

Automated Genotyping with Pneumatic-Assisted Assay Storage and Transport

Transnetyx®

sptlabtech

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Overview

This poster details how Transnetyx has transformed its TaqMan assay storage and retrieval process to support their automated genotyping services that guarantee results turnaround to researchers within 72 hours.

The team stores thousands of precious and sensitive assays at any one time. They need to be able to accurately track assay tubes in their library and retrieve those tubes quickly to meet their high standards of speed and accuracy.

To achieve this, they chose to implement an integrated workflow solution from SPT Labtech to replace the previous system of manual freezers and two full-time technicians dedicated to retrieving and returning, which was error-prone and labor-intensive.

Criteria for an automated solution

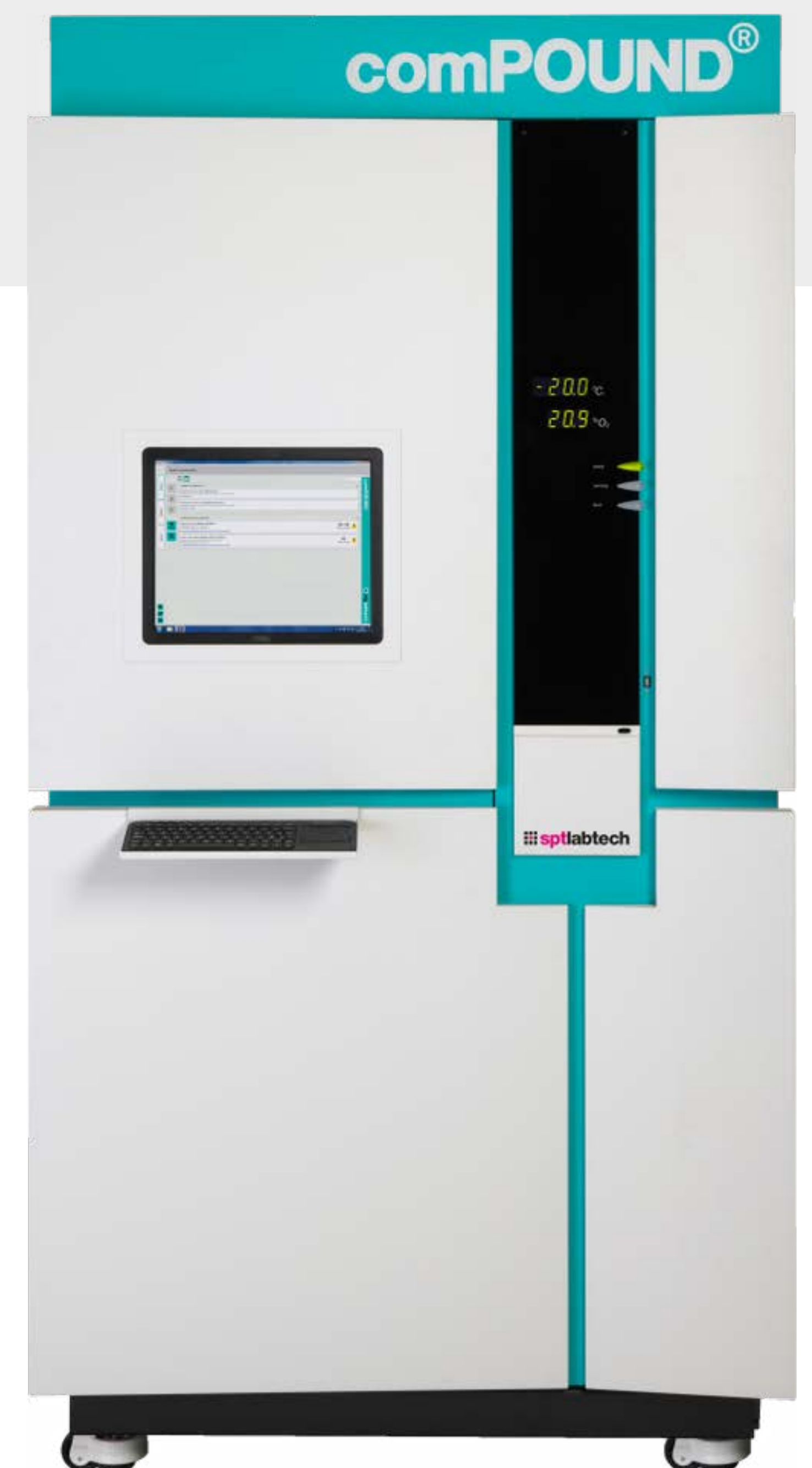
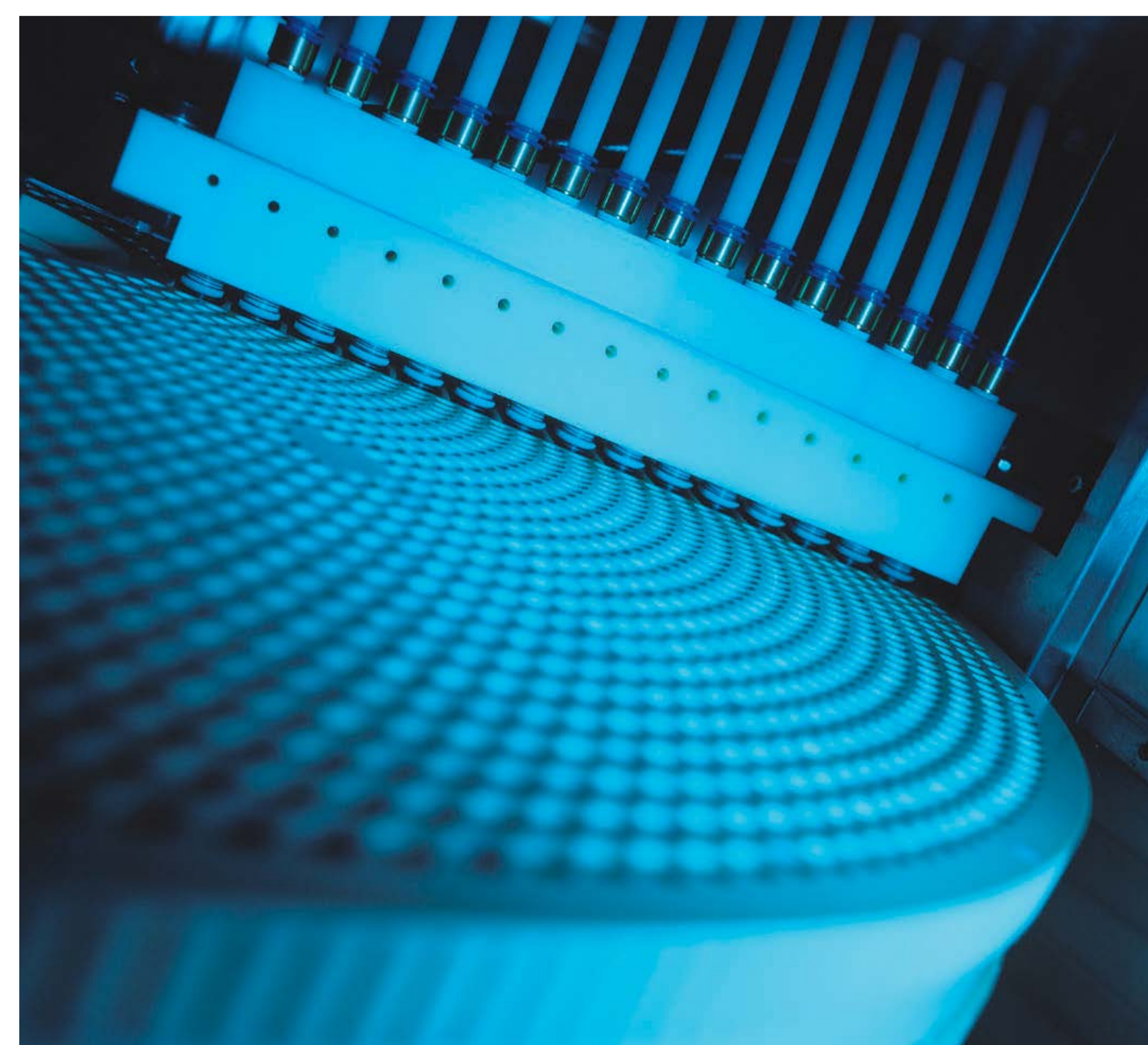
- **Reliability:** The team runs to an extremely tight schedule, guaranteeing results turnaround in 72 hours.
- **Compact footprint** to maximize available lab space.
- **Speed:** To support handling assays at high throughput and scale.
- **Ease of access:** Required assay tubes must be readily accessible to prevent any productivity bottlenecks.
- **Remote storage:** Assays are stored in a separate tornado and fire-proof room to ensure their safety.

