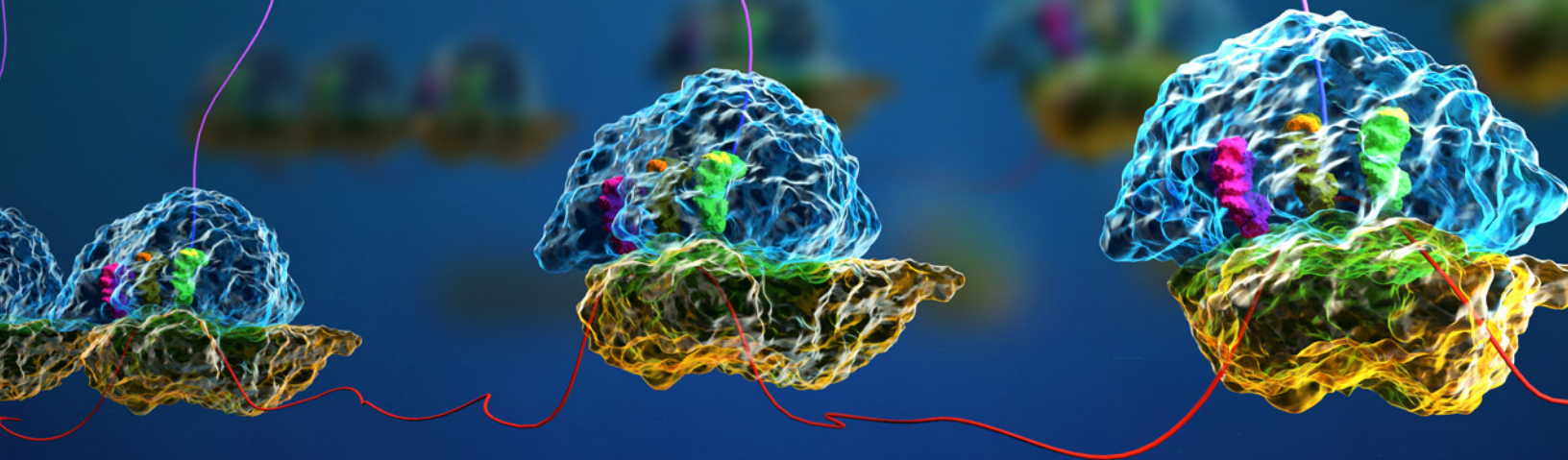


# High Yield Cell-Free Protein Expression

Up to 3 mg/ml in a single tube reaction

ALiCE<sup>®</sup> is a radically different approach to cell-free expression and a kit unlike any others. Yet, your current expression processes can be easily translated to ALiCE<sup>®</sup>. With simplification of the conventional workflow of cell-free protein reactions, you will be able to see yields you have never witnessed before in cell-free systems.

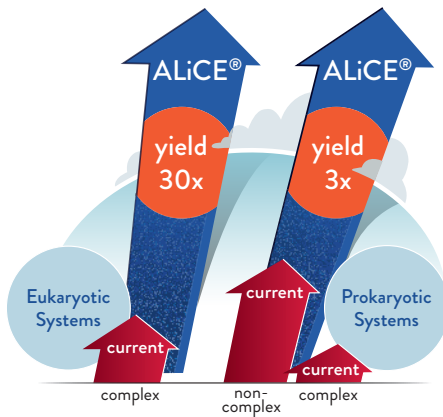
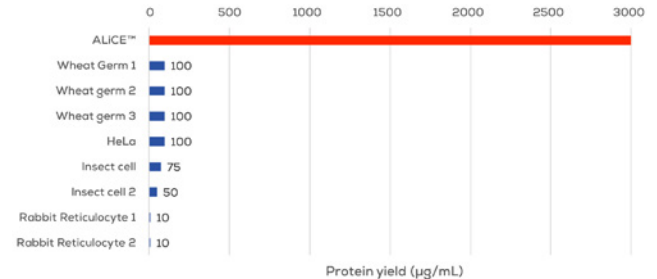




- 3 mg/mL protein in batch mode
- Up to 30 times more protein at market competitive prices
- Active mitochondria drive the reaction
- Applicable across all industries and research fields

## 30 times more protein than other eukaryotic systems

ALiCE<sup>®</sup> produces up to 3 mg /mL in batch mode. This is 30 times more than any eukaryotic cell-free system currently being sold (including wheat germ, CHO, human, etc.). And, since pricing is similar, you get 30 times more proteins for each dollar spent.



