

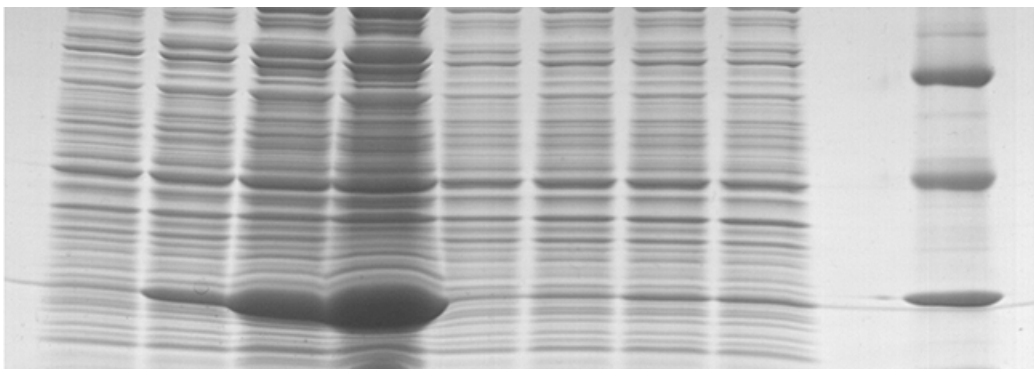
EXPERIENCE THE POWER OF DNA.

GENEIUS MEETS ECOMMERCE

For optimum gene expression the adaptation of codon usage is of capital importance. For your convenience, our highly sophisticated sequence optimisation software GENEius* is now implemented within our Ecommerce System (Ecom) for fast and efficient ordering of synthetic genes.

GENEius optimises and adapts amino acid or DNA sequences to the codon usage of a chosen organism. Generally codon optimisation can improve gene expression in heterologous expression systems by avoiding rare codons and using all different codons with similar frequencies as they are used in highly expressed genes of the chosen organism.

Furthermore avoidance of repeat or hairpin structures, and the equal distribution of Gs and Cs can improve sequences regarding synthesis efficiency and downstream applications. Unwanted motifs can easily be avoided in the optimised sequence, e.g. to keep cloning sites unique or to avoid unwanted splice donor and acceptor sites or transcription factor binding sites.



The figure demonstrates boosted protein expression after 0, 1, 3 and 5 hours of a with GENEius optimised sequence (lanes 1-4) compared to expression of the non optimised sequence (lanes 5-8).

Sophisticated codon usage adaptation and sequence optimisation

One of the new features within Ecom is the online adaptation of the codon usage.

If codon usage optimisation is desired simply choose "[Codon usage adaptation required](#)" in the input field and fill in all data according to the instructions. After clicking the "[Adapt and optimise sequence](#)" button, GENEius will start the optimisation. This process may take some minutes. After finishing optimisation, the optimised sequence will be displayed in Ecom and you can continue with direct ordering or may request a quote for later ordering.

If automated optimisation fails for any reason, manual input from our experts will be necessary. In this case you will receive, after submission of the quote, an email including a link to the optimised sequence immediately after our experts have examined the sequence.

Secure data transfer

All information is transferred via a secure SSL connection.

Fast and easy ordering

Sequences are analysed for complexity by GENEius regarding GC content, repetitive structures and hairpin structures. Sequences applicable for our standardised synthesis processes can then be ordered directly, simply by clicking "[Confirm Order](#)".

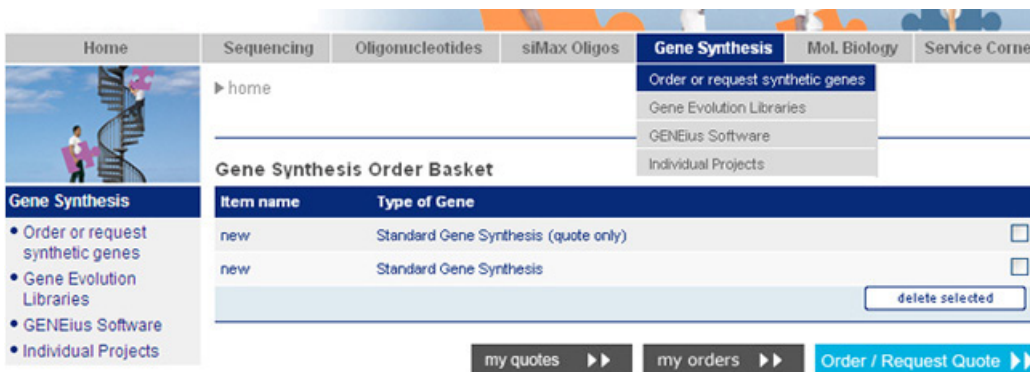
If submitted sequences turn out to be potentially complex the system offers to send it to the lab. In such cases the sequences will be analysed manually by our experts. Please put such complex sequences into your "[My Quotes](#)" folder, and you will receive an email including a link to your specific quote.

Often complex sequences become standard after codon optimisation. If codon optimisation of your complex sequence is an option, please go back to the input field and retry with codon optimisation.

Convenient quote request, and quote submission

The new Ecom version also enables you to request a quote for your synthetic gene in a convenient way.

If you prefer to get a quote first because you want to decide later for ordering, just click the "Put into myQuotes" button. The provided price calculation will be transferred into your "My Quotes" folder. Quotes can be stored in your personal "My Quotes" folder. Quotes can be printed and they can be turned into orders simply by clicking the "Accept Quote" button.



The screenshot shows the Eurofins Genomics website interface. The top navigation bar includes: Home, Sequencing, Oligonucleotides, siMax Oligos, **Gene Synthesis**, Mol. Biology, and Service Corner. A dropdown menu for Gene Synthesis is open, showing options: Order or request synthetic genes (highlighted), Gene Evolution Libraries, GENEius Software, and Individual Projects. Below the navigation is a "Gene Synthesis Order Basket" table with two columns: Item name and Type of Gene. The table contains two rows, both with "new" in the Item name column and "Standard Gene Synthesis" in the Type of Gene column. The first row specifies "(quote only)". There are checkboxes to the right of each row and a "delete selected" button. At the bottom of the basket, there are buttons for "my quotes", "my orders", and "Order / Request Quote".

Item name	Type of Gene
new	Standard Gene Synthesis (quote only)
new	Standard Gene Synthesis

Order or quote tracking and order history

In your personal Ecom account all your quotes and your order data are stored.

Find your order history via the "My Orders" button where you can track the process status of your orders at any time, and download your order confirmations. After synthesis is finished you can download your quality control sequencing data.

Individual project request

If you have a complex project or want to request for the synthesis of many genes at once, you can also submit an individual project. Please choose "Individual Project" from the menu, submit all project details and upload your individual file. The data will then be analysed by our experts and you will receive a customised quote for your specific request.

* GENEius has been produced in cooperation with BioLink GmbH, Planegg-Martinsried, Germany. All copyrights belong to BioLink GmbH.