

CellGuard

Automation of a cell culture process with larger vessels

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Summary

Shaken vessels are widely used for large scale suspension cell culture. While SBS microtiter plates and small vessels have been applied to automation since a longer time, large scale shaken vessels like 600 ml TubeSpin Bioreactors (TPP, Switzerland) were not automatable because essential equipment like incubator shakers were not prepared for this task. Here we present the design of a customized system for automated suspension cell culture for transient protein expression developed in partnership with Lab Services: **CellGuard**.

Kühner AG designed a customized CO₂ shaker bases on the ISF1-ZC platform which was essential to realize the complex project. The incubator shaker provides more head space allowing the robot arm to move above all vessels, automatic door, exact stop position and an interface for data/commands transfer to the CellGuard Manager.

The CellGuard system can be used for automated cell counting, viability measurement, sub culturing and expansion of mammalian suspension cells. Furthermore transient transfection for expression of recombinant proteins for research purpose can be performed.



Features

Automated Cell Culture

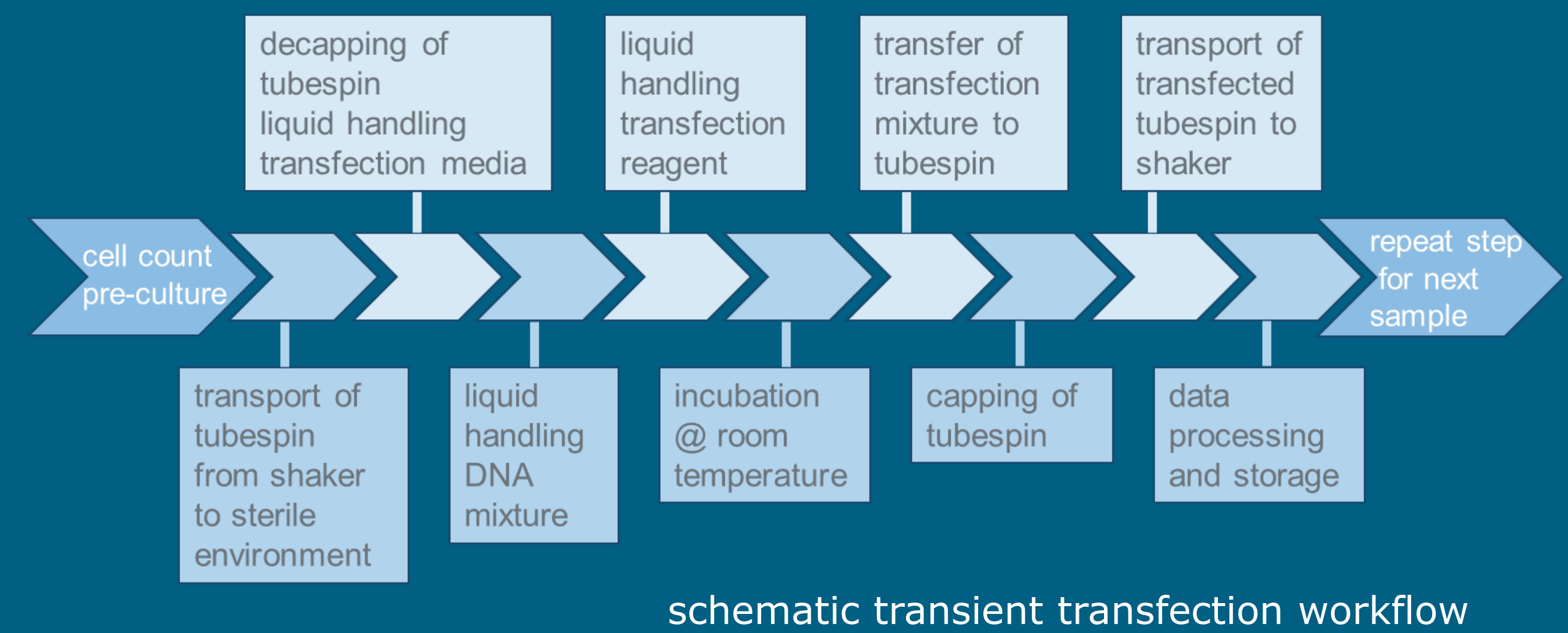
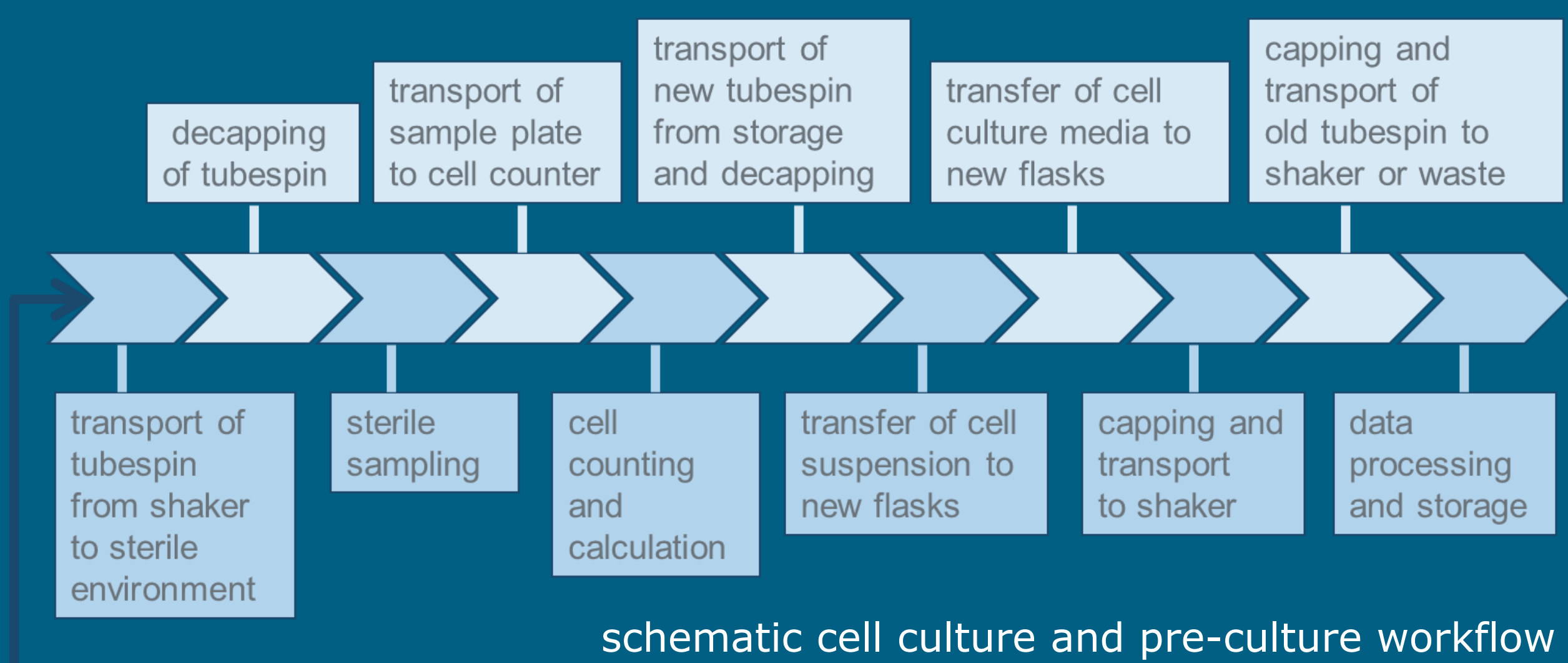
- Continuous cell culture maintenance of 4 different bioreactors every 2-4 days
- Preparation of pre-culture for transient transfection in 3 steps up to 7 days before transfection

