

Life Before and After VectorBuilder

Before VectorBuilder	VS	After VectorBuilder

VectorBuilder.com

- Design custom vectors online in seconds
- Easily add virus packaging
- Order instantly & receive your vector soon after by mail
- Lower costs than cloning in-house

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VectorBuilder

A revolutionary platform for
vector design & custom cloning



VectorBuilder.com

A revolutionary platform for vector design & custom cloning

Vector construction | Virus packaging | BAC modification | Library construction



Over 150,000 vectors delivered to researchers!

VectorBuilder – A Revolution in Cloning

What is VectorBuilder?

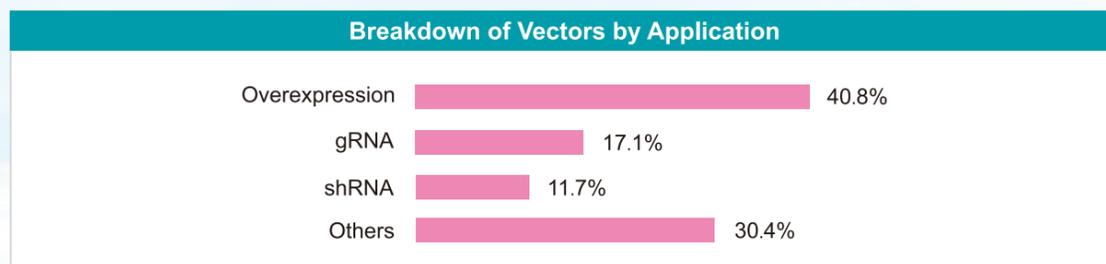
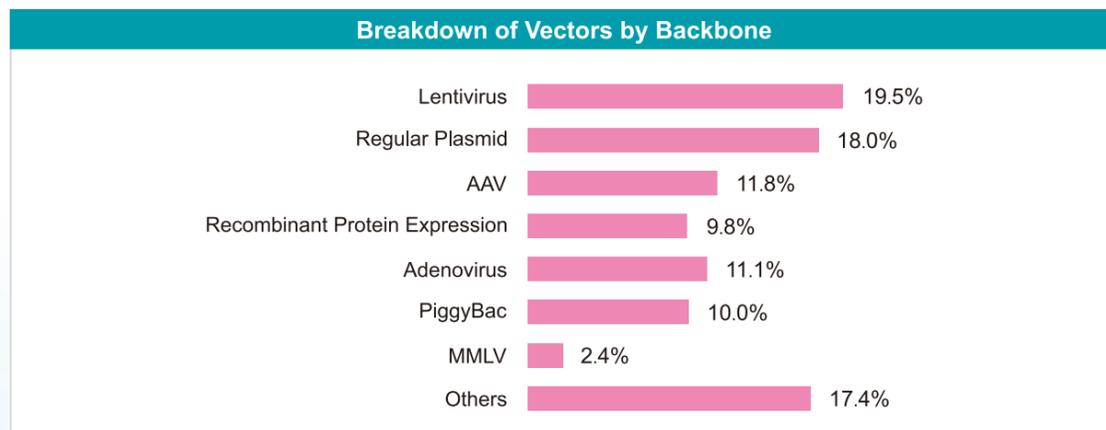
VectorBuilder is a revolutionary platform for vector design and custom cloning. Our online design tool provides a highly intuitive workflow for you to design your desired vector with just a few mouse clicks, all for free. You can then use our online ordering system to purchase the custom cloning of your vector – along with related services such as virus packaging – as easily as shopping on Amazon. Cost and turnaround time are typically just a fraction of DIY.



Research made easy by VectorBuilder

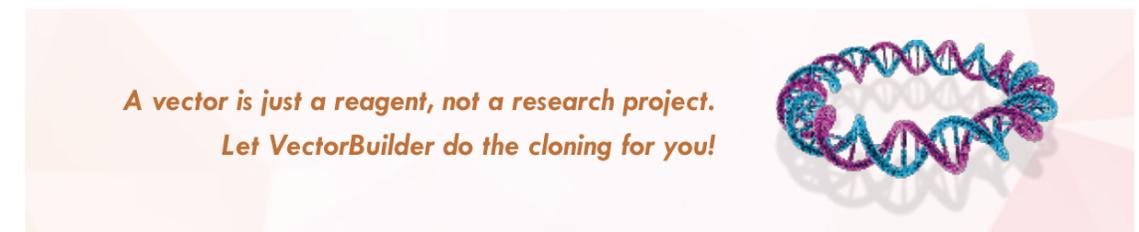
Since its launch in early 2015, VectorBuilder's powerful online vector design tool and premium-quality offline vector cloning services have received wide acclaim and won several awards. Thus far, over 150,000 vectors have been delivered to labs around the world, saving researchers countless hours in designing and cloning their vectors.

