



# EnBase<sup>®</sup> technology

Advanced microbial culture media





# EnBase<sup>®</sup> technology. A simple tool

## How we do it - the basic technology:

- EnBase comes in various formats for your convenience: tablet or liquid
- The release of glucose is controlled by enzymatic degradation of a polysaccharide, the only carbon source needed in the media
- The medium is a mineral salt medium containing essential nutrients to support growth
- All components have been optimized for optimal results in shake flask, deepwell and microwell plates.

EnBase is a time-saving microbial culture kit that provides optimal conditions and guarantees higher yields of bacteria and yeast.

EnBase technology enables fed-batch mode culture conditions in culture volumes as low as 0.15 mL by employing enzymatic control of glucose release into the medium.

- Easy to use and pre-sterilized medium
- Maintenance of favourable pH
- No monitoring of culture medium needed
- Over 10 g/L dry cell weight of bacteria
- Over 1 mg/mL of soluble protein

All in a small-scale culture system.

EnBase enables high cell densities and improves the yield of soluble recombinant

proteins, even in low volume cultures such as in deepwell plates. As an added advantage, the EnBase technology can be easily used in conjunction with robotic systems, facilitating the high-throughput screening of bacterial protein production.

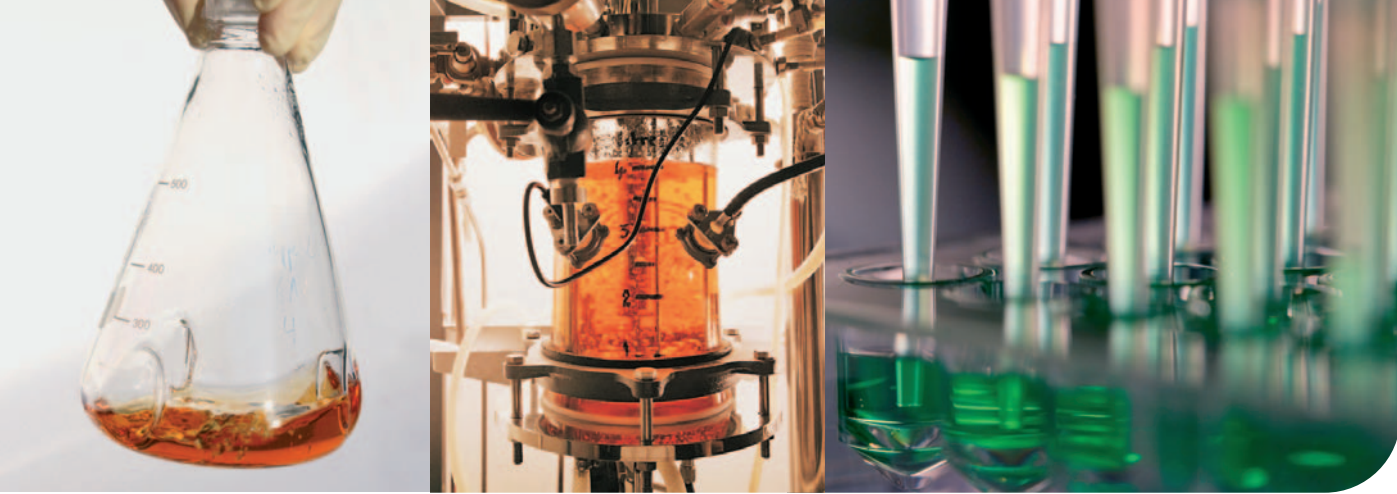
### EnBase can prevent:

- Over-rich cultures - over-fed microorganisms are poor producers
- Oxygen depletion - metabolism switch to anaerobic pathway
- Lack of pH control - poorly regulated pH prevents quality protein production
- Low OD<sub>600</sub> - poor cell yield leads to inadequate protein expression

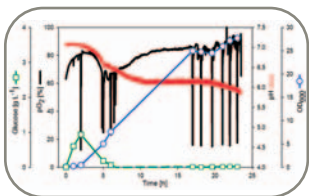
Dispense with those tedious procedures to solubilize your inclusion bodies and refold your protein. EnBase enables you to control the growth by regulating the supply of glucose, thus enhancing the expression of soluble and active proteins.

