

Product survey: Cloning kits

Recombineering is Gaining Ground

Is there anybody out there still preparing homebrewed buffers, enzyme solutions and reagents for the cloning of DNA? My guess is no! There is certainly no other molecular biology technique, where commercial kits are so firmly established as in DNA cloning.

Whether you're planning a simple TA cloning of a PCR fragment into a vector or the cloning of complex cDNA, shotgun, BAC or Fosmid libraries, you are sure to find a kit promising to alleviate the cloning procedure. Choosing an appropriate kit from the myriad available seems to be harder than the cloning itself. In particular, the numerous features of vectors used in cloning kits for protein expression are especially mind-boggling – at least for someone like me who has been out of the lab for a number of years.

Up until the beginning of the new century, cloning of DNA was based on assembling recombinant DNA by restriction enzyme cutting and religation into a proper vector. This traditional method, developed by Stanley Cohen and Herbert Boyer in the late seventies, has since been honed and simplified. However, it still has one major drawback: the necessary restriction and ligation steps are rather time consuming. That's usually no problem for researchers wanting to clone single genes. However, this species of molecular biologist seems to be in danger of extinction when it comes to sequencing entire genomes like there's no tomorrow. Instead of cloning single genes, as in the "old days", many of today's molecular biologists clone large sets of genes to determine their function.

No restriction and ligation

To facilitate simple and efficient high-throughput cloning, several restriction enzyme and ligation-free cloning methods have been developed in the last ten years, all based on homologous recombination. The principle of recombinational cloning is rather straightforward. Short DNA fragments, homologous to recombination sites of a vector, are introduced at both ends of a gene or an open reading frame by PCR. Subsequently, the PCR product and a vec-

tor are mixed together with an enzyme system that catalyses the recombination of the homologous sequences to generate an entry vector. In a second step, the open reading frame (ORF) is transferred by homologous recombination from the entry vector to a panel of expression vectors. These are only the very basics of recombinational cloning; there are actually considerable differences between individual systems and kits.

Gateway to expression

The Gateway cloning system, for example, utilises components of the site-specific recombination machinery of bacteriophage λ that normally integrates lambda DNA into, or excises it from, the host's genome. *In vitro* recombination of an ORF into a Gateway vector requires only the λ proteins, integrase and excisionase, the *E. coli* protein, IHF, and specific *att* recombination sequences at both ends of the PCR-amplified ORF.

In the first step of Gateway cloning, the aforementioned enzyme mixture, Clonase, catalyses the integration of the ORF into a Gateway vector, harbouring compatible *att*-sequences. Once cloned into this Gateway entry clone vector, DNA segments can be rapidly transferred into diverse Gateway expression vectors via a similar Clonase-based reaction. In recent years, a couple of labs have established extensive collections of ORF clones created by Gateway cloning containing, for example, human, *Drosophila*, *C. elegans* or yeast genes.

Clontech's Creator cloning system works in a similar fashion. However, instead of one, it uses two different enzyme systems to create master clones, and transfer genes from the master clones into the expression clones. An enzyme called "In-Fusion" catalyses the first step, while the Cre-loxP-based site-specific recombination system of bacteriophage P1 is responsible for the second



Gateway Arch in St. Louis, USA

cloning step. Cre recombinase is also an integral part of the non-commercial Univector cloning system, developed in 1998 by recombinational cloning pioneer Stephen Elledge, then at the Baylor College of Medicine. His simple one-step *in vitro* reaction system, which was indeed the first recombination cloning system, requires only master and expression clones, both harbouring two loxP sites for recombination, as well as the Cre recombinase.

Gateway, Creator and Univector systems have greatly accelerated high-throughput cloning but they still suffer one limitation: all three require specific recombination sites. But don't despair! Alternative methods are available, independent of specific sites. Probably the best known is the Red/ET recombination, or recombineering approach, put forward by the Francis Stewart group in 2000. Red/ET recombineering exploits the two functional identical enzyme systems RecE/RecT or Red α /Red β , taken either from the cryptic prophage Rac (RecET) or from the bacteriophage λ . A third protein called γ , which inhibits nuclease activity, and the Red α / β (RecET) enzymes catalyse the integration of linear DNA fragments into a target plasmid via homologous recombination.