Below are the vectors we delivered so far.



What can I do on VectorBuilder?

- Design your vectors:** VectorBuilder's online design tool is highly intuitive, allowing you to design a complex vector with just a few mouse clicks in a matter of minutes, all for free. You can access the tool by going to: www.vectorbuilder.com
- We can design vectors for you:** If you have trouble designing your vector on VectorBuilder, just click the "Send Design Request" button on VectorBuilder's homepage, and submit your design need in plain language. Our highly experienced scientists will design the vector for you for free.
- Obtain vector cloning service:** Once you are done designing your vector, just drop it in your shopping cart and place an order from there. You will receive the vector on your bench in as little as a few days.
- Obtain other services (e.g. virus packaging):** In addition to vector cloning, you can purchase many other services on VectorBuilder's website such as virus packaging, BAC modification, library construction (CRISPR and shRNA), etc.
- Manage your vectors and orders:** All the vectors you designed, quotes you obtained, and orders you placed on VectorBuilder are saved to your account.
- Learn to become a vector expert:** Rich educational materials on our vector systems and vector components are available on VectorBuilder's website. Some are written as comprehensive reviews; others are listed in easy-to-read tables. These materials can help you quickly become an expert in vectorology.



Highlights

- Diversity of vectors:** You can choose from a variety of vector systems, such as regular plasmid, lentivirus, adenovirus, AAV, MMLV, piggyBac, baculovirus, and vectors for expressing genes in yeast, Drosophila, zebrafish and plant.
- Expansive databases of vector components:** Designing vectors on VectorBuilder is made super easy by our expansive collections of vector components such as promoters, ORFs, epitope tags, shRNAs and gRNAs.
- Rich annotation of vectors:** The vector you designed can be viewed in a richly annotated manner where detailed description and application notes are provided for all the components on your vector.
- Highly affordable prices:** Our vector cloning and virus packaging services are highly affordable, and typically a fraction of what it would cost to do it yourself.
- Rapid turnaround:** You can receive your vector within days in the case of simple designs.
- Bioinformatic tools:** VectorBuilder offers many bioinformatic tools to assist you in designing and analyzing your vectors, such as sequence alignment, shRNA target design, and gRNA off-target analysis.

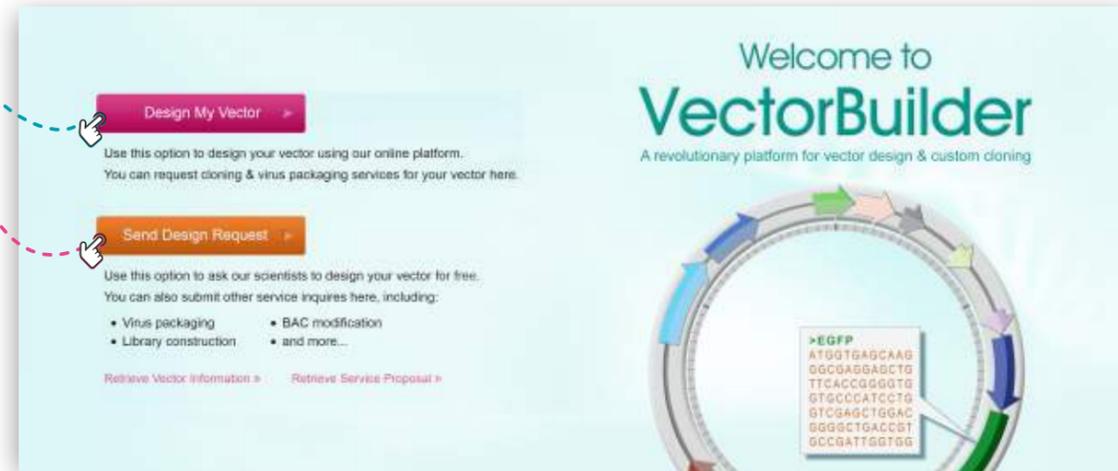
How to Design a Vector on VectorBuilder?

To design a vector, just follow the simple steps below.

1 Go to the VectorBuilder.com homepage:

Click **Design My Vector** to start designing your own vector.

If you can't design your desired vector, click **Send Design request** to ask our scientists to design your vector for you.



