

GENE SYNTHESIS SERVICE

De Novo Synthesis of any
Double Stranded DNA –
The Alternative for a
Multitude of Applications

Expression Improvement in Heterologous Systems

- Codon usage adaptation
- Promoter and enhancer elements

Cloning Applications

- Subcloning
- cDNA cloning
- qPCR and PCR standards

Optimisation of Constructs

- Introduction/removal of good and bad motifs
- Construction of hybrid genes
- Screening for improved properties of proteins

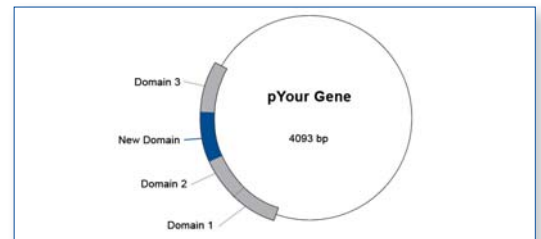
Gene Synthesis for Optimisation of Constructs

Introduction of Good and Removal of Bad Motifs

Unwanted restriction sites, artificial splice sites, potential transcription factor binding sites or premature polyadenylation signals within your gene sequence can be avoided with synthetic genes. We can achieve equal distribution of G's and C's, and even include unique restriction sites or other good motifs for downstream applications.

Construction of Hybrid Genes

With synthetic genes you can rearrange protein domains, delete or add introns or even create completely new hybrid genes by combining gene fragments. Sequence tags can be added to ensure proper and easy purification of recombinant proteins. You can create new hybrid genes by rearranging optimised sequences for higher expression levels, for convenient protein purification and much more.



Scheme of a hybrid gene

Screening for improved Properties of Proteins

With our Gene Evolution Library Service we can generate mutant libraries with single or multiple mutations for screening for improved properties in proteins.

Product Overview

Standard Genes

Eurofins MWG Operon offers the synthesis of standard genes

- in any size
- with moderate GC content (40 - 65%)
- without extensive repeats (> 20 bp) or critical hairpin structures
- without extensive homopolymer stretches (> 20 bp)

Complex Genes

The synthesis of complex genes is available

- for any size
- for high and low GC contents
- where long repeats and
- secondary structures can be present

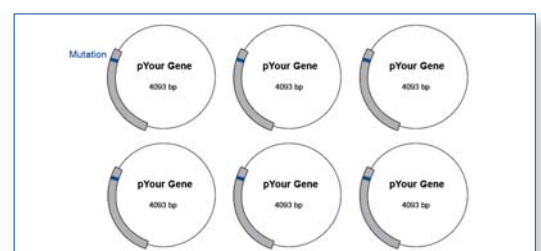


Scheme of DNA Helices

This service includes a personal consultancy e.g. to find the optimal expression system, to check your sequence in advance, or to design your perfect gene in silico.

Gene Evolution Libraries

Gene Evolution Libraries are ideally suited for screening approaches to improve the properties of your protein of interest. We offer introduction of mutations at single positions, multiple positions within specific domains or random substitution using degenerated oligonucleotides. Libraries will be delivered linear or cloned.



Scheme of a gene library

Gene Synthesis – Process and Technology

Sequence Optimisation

Using our proprietary software GENEius¹⁾, the supplied amino acid or DNA sequences will be optimised and adapted, e.g. for codon usage to any organism. With GENEius we can avoid direct or inverted repeats and hairpins. Also, even distribution of G's and C's and the incorporation of "good motifs" is easily achievable. Visit our website to see an online version of GENEius.

Experimental Design

of overlapping oligonucleotides for gene synthesis by using GENEius.

Oligonucleotide Synthesis

at our in-house DNA synthesis facility.

Gene Synthesis

of novel genes ranging from only a few base pairs up to several kb in size.

Subcloning

into a standard vector or into a vector of choice.

Quality Control

by double strand DNA sequencing of the cloned gene performed at our in-house sequencing facility.

Delivery

of plasmid DNA in the following scales:

- Mini scale 1 - 10 µg plasmid DNA
- Midi scale 5 - 50 µg plasmid DNA
- Maxi scale 50 - 500 µg plasmid DNA
- Mega scale 500 µg - 2.5 mg plasmid DNA
- Giga scale up to 10 mg plasmid DNA

Endotoxin-free preparation for maxi, mega and giga scales available.

Documentation

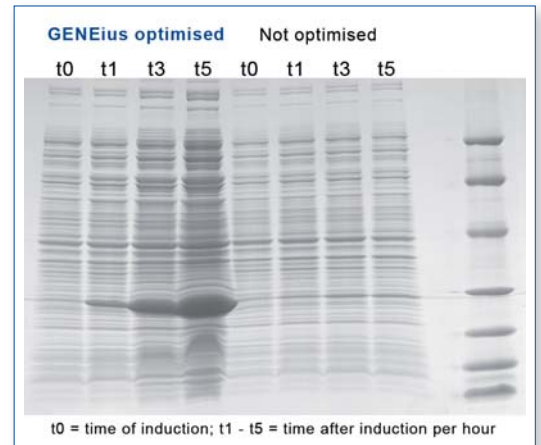
by a quality assurance report, including detailed project specifications, complete plasmid description, restriction map and DNA sequence information.