Ever faster and easier cloning

Like many others, Stephen Elledge is tirelessly working on sequence-independent recombinational cloning methods. Last year he came up with a strategy he called sequence and ligation independent cloning (SLIC), which allows "the assembling of multiple DNA fragments in a single reaction using *in-vitro* homologous recombination and single strand annealing" (*Nature Methods*, 4, 251-256). Let's see how long it will take before the first SLIC cloning kits appear on the market.

HARALD ZÄHRINGER

Cloning Kits

Company	Product/Name	Application(s)	3 reasons for buying	Miscellaneous, Specialities, Generally	Price[EUR]
Agilent Technologies Stratagene Products Division Contact: Cedric Lemarie cedric.lemarie@agilent.com	StrataClone PCR Cloning Kits	<ul style="list-style-type: none"> Go from PCR to transformation in one short 3-step protocol guaranteed to get your clone the first time every time 	<ul style="list-style-type: none"> Clone both long and short amplicons with the same kit High efficiency yields of >95% insert positive clones Simple, three step protocol with 5-min room temperature ligation 	<ul style="list-style-type: none"> PCR Cloning Kit, 20 rxn Blunt PCR Cloning Kit, 20 rxn Ultra PCR Cloning Kits, 20 rxn 	262,- 262,- 341,-
	StrataClone Mammalian Expression Vector System	<ul style="list-style-type: none"> The cloned sequence is expressed under the CMV promoter and the resulting protein can be N- or C-terminal tagged with FLAG or c-Myc epitopes 	<ul style="list-style-type: none"> High-level full-length expression of the cloned sequence FLAG and c-Myc tags for functional analysis of the protein of interest High efficiency yields of >95% insert positive clones 	<ul style="list-style-type: none"> Untagged Vector System, 20 rxn N-Terminal FLAG Vector System, 20 rxn C-Terminal FLAG Vector System, 20 rxn N-Terminal c-Myc Vector System, 20 rxn Untagged C-Terminal c-Myc Vector System, 20 rxn 	380,- 380,- 380,- 380,- 380,-
BioCat Heidelberg, Germany www.biocat.de Contact: Elke Gamer Phone: +49-6221-7141516 gamer@biocat.de	GC Cloning & Amplification Kits	<ul style="list-style-type: none"> Cloning of PCR products with G overhang added by non-proof-reading DNA polymerases into a vector with C overhang 	<ul style="list-style-type: none"> More recombinants from less DNA GC cloning vectors contain transcription terminators for much greater insert stability than TOPO More colonies with correct insert 	<ul style="list-style-type: none"> Non-proofreading DNA polymerases like Taq, Tfl, or Th not only add a single 3'-A to PCR products, but similarly a 3'-G Ready-to-use vectors with C overhang included High copy & low copy vectors available 	230,- to 495,- (E. coli competent cells included)
	CloneDirect Rapid Ligation Kit	<ul style="list-style-type: none"> Cloning of cohesive or blunt-end restriction fragments Shotgun library construction PCR cloning cDNA cloning Linker ligation 	<ul style="list-style-type: none"> 5 min for cohesive ends; 30 to 60 min for blunt ends Greater than 95% ligation of cohesive ends; greater than 50% ligation of blunt ends No cleanup after ligation required 	<ul style="list-style-type: none"> Convenient, premixed components 	99,- to 249,-
	UltraClone DNA Ligation & Transformation Kit	<ul style="list-style-type: none"> General cloning Linker ligation Shotgun library construction Cloning of blunt or cohesive-end restriction fragments 	<ul style="list-style-type: none"> Increased number of recombinants Fast and simple procedure, no post-ligation clean-up required Choice of high efficiency competent cells 	<ul style="list-style-type: none"> Several formats containing different E. coli chemically competent or electrocompetent cells available 	190 to 524,- (E. coli competent cells incl.)
	CloneSmart Blunt Cloning Kits	<ul style="list-style-type: none"> For cloning difficult-to-clone fragments 	<ul style="list-style-type: none"> High cloning efficiencies of > 99%; no colony screening required Pre-mixed vector and cloning reagents No post-ligation clean-up needed 	<ul style="list-style-type: none"> Based on CloneSmart transcription-free vector technology Available with ligation-ready Kanamycin- or Ampicillin-resistant pSMART Vector (blunt cloning site) Available with or without E. coli competent cells 	220,- to 595,-
	cSMART cDNA Cloning Kits	<ul style="list-style-type: none"> Directional cDNA cloning Blunt cDNA cloning Construction of cDNA libraries Construction of cDNA microarrays 	<ul style="list-style-type: none"> Greater 99.9% cloning efficiency, no need to screen colonies No cloning bias due to CloneSmart transcription-free vector technology High insert stability (inserts of up to 15 kb) 	<ul style="list-style-type: none"> Available with four different versions of ligation-ready pSMART-cDNA Kan vector: EcoRI + NotI, blunt + NotI, or blunt sites alone Available with or without E. coli competent cells 	245,- to 619,-
