neochromosome

defined variant libraries

Neochromosome's innovative oligo design platform enables precise, rapid, and budget-friendly assembly of defined DNA sequences, such as those produced by generative AI.

Combine with other DNA services from Neo to create a **Flexible Workflow**

While conventional gene synthesis providers treat each sequence as a separate synthesis task, subject to restrictive length limitations of oligo synthesis, Neochromosome takes a holistic approach implementing part recycling to minimize costs and expedite synthesis of exact sequences without the excessive length restrictions of standard approaches. For instance, researchers can synthesize discrete antibody variable or enzyme gene sequences, granting them enhanced control over experimental design and increasing the likelihood of pinpointing optimal variants.

With our highly automated approach, sequences can be supplied as pools, individually arrayed fragments, or cloned into a custom vector and sequence-verified for accuracy. Expert consultation is available as the design and implementation of each project is led by PhD-level scientists. All in-process parts and final deliverables are archived in Neochromosome's NYC facility, allowing for fast iterative sequence builds and further cost savings.

Library Examples

OPTION	DETAILS
CDR-Linked	Synthesis of distant antibody variants that share sequence homology without introducing random linkage between CDRs
ML Rational Library	Synthesis of ML-predicted defined sequences that share sequence homology (e.g. mutations in enzyme active site and allosteric regulatory region)
Individually Arrayed Sequence Variants	Cost-effective synthesis of distinct gene sequences in an arrayed format

Product Features

FEATURE	DETAILS
Turnaround Time	Starting at 2 weeks, project dependent
Sequence Verification	Sanger and/or NGS as requested
Pooled Linear DNA	>500 ng of Qubit-quantified linear DNA
Arrayed Linear DNA	>50 ng of Qubit-quantified linear DNA
Arrayed or Cloned Circular DNA	5 ug to 5 mg plasmid preps
Cost	Project dependent, economies of scale achieved with more sequences/homology
Cloning Options	Sequences may be cloned into any customer-provided vector
Customization	Neo's PhD scientists will partner with you to determine custom "Flexible Workflows" including scale-up and Variant Mining™
Deliverable	Delivered in pools or as individually arrayed variants 96/384 well plates or 1.5 ml tubes

Parts Repository

STORAGE TYPE	DESCRIPTION
Short-Term	Store source oligos and purified DNA or glycerol stocks at Neo for short periods of time (e.g. 1–2 months) to enable rapid re-order and scale-up of assay winners.
Long-Term	Store source oligos and purified DNA or glycerol stocks at Neo for long periods of time (e.g. 1–2 years) for rapid re-order and scale-up of inventoried DNA products or for disaster recovery

Variant Mining™

After your initial sequences are assayed, you can then submit your top performing "hits" to have Neo perform Variant Mining™. Variant Mining™ will design all possible recombinants of your most promising leads using the source oligos on-hand, allowing for rapid turn around and greatly reduced cost for your evolution campaign. You can continue to assay and combine hits as the feedstock for Variant Mining™ until you have found the highest level of fitness for your process relevant conditions. We will keep your parts in our Parts Repository to enable iterative mining campaigns.

Check out our Variant Mining™ product sheet to learn more!

PLACING ORDERS AT NEO

To get started, please email a project description to **info@neochromosome.com**