

AUTOMATION OF A CELL CULTURE PROCESS WITH LARGER VESSELS

Ingo Focken, Sanofi
Ingo.focken@sanofi.com
Dave Laidlaw, Kuhner Shaker Inc.
Ralph Kuppelwieser, Adolf Kühner AG
Tibor Anderlei, Adolf Kühner AG

Key Words: automation, 600mL tubes, cell culture, transient expression, shaking incubator, robotic system

Shaken vessels are widely used in the cell culture screening process for an optimal clone or media. While microtiter plates as a high throughput system have been applied to automation since a longer time, larger vessels were still not automatable, because essential equipment like incubator shakers were not prepared for this task. As some biotechnology processes need larger vessels to gain more protein or provide better scalability than small vessels it is also essential to automate them. Automation will lead to higher reproducibility, increased productivity, reduced costs and safer working conditions.

As automation will play a key role in the lab of the future a project was started to design a fully automated cultivation system for orbitally shaken 600ml Tubespin bioreactors combining the cultivation system (incubator shaker) with a liquid handler including a capping and decapping unit and a cell counter. The newly designed system can be used for automated cell counting, viability measurement, sub culturing and expansion of mammalian suspension cells for transient transfection.

The poster shows the successful integration of different equipment focusing on a special designed shaker (Beluga) into one cultivation and liquid handling suite. The automation process including the workflow will be described and experience gathered during this project will be discussed. Furthermore the first application data will be presented of fully automated transient protein expression in 600 ml Tubespin bioreactors.

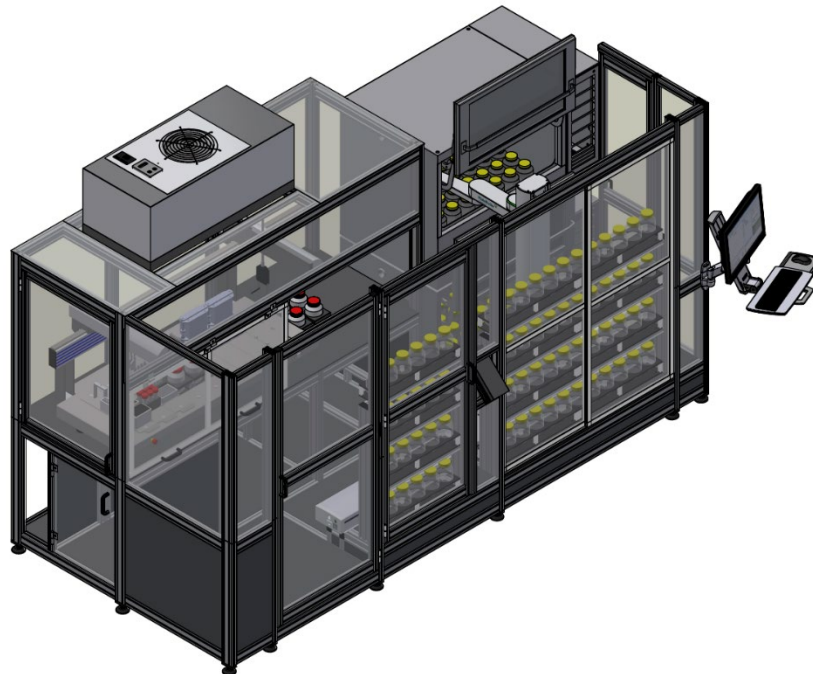


Figure 1 – picture of the automated cultivation / liquid handling system