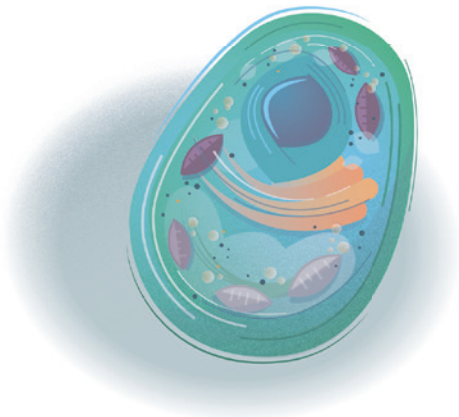
## Minimum 3 times more protein than prokaryotic kits and more flexibility

ALiCE<sup>®</sup> expresses 3 times more protein per ml than prokaryotic cell-free systems in batch mode. The comparison is even more striking when expressing complex proteins, where yields in prokaryotic systems drop much more drastically than in ALiCE<sup>®</sup>. ALiCE<sup>®</sup> maintains unprecedented high yields, even with increasing complexity.

## Complex proteins at your fingertips

Where both eukaryotic and prokaryotic systems fail to produce most complex proteins at relevant quantities, ALiCE has consistently proven its ability

to successfully express both the simple proteins like reporter proteins, as well as the highly challenging ones, such as full-size antibodies.



## Active mitochondria drive the reaction and microsomes enable complex protein structures

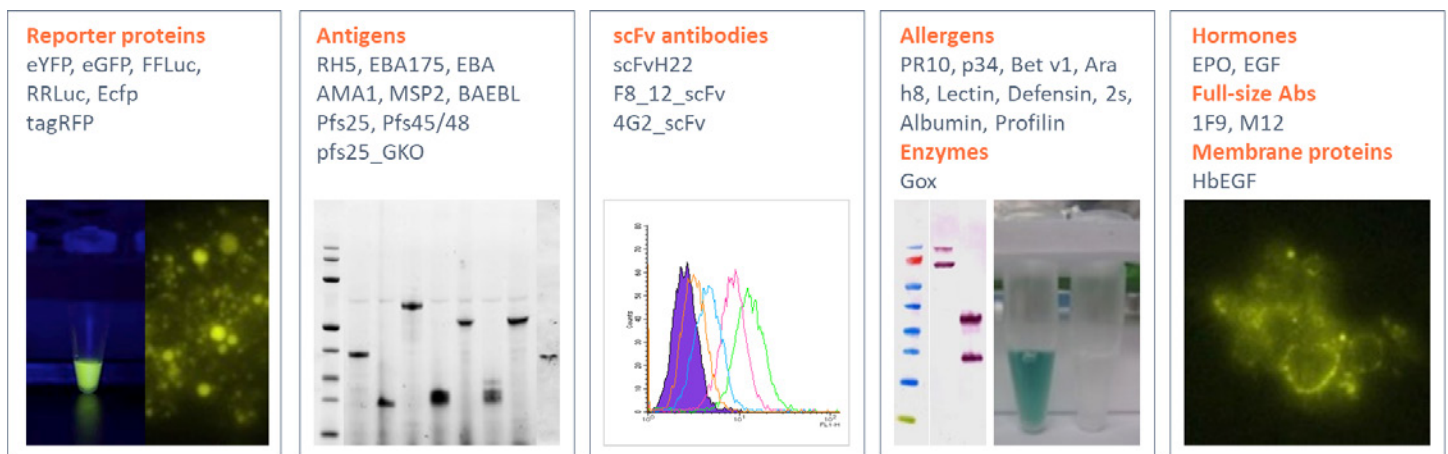
The power of Alice lies in its intact organelles: active mitochondria provide a continuing energy supply and microsomes (endoplasmic reticulum reformed into vessels) enable folding of complex proteins and their glycosylation. This gives you a remarkably easy and scalable tool to express a broad spectrum of proteins.

