

# Molecular and Synthetic Biology Solutions

Empowering the synthetic biology revolution  
— from molecules to measurement





# The Next-Generation of Molecular Biology

The foundational techniques of molecular biology are changing. Synthetic biology approaches to engineering biological systems and organisms have driven innovations in both DNA synthesis and assembly. Agilent's products bring these novel tools into the reach of every molecular biology lab, improving the speed and reliability while reducing the cost of next-gen cloning and mutagenesis.

## Stratagene LABS. Agilent-Backed Quality.

Cutting-edge molecular and synthetic biology solutions to accelerate your research.

Since 1984, Stratagene products have been used throughout the academic, industry and government research sectors in fields spanning molecular biology, genomics, proteomics, drug discovery and toxicology. In 2007, Agilent Technologies integrated Stratagene's labs, which now form the primary research and development branch of Agilent's genomics division.





## Molecular and Synthetic Biology Solutions

Empowering the synthetic biology revolution—from molecules to measurement.

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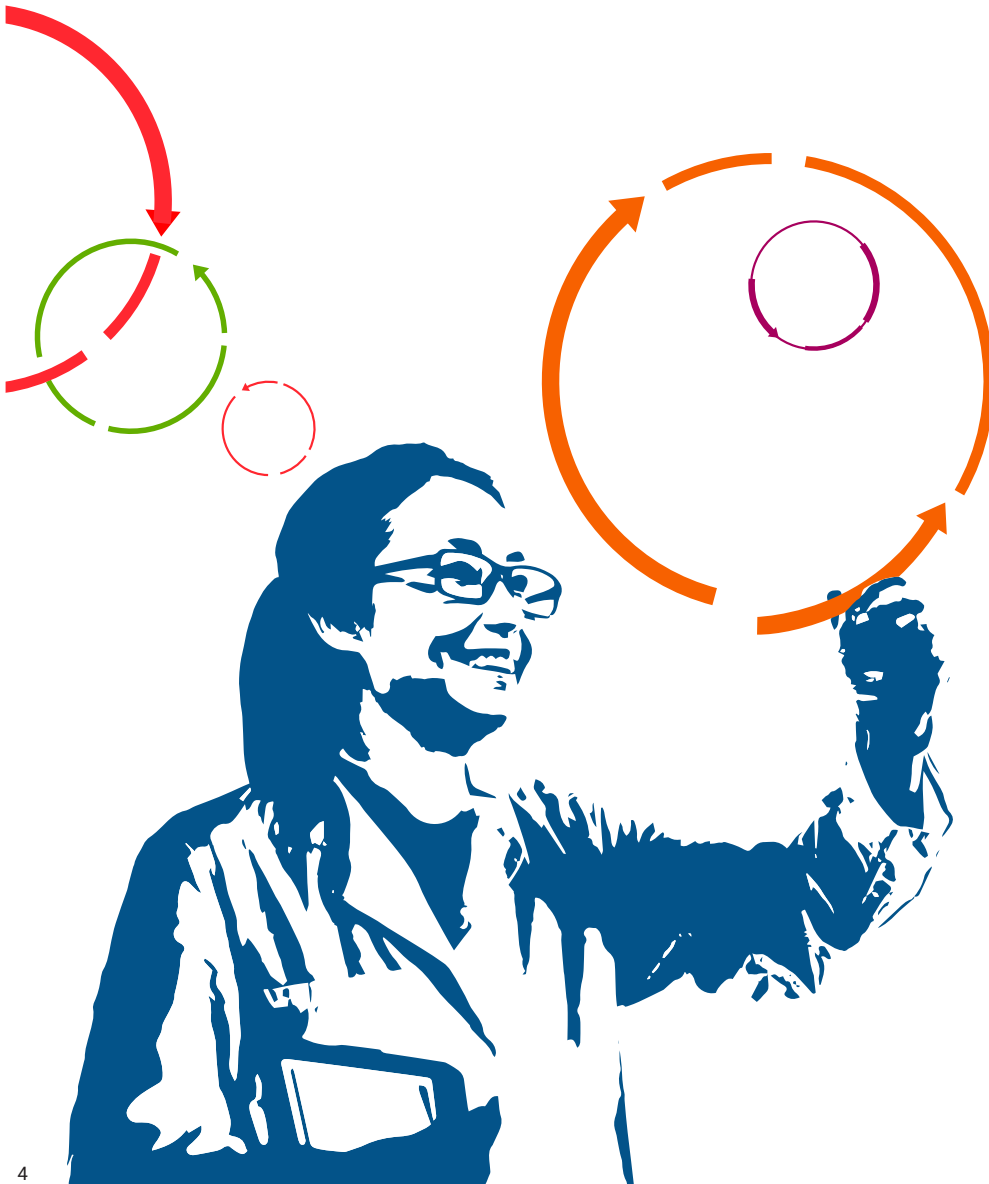
# SureVector Next-Gen Cloning Kits

## Your Vision. Your Vectors.

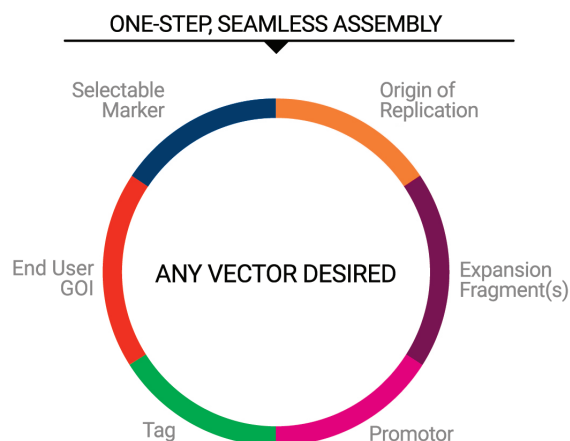
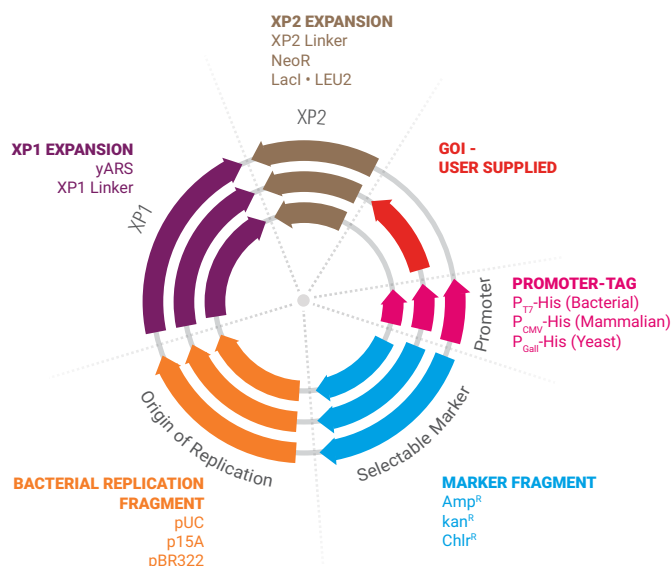
SureVector, the world's first modular vector system, harnesses the power of synthetic biology to provide quick, user-friendly customization of cloning and expression vectors. In contrast to alternative next-gen cloning technologies, SureVector offers a unique set of standard parts that can be assembled into an endless supply of custom vectors—all with a validated assembly system you can count on.

