



CIBEX – System

Fast Growth, High Yield, Easy Scale-Up

Key Facts & Advantages of CIBEX





Ciliate based Expression System (CIBEX)



The CIBEX-System is an innovative expression platform for highly productive manufacturing of protein-based biopharmaceuticals.

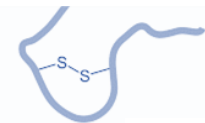
CIBEX is based on apathogenic eukaryotic protozoan organism, Tetrahymena, which combines in an ideal way the advantages of different conventional expression platforms.



The functionality of CIBEX System has been proven by the expression of 14 relevant biopharmaceutical proteins.



- ❑ based on the Ciliate *Tetrahymena thermophila*
- ❑ efficient protein production
 - secretion of functional enzymes and complex proteins like antibodies
 - GPI-anchored and membrane bound antigens
- ❑ wide range of post translational modifications like mammalian cell systems e.g.
 - N-glycosylation
 - disulfide bridges
- ❑ correct protein folding, no inclusion bodies
- ❑ Bacteria like simplicity and ease of handling
- ❑ High growth rate with short generation times



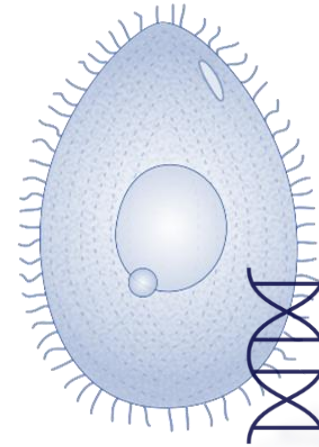


Excellent Safety Profile



- harmless to human and animals
- non-parasitic
- full genome is sequenced (<http://ciliate.org>)

- biosafety level 1
- no biocontainment required
- contained system for API production
- no animal-based components used

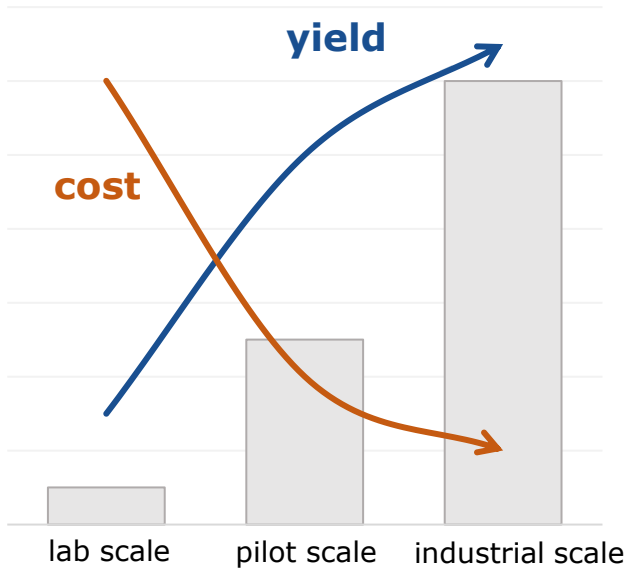




Easy Scale-Up



Production process is scalable from small scale to industrial scale without yield losses



Lab scale in Münster (GER):
Multi-fermenter system
12 parallel 1 L bioreactors



Pilot scale in Münster (GER):
Microbial bioreactors
75 L and 900 L



Easy Scale-Up



No complex infrastructure required:

Simple production process without the need for proprietary technology and the possibility of global production in existing microbial production facilities



Successful tech transfer to 6000 L
to a German CMO





Downstream Processing



Expertise at developing purification processes by using

- ❑ column chromatography
- ❑ rapid and quantitative crystallization

technical equipment for up to 6000 L in place



Enzyme crystals

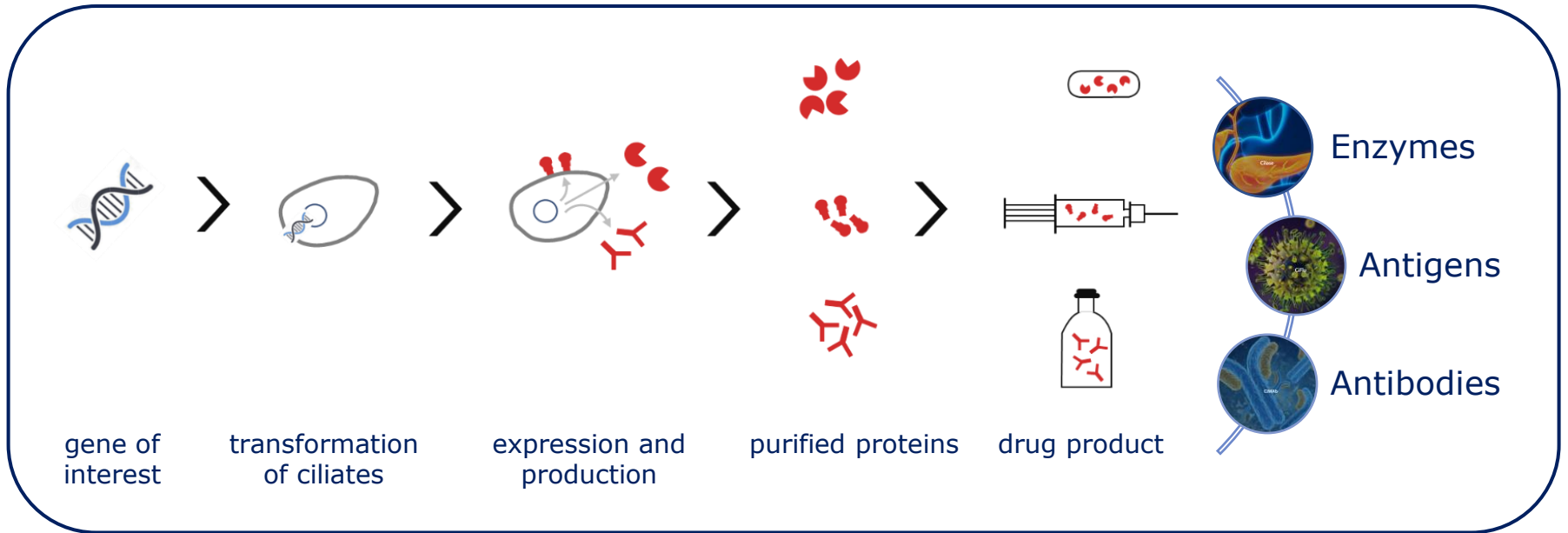
Replacing column chromatography with a comparatively simple and low cost process step offers great potential under economic aspects



Wide Application Range



The CIBEX System is an innovative expression platform for highly productive manufacturing of protein-based biopharmaceuticals.





Contact



For Questions regarding CIBEX contact us directly:

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