GenSmart™ 2.0 Online Ordering

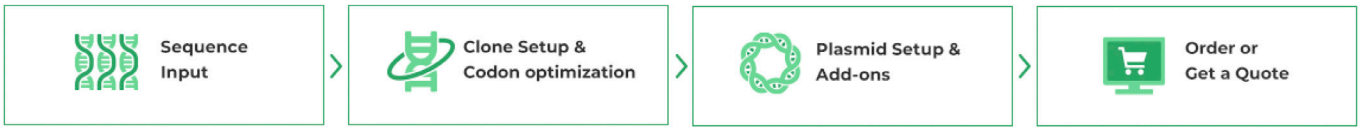
Quick User Guide

Order Gene Synthesis

The GenSmart™ 2.0 online ordering platform is an integrated online order center for all your signature molecular biology services. With this top-notch platform, ordering has never been easier.

Experience a seamless journey as you input, edit, and optimize your gene sequences, while conveniently ordering gene synthesis, cloning and plasmid DNA preparation services tailored to your specific needs. The platform features the best-in-class GenSmart™ codon optimization tool, allowing you to optimize sequences with a single click. Discover the best services at the most competitive prices with GenSmart™ 2.0 now.

Workflow Overview



Order Gene Synthesis via GenSmart™ 2.0 with Ease

- ✓ Utilize the best-in-class codon optimization algorithm to optimize your sequence
- ✓ Select the most suitable gene synthesis services for your applications
- ✓ Receive estimated pricing and turnaround time
- ✓ Get an instant quote and place your order

1. Sequence Input

- Select and click on “Gene Synthesis” tab. Then input your project name and select your downstream application from the drop-down menu. Click “Start New Project” to start gene synthesis online ordering (see **Figure 1**).
- Input your nucleotide and/or amino acid sequences by copying and pasting the sequences into the sequence table manually (see **Figure 2**).
- Or upload sequence files to input your sequences. GenSmart™ 2.0 accepts Excel, CSV/TSV, FASTA and other commonly-used types of files for uploading sequences, and you can find the file templates on the bottom of the page (see **Figure 2**).
- Once sequence input is done, click “Continue” to proceed to the basic setting page for cloning settings and codon optimization.

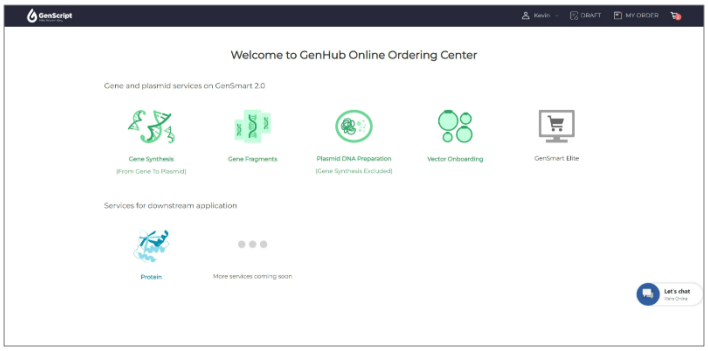


Figure 1: GenSmart™ 2.0 online ordering platform. Order and quote gene synthesis and plasmid DNA preparation services in only 4 simple steps, as well as connect and get support from our Ph.D. level experts.

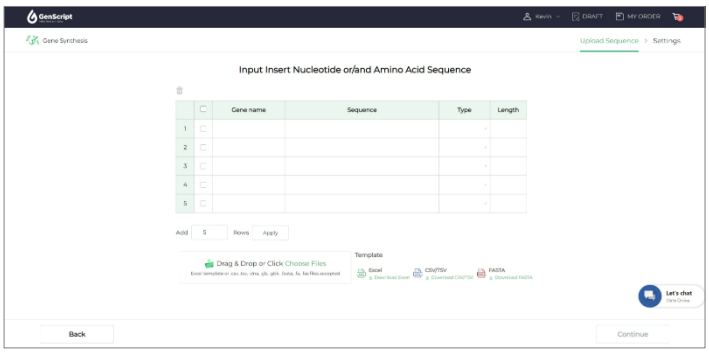


Figure 2: Sequence input. Input nucleotide and/or amino acid sequences by uploading sequence files or manually input. Drag & Drop or choose files to upload the sequence files. The templates of Excel, CSV/TSV, and FASTA files are available on the bottom of the page.

2. Clone Setup and Condon Optimization

- GenSmart™ 2.0 automatically analyzes the synthesis complexity, checks for errors in your sequences, and fills in default options for vectors, 5' and 3' restriction enzymes. Our best-matching program will also select the optimal speed for your sequences and calculate the corresponding price and production time. If everything looks good, click “Continue” to proceed.
- You can also customize the cloning settings. Choose a clone vector, or an expression vector, or a previously archived vector for your sequences. You can apply the chosen vector to one sequence or select "Batch Change Vector" to apply them to all selected sequences (see **Figure 3**).
- Once the vector is applied, choose the cloning method for your sequences from restriction enzyme cloning or seamless cloning in the “5’ RE” and “3’ RE” columns on the sequence table.