2 Next, on the Choose Vector System page:

Choose from >100 vector backbones for a wide range of applications in many model organisms.

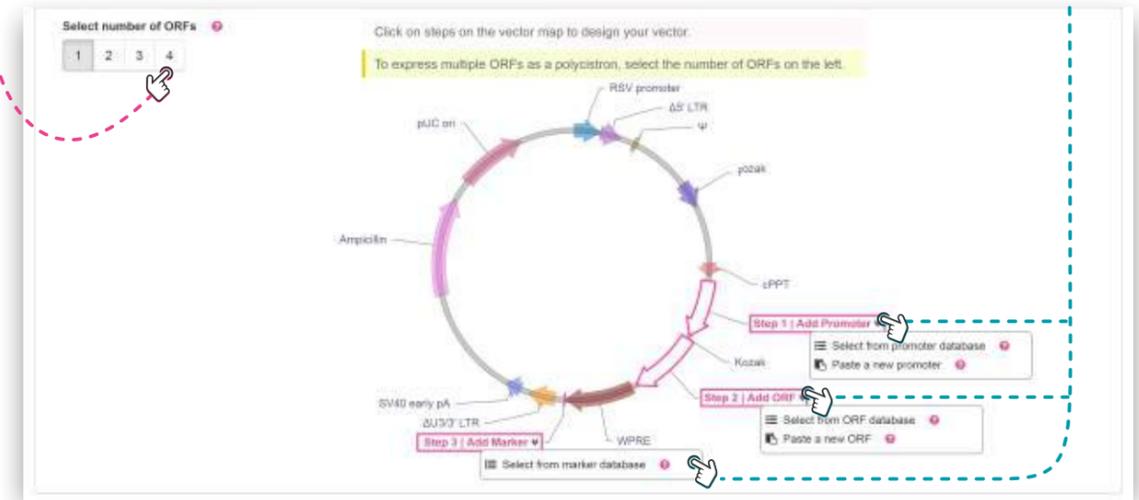
- Overexpression, shRNA, CRISPR, enhancer testing, in vitro transcription, recombinant protein, homologous recombination, etc.
- Mammalian systems, zebrafish, Drosophila, plant, yeast, bacteria, etc.



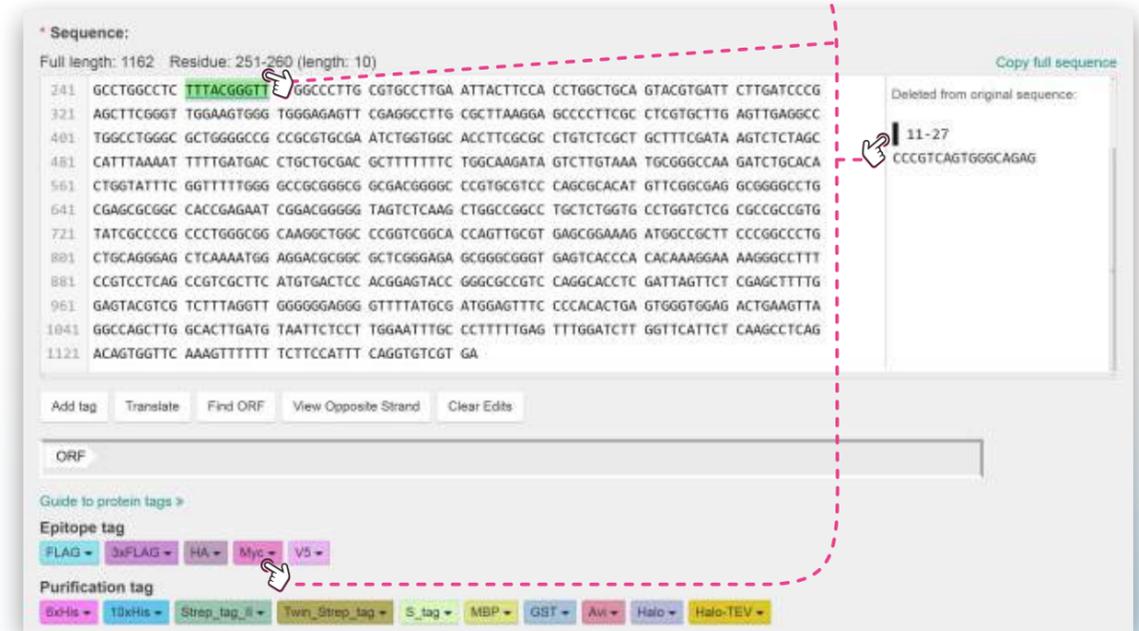
3 Next, on the Vector Design Studio page:

Add your desired vector components, such as promoter, ORF, marker, etc.