## What is your application need?

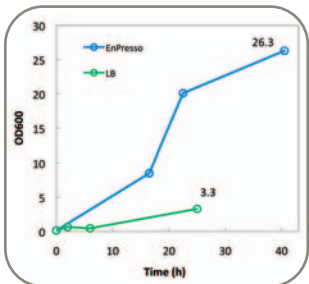
- Shake flasks
- Deepwell plates
- Microwell plates
- Disposable bioreactors
- Protein expression optimization
- Enzyme screening
- High-throughput screening
- Plasmid cultivation
- Beer contaminant detection
- BioProcess scale-up



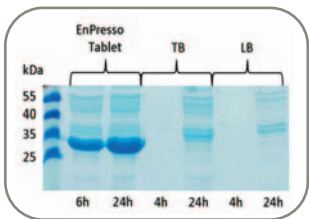
with far-reaching effects.



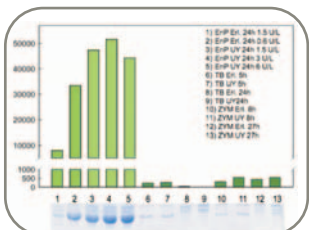
Glucose limitation improves yield.



Increased biomass compared to LB.



More soluble protein expression.



Higher activity produced.

EnBase can be obtained in two pre-sterilized formats - tablet and liquid:

EnPresso is the tablet version with enhanced ease of use:

- Just add a tablet to 50 mL of sterile water and your culture media is ready to go

EnBase Flo is the liquid version with 4 derivatives:

- EnBase Flo - designed for optimal growth with a moderate percentage of complex additives
- EnBase Flo Min - specially designed for cultures needing a reduced amount of complex additives
- EnBase Flo Max - specially designed for cultures needing an increased amount of complex additives
- EnBase Flo Yeast Medium - complex medium specifically designed for the production of high cell mass of yeast.

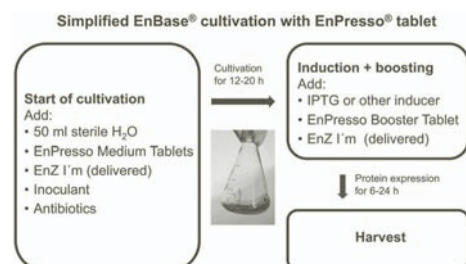
The common feature of all these products is the enzyme-driven glucose release from a soluble, inert polymer. Thus, the controlled supply of glucose is rate limiting, eliminating fluctuation in the oxygen transfer rate and maintaining the pH. This means the aerobic culture conditions are maintained, high cell densities are achieved and soluble recombinant protein production is optimised.

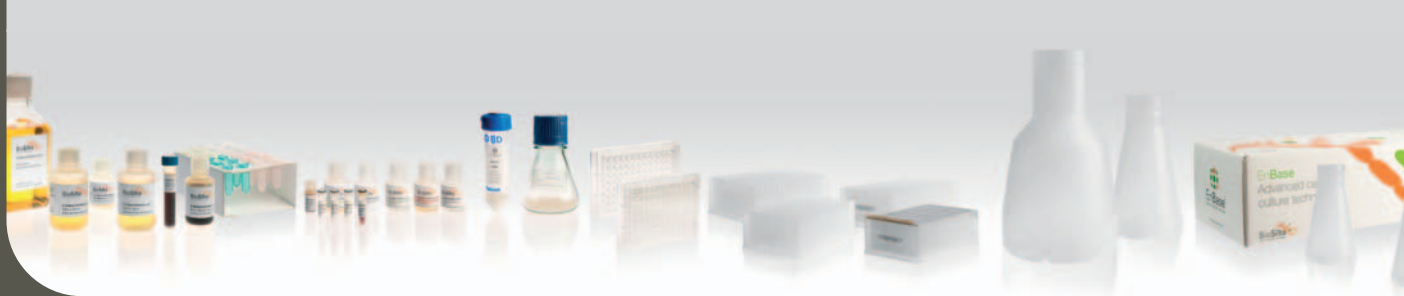
It takes just a few minutes to set up a culture – but the benefits are never-ending.