## Across all industries and research fields

The ALiCE™ cell-free protein expression system was originally developed by Dow AgroSciences in collaboration with the Fraunhofer Institute for Molecular Biology and Applied Ecology IME (licensed by LenioBio). It has been applied for years within Corteva Agriscience, the agrobio division of

DowDoPont, as well as Fraunhofer IME to express over 500 proteins of varying types. This shows that ALiCE® is applicable for any purpose, be it for biopharmaceuticals, technical enzymes, crop development, metabolic pathways, fundamental research, etc.

## EXAMPLES - OVERVIEW OF PROTEINS EXPRESSED IN ALiCE®



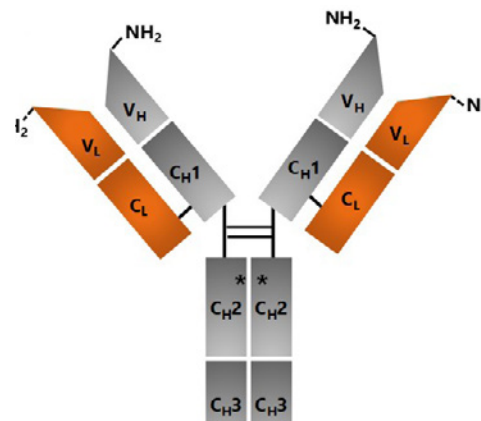
COMPLEXITY →

## EXAMPLES - A CLOSER LOOK AT PROTEINS EXPRESSED IN ALiCE®

### Full Size Antibody M12

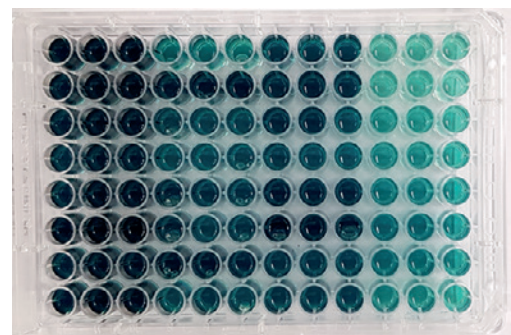
- 0.14 mg/mL protein in an earlier version of ALiCE®\*
- Hetero Tetramer which contains disulfide bonds
- Directed to microsomes for folding
- Functionality verified with ELISA testing

\*Buntru et al., Biotechnology and Bioengineering, 2015, Vol. 112, No. 5



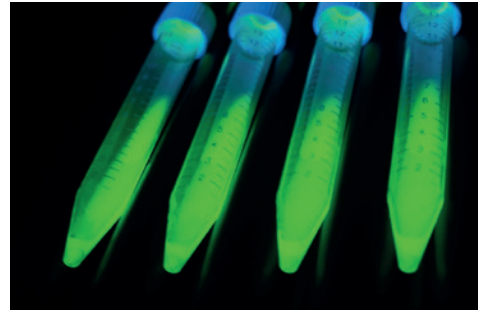
### Glucose Oxidase

- 1mg/mL protein
- Homodimer which contains disulfide bonds
- Directed to microsomes for folding
- Activity determined with colorimetric assay



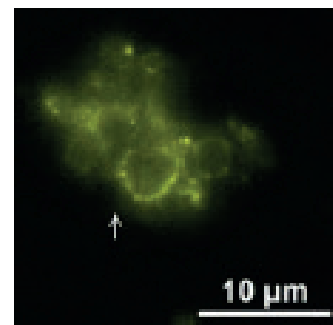
## Enhanced Yellow Fluorescent Protein (eYFP)

- 3mg/mL protein
- Has been expressed in 3 mL reactions
- Monomer which contains no disulfide bonds
- Activity determined with fluorescent assay



## Membrane protein HB-EGF fused to eYFP

- Heparin Binding - Epidermal Growth Factor - eYFP
- Full size protein expressed with only minor signs of fragmentation
- Protein incorporated into the microsomal membrane (arrow)



### References

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Havenith et al., Combination of two epitope identification techniques enables the rational design of soy allergen Gly m 4 mutants
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Huck et al., Combined 15N-Labeling and TandemMOAC Quantifies Phosphorylation of MAP Kinase Substrates Downstream of MKK7 in Arabidopsis

Description	Pack Size	Catalogue No.
ALiCE™ Cell-Free Protein Expression Mini Kit	6 x 50 µl	AL0103050
ALiCE™ Cell-Free Protein Expression Midi Kit	6 x 200 µl	AL0103200
ALiCE™ Cell-Free Protein Expression Maxi Kit	6 x 500 µl	AL0103500