You can select to express up to 4 ORFs as a single polycistron, separated by linkers of your choice such as 2A or IRES.



You can also edit your ORF to add epitope tags or introduce mutations.



After you have added all the desired vector components, click **Finish Design**.



4 Lastly, you arrive at the **Vector Information** page, where you can:

- View complete vector map and sequence with full annotation.
- Order cloning service for the vector and downstream services such as virus packaging.
- Save the vector to your account and share it with colleagues.
- Download a vector report in several file formats.

Name	Position	Size (bp)	Type	Description	Application notes	View
CMV	22-610	589	Promoter	Human cytomegalovirus immediate early enhancer/promoter	Strong promoter; may have variable strength in some cell types.	View details
Kozak	635-640	6	Miscellaneous	Kozak translation initiation sequence	Facilitates translation initiation of ATG start codon downstream of the Kozak sequence.	View details
EGFP	641-1360	720	ORF	Enhanced green fluorescent protein; codon optimized based on a variant of wild type GFP from the jollyfish <i>Aequorea victoria</i>	Commonly used green fluorescent protein, ranked high in brightness, photostability and pH stability among all fluorescent proteins.	View details
SV40 late pA	1405-1626	222	PolyA_signal	Simian virus 40 late polyadenylation signal	Allows transcription termination and polyadenylation of mRNA transcribed by Pol II RNA polymerase.	View details
pUC ori	complement (1822-2410)	589	Replication_origin	pUC origin of replication	Facilitates plasmid replication in <i>E. coli</i> ; regulates high-copy plasmid number (500-700).	View details
Ampicillin	complement (2561-3441)	881	ORF	Ampicillin resistance gene	Allows <i>E. coli</i> to be resistant to ampicillin.	View details

Note: Components added by user are listed in **bold red text**.

How to Order on VectorBuilder?

To place an order, just follow the simple steps below.



1 Design your vector on **VectorBuilder.com**.

- Design a vector yourself on VectorBuilder.com
- OR
- Send a design request to our experts.



2 View your final vector design on the **Vector Information** page.

- View price and turnaround time.
- Add vector to shopping cart.
- Add downstream services such as virus packaging.



3 Open the **Shopping Cart** page and place your order.

- Get an official quote and use it to place your order by PO.
- OR
- Purchase directly by credit card.
- OR
- Order by pro-forma invoice.



4 Go back to your own research.

- Receive an order confirmation email.
- Receive a shipment notification.



5 Receive your vector shipment.

- Your vector is sequence verified.
- Your virus titer is fully validated.



Remember:

- A vector is just a reagent, not a research project.
- Leave cloning to us, so you can focus on the research.



Services Offered by VectorBuilder

Vector Construction

As the world's largest provider of custom vector cloning services, VectorBuilder can make virtually any vector tailored to your research needs. Our vector systems have been optimized through extensive R&D work, and all have been validated by in vitro and, where applicable, in vivo testing.

Detailed descriptions of our vector construction services, including ordering information, are available on VectorBuilder's website, under "Products & Services."

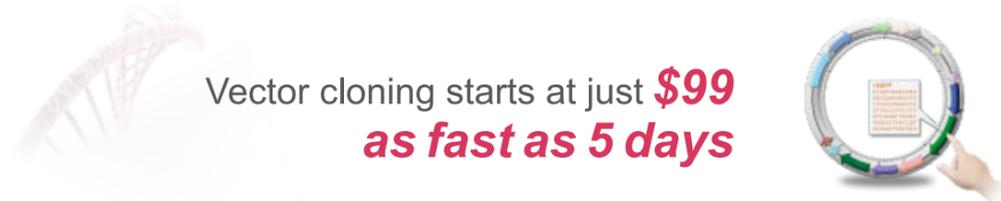
Currently Available Vector Systems on VectorBuilder