Recombinant protein expression with EnBase is performed in a two phase cultivation:

In the first step cells grow in fed-batch mode controlled by addition of enzyme.

In the second phase, medium supplements optimised for protein expression are added to form a booster solution, which provides a balanced level of C- and N-sources for increased volumetric protein yield.





# EnBase<sup>®</sup> technology - small scale culture bringing large scale success.

Order No.	Description	Order No.	Description
ENP1000	1 L EnPresso Tablet Set (20 x 50 mL)		Ultra Yield Products
ENP5000	5 L EnPresso Tablet Set (100 x 50 mL)	931136-B	2.5L Ultra Yield Flask (box of 6)
ENPTR500	EnPresso-Ultra Yield Trial Pack - 1L EnPresso and 500 mL Ultra Yield Flask	931136-1	2.5L Ultra Yield Flask (box of 1)
ENPTR2500	EnPresso-Ultra Yield Trial Pack - 2L EnPresso and 2.5 L Ultra Yield Flask	899425	AirOtop Enhanced Seals designed for 2.5 L Ultra Yield flasks - 100 pack
EBLM500	EnBase Flo Set of 2 x 500 mL of complex media	931141	500 mL Ultra Yield Flask (box of 25)
EBLM500Min	EnBase Flo Set of 2 x 500 mL of media with decreased complex additives	931141-5	500 mL Ultra Yield Flask (box of 5)
EBLM500Max	EnBase Flo Set of 2 x 500 mL of media with increased complex additives	899424	AirOtop Enhanced Seals designed for 500 mL Ultra Yield flasks - 100 pack
EBYM500	EnBase Flo Set of 2 x 500 mL of complex media for increased yeast biomass	931144	250mL Ultra Yield Flask (box of 50)
EBOS01	Optimisation set for 1 x 24-deep well plate	931144-10	250mL Ultra Yield Flask (box of 10)
EBOS02	Optimisation set for 2 x 24-deep well plates	899423	AirOtop Enhanced Seals designed for 250 mL Ultra Yield flasks - 100 pack
		931147	125mL Ultra Yield Flask (box of 50)
		931147-10	125mL Ultra Yield Flask (box of 10)
		899421	AirOtop Enhanced Seals designed for 125 mL Ultra Yield flasks - 100 pack

\* For a complete list of available products, please visit us at [www.biosilta.com/all\\_products\\_list.php](http://www.biosilta.com/all_products_list.php)

## Company information

BioSilta is an innovative biotechnology company spun-out of the University of Oulu, Finland. We are actively investigating novel ways to link the power of enzymatic glucose delivery with other types of culture systems. The name of BioSilta was derived from the Finnish name for bridge, "Silta": BioSilta is developing technologies that bridge the gap between traditional methods of cell culture and modern demands for optimal productivity.

## Relevant publications

<sup>1</sup>Panula-Perälä, J., et al. (2008). Enzyme controlled glucose auto-delivery for high cell density cultivations in microplates and shake flasks. *Microbial Cell Factories* 7, 31.

<sup>2</sup>Krause, M., et al. (2010). A novel fed-batch based cultivation method provides high cell-density and improves yield of soluble recombinant proteins in shaken cultures. *Microbial Cell Factories* 9, 11.

Enhance your protein production with EnBase technology. To find out more please call BioSilta at +358-8-5532361, e-mail [info@biosilta.com](mailto:info@biosilta.com) or visit [www.biosilta.com](http://www.biosilta.com).

### How to order EnBase

More ways to order for your convenience:

- online: [www.biosilta.com](http://www.biosilta.com)
- email: [sales@biosilta.com](mailto:sales@biosilta.com)
- fax: +358-207-001500
- phone: +358-8-5532361

Realize more protein with EnBase!

### EnBase with Ultra Yield Flasks and AirOtop Enhanced Seals

Providing a synergistic enhancement of the culture to yield up to 2 g/L of soluble recombinant protein.

Try a trial pack today!