	pEZSeq Blue/White Blunt Cloning Kits	<ul style="list-style-type: none"> Cloning DNA < 10 kb Shotgun library construction Expression of inserts 	<ul style="list-style-type: none"> > 99% recombinant clones Optional blue/white screening Small, transposon-compatible size of pEZSeq Vector 	<ul style="list-style-type: none"> Available w. ligation-ready Kanamycin- or Ampicillin-resistant pEZSeq Vector (blunt cloning site) pEZSeq Vector contains transcription terminators to prevent read-through Available with or without E. coli competent cells 	220,- to 480,-
	ClonePlex-AK Dual Insert Cloning Kit	<ul style="list-style-type: none"> High-throughput sequencing Shotgun library construction Allelic exchange 	<ul style="list-style-type: none"> No screening necessary, > 99.9% of transformants contain 2 inserts CloneSmart transcription-free vector technology minimizes cloning bias 2 independent inserts, 4 primer binding sites 	<ul style="list-style-type: none"> Kit contains everything needed for multiplex cloning including ligation-ready pLXXX-AK Vector (blunt cloning sites), E. coli 10G SUPREME Electrocompetent Cells, and DNATerminator End Repair reagents for blunt end generation 	330,- (5 rxns) 590,- (10 rxns)
	CopyRight v2.0 BAC Cloning Kits	<ul style="list-style-type: none"> BAC cloning and large insert library construction General cloning of any DNA especially inserts > 30 kb 	<ul style="list-style-type: none"> High cloning fidelity Maximum insert stability Inducible copy number (oriV) 	<ul style="list-style-type: none"> Based on CloneSmart transcription-free vector technology Available with pSMART BAC or pEZ BAC Vector Minimal background due to lacZ/sacB stuffer region contained in pSMART BAC vector Available with or without BAC-optimized Replicator v2.0 Electrocompetent Cells 	415,- to 975,-
	CopyRight v2.0 Fosmid Cloning Kits	<ul style="list-style-type: none"> Fosmid cloning and large insert library construction 	<ul style="list-style-type: none"> More recombinants from less DNA High DNA yields Dramatically reduced false positives/negatives due to lacZ/sacB stuffer region contained in pSMART FOS vector 	<ul style="list-style-type: none"> Based on CloneSmart transcr.-free vector techn. Replicator FOS strain included for amplification of the pSMART FOS clones to high copy number Fosmid libraries constructed in the pSMART FOS vector are complete, without missing clones or deleted sequences 	285,- to 579,-
	BigEasy v2.0 Linear Cloning Kits	<ul style="list-style-type: none"> Fast construction of bias-free, large insert genomic libraries Cloning difficult-to-clone DNA Cloning any DNA up to 50 kb 	<ul style="list-style-type: none"> Maximum insert stability provided by linear pJAZZ vector (no supercoiling) High cloning efficiency No insert size or cloning bias 	<ul style="list-style-type: none"> Based on CloneSmart transcription-free vector technology Ready-to-use pJAZZ vector (blunt or NotI-cut) included; available with kanamycin or chloramphenicol resistance gene BigEasy-pTel Electrocompetent Cells included Also available as BigEasy Long PCR Cloning Kit 	370,- to 1115,-
	E. coli 10G or 10GF ^r Competent Cells	<ul style="list-style-type: none"> General purpose cloning; production of single-stranded DNA by infection with phage M13 and provide control of lacZalpha expression 	<ul style="list-style-type: none"> Highest possible yields of intact recombinants in plasmid, cosmid, or BAC cloning Stability of large cloned inserts Compatible with any E. coli cloning vector 	<ul style="list-style-type: none"> Comparable to DH10B and DH5alpha Efficient cloning of methylated DNA Blue/white screening Packaged as SOLOs (1 transformation per tube), DUOs (2 transformations per tube) or SixPacks (6 transformations per tube) Different types for different applications available 	135,- to 540,-
Biomol Hamburg, Germany www.biomol.de Contact: Edgar Lipsius Phone: +49(0)40/853260-37 e_lipsius@biomol.de	AmpliQon Rapid Ligation Kit	<ul style="list-style-type: none"> Cloning into vectors TA cloning Library construction Recircularization of linear DNA Ligation of linkers 	<ul style="list-style-type: none"> Complete ligation after 5 minutes Reliable Good value for money 	<ul style="list-style-type: none"> Ligation of cohesive and blunt ended DNA fragments 50 reactions per kit Kit contains T4 DNA Ligase 	114,- (1 kit)