### How does SureVector work?

A single SureVector kit contains a set of DNA fragments which are the functional “parts” of most cloning and expression vectors. These parts can be assembled into any combination desired, resulting in customized vectors. The proprietary SureVector enzymes can assemble up to seven fragments into a circularized plasmid in a single, 20-minute reaction.







## Fast, Flexible, Reliable.

- Rapid custom vector generation**

Less than a day from design to vector, compared to four weeks for custom vector services

- Reliable and precise assembly**

SureVector is extensively validated to ensure standard parts can be interchanged without loss of functionality

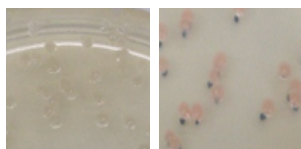
- More flexible than traditional systems**

Assemble new vectors in your lab as experimental requirements change, rather than ordering a new one

- Control your experiments**

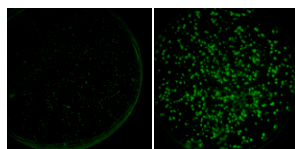
Take control of your experiments by troubleshooting your DNA assembly—not your service provider's

## Multi-Organism Functionality



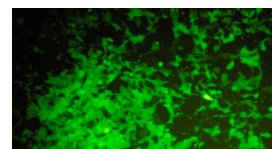
### Bacteria

Bacterial expression using SureVector's T7 promoter. Pink colonies on the right express fluorescent protein when T7 is present, while negative controls (left) do not.



### Yeast

The presence of LEU2 gene in the SureVector expansion slot (right) allows yeast to grow on leucine deficient media.



### Mammalian

Stable mammalian cell lines using the neomycin resistant fragment from the SureVector kit.

# SureVector Next-Gen Cloning Kits (Continued)

## Agilent SureVector System Fragments & Kit Numbers

	<i>E. coli</i>	Mammalian	Yeast
<b>Promoters</b>	T7 (G7515A-B, G7518B-E)	CMV (G7516A-B)	GAL1 (G7517A-B)
	Tac (G7515A-B, G7518B-C)	SV40 (G7516A-B)	CUP1 (G7517A-B)
	Rhamnose (G7515A-B, G7518C)	EF-1α (G7516A-B)	ADH1 (G7517A-B)
<b>Tags</b>	CBP (G7515A-B, G7518E)	3xFLAG (G7516A-B)	3xFLAG (G7517A-B)
	DsbA (N-term only) (G7515A)	GFP (G7516A-B)	GFP (G7517A-B)
	GST (N-term only) (G7515A, G7518D)	3xHA (G7516A-B)	3xHA (G7517A-B)
	HA (C-term only) (G7515B)	6xHis (G7516A-B)	6xHis (G7517A-B)
	6xHis (G7515A-B, G7518B-C)	c-Myc (G7516A-B)	c-Myc (G7517A-B)
	MBP (N-term only) (G7515A, G7518D)	SBP (G7516A-B)	SBP (G7517A-B)
	c-Myc (C-term only) (G7515B)		
	SBP (G7515A-B, G7518D-E)		
	Thioredoxin (C-term only) (G7515B, G7518E)		
<b>Bacterial Selection</b>	AmpR (G7514A, G7518A-E)	AmpR (G7514A, G7518A-E)	AmpR (G7514A, G7518A-E)
	CamR (G7514A, G7518A)	CamR (G7514A, G7518A)	CamR (G7514A, G7518A)
	KanR (G7514A, G7518A)	KanR (G7514A, G7518A)	KanR (G7514A, G7518A)
<b>Bacterial Origins of Replication</b>	pUC (G7514A, G7518A-E)	pUC (G7514A, G7518A-E)	pUC (G7514A, G7518A-E)
	p15A (G7514A)	p15A (G7514A)	p15A (G7514A)
	pBR322 (G7514A)	pBR322 (G7514A)	pBR322 (G7514A)
<b>XP1 Fragments</b>	XP1 (G7514A, G7518A-E)	XP1 (G7514A, G7518A-E)	yARS (G7514A)
			XP1 (G7514A, G7518A-E)
<b>XP2 Fragments</b>	LacI (G7514A, G7518A-E)	Blasticidin (G7516A-B)	URA3 (G7517A-B)
	XP2 (G7514A)	Hygromycin (G7516A-B)	HIS3 (G7517A-B)
		Puromycin (G7516A-B)	Hygromycin (G7517A-B)
		NeoR (G7514A)	LEU2 (G7514A)
		XP2 (G7514A)	XP2 (G7514A)
<b>Promoter-Tag Fusions</b>	T7-HIS6 (G7514A, G7518A-B, G7518D)	CMV-HIS6 (G7514A)	GAL1-HIS6 (G7514A)

# Mutagenesis Products

## Efficiency Without Compromise

From rational design to random mutations, Agilent offers mutagenesis solutions for any application. Agilent offers the only widely available commercial technology that is not PCR based, so you don't have to sacrifice error rate for efficiency.

### Market-leading QuikChange Mutagenesis

QuikChange kits have provided researchers with a fast, easy and efficient non-PCR method to reliably perform site-directed mutagenesis since 1996. Other commercially-available kits utilize PCR-based techniques, which can propagate errors with each successive round of thermal cycling. The QuikChange method uses a linear amplification strategy with only the parental strand serving as the DNA template. Combining this with our highest fidelity polymerases leads to a significant reduction in unwanted second-site errors. The existence of such errors is likely to complicate and delay downstream screening and analysis.