  ⓘ If you opt for the seamless cloning method, remember to add homology arms to the 5' and 3' ends of your sequences. You can select the corresponding sequences, and then click “Add Flanking” button to add homologous arms to all select sequences (see **Figure 4**). Alternatively, you can click on the specific sequence to add homologous arms in the sequence editing page. For restriction enzyme cloning, choose the restriction enzymes in the 5' and 3' RE columns, and the corresponding sequences will be automatically added to both ends of your sequences.
- Check the "Status" column for the synthesis complexity and errors of your sequences (see **Figure 5**). You can check the complex regions of the complex sequence via the complex icon. For more details, you can click on the complex sequence and check the complex regions in the sequence editing page (see **Figure 6**). We highly recommend performing codon optimization using our best-in-class algorithm to lower synthesis complexity and improve downstream application performance.

  ⓘ Look out for red error signs and yellow warning signs, as they indicate issues that need to be addressed before processing your order. Click on the signs to view the details.
- Click on the sequence to edit your sequence in the sequence editing page (see **Figure 6**).
- Click “Codon Optimization” to optimize your sequence using best-in-class codon optimization algorithm (see **Figure 6**). Select the region of your sequence that requires codon optimization, the host organism, and the restriction sites to keep and/or avoid and then click “Continue” to start the codon optimization (see **Figure 7**). After successful codon optimizations, you can continue with your original sequence or optimized sequence. You can also download the codon optimization report by clicking on the optimization report icon (see **Figure 8**). Alternatively, you can select on the sequences requiring codon optimization and then click “Batch Optimization” on the basic setting page to preform batch codon optimization (see **Figure 9**).
- GenSmart™ 2.0 will choose the optimal service speed for your sequences. However, you can manually select your preferred speed from FLASH, Premium, Basic, or Rocket. The price and production time will adjust accordingly afterwards (see **Figure 3**).

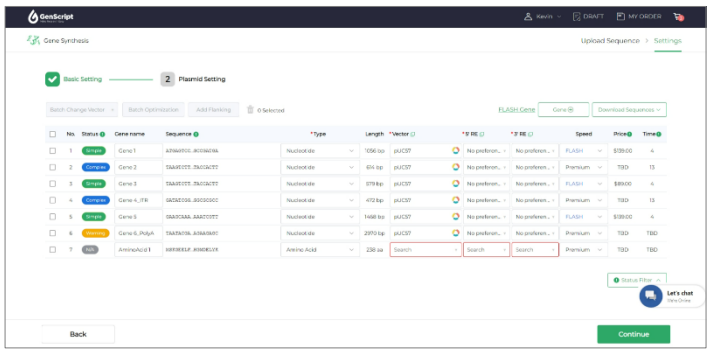


Figure 3: Basic setting page. After the input of the sequences, GenSmart™ 2.0 automatically analyzes the sequences and fills the cloning parameters. You can directly click “Continue” to finish the cloning settings.

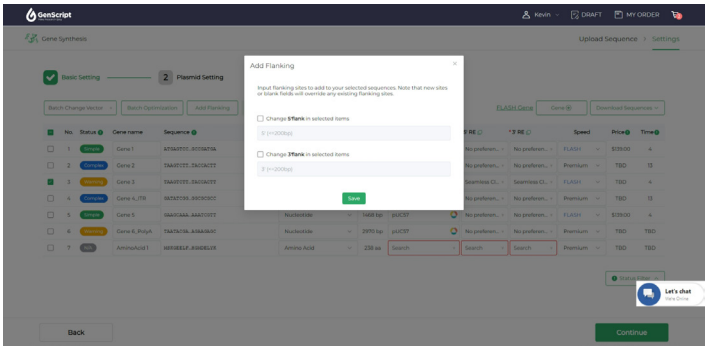


Figure 4: Add homology arms for seamless cloning. Select the corresponding sequences, and then click “Add Flanking” button to add homologous arms.

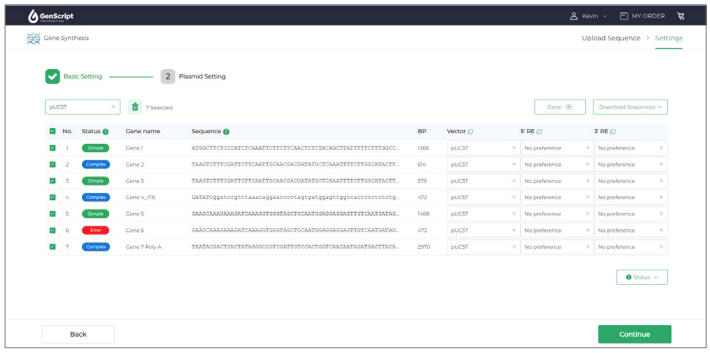


Figure 5: Sequence status. Once the vector and cloning method are determined, the sequences will be automatically analyzed for synthesis complexity and error-checking.

