

High Throughput optimisation of target protein expression

Functional genomics, development of microbial production processes and improved synthesis properties all involve multiple parallel experiments. Industrial production processes with high cell densities are generally performed in fed-batch culture. The EnBase™-96Well Plate enables screenings of strains, expression systems and process optimisation in a single plate with fed-batch cultivation. Advantage EnBase.

High throughput by parallel screening

Glycerol stock

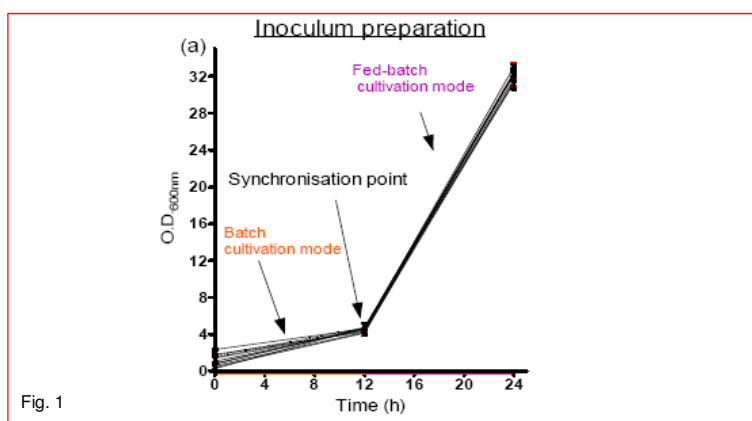
Inoculation of EnBase™ well plate

Fed-batch cultivation

Cell harvest and lyses

Protein analysis

High Throughput Screening



A multifactorial evaluation approach of 45 different cytoplasmic expression vectors including varying promoters, ribosome binding sites, five fusion partners and a luciferase based protein folding reporter system was performed in a high throughput parallel screening manner by using EnBase™-96Well Plate. Starting from glycerol stocks the different cultivations passed into a synchronized cell growth due to time dependent linear release of glucose substrate (Fig. 1). The lowest luminescence signal representing lowest number of misfolded protein reflects optimal production conditions with Tag protein C and growth at 22°C. The expression vector itself had only a minor effect (Fig. 2), which was confirmed by SDS-PAGE analysis of the soluble protein.

Synthesis temperature

37°C

30°C

22°C