#### QuikChange Lightning Multi

- Fast, reliable and easy QuikChange protocol
- Mutate up to three sites simultaneously using a single QuikChange reaction

#### QuikChange Lightning

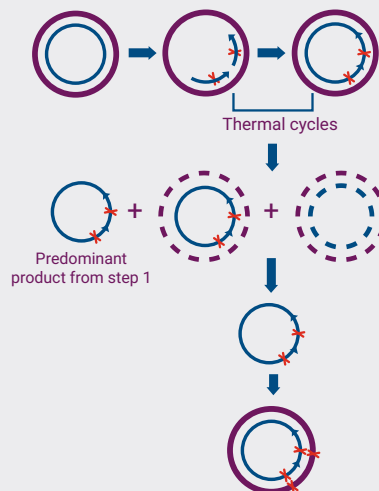
- 75% reduction in thermocycling time compared to original QuikChange enzyme blend
- More efficient with improved colony yields
- >80% mutation efficiency for both short and long templates (up to 14 kb)

#### GeneMorph II

- More uniform mutational spectrum when performing error-prone PCR
- GeneMorph II kits utilize Mutazyme II DNA polymerase, a novel error prone PCR enzyme blend, with equivalent mutation rates at As and Ts vs. Gs and Cs

### The 'Lightning Advantage'

The QuikChange Lightning Kit contains specially engineered enzymes that have been designed to shorten the time necessary to complete our signature 3-step protocol. Extension times for the thermal cycling process have been reduced by 75% and digestion of the non-mutated parental template has been decreased to only five minutes.



#### QuikChange Lightning Multi

- 1 Mutant Strand Synthesis**  
Perform thermal cycling to:
  - Denature DNA template
  - Anneal mutagenic primers (all primers bind to the same strand)
  - Extend primers and ligate nicks with QuikChange Multi enzyme
- 2 Dpn I Digestion of Template**
  - Digest methylated and hemimethylated DNA with Dpn I
- 3 Transformation**  
Transform mutated ssDNA into XL10-Gold ultracompetent cells, which synthesize the complementary strand

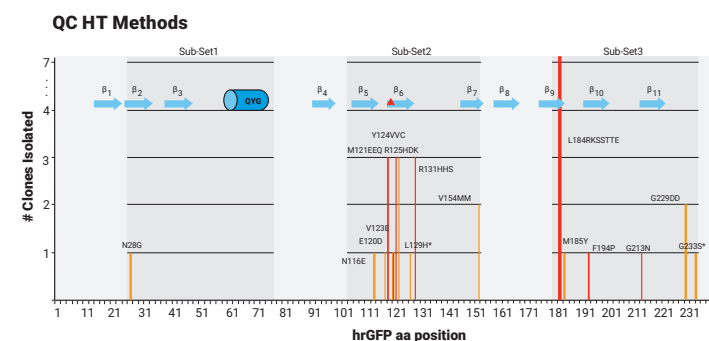
# Mutagenesis Products (Continued)

## QuikChange HT Protein Engineering System

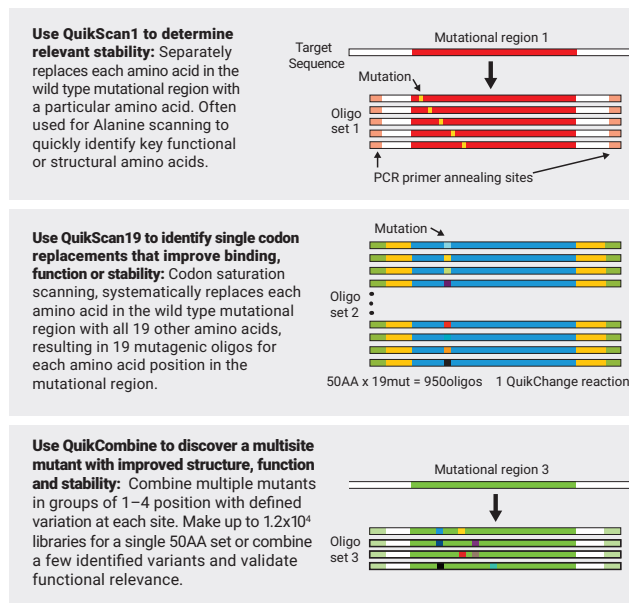
QuikChange technology meets high-throughput DNA synthesis to provide access to rationally-designed oligo libraries for protein engineering applications. The QuikChange HT Protein Engineering System provides rapid resolution of structural and functional questions by creating libraries of rationally-designed mutants for applications such as single amino acid scanning, site saturations scanning or targeted combinatorial mutagenesis.

### Key Features:

- Rapidly generate a rational design library of protein variants—less than a full day of hands-on time compared to weeks of waiting for a gene variant library
- Reduced cost of library generation—only pennies per mutant compared to \$20 or more for gene variant libraries



An example of the QuikChange HT kit applied to engineering of a GFP variant with enhanced brightness. Using site saturation mutagenesis yielded several beneficial mutations.



Three possible mutational strategies using QuikChange HT: Alanine-scanning, site saturation scanning and combinatorial mutagenesis.

Product	Uses	Part Number
<b>QuikChange Mutagenesis</b>		
QuikChange Lightning Multi	Use for up to 3 mutations simultaneously, 10 or 30 reaction kits	210514, 210516
QuikChange Lightning	Single site mutagenesis, 10 or 30 reaction kits	210518, 210519
<b>QuikChange HT Protein Engineering System</b>		
QuikChange HT	Use for targeting up to 10 different 50 amino acid long regions in a protein	G5900A
QuikChange HT	Use for targeting up to 20 different 50 amino acid long regions in a protein	G5900B
QuikChange HT	Use for targeting up to 10 different 67 amino acid long regions in a protein	G5901A
QuikChange HT	Use for targeting up to 20 different 67 amino acid long regions in a protein	G5901B
<b>Random Mutagenesis</b>		
GeneMorph II	Mutagenic polymerase for balanced random mutagenesis	200550, 200552



# Specialty Cloning Products

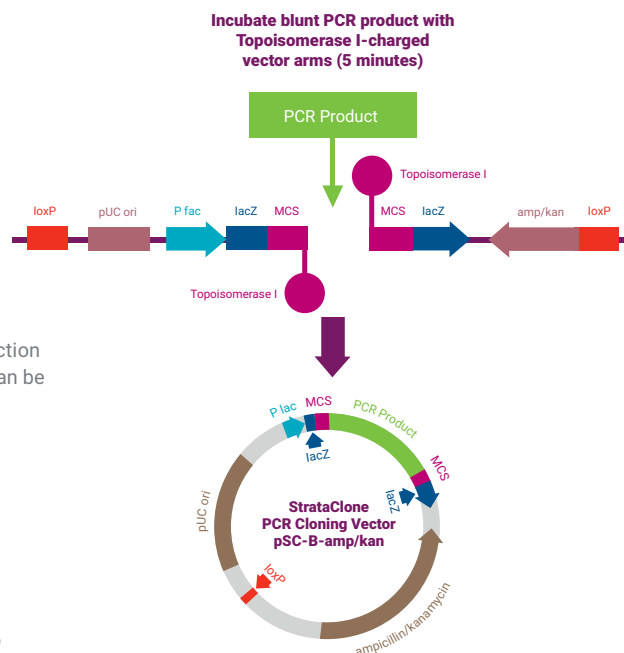
## A Solution for Every Situation

When you have a difficult cloning project, Agilent offers everything from a traditional topoisomerase based kit to a huge selection of catalog vectors for any application.

