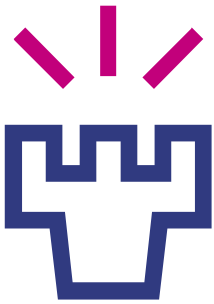




Technology Offer

University of Oulu, Finland (refs. OU08063, OU09057)



**UNIVERSITY
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CyDisCo - Tool for producing disulphide bonded proteins in bacteria

Background

Many proteins and enzymes of biotechnological importance contain structure stabilizing disulphide bonds. Currently these proteins are difficult for the biotech industry to produce on a large scale. Often refolding or production in mammalian cells is needed.

Currently available bacterial strains whose cytoplasm is more oxidizing and thus more favorable for disulphide bond formation are inefficient systems as there are no active mechanisms for disulphide bond formation. Hence from these strains proteins products are unable to attain their native conformation and they form insoluble aggregates.

Contact

Maarit Jokela, PhD
Innovation Manager

Innovation Services
University of Oulu
P.O.Box 4300
FI-90014 University of Oulu
Finland

Tel. +358 40 355 9660

maarit.jokela@oulu.fi

www.oulu.fi

Invention

- CyDisCo, Plasmid based system with 1 to 3 protein folding catalysts

Field:

- Biotechnology, R&D Tools

Applications

- Production of proteins (e.g. enzymes, antibodies, Fabs, ScFvs) containing disulphide bonds (up to 11) used as drugs, enzymes, components of washing powder and diagnostics, etc.

Status

TRL level: TRL 5 (Technology validated in relevant environment)

- Tested with over 300 different proteins including full length antibodies and Fab-fragments

Patent:

Patent family 1 (use of sulfhydryloxidases)

Granted: US9238817

Pending: EP10726551,

US20160090615

Patent family 2 (use of inverted DsbB and VKOR)

Granted: US9416388

Pending: EP12706287

Principal Scientist

Prof. Lloyd Ruddock

Lloyd.Ruddock@oulu.fi

Benefits

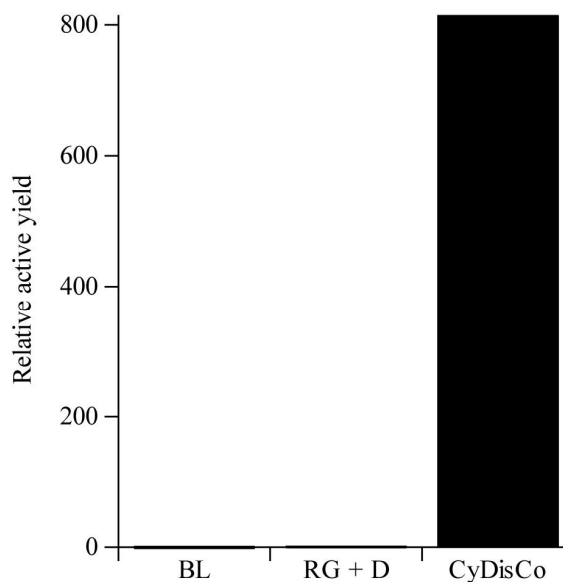
- Production of active recombinant proteins having disulphide bonds in the cytoplasm of bacteria
- No need for refolding
- Works with any *E. coli* strains and in any media
- Allows large scale production and processing
- Up to 800 fold increase in yield of active protein
 - § Up to 1 g / L in fed-batch cultures
 - § Up to 150 mg / L full length antibodies in shake flasks

References

- Hatahet F, Nguyen VD, Salo KE, Ruddock LW Microb Cell Fact 2010: 9-67.
- Nguyen VD, Hatahet F, Salo KE, Enlund E, Zhang C, Ruddock LW Microb Cell Fact 2011: 10:1.

Technology Offer

- Free trial period of max. 6 months: Test with your proteins to see how much more active protein you can get.
- Available for licensing



BL = BL21 strain

RG = Rosetta Gami strain

D= DsbB-protein

CyDisCo = New plasmid based system