Figure 6: Sequence editing page. Click on the sequences to jump into sequence editing page.

Figure 7: Codon optimization page. Select the region, host organism, and restriction sites to keep and/or avoid prior to perform codon optimization.

Figure 8: Codon optimization result. Check the codon optimization result, you can continue the order with your original sequence or optimized sequence. You can also download the codon optimization report by clicking on the optimization report icon.

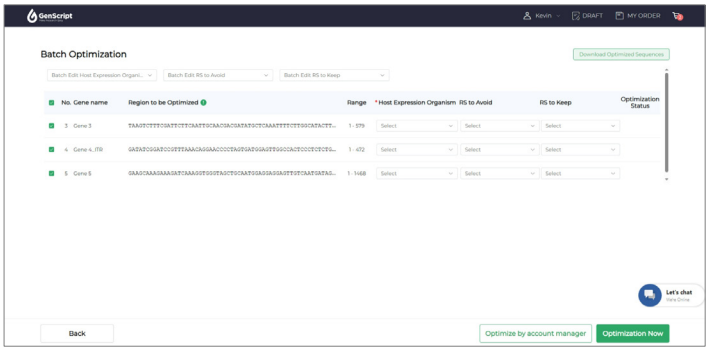


Figure 9: Batch codon optimization page. Batch select the region, host organism, and restriction sites to keep and/or avoid prior for batch codon optimization.

3. Plasmid Setup and Add-ons

- The default plasmid DNA quantity is 4 micrograms for high-copy plasmids, but you can add buddled plasmid DNA preparation services to acquire high-quality gram-level plasmid DNA. Select the quantity, supercoil percentage and endotoxin level for your clonal genes based on your downstream application requirements (see **Figure 9**).
- Choose the delivery format and form for your plasmid DNA, and you can also customize the buffer and concentration (see **Figure 10**).

  ⓘ Please note that if your sequences contain Poly A structure or AAV ITR structure, Poly A guarantee and AAV ITR guarantee services are available to add to your order to ensure the complete and accurate Poly A and AAV ITR structure on your deliverables (see **Figure 11**).
- Add whole plasmid sequencing and other add-on services simply by clicking on those options (see **Figure 10**).

  ⓘ Please note that certain add-on services may require larger amount of plasmid DNA other than default 4 micrograms.

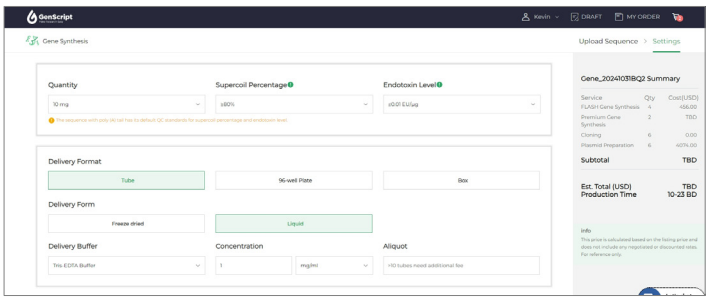


Figure 9: Quantity, supercoil percentage, endotoxin level and delivery format & form settings. Depends on your application, choose the most suitable options of your plasmid DNA.

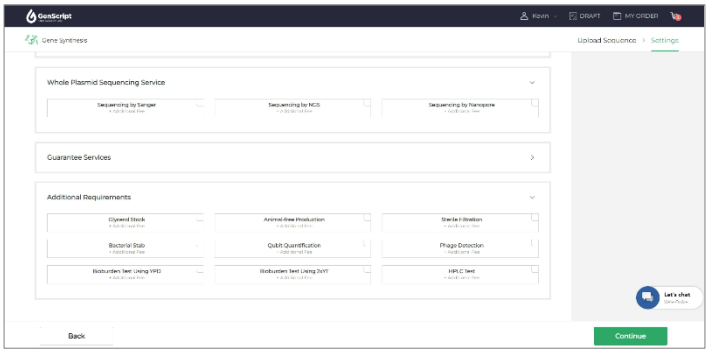


Figure 10: Whole plasmid sequencing and additional requirements. Add whole plasmid sequencing service and add-ons for your plasmid DNA.