The SPT Labtech automated workflow

Illustration of the fully automated assay management system implemented at Transnetyx:



1. 2D barcoded assay tubes are stored in the tornado and fire-proof room in comPOUND®, a secure -20°C automated freezer. Its rack-less technology and innovative carousel design delivers high density storage within a small footprint and allows for rapid retrieval of cherry-picked tubes, transporting tubes through using robust pneumatic technology.
2. This same pneumatic technology is utilized by the connect module, to transport cherry-picked tubes directly to the lab bench, replacing the need for technicians to travel between the two rooms.
3. Transnetyx opted to expand the performance of their comPOUND® with comSTACKER 2, which enables the team to automatically return tubes to the freezer as required throughout the day.



What has this meant for Transnetyx?

Implementation a fully automated assay management workflow has transformed operations at Transnetyx, yielding numerous benefits:

- **Increased throughput by enabling 24h operations six days a week**, aided by the dedicated service and support provided by SPT Labtech's reliance® engineers.
- **Increased walkaway capacity** meaning more time and resource can be dedicated to productive analysis work.
- **Improved employee retention**, freeing technicians to engage in more varied and fulfilling roles, contributing to higher job satisfaction.
- **Enhanced risk management** with remote storage of assays, ensuring the integrity and safety of precious materials.
- **Comprehensive inventory management** through efficient tracking and retrieval of unique 2D barcoded vials.
- **Scalability to accommodate an annual growth rate of 15-18%**, providing capacity to handle increased sample volumes.



Future outlook

The team has chosen to expand its current system by introducing a second comPOUND® equipped with comSTACKER 2 into the workflow. Not only will this support future growth, but it will replace the current manual freezer which serves as a back-up, to further improve walkaway capabilities. A fully redundant system will protect against disaster and mitigate any costly downtime from unexpected maintenance.