Cloning Kits

Company	Product/Name	Application(s)	3 reasons for buying	Miscellaneous, Specialities, Generally	Price [EUR]
Biomol Contact see page 54	Ampliqon High Efficiency GC5 Competent Cells	<ul style="list-style-type: none"> ■ Ideal for cDNA library construction and subcloning ■ Suitable for blue/white color screening 	<ul style="list-style-type: none"> ■ Efficiency $\geq 10^9$ transformants/μg pUC19 DNA ■ Reliable ■ Good value for money 	<ul style="list-style-type: none"> ■ Recombinant deficient ■ Phage T1 and T5 resistant ■ pUC19 positive control DNA is supplied 	From 70,- (1 kit)
	Ampliqon High Efficiency GC10 Competent Cells	<ul style="list-style-type: none"> ■ Cloning of methylated DNA ■ Ideal for cDNA library construction and subcloning ■ Suitable for blue/white color screening 	<ul style="list-style-type: none"> ■ See above 	<ul style="list-style-type: none"> ■ Methyl restriction deficient ■ Recombinant deficient ■ Phage T1 and T5 resistant ■ pUC19 positive control DNA is supplied 	From 80,- (1 kit)
Epicentre Biotechnologies distributed by Biozym Scientific in Germany and Austria Hessisch Oldendorf, Germany www.biozym.com Contact: Monika Burbach Phone: +49 5152 9020 support@biozym.com	CopyControl Fosmid Library Production Kit	<ul style="list-style-type: none"> ■ Genomic libraries, intermediate fragment size (35-40 kb) 	<ul style="list-style-type: none"> ■ Easier than BAC Cloning, Single copy promotes clone stability, copy number can be amplified 	<ul style="list-style-type: none"> ■ Genomic libraries ■ Sequencing 	Please enquire
	CopyControl cDNA, Gene and PCR Cloning Kit	<ul style="list-style-type: none"> ■ Cloning cDNA, restriction fragments or PCR products up to 20 kb 	<ul style="list-style-type: none"> ■ Single copy promotes stability ■ Copy number can be amplified, up to 25% more cDNA clones can be obtained than by regular cloning 	<ul style="list-style-type: none"> ■ cDNA libraries ■ PCR cloning 	Please enquire
	CopyControl BAC Cloning Kits	<ul style="list-style-type: none"> ■ Only kit on market that is optimized for BAC cloning 	<ul style="list-style-type: none"> ■ Cloning Ready BAC vectors ■ Only complete BAC cloning system on market ■ Three different restriction fragment types available 	<ul style="list-style-type: none"> ■ BAC libraries ■ BAC cloning 	Please enquire
Clontech www.clontech.com Contact: Takara Bio Europe / Clontech Klaus Hentrich Phone: 0800 1825178 tech@clontech-europe.com	In-Fusion 2.0 PCR Cloning Kits	<ul style="list-style-type: none"> ■ Generate any DNA construct, independent of restriction sites ■ Multiple-fragment cloning ■ High-throughput cloning 	<ul style="list-style-type: none"> ■ Ultimate flexibility: clone any insert (up to 12kb) into any vector ■ Fast and convenient procedure ■ Directional and seamless cloning 	<ul style="list-style-type: none"> ■ Liquid format, lyophilized format and 96-well-plates available 	Please enquire
	Smart Race cDNA Amplification Kit	<ul style="list-style-type: none"> ■ 5' and 3' Rapid Amplification of cDNA Ends (RACE) ■ Clone full-length cDNAs ■ Clone miRNA primary transcripts 	<ul style="list-style-type: none"> ■ Incorporates adapters in one step during cDNA synthesis ■ Enriches for full-length cDNAs ■ The best-published RACE kit in the market 	<ul style="list-style-type: none"> ■ Combination of SMART technology with high-performance Reverse Transcriptase, and Advantage 2 Polymerase available as a bundle ■ Please inquire about SMART Bundle Promotion 	Please enquire
	Smart Race cDNA Amplification Kit Creator Smart Race cDNA Amplification Kit	<ul style="list-style-type: none"> ■ Construct phagemid or plasmid cDNA libraries ■ Expression libraries for mammalian cells ■ High-throughput sequencing 	<ul style="list-style-type: none"> ■ Ease of use: incorporates adapters in one step during cDNA synthesis ■ SMART technology enriches for full-length cDNAs ■ Only 50 ng of total RNA required as starting material 	See above	Please enquire
