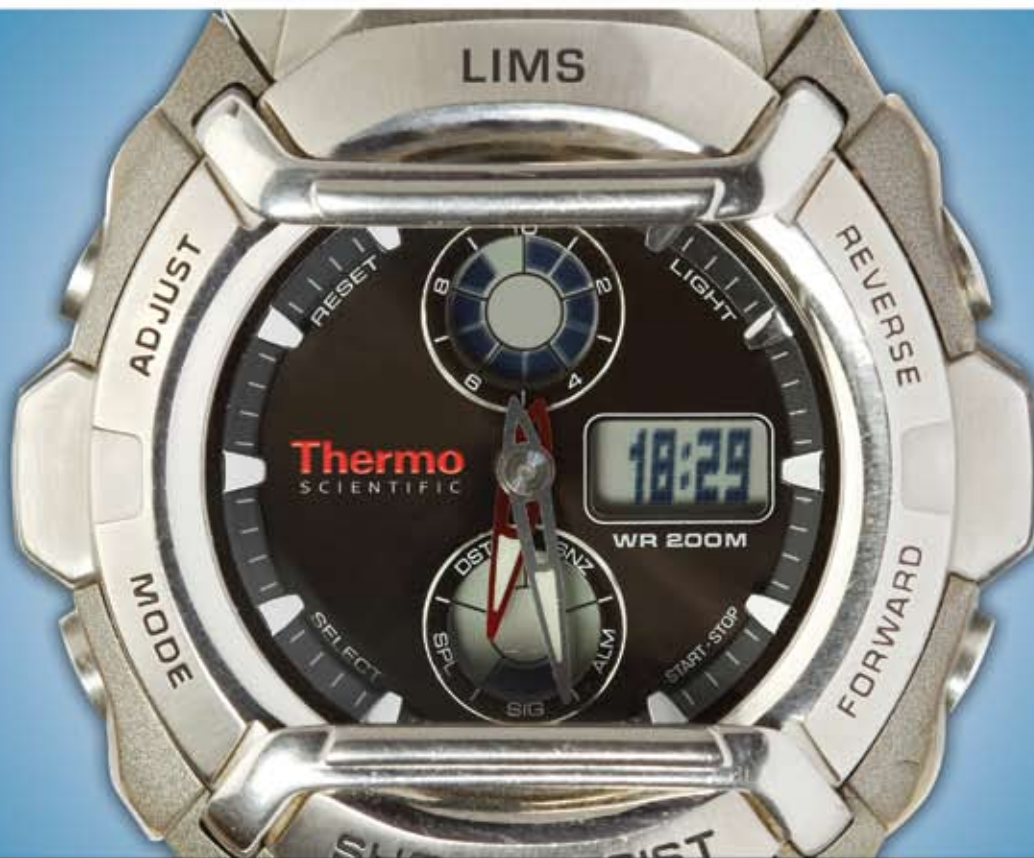
Translational science is reliant on the integration of informatics solutions with other technologies and instruments and a LIMS can enable organizations to overcome barriers, communicate and share valuable information with other areas. Collaboration — between hospitals, pharmaceutical and biotech companies, clinical research labs, and contract service businesses — to advance research has never been more important.

Thermo Scientific Nautilus LIMS enables an integrated research information network by improving sample management and facilitating flawless transmission of data between different laboratories, partner organizations and the FDA.

Standardizing on a single LIMS solution across laboratories in different organizations is a means of achieving easy data sharing and public access to findings. Such implementations will ensure that knowledge acquired through all areas of translational science will make it possible for scientists to translate data into real medical advancements. **FP**

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