Tutorial Title: **Performance comparison of Single-Use-Fermenters and conventional glass/steel STR.**
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Abstract
The decision to use single-use systems for manufacturing pharmaceuticals depend on many factors, but the major driving force is a desire to save cost and time. Single-Use-Fermenter´s (SUF) offer many advantages relative to conventional glass/steel fermenter (STR). SUF among others eliminate cross contamination, reduce water consumption, and eliminate often time consuming sterilization.

STR left against SUF right comparison both liquid cooled and connected to the twin channel Biostat PCS with liquid thermal control. SUF installed in a Re-Usable-Jacket for efficient heat transfer. Two independent servo motor drives in order to reach the 2000 RPM target. Photo by Per Stobbe.

This tutorial compare process parameters between conventional STR and CerCell latest generation SUF and examine the growth data for a wild-type *E. coli* bacterium. The transfer coefficient KLa value for two different sizes bioreactor with 3 different turbine design and 4 different agitation speed. Two high speed optical sensors, Presens OpTrode and Hamilton VisiFerm were used. KLa values are compared relative to the different sizes of bioreactors, turbines, stirring speed and the sensors. Finally, the KLa values of conventional STR are compared with KLa values for SUF.