### StrataClone PCR Cloning Kit

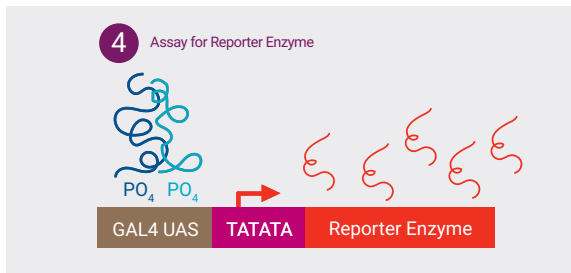
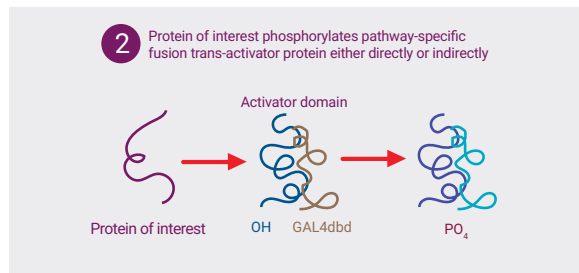
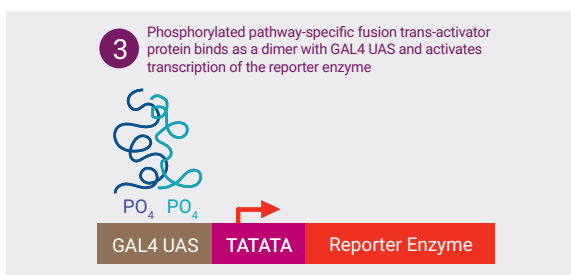
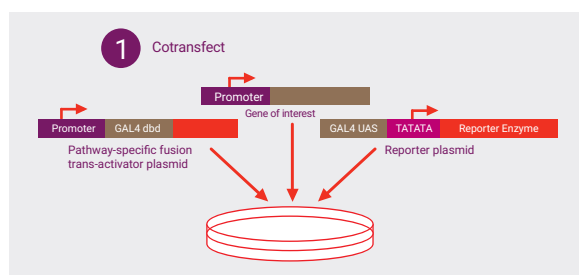
The StrataClone PCR Cloning Kit allows high-efficiency, 5-minute cloning of PCR products at room temperature, using the efficient DNA rejoining activity of DNA topoisomerase I and the DNA recombination activity of Cre recombinase. These kits are available for both blunt-end and UA cloning.

The blunt end StrataClone kit is perfect for use with our new Cas9 programmable restriction enzyme kit. Cas9 can be used to produce a linear fragment of DNA with blunt ends that can be rapidly cloned into the StrataClone vector.



### PathDetect *Cis* and *Trans*-Reporting Systems

Determine if a gene product or compound activates pathways leading to specific enhancers with our PathDetect *Cis* and *Trans*-Reporting systems.



The PathDetect in vivo signal transduction pathway *trans*-reporting system.

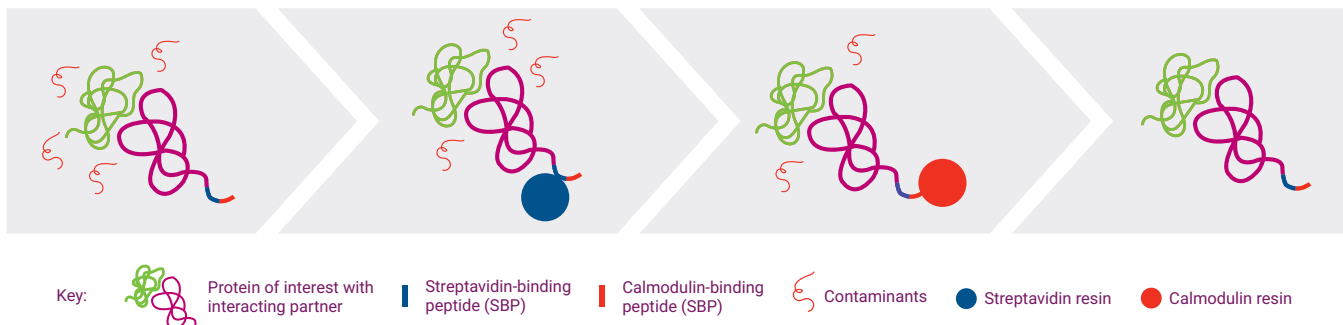
# Specialty Cloning Products (Continued)

## InterPlay TAP Systems for Protein-Protein Interactions

The InterPlay Mammalian TAP System allows you to recover interacting proteins from mammalian cells. Tandem affinity purification yields your tagged protein and interacting proteins using gentle washing and small molecule elution conditions.

### Two Easy Purification Steps

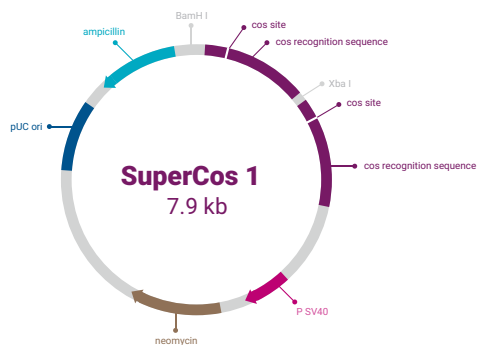
To purify proteins with the TAP protocol, apply the mammalian cell lysate to the streptavidin resin, then elute using biotin, and apply that eluate to a calmodulin resin. Once you elute with EGTA, you will get exceptionally clean proteins.



## Specialty Vectors

### SuperCos 1

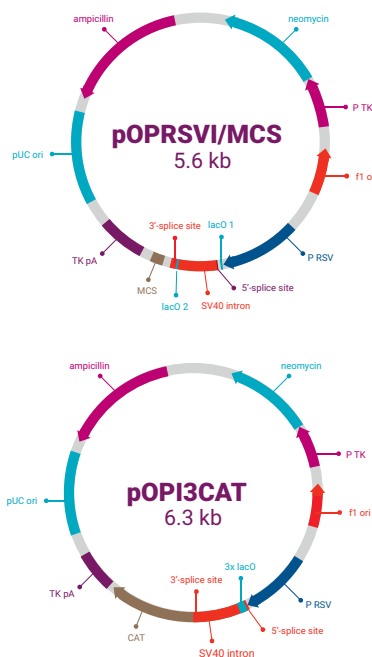
SuperCos 1 is a novel, 7.9 kb cosmid vector that contains bacteriophage promoter sequences flanking a unique cloning site.



