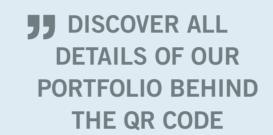


# 10 SECOND OVERVIEW

- » De novo synthesis of any double stranded DNA
- Your choice: Short double-stranded fragments, complex genes or complete gene libraries
- >> Free sequence optimisation
- Express Genes up to 1000 bp in a Eurofins Genomics standard cloning vector delivered in only 4 days
- Express GeneStrands up to 1000 bp as dsDNA fragment in 48 hours at your bench
- » Secure ordering, tracking and storage of your data
- » Strict confidentiality for every project





### **EUROFINS GENOMICS**

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Genomics

**Gene Synthesis** 



Fast Turnaround
Times & Free Vector Storage



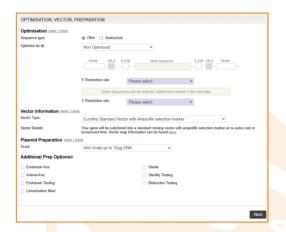
## HOW TO ORDER SYNTHETIC GENES



#### SYNTHETIC GENES CAN EASILY BE ORDERED IN OUR ONLINE SHOP.

## The gene synthesis order wizard comprises all the functionality needed to order a gene online:

- DNA or amino acid sequences as entry format
- Free, immediate codon usage adaption and codon optimisation using GENEius
- Customize your optimization by specifying "bad motifs to avoid"
- Subcloning into your vector of choice
- Various plasmid preparation scales
- Endotoxin-free preparation



## For routine orders we have great add-ons for you:

- Save your gene settings as templates for your next order
- Store your vector at Eurofins (Save time & costs)

### GENE SYNTHESIS – Go Beyond



## **GENEius** – **Optimises Your Sequences**



Optimise your research with Eurofins Genomics' high quality synthetic DNA products. Partial or full length genes, open reading frames (ORF), cDNAs, promoters, qPCR standards or artificial genes – any double stranded DNA sequence can be synthesised "de novo" and subsequently subcloned into a plasmid vector of choice.

### Synthetic genes

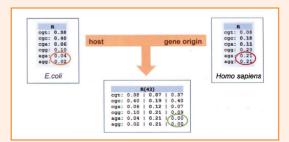
- Available in any size
- Express option available
- Fast turnaround times
- Free, immediate online gene optimisation
- Special strategies for complex genes

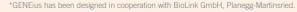
#### GeneStrands

- Available up to 3000 bp
- GeneStrands are not cloned
  - → cost efficient alternative to genes
- Express option available (in 48h @ your bench)

Gene optimisation is an important factor for successful protein expression. At Eurofins Genomics we have developed our own software tool for gene optimisation, called GENEius.\* Very often the optimisation of the sequence also leads to a standard sequence (faster TAT, lower price). GENEius uses codon usage tables of the heterologous expression host in order to improve protein expression:

- Usage of codons with high frequencies based on the selected organism
- Avoidance of rare codons of the expressing organism
- Removal of unwanted motifs or secondary structures, for example repeats or hairpin structures
- Evenly distributes G and C bases







GENEius optimised a human gene by comparing it to the input codon usage table for E.coli. For example, the arginine triplets aga & agg are present in the human gene at frequencies of 0.21 (top right). In E.coli those two triplets are present at frequencies of only 0.04 & 0.02, respectively (top left). After gene optimisation those very rare codons are not present anymore in the gene sequence (bottom). The other codon frequencies match the value for optimal expression in E.coli.