Cell & Sample Technologies

Enhancement Field of Work: Proteins Sample Management

Author Kay-Christoph Grosser¹

¹Laboratory Head Sample Management, R&D IDD In vitro Biology + Cell & Sample Technologies

Contact details: Kay-Christoph Grosser | Email: kay-christoph.grosser@sanofi.com

sonofi

HISTORY OF IMPLEMENTATION: PROTEIN SAMPLE MANAGEMENT

March 2021

June

2021

PSM go live (Order System active, first protein orders, Protein Initial Distribution Process)

- > Protein Sample Management (Storage Condition 2 8°C)
- > 3.060 RCodes / 3.472 Batch Ids / 3.818 Tubes

Integration of Storage Condition Deep Freezer -80°C

- > Antibodies and Nanobodies®
- > First Protein Orders -80°C Direct Despatches (Aliquotes)
- 1. Realignment of Protein Initial Distribution Process
- > More replicates for analytic processes
- > Change of delivery container type

Oct. 2021

2. Realignment of Protein Initial Distribution Process

> variable processing, depending on requirements of analytic follow-up process

Mai 2022

June

2023

Automated processing of Protein Initial Distribution Process and Protein Orders

Start Project Transfer Protein-Aliquot-Process to Sample Management

Tecan Freedom Evo linked with internal logistic software

- > evaluation of necessary requirements and adaptations
- > development of data-process tool and work method in Sample Management

Dec. 2023 Go live of Protein-Aliquot-Process performed by Sample Management Inventory increased to: 6.215 RCodes / 7.129 Batch Ids / > 15.000 Tubes

PROTEIN INITIAL DISTRIBUTION PROCESS

Defined workflow for new recombinant Antibodies & Nanobodies®

- > Supporting protein analytic process
- > Ensuring protein batch availability for global project teams

Local service

- > Best possible support from project teams on site
- > Creation of protein orders during initial implementation, no order in order system necessary
- > Delivery of samples within 24 hours after reception

ORDER FULFILLMENT

Processing of global protein requests

- > Source or custom concentration
- > Tubes / Vials
- > Plates

Recipient

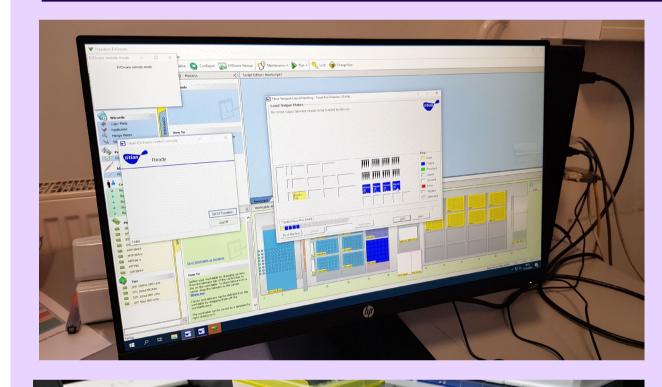
- Support of global and local project teams
- > External partners (CRO)

PROTEIN ALIQUOT WORKFLOW

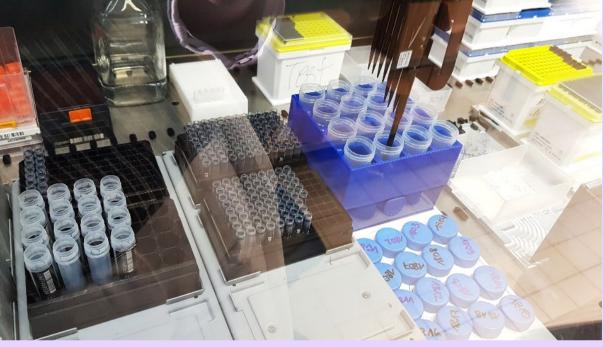
Shipment

- > Export (Europe, North America, Asia)
- > Central recipient and distributor for protein shipments

AUTOMATED PROCESSING | Tecan Freedom EVO



STORAGE CONDITIONS



HAMILTON

Eppendorf tubes: https://www.carlroth.com/medias/1KNY1000Wx1000H?context=bWFzdGVyfGltYWdlc3w0OTU4OHxpbWFnZS9qcGVnfGltYWdlcy9oYWMvaDY3LzkwMzIxNDMzMzk1NTAuanBnfGQ3ZThmZTMyMzNhOTBmZTI0MGQ5NDE0ZjFhNjdjMTNiNjI4ZGIzMDQzN2U2MzU2Mzg1ODkxYmMzYzcyNjIzNjU

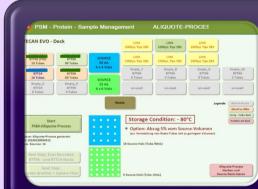


Enginee

Engineered Antibodies & Nanobodies® are handed over in 15mL or 50mL blue cap tubes



Source tube registration of proteins to be implemented by using the new created database view

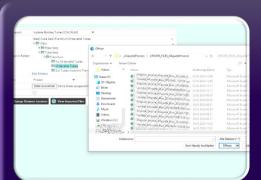


Aliquot-Process Tool:

- Include source tubes into a new run
- Create run, regarding requested aliquot schema
- Assignment of required destination tubes
 Create worklist and method file for Tecan Freedom EVO



Run process on the Tecan EVO, transfer protein solution into 1mL and 7.8mL barcoded tubes



Import/Update of created destination tubes



Store aliquots into storage unit (-80°C, +4°C)



Processing of follow-up workflow (Protein Initial Distribution Process)

Conclusions

The Sample Management Group has taken on the key role in the implementation and distribution of the proteins.

What has been started three years ago with around 3,000 different antibodies and a few exclusively manual work steps has now been developed into a flexible and fully automated and custom oriented process. In the beginning, the focus was on processing protein orders, today, new protein batches are implemented daily, stored at variant temperatures and made them available to project teams worldwide for testing. The number of proteins in inventory has been more than doubled, the number of tubes quadrupled.

Benefits of the Transfer Protein-Aliquot-Process to Sample Management Group

- > Save investments costs by using existing equipment
- > Free resources for protein engineering projects
- Higher workload on existing devices
- Highly appreciated partner and fulfilling a key role in the implementation and distribution of proteins

an accessible version of this information.

REFERENCES Photos:

- Internal photo stock of Sanofi-Aventis Deutschland GmbH, R&D IDD In vitro Biology + C

Internal photo stock of Sanofi-Aventis Deutschland GmbH, R&D IDD In vitro Biology + Cell & Sample Technologies
 Format 96 rack: https://www.azenta.com/sites/default/files/styles/product_teaser_420x420/public/2022-05/tri-coded-tubes_teaser.png?itok=Bz_7Cm19
 Format 24 rack: https://www.azenta.com/sites/default/files/web-media-library/products/consumables-instruments/sample-tube-solutions/sample-tubes/tri-coded/7p6ml-tri-tube-24f-ext/66-9302_in_24_format_rack_1.jpg

Please reach out to kay-christoph.grosser@sanofi.com to get