We have a vector system for any application you could imagine—visit [www.genomics.agilent.com](http://www.genomics.agilent.com)

### LacSwitch II

The LacSwitch II inducible mammalian expression system utilizes an improved vector system in which several elements of the lac operon have been modified for use in eukaryotic cells for inducible gene expression.



Product	Part Number
<b>StrataClone Systems</b>	
StrataClone PCR Cloning Kit	240205
StrataClone Blunt Cloning Kit	240207
StrataClone Ultra Blunt Cloning Kit	240218

<b>Trans-Reporting Systems</b>	
PathDetect c-Jun <i>trans</i> -Reporting System	219000
PathDetect Elk1 <i>trans</i> -Reporting System	219005
PathDetect CREB <i>trans</i> -Reporting System	219010
PathDetect CHOP <i>trans</i> -Reporting System	219015
pFA-ATF2 Plasmid	219026
pFA-cFos Plasmid	219031
pFA-CMV Plasmid	219036
pFR-CAT Plasmid	219001
pFR-βGal Plasmid	219002
pFR-SEAP Plasmid	219004
pFA-CHOP Plasmid	219054
pFA2-CREB Plasmid	219068
pFA2-Elk1 Plasmid	219062
pFA2-cJun Plasmid	219053
pFR-Luc Plasmid	219050

<b>InterPlay TAP Systems for Protein-Protein Interactions</b>	
InterPlay N-Terminal Mammalian TAP System Kit	240103
InterPlay C-Terminal Mammalian TAP System Kit	240104
InterPlay N-Terminal Mammalian TAP Vectors, 3 x 20 µg	240101
InterPlay C-Terminal Mammalian TAP Vectors, 3 x 20 µg	240102
InterPlay Mammalian TAP Purification Kit	240107
InterPlay Adenoviral N-terminal TAP	240213
Interplay Adenoviral C-terminal TAP	240215
InterPlay N-Terminal Mammalian TAP Vectors, 3 x 20 µg	240214
InterPlay C-Terminal Mammalian TAP Vectors, 3 x 20 µg	240216

Product	Part Number
<b>Path Detect Cis-Reporting Systems</b>	
AP-1 <i>cis</i> -Reporting System	219073
NF-κB <i>cis</i> -Reporting System	219077
SRF <i>cis</i> -Reporting System	219081
ISRE <i>cis</i> -Reporting System	219092
NFAT <i>cis</i> -Reporting System	219094
C/EBP <i>cis</i> -Reporting System	240111
DR3 <i>cis</i> -Reporting System	240115
Egr-1 <i>cis</i> -Reporting System	240129
GRE <i>cis</i> -Reporting System	240133
pAP-1-hrGFP Plasmid	240049
pNF-κB-hrGFP Plasmid	240051
pLuc-MCS Plasmid	219087
CRE <i>cis</i> -Reporting System	219075
SRE <i>cis</i> -Reporting System	219079
p53 <i>cis</i> -Reporting System	219083
GAS <i>cis</i> -Reporting System	219093
TARE <i>cis</i> -Reporting System	219095
DR1 <i>cis</i> -Reporting System	240113
DR5 <i>cis</i> -Reporting System	240119
LILRE <i>cis</i> -Reporting System	240131
DR4 <i>cis</i> -Reporting System	240135
pCRE-hrGFP Plasmid	240050
pNFAT-hrGFP Plasmid	240053

<b>Specialty Vectors</b>	
SuperCos (10 rxn kit)	251301
LacSwitch II system	217450

Additional components for Path Detect *Cis*-Reporting Systems can be found at [www.genomics.agilent.com](http://www.genomics.agilent.com)

# Viral Expression Systems

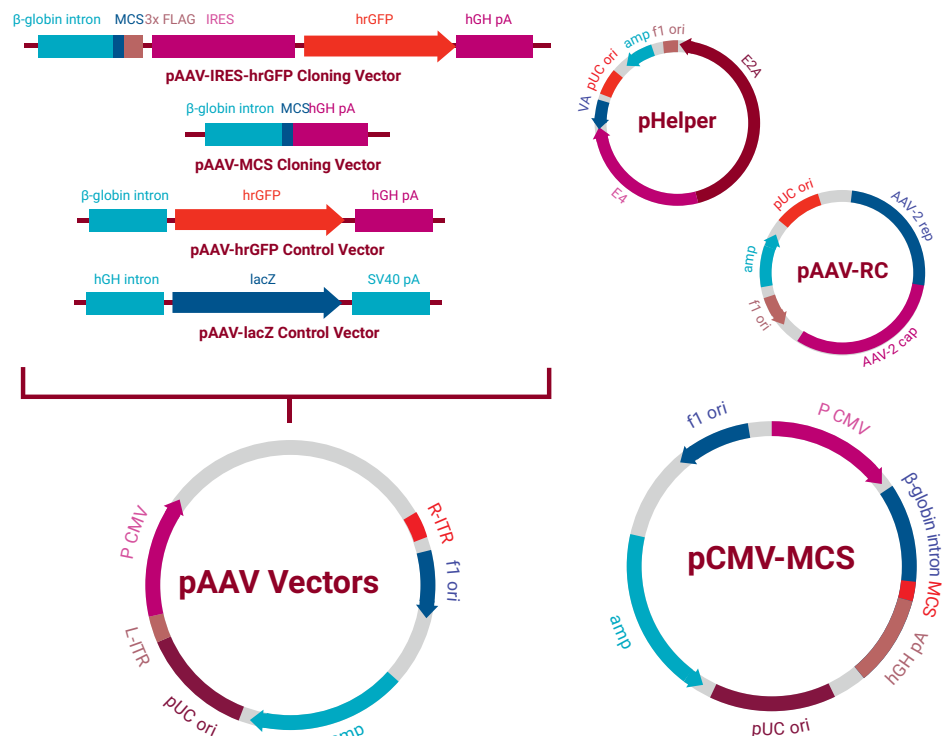
## High-Efficiency Gene Delivery Starts Here

As synthetic biology moves out of the prokaryote and into eukaryotic systems, the need to study gene expression in a native host is becoming increasingly important. Many of these hosts are difficult or impossible to transfect, meaning progress may be limited by hosts that easily accept DNA using traditional transfection methods. To solve this problem, viral-based gene delivery systems have been developed for exceptionally high-efficiency gene delivery to a broader range of hosts.