Highest Confidentiality

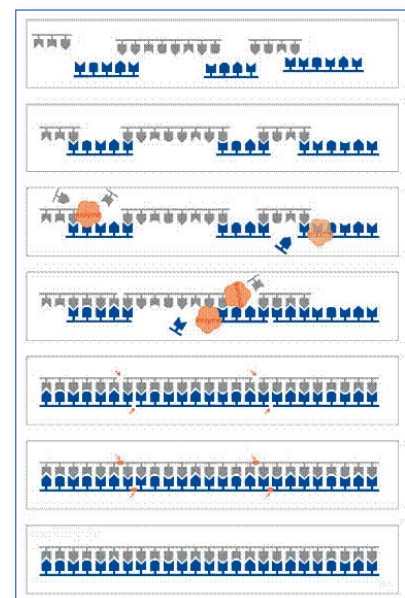
of all details of your project is guaranteed.

Quality Management

The high quality standard of our service is permanently assured by our professional quality management. We are certified according to ISO 9001:2000.



Protein expression result of a GENEius optimised gene



Production process of synthetic genes

1) GENEius software designed and developed for Eurofins MWG Operon by Biolink Informationstechnologie GmbH.

Online Ordering and More – Our Ecommerce System is Set Up for Your Convenience

1. Personal Account

Login at <http://www.eurofindna.com>

If you are entering our Ecom for the first time, just visit our home page and click on "New Customer". If you are already a customer of Eurofins MWG Operon, identify yourself with your email address and password. For an unencoded connection click on "No SSL".

newuser@gmx.de

Shop Login

New Customer? Forgot Password? No SSL

2. Account Options

Within your account you can define general settings, set up your personal order preferences and change or add shipping and billing addresses. The group administration allows you to share specific information with other researchers of your choice.

My Account

- General Settings
- Change Addresses
- Personal Preferences
- Group Administration

3. Online Ordering

Select your required product within the "Gene Synthesis" menu and provide all necessary information for the synthesis of your desired genes. If a codon usage adaptation is required, the optimised sequence will be provided after, online optimisation. After submitting your entry you can find all details in your order basket. Press "order now" and choose your preferred payment method.

Gene Synthesis Orderbasket

Item name	Art of Gene
my gene	Standard Gene Synthesis

delete selected

my orders >>> order now >>>

4. GENEius Online Tool

The online version of GENEius provides special tools like codon usage optimisation for gene synthesis and is easy to use. Right after gene optimisation you are able to place your order or request a quote.

Adapt sequence to codon usage of:

other:

- other
- Anas platyrhynchos (Mallard duck)
- Arabidopsis thaliana
- Bacillus subtilis
- Chlamydomonas reinhardtii
- Cricetulus griseus (Hamster)
- Danio rerio (Zebrafish)
- Drosophila melanogaster (Fruitfly)
- E. coli
- Escherichia coli
- Felis catus (Cat)
- Homo sapiens (Human)
- Hordeum vulgare subsp. Vulgare (Barley)
- Lactococcus lactis subsp. cremoris
- Lymnaea stagnalis (Snail)
- Mus musculus (Mouse)
- Nicotiana tabacum (Tobacco)
- Oryza sativa (Rice)
- Pichia pastoris

Additional Service:

DNA Prep: Plasmid Prep Mini Info: Mini Prep is only available for

Enddown free: (only available for)

Comments:

When clicking "adapt and optimise sequence" the provided sequence will be adapted to the given codon usage and optimised for best expression results by our software GENEius. After successful adaption you can order the sequence or request a quote.

Cancel Adapt and optimise sequence

5. Order Tracking & Order History

In your personal Ecom account all 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 and delivery notes.

My Orders

More information about My Orders

Track labels: Free Barcodes, Prepaid Barcodes, Plain Clonings

Show orders of groups

Search for Oligos by name: [] Ok

put oligos in your own basket

all orders oligo orders sequencing orders gene synthesis orders

Order ID	Order Date	Comments	Your ID	Order State	Track Order
197793	03.08.09	Lab: the internal repeats are a necessary part of the construct Bill:		finished	back gene synthesis

6. Price Information

To help you with your cost calculations, our Ecom system features not only country-specific price lists and currencies, but in addition your individual prices are displayed in the order summary prior to submitting your order.

7. Prepayment Service

With our prepaid service option EVOcard, you can save your budget and benefit from various administrative advantages.

EVOcard

00001755

order online www.eurofindna.com

eurofins mwg|operon

Any Questions?

Feel free to contact our customer support team if you need any assistance.



Email:

genes@eurofinsdna.com

Phone:

+49 8092 8289 - 77

Our official business hours are:

8 a.m. – 6 p.m. CET

Free Phone Numbers:

Italy	0800 785950
France	0800 903807
Denmark	8088 1262
UK	0800 0323135
Ireland	1800 555056
Sweden	020 798148
Norway	0800 13844
Finland	0800 112744
Switzerland	0800 562013