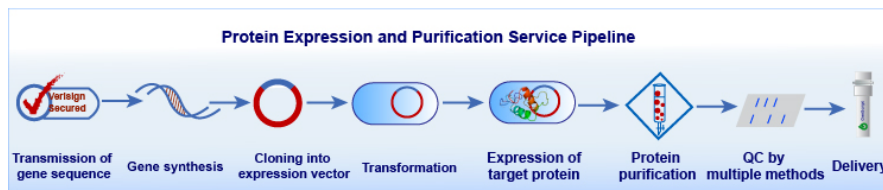


PROTEIN EXPRESSION AND PURIFICATION SERVICE

BaseClear offers a complete range of services from gene synthesis to protein purification. Our experience in this field coupled with our in-house gene synthesis and DNA sequencing services enable us to complete projects in a fast and flexible manner. Regular and open communication with our customers is an essential aspect of all projects we perform. Customers can opt for a standard feasibility study on protein expression and purification or a custom service for protein expression optimisation or protein purification.



Standard service: feasibility study

In a standard feasibility study we clone a gene of interest into a suitable expression vector that contains a purification tag (his or strep). Alternatively, the cloning can be done into the customer's vector of choice, allowing the addition of promoters, tags or restriction sites. Subsequently, we grow and induce a standard *E. coli* host strain and determine the expression level by SDS-PAGE and Western blot. In addition to this, we determine the solubility of the expressed protein. In the event of a protein with an affinity tag, a small-scale test will be performed to determine the purification possibilities.

Custom service: optimisation of the expression

The expression level of a protein will be optimised in a number of stages, tailored specifically for each specific protein and subject to agreement with the customer before initiation.

These stages are:

- **Codon usage optimisation:** The codon usage of the gene will be compared to that of the host strain and if necessary adapted. This can in turn lead to increased expression levels. See the separate factsheet about gene synthesis for more information.
- **Introduction of fusion proteins:** The fusion of a gene of interest to genes encoding for known solubility enhancing proteins can improve the solubility and expression level of a protein.
- **Host strain optimisation:** the expression construct will be introduced into different *E. coli* strains, specifically designed for protein expression. Please, contact Derek Butler when you are interested in other host strains, like yeast or *bacillus*
- **Induction level optimisation:** A range of inducer concentrations and induction periods will be tested to determine the optimal conditions.

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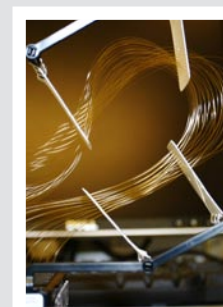
FOR 100% DNA RESULTS

Accredited service laboratory for

- DNA-based Research
- Quality Assurance
- Forensics



BaseClear offers services both for standard and specialist DNA Technologies, in the field of DNA sequencing, genome analysis, genotyping, DNA synthesis and protein expression.



BaseClear's technical team consists of experienced product specialists, who optimise experimental procedures in order to obtain optimal results.

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- **Growth condition optimisation:** A range of growth temperatures and growth media will be tested to determine the optimum.

Custom service: protein purification

If good protein expression is achieved, we can purify the protein by means of affinity columns. Depending on the expression level, up to 30 mg of protein can be produced. Together with the customer we can optimise the buffer and elution conditions to obtain a protein that has the maximum possible activity.

Results

Based on the agreed upon procedure, we will deliver:

- Gene cloned into an expression vector, in an *E. coli* expression strain.
- Small aliquot of tagged purified protein (provided the expression level is sufficient).
- If protein purification is requested, we can deliver up to 10-20 mg of purified protein.
- Report of the expression analysis and (if performed) the protein purification.

| | Standard service: | Custom possibilities: |
|----------------------|--|--|
| Gene synthesis | | De Novo synthesis with optimised codon usage |
| Cloning | Cloning into a standard expression vector | Cloning optimisation |
| Expression | Expression in <i>E. coli</i> under standard conditions | Analysis of expression in <i>Bacillus</i> (gram+ host) |
| Expression level | Expression level analysis | Optimisation of expression level |
| Protein purification | Basic tag-purification to demonstrate tag-functionality | Optimisation of protein purification by affinity tag |
| Delivery time | 2-4 weeks | Indication upon request |
| Price | Cloning € 450 Expression level analysis € 300 Complete feasibility study € 750 In the event of no expression, € 600 | Indication upon request |



**FOR 100%
DNA RESULTS**