Mammalian Gene Expression Vectors	All-purpose gene expression	Regular plasmid
		Lentivirus
		MMLV retrovirus
		Adenovirus
		Adeno-associated virus (AAV)
		PiggyBac
		Tol2
	Inducible gene expression (Tet-On/Off based)	Regular plasmid (Tet-On)
		Lentivirus (Tet-On)
		PiggyBac (Tet-On)
		Adeno-associated virus (Tet-On)
	Conditional gene expression (Cre-Lox based)	Regular plasmid (LoxP-Stop-LoxP)
		PiggyBac (LoxP-Stop-LoxP)
		Regular plasmid (FLEX)
		Lentivirus (FLEX)
Adenovirus (FLEX)		
Adeno-associated virus (AAV) (FLEX)		
PiggyBac (FLEX)		
Mammalian CRISPR Vectors	gRNA and Cas9 coexpression (single or dual gRNA)	Regular plasmid
		Lentivirus
		Adenovirus
		Adeno-associated virus (AAV)
	gRNA only (single or dual gRNA)	Regular plasmid
		Lentivirus
		Adenovirus
		Adeno-associated virus (AAV)
		PiggyBac

Mammalian CRISPR Vectors	Cas9 only	Regular plasmid
		Lentivirus
		Adenovirus
		Adeno-associated virus (AAV)
		PiggyBac
	CRISPR-based gene activation	gRNA expression lentivirus
	dCas9-VP64 expression lentivirus	
	MS2-p65-HSF1 expression lentivirus	
	CRISPR-based gene inhibition	
	gRNA sensor (for testing gRNA specificity)	
Mammalian HR Donor Vectors (for CRISPR Targeting)	KO donor	
	KI donor	
Mammalian shRNA Knockdown Vectors	Regular plasmid	
	Lentivirus	
	Adenovirus	
	Adeno-associated virus (AAV)	
	PiggyBac	
	Tol2	
	Lentivirus shRNA sensor (for testing shRNA specificity)	
Lentivirus shRNA knockdown and sensor		
Enhancer/Promoter Testing Vectors	In vitro	Regular plasmid enhancer testing
		Regular plasmid promoter testing
	In vivo	Regular plasmid enhancer testing
		Regular plasmid promoter testing
		PiggyBac enhancer testing
		PiggyBac promoter testing
Plant Gene Expression Vectors	Regular plasmid	
	Agrobacterium binary vector	
Zebrafish Gene Expression Vectors	Tol2	
Drosophila Gene Expression Vectors	pUAST, pUASTattB and pUASTB	
Yeast Gene Expression Vectors	Saccharomyces cerevisiae	
	Pichia pastoris	
Recombinant Protein Expression Vectors	Bacteria	pET
		pBAD
		Cold-shock induced
	Insect	Baculovirus
In Vitro Transcription Vectors	mRNA	
	In situ hybridization	
	Small RNA	

Price and turnaround time

VectorBuilder offers top-quality vector construction services at unbeatable prices with rapid turnaround time. Price and turnaround time are based on the criteria below.



Vector cloning starts at just **\$99**
as fast as 5 days

Basic vectors

These are vectors built from VectorBuilder's standard backbones and standard components.

Vector Type	Price (USD)	Turnaround
shRNA vector	From \$99	7-14 days
gRNA vector (single-gRNA, no Cas9)	From \$99	7-14 days
Expression vector	From \$159	10-16 days

Complex vectors

These are vectors built from VectorBuilder's standard backbones but non-standard components. Custom backbones are also available for an additional charge.

Cloning Procedure	Additional Price (USD)	Additional Turnaround
Insertion of one PCR fragment (<3 kb)	\$80	5-10 days
Insertion of one PCR fragment (3-6 kb)	\$130	5-10 days
Insertion of two fused PCR fragments (<3 kb)	\$130	5-11 days
Insertion of two fused PCR fragments (3-6 kb)	\$180	5-11 days
Insertion of three fused PCR fragments (<3 kb)	\$180	5-12 days
Insertion of three fused PCR fragments (3-6 kb)	\$230	5-12 days
De novo gene synthesis (≤1.2 kb)	\$0.22/bp + processing fee	6-10 days
De novo gene synthesis (1.2-2.4 kb)	\$0.22/bp + processing fee	10-14 days
De novo gene synthesis (2.4-3.6 kb)	\$0.22/bp + processing fee	10-16 days
De novo gene synthesis (>3.6 kb)	\$0.25/bp + processing fee	>16 days
Mutagenesis	\$100/site	7-9 days

Note: For other types of atypical fragments or procedures not listed above, such as fragments containing extremely high GC content, simple repeats or segmental repeats, additional cost and time may apply.

Virus Packaging



Virus packaging starts at just **\$399**
as fast as one week

VectorBuilder has developed a range of proprietary technologies and reagents that greatly improved virus packaging protocols in terms of titer, purity, viability and consistency. Our packaging protocols are also optimized for the viral vector systems used in our cloning services.