Installation of the CellGuard system

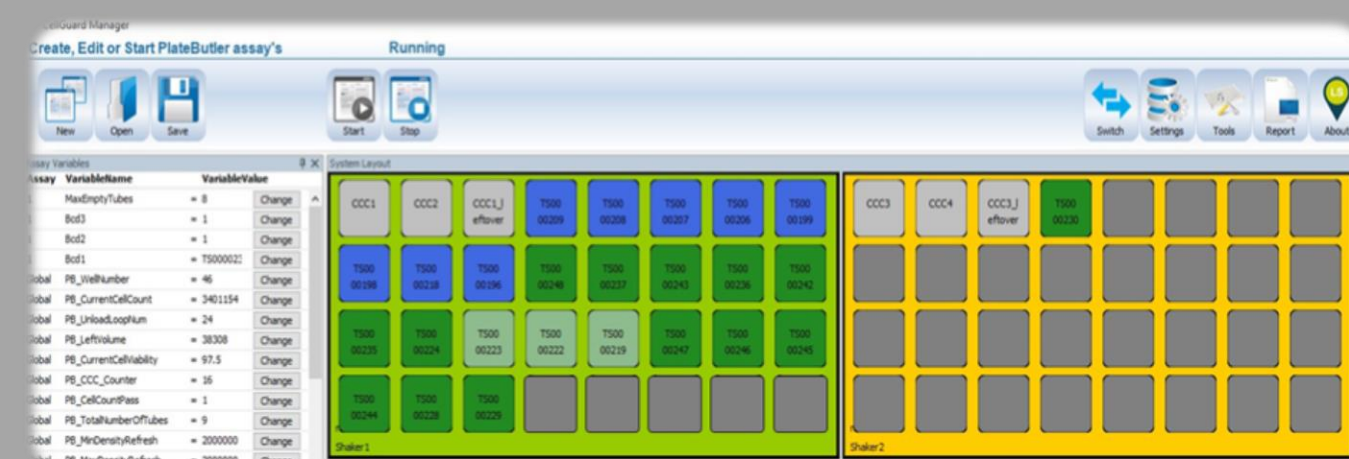


Transient Transfection

- Transfection of prepared cells with DNA from stock management
- Incubation of transfected cell culture and transfer to existing shaking platforms
- Throughput: 24 x 300 ml transfection per batch, 3 batches per week