Fermentas St. Leon-Rot, Germany www.fermentas.com Contact: Frank Schestag Phone: +49 (0) 6227 356790 frank.schestag@fermentas.de	CloneJET PCR Cloning Kit	<ul style="list-style-type: none"> ■ 20/40 	<ul style="list-style-type: none"> ■ PCR cloning of blunt-end and 3'-dA tailed PCR products in 5 min ■ Positive selection vector (99% positive clones) ■ Compatible with all common <i>E.coli</i> strains 	<ul style="list-style-type: none"> ■ Cloning of PCR products up to 10 kb ■ Cloning of fragments generated by restriction enzymes ■ Sequencing of cloned DNA ■ In vitro and in vivo transcription of cloned inserts from the T7 promoter 	108,- (20 rxn) 204,- (40 rxn)
	InstAclone PCR Cloning Kit	<ul style="list-style-type: none"> ■ 10/30 	<ul style="list-style-type: none"> ■ 1 h from PCR completion to cell plating ■ More than 90% of recombinant clones contain target DNA ■ One-step-procedure 	<ul style="list-style-type: none"> ■ TA cloning ■ Sequencing of cloned insert ■ In vitro transcription of insert DNA 	130,-/194,- (10/30rxn) Not available in DE, FR, NL, UK
	Rapid DNA Ligation Kit	<ul style="list-style-type: none"> ■ 10/50/150 	<ul style="list-style-type: none"> ■ Ligation in 5 min at room temp ■ Sticky + blunt-end fragments ■ Ligation mixture can directly be used for bacterial transformation 	<ul style="list-style-type: none"> ■ Routine Cloning experiments ■ Blunt-end cloning ■ Library construction ■ TA-Cloning 	32,- (10 rxn) 125,- (50) 310,- (150 rxn)
	TransformAid-Bacterial Transformation Kit	<ul style="list-style-type: none"> ■ 20/40 	<ul style="list-style-type: none"> ■ $>10^7$ transformants per μg plasmid DNA ■ <i>E.coli</i> competent cells can be prepared from an overnight culture or from bacterial colonies ■ Less than 1h from overnight culture to cell plating ■ All procedures performed on ice 	<ul style="list-style-type: none"> ■ Routine Cloning experiments ■ Blunt-end cloning ■ TA-Cloning 	37,- /56,- (20/40 transformations)
Gene Bridges Heidelberg, Germany www.genebridges.com Contact: Harald Kranz Phone: +49-6221-1370822 harald.kranz@genebridges.com	Quick and Easy BAC Modification Kit Counter-Selection	<ul style="list-style-type: none"> ■ Basic BAC modifications like insertion or deletion of a DNA fragment by introducing a selection marker gene 	<ul style="list-style-type: none"> ■ Fast and reliable modification of large DNA molecules by Red/ET recombination ■ Precise DNA modificat. at position of choice ■ Independence of restriction sites 	<ul style="list-style-type: none"> ■ Base pair precise ■ Fast ■ Reliable ■ Independence of restriction sites 	670,-
	BAC Modification Kit	<ul style="list-style-type: none"> ■ Seamless BAC modifications ■ Introduction of short sequences e.g., point mutations, loxP sites, restriction sites, etc. 	<ul style="list-style-type: none"> ■ Fast and reliable modification of large DNA molecules by Red/ET recombination ■ Independence of restriction sites ■ Much higher efficiencies as alternative counter-selection strategies (e.g. sacB-neo) 	See above	790,-
	BAC Subcloning Kit	<ul style="list-style-type: none"> ■ Subcloning of BAC- or Cosmid-borne DNA stretches into (high-copy) plasmids without the use of restriction enzymes 	<ul style="list-style-type: none"> ■ Basepair precise transfer of DNA fragments without the limitations of restriction enzymes by Red/ET recombination fragments up to 20kb can be subcloned ■ Fast and reliable 	See above	600,-
	Quick and Easy Conditional Knockout Kit (FRT/FLPe)	<ul style="list-style-type: none"> ■ Sequence independent integration of FRT-sites into (large) vectors 	<ul style="list-style-type: none"> ■ Basepair precise integration of FRT sites in a vector plasmid (or BAC) at any position of choice by Red/ET recombination ■ Independence of restriction sites ■ Fast and reliable 	See above	690,-
	Quick and Easy Conditional Knockout Kit (loxP/Cre)	<ul style="list-style-type: none"> ■ Sequence independent integration of loxP-sites into (large) vectors 	See above	See above	690,-