Detailed descriptions of our virus packaging services, including ordering information, are available on VectorBuilder's website, under "Products & Services."

Types of packaging services offered

- Lentivirus packaging (third generation)
- Non-integrating Lentivirus packaging
- Adenovirus packaging
- AAV packaging (second generation), serotype 1, 2, 3, 4, 5, 6, 6.2, 7, 8, 9, rh10, DJ, DJ/8, PHP.eB, PHP.S, AAV2-retro
- VSVG pseudotyped MMLV packaging

Price and turnaround time

Virus Type	Scale	Application	Titer & Volume	Price (USD)	Turnaround
Lentivirus (including regular & non-integrating)	Pilot	Cell culture	>10 ⁸ TU/ml, 250 µl	\$399	7-14 days
	Medium	Cell culture	>10 ⁸ TU/ml, 1 ml	\$599	7-14 days
	Large	Cell culture	>10 ⁹ TU/ml, 1 ml	\$999	7-14 days
	Ultra-purified	In vivo	>10 ⁹ TU/ml, 1 ml	\$1499	7-14 days
Adenovirus	Pilot	Cell culture	>10 ¹⁰ PFU/ml, 250 ul	\$399	20-32 days
	Medium	Cell culture	>10 ¹⁰ PFU/ml, 1 ml	\$599	20-32 days
	Large	Cell culture	>10 ¹¹ PFU/ml, 1 ml	\$999	20-32 days
	Ultra-purified	In vivo	>10 ¹² VP/ml, 2 ml	\$1499	22-36 days
AAV	Pilot	Cell culture	>10 ¹¹ GC/ml, 250 ul	\$399	7-14 days
	Medium	Cell culture	>10 ¹¹ GC/ml, 1 ml	\$599	7-14 days
	Large	Cell culture	>10 ¹² GC/ml, 1 ml	\$999	7-14 days
	Ultra-purified pilot	In vivo	>10 ¹³ GC/ml, 100 µl	\$1099	12-20 days
	Ultra-purified medium	In vivo	>10 ¹³ GC/ml, 500 µl	\$1699	12-20 days
MMLV	Pilot	Cell culture	>10 ⁷ TU/ml, 250 ul	\$399	7-14 days
	Medium	Cell culture	>10 ⁷ TU/ml, 1 ml	\$599	7-14 days
	Large	Cell culture	>10 ⁸ TU/ml, 1 ml	\$999	7-14 days
	Ultra-purified	In vivo	>10 ⁸ TU/ml, 1 ml	\$1499	7-14 days

BAC Modification (Recombineering)



BAC modification starts at just **\$1,950**

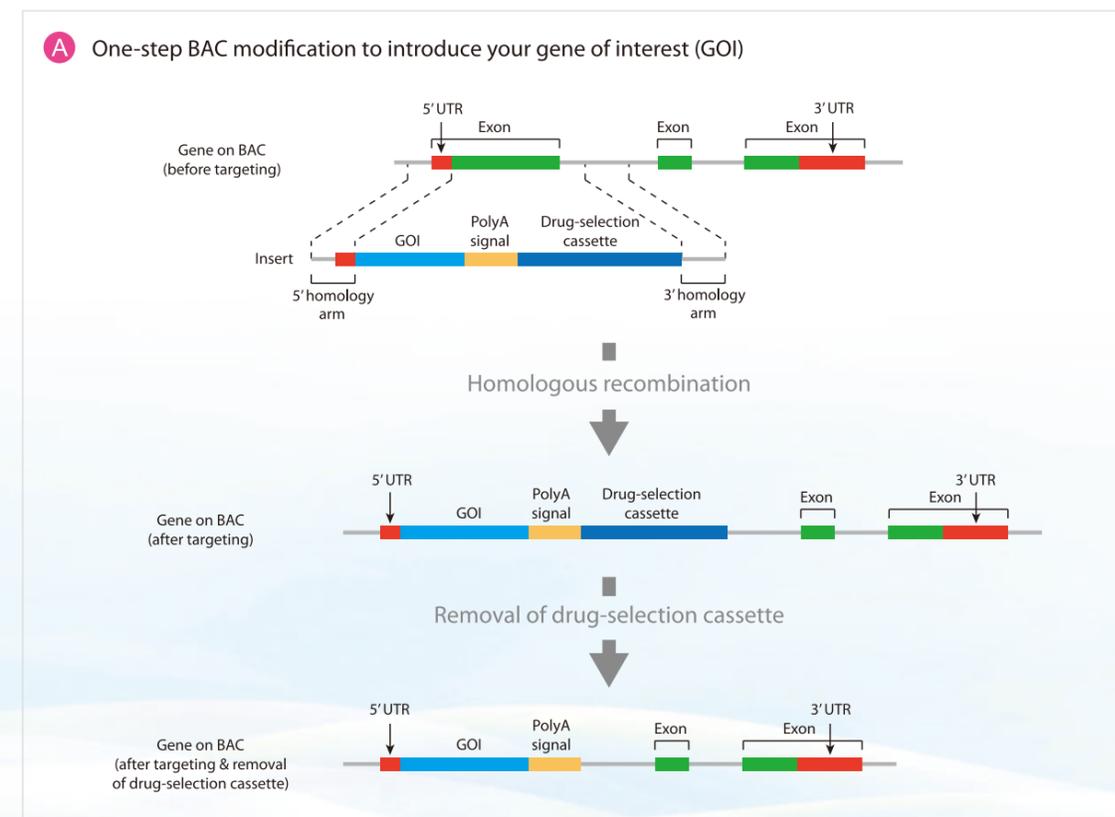
VectorBuilder can fulfill all your BAC modification needs with rapid turnaround and unbeatable prices.