Components



Lab Services, CellGuard Manager customized advance scheduling software

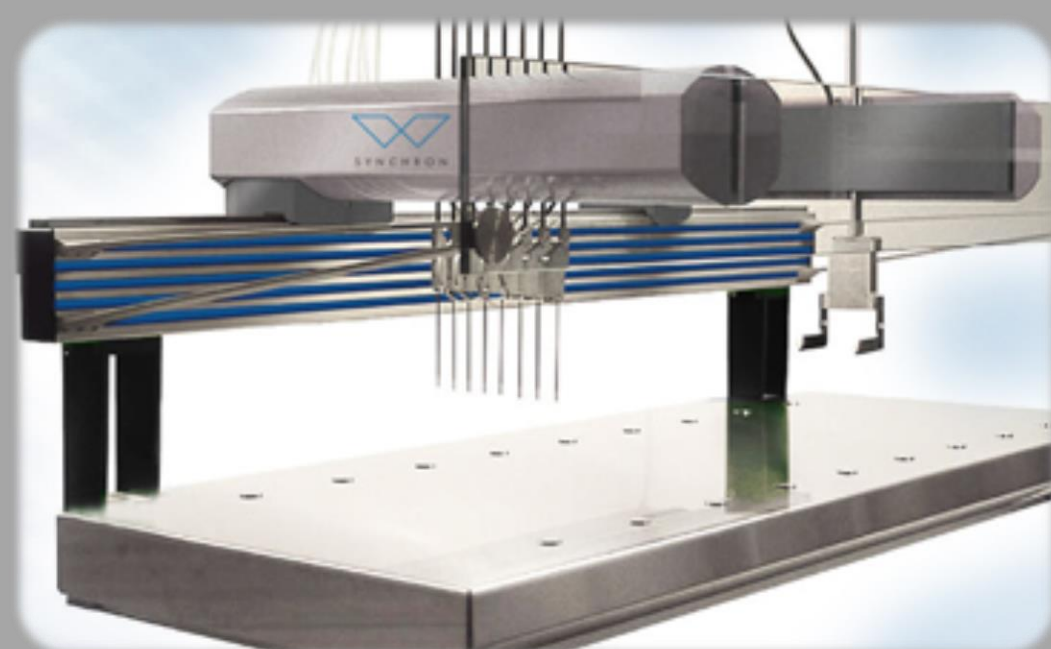


Cell Counter Beckman Coulter Vi-CELL BLU

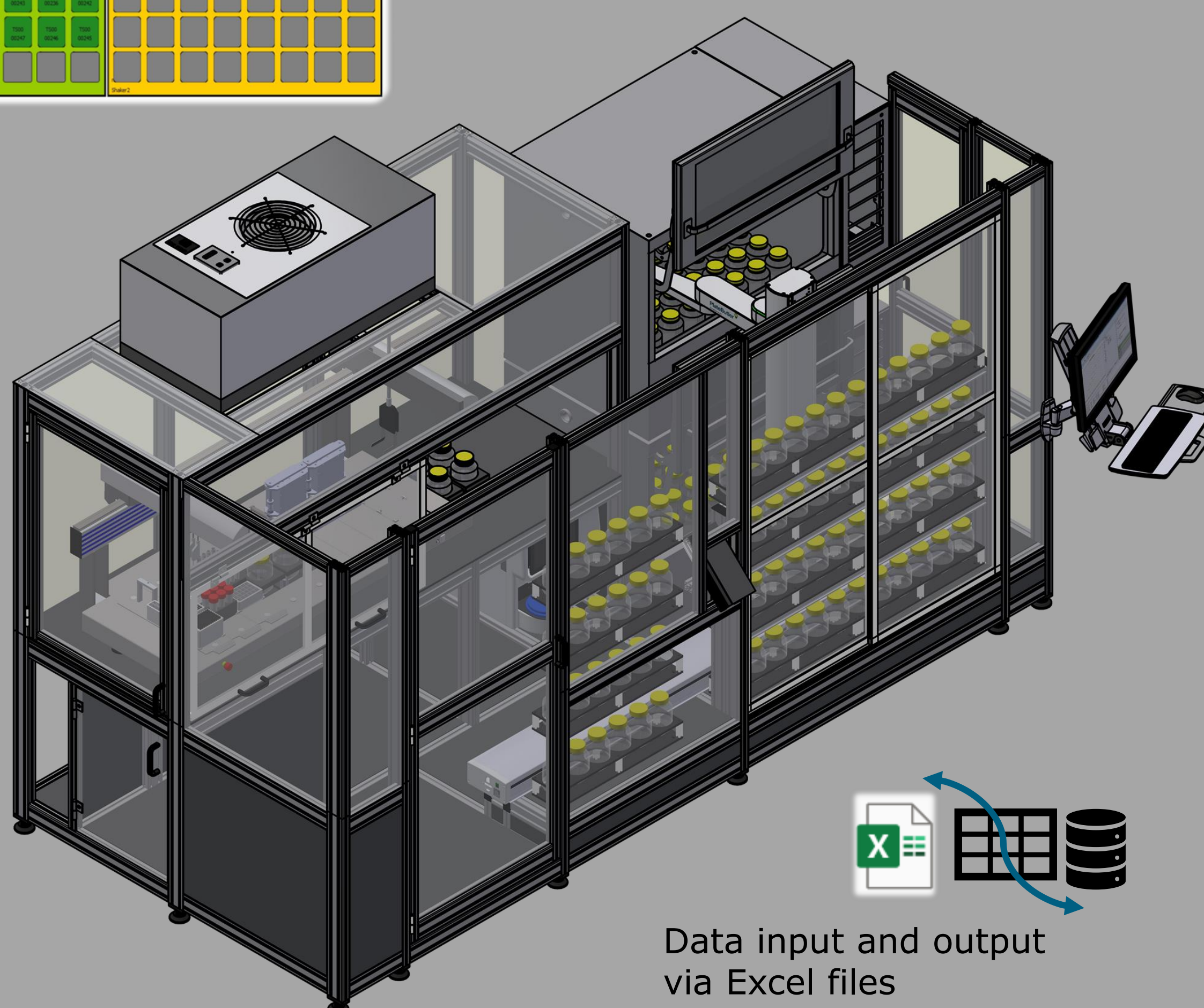
Synchron, capper/decapper



Peristaltic Pump for large volume transfer



Synchron Xperimate modular robotic pipetting system



Data input and output via Excel files



Lab Services PreciseFlex "heavy duty" CoBot on a linear track

Beluga, Customized Kuhner shaker



CO₂ shaker with fixed tray position, automated door and lowered shaking unit