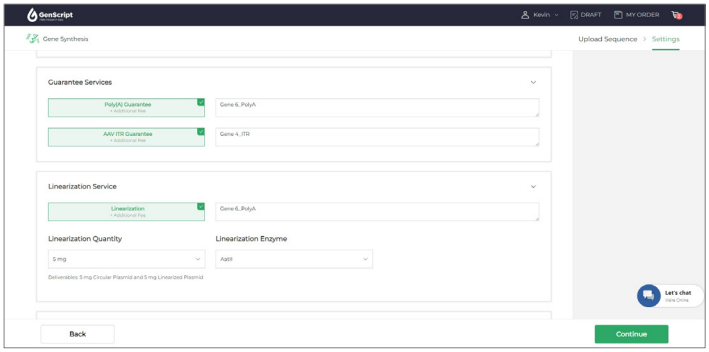


Figure 11: Poly (A) guarantee and AAV ITR guarantee add-on services. Add guarantee services to ensure the complete and accurate structure in your sequences. You can also add plasmid linearization service for the sequences added poly (A) guarantee.

4. Order or Get a Quote

- Check the order summary, available coupons and pricing agreement contracts, turnaround time, and estimated cost that showing on the right side of the page (see **Figure 12**).
- Add new addresses or edit existing ones, by clicking "Management" next to the shipping address and billing address. For the shipping option, click "Edit" to select your preferred choice (see **Figure 12**).
- Once you have everything set up, click "Order Now" to place your order, or if you prefer to receive a detailed quote first, click "Get Quote" to request a quote for your order.
- You can use the existing payment method, or add new a new payment method on the payment page (see **Figure 13**).
- To keep track of your ongoing and past orders as well as quotations, click "My Order" at the top of the page (see **Figure 14**).

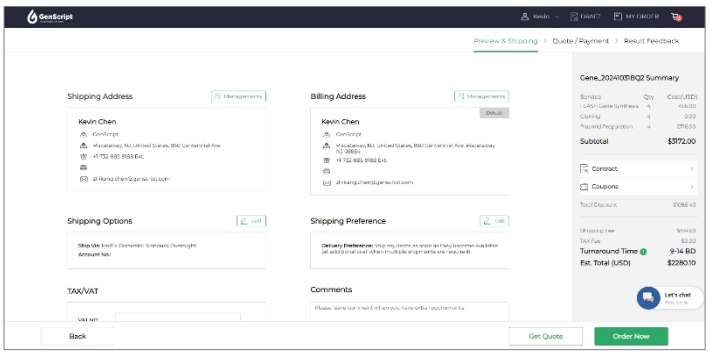


Figure 12: Available pricing agreement contracts and coupons, shipping address, billing address and shipping options. Select one available contract or coupon. Fill the shipping address and billing address, as well as select the shipping options for your order.

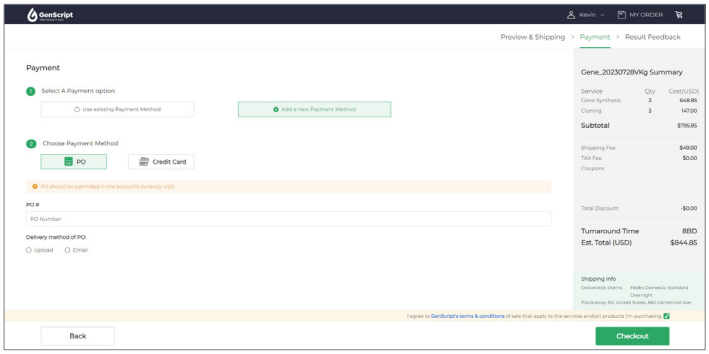


Figure 13: Payment. Use existing payment method, or add new a new payment method.

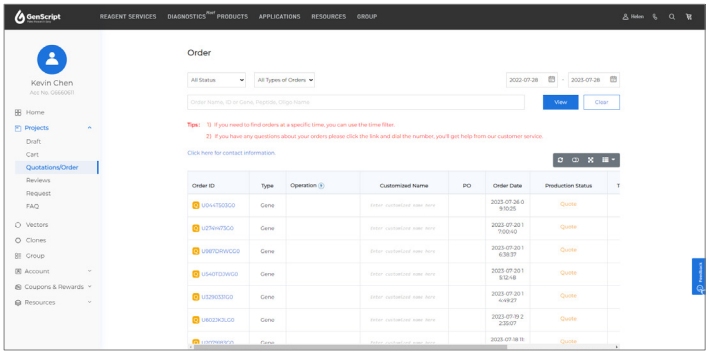


Figure 14: Order and Quotation summary page. Find all your orders and quotations on one page.

Note: All sequences and associated prices shown here are for demonstration purposes only. For accurate pricing and production times, please log in with your account and get your quote via GenSmart™ 2.0 online ordering platform.

Learn more at genscript.com