We can:

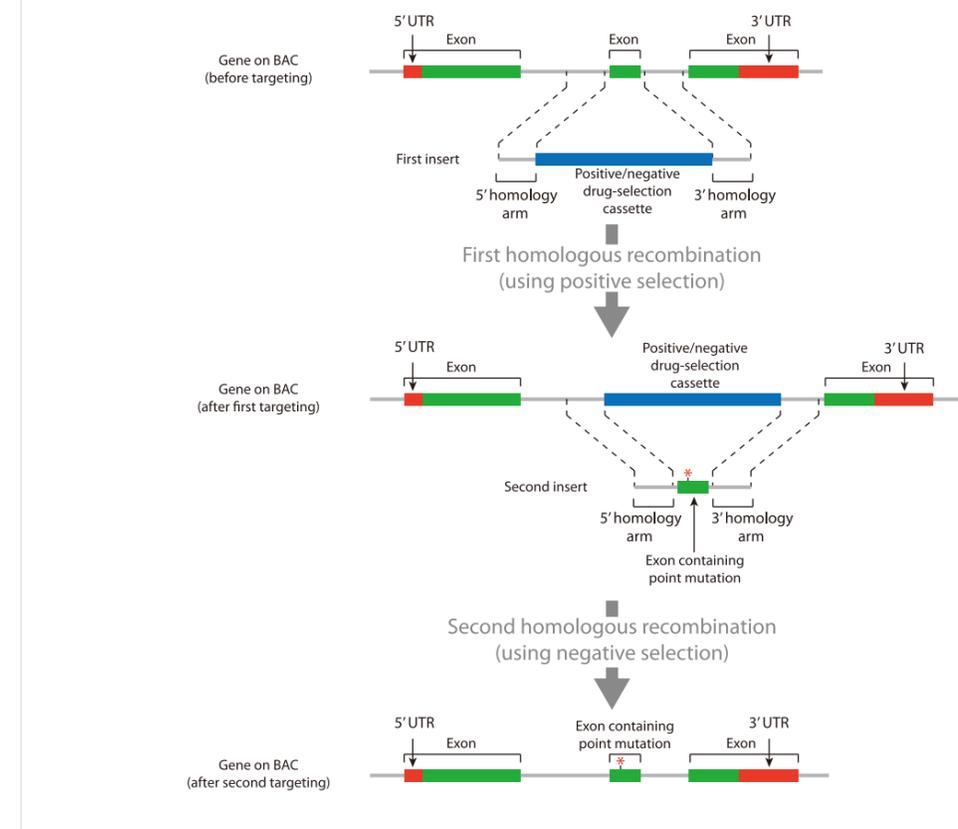
- Place reporters behind regulatory sequences on the BAC
- Introduce point mutations into genes of interest
- Transfer regions of the BAC onto a plasmid
- Add drug-selection or visualization markers to the BAC backbone

Detailed descriptions of our BAC modification services, including ordering information, are available on VectorBuilder's website, under "Products & Services."