Application	Long-Term Gene Expression	Transient, High-Level Gene Expression	Functional Cloning Assays
System	AAV Helper-Free System	AdEasy™ Adenoviral Systems	ViraPort Retroviral Expression System
Advantages	<ul style="list-style-type: none"> <li>• Infects both dividing and non-dividing cells</li> <li>• Long-term, stable gene expression</li> <li>• Unparalleled biosafety profile</li> </ul>	<ul style="list-style-type: none"> <li>• High-level protein production</li> <li>• Infects both dividing and non-dividing cells</li> <li>• Homologous recombination in <i>E. coli</i> saves weeks of work</li> </ul>	<ul style="list-style-type: none"> <li>• Integrates into host genome for stable expression</li> <li>• Copy number controlled by multiplicity of infection</li> <li>• Functionally screen cDNA libraries in mammalian cells</li> <li>• Pre-made libraries available</li> </ul>

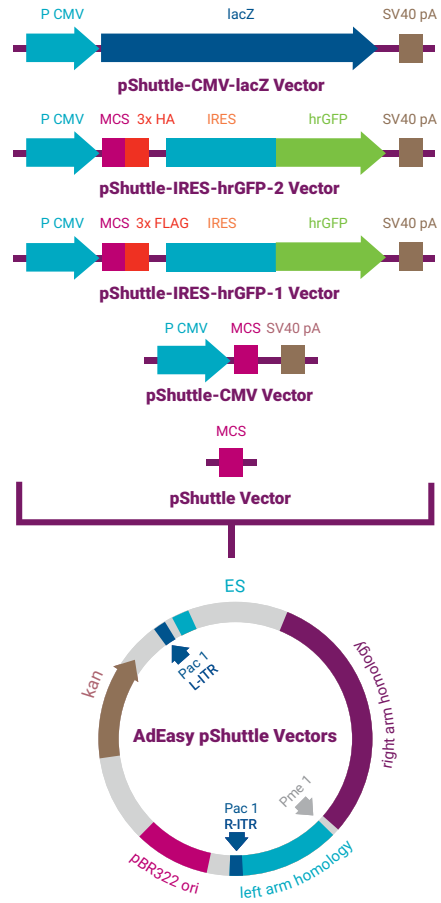
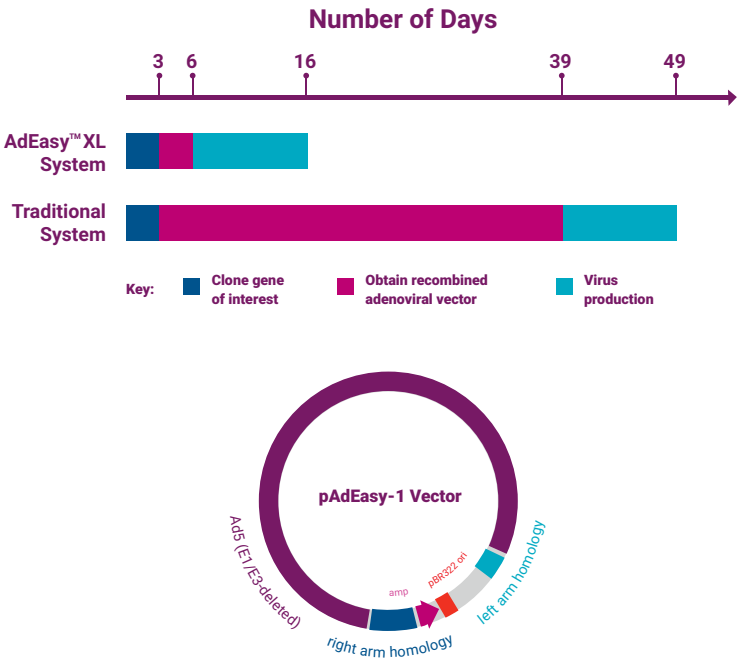
### AAV Helper-Free

The AAV Helper-Free System improves upon recombinant adeno-associated virus-2 (AAV-2) technology by eliminating the need for helper virus. It allows safe, high-efficiency gene delivery and long-term expression in a broad range of hosts.



AdEasy™ XL and AdEasy™ Systems

The AdEasy™ XL and AdEasy™ Adenoviral Vector Systems save you a month of work over traditional methods by producing the recombinant adenoviral plasmid by homologous recombination in *E. coli*. Now you can obtain your recombinant plasmid after a simple transformation.



ViraPort

Our ViraPort retroviral gene expression system is superior to standard transfection technology. High transduction efficiency and large cloning capacity (up to 8 kb) make the system ideal for building and screening complex libraries.

ViraPack Transfection Kit

System	AAV	AdEasy™ XL	ViraPort	Transfection
Gene delivery efficiency	>90%	>90%	>90%	~20%
Host: Dividing cells	+	+	+	+
Host: Non-dividing cells	+	+	-	-
Long-term expression	+	-	+	+
Transient expression	-	+	-	+
High-titer virus	+	+	-	N/A
Host immunogenicity	-	+	-	N/A
Maximum insert size	3 kb	7.5 kb	<8 kb	Variable
Selection for stable cells	+/-	N/A	-	+

## Viral Expression Systems (Continued)

Product	Quantity	Part Number
<b>AAV Helper-Free System</b>		
AAV Helper-Free System + pAAV-MCS vector, 10 µg + pCMV-MCS vector, 10 µg + pAAV-lacZ vector, 10 µg + pAAV-RC vector, 20 µg + pHelper vector, 20 µg + AAV-293 cells, 1x10 <sup>6</sup> cells + AAV HT1080, 1x10 <sup>6</sup> cells	1 kit	240071
pAAV-hrGFP Vector	20 µg	240074
pAAV-IRES-hrGFP Vector	20 µg	240075
AAV-293 Cells	1 x 10 <sup>6</sup> cells	240073
AAV-HT1080 Cells	1 x 10 <sup>6</sup> cells	240109

Product	Quantity	Part Number
<b>ViraPort® Retroviral Gene Expression System</b>		
pFB Retroviral Vector	10 µg	217563
pFB-Neo Retroviral Vector	10 µg	217561
pVpack-GP Vector	20 µg	217566
pVpack-Eco Vector	20 µg	217569
pVpack-Ampho Vector	20 µg	217568
pVpack-10A1 Vector	20 µg	217570
pVpack-VSV-G Vector	20 µg	217567
Vitality® pFB-hrGFP plasmid vector	10 µg	240027
pFB-Neo-lacZ plasmid vector	10 µg	240029
pFB-Luc plasmid vector	10 µg	240030

