

# Labware Prep™ Services improves sample management & workflow efficiency in laboratory study



## CUSTOMER BACKGROUND

A biotechnology company doing in vivo studies was looking into ensuring all work going into the studies was sufficiently recorded and tracked.

Improving sample management and workflow efficiency is critical to push forward research and new treatment options and to allow for higher throughput scalability. Reducing error while increasing throughput, especially in terms of sample identification, is key as more automated processes are utilized for high-throughput tissue screening.

## THE CHALLENGE

Laboratory studies required collection, processing, analysis, and storage of many samples handled by various departments. At the end of a study, animal model tissues were collected and processed or stored. Multiple tissue punches were collected from each organ of an animal model and lysed for in-vitro analysis:

Labware preparation for study collection, processing and analysis was time consuming. Pre-racked 96 microtubes in connected strips of 8 tubes were chosen for collection due to compatibility with existing lysis equipment, SBS tube rack format, and use in TRIzol RNA isolation. However, handwritten labeling or application of printed labels was challenging and prone to human errors.

## OUR SOLUTION

Transitioning to high-throughput screening while improving existing manual operations is key to laboratory automation without loss in productivity or need for end users to adapt processes drastically.<sup>1</sup> Computype's Labware Prep™ Services produced pre-marked collection tubes with Global Unique Identifiers (GUIDs) for use in manual, semi-automated and automated workflows.

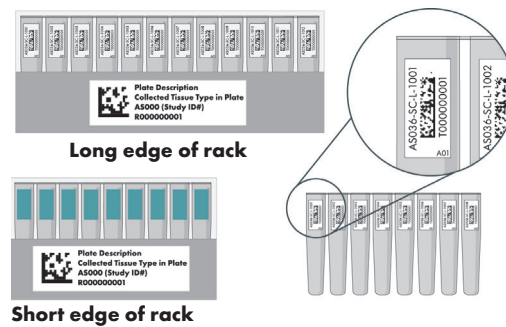


Figure 1. Custom collection tube design.

The biotechnology company utilized Computype's Labware Prep™ Services to obtain fully customized pre-marked labware with real-time study data that is solventproof, legible, and easy to transfer between departments and process steps. The change removed illegible handwriting, tedious print-and-apply activities, and cross-referencing of Excel plate maps. Tubes feature design elements that follow SLAS guidelines for sample management were used.<sup>2</sup>

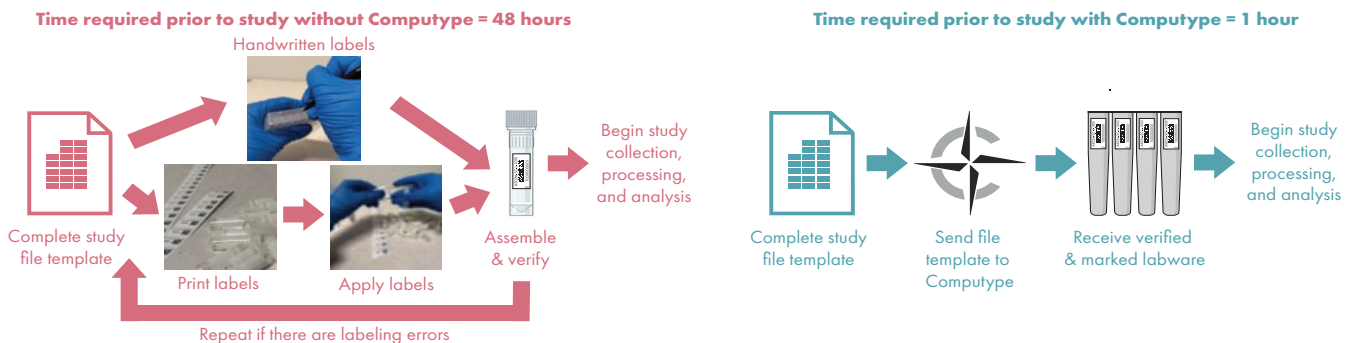


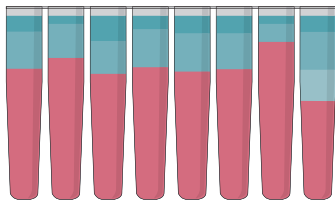
Figure 2. Workflows before and after implementation of Computype's Labware Prep™ Services

## HOW COMPUTYPE HELPED

Using Labware Prep™ Services has resulted in greater sample reliability, easier departmental transfers, and more robust post-study sample archiving.

Customization of the labware markings also reduced labware consumption because the TRIzol RNA isolation can be done in the collection tube. The pre-marked labware can withstand chloroform, TRIzol, and physical abrasion which are all elements of this intensive process. A cyan backing on each premarked tube increases contrast between the bright pink TRIzol and the clear eluted RNA in chloroform.

TRIzol (seen in pink) separates from aqueous RNA eluted in chloroform. The top layer is removed as it contains needed RNA for sequencing/qPCR requirements.



**Figure 3.** Phase separation of RNA during a TRIzol RNA isolation in strip tubes.

Researchers now have more time to focus on advancing disease therapeutics.

## Conclusions

- Expanding need for large quantities of tubes made in-house labeling by hand or in-house printing cost ineffective, cumbersome, and would have required large up-front capital expenditures.
- Labeling and sample tube preparation time significantly decreased by >98% by outsourcing pre-marked labware (from 48+ hours to 1 hour).
- Custom labware developed by the company and marked by Computype's Labware Prep™ Services has significantly improved sample integrity and enabled future automation efforts while accounting for ongoing manual workflows.
- Design of custom labware was developed and optimized to ensure scalability for larger-scale studies and high throughput with compatibility for GUID and metadata import to LIMS database.
- Overall, the implementation of Labware Prep™ Services reduces human errors in conventional labeling techniques and improves workflow efficiency and sample management.

## References

- 1) Liscouski, J. (2018). Some considerations in the automation of laboratory procedures. Unpublished. <https://doi.org/10.13140/RG.2.2.27991.73125>
- 2) Janzen W, Admirand E, Andrews J, et al. Establishing and Maintaining a Robust Sample Management System. SLAS TECHNOLOGY: Translating Life Sciences Innovation. 2019;24(3):256-268. doi:10.1177/2472630319834471



## WE'D LOVE TO HEAR FROM YOU.

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