How it works:



B Two-step BAC modification to introduce point mutation



Price and turnaround time

Service	Price (USD)	Turnaround
Design BAC modification strategy	Free	1-4 days
Obtain BAC from vendor	\$195	1-2 weeks
One-step BAC modification (without removing drug-selection cassette)	From \$1,950	2-4 weeks
Optional: Remove drug-selection cassette used in one-step BAC modification	\$350	1-2 weeks
Two-step BAC modification	From \$4,950	4-8 weeks
Add drug-selection or visualization marker to BAC backbone	From \$950	1-2 weeks
Transfer region of BAC onto plasmid	\$2,550	2-4 weeks
Validation of modified BAC	Free	2-3 days

Custom CRISPR/shRNA Library Construction



Custom CRISPR or shRNA library starts at **\$5,000**

VectorBuilder can help you build custom pooled CRISPR or shRNA libraries to perform large-scale functional screens. We can deliver your library as E. coli stock, DNA, or packaged virus, depending on your needs. Our custom libraries are fully validated by next generation sequencing so you know exactly what you get.

Detailed descriptions of our CRISPR and shRNA library construction services, including ordering information, are available on VectorBuilder's website, under "Products & Services."

Workflow of CRISPR/shRNA library construction



Overview of services

Available Services	Brief Description	Price (USD)	Turnaround
Design library construction strategy		Free	1-4 days
Pooled CRISPR or shRNA library construction	Includes cloning of gRNA/shRNA plasmid pool, and next-generation sequencing validation.	From \$5,000	6-8 weeks
Amplification of premade plasmid library pool	Includes transformation of plasmid pool into E. coli and plasmid DNA isolation.	From \$200	3-5 days
Virus packaging of pooled library	Please see "Virus Packaging" on page 10.		
NGS validation of premade plasmid library pool	Includes NGS library preparation from plasmid pool, Illumina sequencing, and data analysis.	From \$500 per plasmid pool	2-4 weeks
NGS deconvolution of post-screening sample	Includes NGS library preparation from genomic DNA, Illumina sequencing, and data analysis.	From \$800 per sample	2-5 weeks
Other custom library construction	Please inquire.		

Comparison Between VectorBuilder And Other Companies

Services/Products	Companies Offering Vector Design Softwares	Companies Offering Expression Ready Vectors	Companies Offering Custom Gene Synthesis	Companies Offering Vector Backbones	Companies Offering Virus Packaging & Pre-made Viral Particles	VectorBuilder
Vector Designing	✓					✓
Vector Construction		✓	✓		✓	✓
Expression-ready ORFs		✓				✓
Custom Gene Synthesis			✓			✓
Vector Backbones		✓	✓	✓		✓
Virus Packaging					✓	✓
Pre-made Virus					✓	✓

Customer Testimonials

VectorBuilder is an amazing way to save time on molecular biology. The web site is easy to use, well-conceived and allows quick design in most cases. For more unusual requests, the team is energetic, reply promptly on every request, and always finds a way to help. Low prices and short timelines really make it possible to consider VectorBuilder on many cloning matters.

Laura Israel
Novartis (Basel), Switzerland

Our laboratory has had great success with both viral constructs and ready-to-use virus prepared by VectorBuilder. They provide excellent customer service at a reasonable price, and their website is extremely user-friendly. Very pleased we discovered this company.

Marco Seandel
Weill Cornell Medical College, USA

VectorBuilder has provided incredible value and customer service throughout the entire process from product selection, custom design assistance, order submission, status reports and ultimate delivery management. The custom products I purchased from them performed exactly as advertised and in fact surpassed my expectations. I would recommend VectorBuilder to anyone requiring this type of product.

Frank Borriello
Alloplex Biotherapeutics, USA

Using VectorBuilder has transformed the way I do my research. VectorBuilder's easy-to-use web interface allows me to custom build my own plasmids, freeing up time that I would have wasted cloning and instead letting me focus on the research that really matters. They offer great prices with a fast turnaround time. Their friendly and well-informed technical support team are on hand every step of the way, should you need any help. I would strongly recommend VectorBuilder to anyone wanting to accelerate the progress of their research.

David M Brown
University of Nottingham, UK

The scientific standards of VectorBuilder's services are unquestionably high. The web interface to design vectors is intuitive and in fact so easy to use that it can even serve for educational purposes. VectorBuilder has pretty much covered everything one can think about when wanting to design an expression vector, it's great to have all the versatility on one page. Turnaround time is fast and owing to their professionalism and customer friendly attitude I can recommend VectorBuilder's services without reserve.

Johnny Kim
Max Planck Institute for Heart and Lung Research, Germany

To see more customer testimonials, please visit the Learning Center on VectorBuilder.com.