Product	Quantity	Part Number
<b>ViraPack Transfection Kit</b>		
ViraPack Transfection Kit	1 kit	200488

Product	Quantity	Part Number
<b>AdEasy™ and AdEasy™ XL Adenoviral Vector Systems</b>		
AdEasy™ XL System + pShuttle vector, 20 µg + pShuttle-CMV vector, 20 µg + pShuttle-CMV-lacZ control vector, 10 µg + BJ5183-AD1 electroporation-competent cells, 5 x 100 µl + XL10-Gold® ultracompetent cells, 5 x 100 µl + pUC18 DNA control plasmid, 10 µl + AD-293 cells, 1 x 10 <sup>6</sup> cells	1 kit	240010
BJ5183-AD1 electroporation-competent cells	5 x 100 µl	200157
AdEasy™ Adenoviral Vector System + pAdEasy-1 vector, 2.5 µg + pShuttle vector, 20 µg + pShuttle-CMV vector, 20 µg + pShuttle-CMV-lacZ vector, 10 µg + BJ5183 electroporation-competent cells, 5 x 100 µl + XL10-Gold® ultracompetent cells, 5 x 100 µl + pUC18 DNA control plasmid, 10 µl	1 kit	240009
BJ5183 electroporation-competent cells	5 x 100 µl	200154
pAdEasy-1 vector	2.5 µg	240005
pShuttle vector	20 µg	240006
pShuttle-CMV vector	20 µg	240007
pShuttle-CMV-lacZ control vector	10 µg	240008
pShuttle-IRES-hrGFP-1	20 µg	240081
pShuttle-IRES-hrGFP-2	20 µg	240082



# Competent Cells

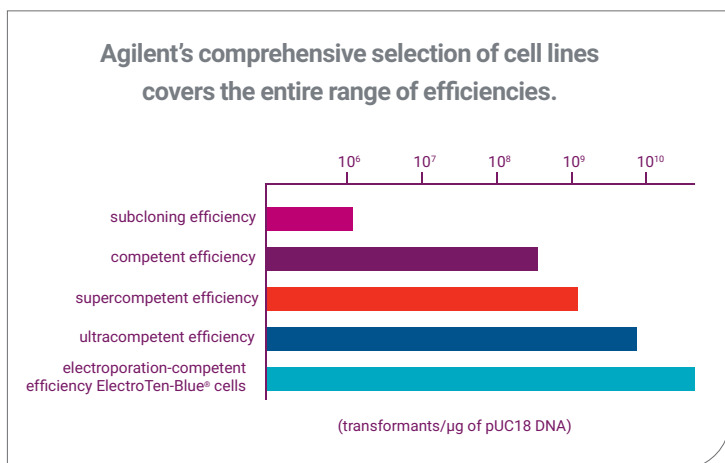
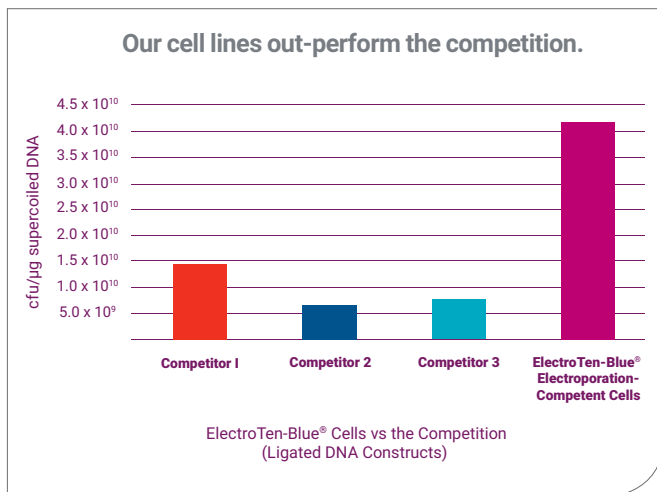
## Explore a wider selection

Finding the right competent cells is easy with Agilent—we have a comprehensive selection of strains for all your next-generation cloning needs.

### Cloning Cells

#### The Highest Efficiency

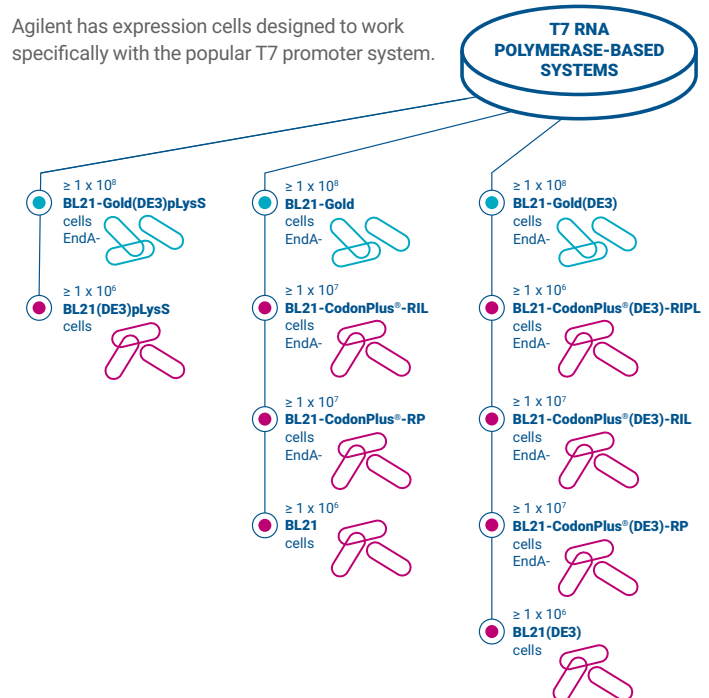
Our Ultracompetent Cells provide the highest transformation efficiency in the world, making it easier and faster to obtain an accurate clone. At Agilent Technologies, we understand the less time you spend worrying about cloning, the more time you can spend answering your research questions.



### Expression Cells

#### The Widest Selection

We aren't content just to have the best competent cells. Agilent has designed strains for protein expression, plasmid stability, large plasmids and toxic proteins as well as everyday cloning. Our complete line of competent cells includes specialty cells for a huge variety of applications, each backed by Agilent's reputation for the best quality in the field.



# Competent Cells (Continued)

Product	Uses	Transformation Efficiency	Resistance	Part Number
<b>Cloning Cells</b>				
SURE 2 Supercompetent Cells	Unstable clones; DNA with secondary structure	$>1 \times 10^9$	Tetracycline, Kanamycin, Chloramphenicol	200152
SURE Electroporation Competent Cells	DNA with secondary structure, difficult	$>1 \times 10^{10}$	Tetracycline, Kanamycin, Chloramphenicol	200227
SURE Competent Cells	DNA with secondary structure, routine	$>5 \times 10^8$	Tetracycline, Kanamycin, Chloramphenicol	200238
ABLE C Electroporation Competent Cells	For toxic clones	$>5 \times 10^9$	Tetracycline, Kanamycin	200161
ABLE K Electroporation Competent Cells	For toxic clones	$>5 \times 10^9$	Tetracycline, Kanamycin	200162
ABLE C Competent Cells	For toxic clones	$>5 \times 10^6$	Tetracycline, Kanamycin	200171
ABLE K Competent Cells	For toxic clones	$>5 \times 10^6$	Tetracycline, Kanamycin	200172
TG1 Competent Cells	For phage libraries; Phage display libraries	$1 \times 10^{10}$	N/A	200123
XL10-Gold Ultracompetent Cells	Large plasmids, ligated DNA, or plasmid libraries	$>5 \times 10^9$	Tetracycline and Chloramphenicol	200314, 200315
XL10-Gold KanR Ultracompetent Cells	Large plasmids, ligated DNA, or plasmid libraries; plasmids with CamR	$>5 \times 10^9$	Tetracycline and Kanamycin	200317
ElectroTen-Blue® Electroporation Competent Cells	Ligated DNA and generating libraries	$>3 \times 10^{10}$	Tetracycline and Kanamycin	200159
SoloPack Gold Supercompetent Cells	High efficiency, single reaction format	$>1 \times 10^9$	Tetracycline and Chloramphenicol	230350
SoloPack Gold Competent Cells	Routine cloning, single reaction format	$>1 \times 10^8$	Tetracycline and Chloramphenicol	230325
96Pack Gold Competent Cells	Routine cloning, higher throughput format	$>1 \times 10^8$	Tetracycline and Chloramphenicol	200324
XL1-Blue Electroporation Competent Cells	Electroporation	$>1 \times 10^{10}$	Tetracycline	200228
XL1-Blue MRF Electroporation Competent Cells	Electroporation, Methylated DNA	$>1 \times 10^{10}$	Tetracycline	200158
XL2-Blue Ultracompetent Cells	Highest cloning efficiency	$>5 \times 10^9$	Tetracycline and Chloramphenicol	200150
XL2-Blue MRF Ultracompetent Cells	Highest cloning efficiency for methylated DNA	$>5 \times 10^9$	Tetracycline and Chloramphenicol	200151
XL1-Blue Supercompetent Cells	Highest cloning efficiency	$>1 \times 10^9$	Tetracycline	200236
XL1-Blue MRF Supercompetent Cells	Highest cloning efficiency for methylated DNA	$>1 \times 10^9$	Tetracycline	200230
XL1-Blue MRF Kan Supercompetent Cells	Highest cloning efficiency for methylated DNA and tetracycline resistant plasmids	$>1 \times 10^9$	Kanamycin	200248
XL1-Blue MR Supercompetent Cells	For cloning without the F' episome	$>1 \times 10^9$	N/A	200229
XL1-Blue Competent Cells	For routine cloning	$>1 \times 10^8$	Tetracycline	200249
XL1-Blue Subcloning Grade Competent Cells	Cloning when DNA is not limited	$>1 \times 10^6$	Tetracycline	200130

Product	Uses	Transformation Efficiency	Resistance	Part Number
<b>Expression Cells</b>				
TKX1 Cells	For phosphoprotein generation	$>5 \times 10^7$	Tetracycline, Kanamycin	200124
TKB1 Cells	For phosphoprotein generation	$>5 \times 10^5$	Tetracycline	200134
ArcticExpress Competent Cells	Enhanced solubility	$>5 \times 10^6$	Tetracycline	230191
ArcticExpress (DE3) Competent Cells	Enhanced solubility	$>5 \times 10^6$	Tetracycline	230192
ArcticExpress (DE3) RIL Competent Cells	Enhanced solubility	$>5 \times 10^6$	Tetracycline	230193
ArcticExpress (DE3) RP Competent Cells	Enhanced solubility	$>5 \times 10^6$	Tetracycline	230194
ArcticExpress RIL Competent Cells	Enhanced solubility	$>5 \times 10^6$	Tetracycline	230195
ArcticExpress RP Competent Cells	Enhanced solubility	$>5 \times 10^6$	Tetracycline	230196
BL21-CodonPlus (De3)RIPL Competent Cells	Eliminate codon bias, use with pET or pCAL	$>1 \times 10^6$	Chloramphenicol and Streptomycin/ Spectinomycin	230280
BL21-CodonPlus (De3)RIL Competent Cells	Eliminate codon bias, use with pET or pCAL	$>1 \times 10^7$	Tetracycline and Chloramphenicol	230245
BL21-CodonPlus (De3)RP Competent Cells	Eliminate codon bias, use with pET or pCAL	$>1 \times 10^7$	Tetracycline and Chloramphenicol	230255
BL21-CodonPlus RIL Competent Cells	Eliminate codon bias, for non-T7 expression systems	$>1 \times 10^7$	Tetracycline and Chloramphenicol	230240
BL21-CodonPlus RP Competent Cells	Eliminate codon bias, for non-T7 expression systems	$>1 \times 10^7$	Tetracycline and Chloramphenicol	230250
BL21-CodonPlus (De3) RIL-X Competent Cells	Methionine auxotroph for x-ray crystallography	$>1 \times 10^7$	Tetracycline	230265
BL21-CodonPlus (De3) RP-X Competent Cells	Methionine auxotroph for x-ray crystallography	$>1 \times 10^7$	Tetracycline	230275
BL21-Gold	Increased efficiency and EndA-, use with toxic proteins and non-T7 systems	$>1 \times 10^8$	Tetracycline	230130
BL21-Gold (De3)	Increased efficiency and EndA-, use with non-toxic proteins	$>1 \times 10^8$	Tetracycline	230132
BL21-Gold (De3) pLysS	Increased efficiency and EndA-, use with toxic or non-toxic proteins	$>1 \times 10^8$	Tetracycline and Chloramphenicol	230134
BL21	Use with non-T7 systems or with lambda-CE6 for toxic proteins	$>1 \times 10^6$	Tetracycline	200133
BL21 (De3)	Use with non-toxic proteins	$>1 \times 10^6$	Tetracycline	200131
BL21 (De3) pLysS	Use with toxic or non-toxic proteins	$>1 \times 10^6$	Chloramphenicol	200132
XL1-Red Cells	For random mutagenesis	N/A	Tetracycline	200129





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