Cloning Kits					
Company	Product/Name	Application(s)	3 reasons for buying	Miscellaneous, Specialities, Generally	Price[EUR]
Gene Bridges Contact see page 55	Quick and Easy <i>E. coli</i> Gene Deletion Kit by Red/ET recombination	<ul style="list-style-type: none"> Modifications of the <i>E. coli</i> chromosome 	<ul style="list-style-type: none"> Red/ET recombination allows modifications at any position of choice Multiple knockouts possible Removal of the recombinering plasmid and any selectable marker used for intermediate steps 	<ul style="list-style-type: none"> Base pair precise Fast Reliable 	590,-
	Quick and Easy RNAi Rescue Kit	<ul style="list-style-type: none"> Rescue of a RNAi knock-down phenotype by complementation with a BAC based RNAi insensible ortholog 	<ul style="list-style-type: none"> Use of BACs allow for endogenous expression levels and alternative splice variants Fast and reliable identification of successfully transfected cells One-step replacement of the chloramphen. resist. gene present on the backbone of BACs by a SNAP-tag/fluorophore for visualization 	<ul style="list-style-type: none"> Fast Reliable 	650,-
IBA Goettingen, Germany www.stargate-cloning.com Contact: Isabel Schuchardt Phone: +49-551 50672-0 info@iba-go.com	StarGate Newcomer Set	<ul style="list-style-type: none"> Easy-to-handle subcloning system to screen for optimal protein expression High protein expression Systematic screening of different tags and promoters 	<ul style="list-style-type: none"> For newcomers: Up to 50% discount possible Minimal modification of gene of interest (≤ 2 aa) High cloning efficiency due to directed reaction 	<ul style="list-style-type: none"> Provides all products required to perform the entire StarGate procedure Large number of Acceptor Vectors with different features is available 	272,50
	StarGate Fusion Cloning Sets	<ul style="list-style-type: none"> Three different sets to generate fusion proteins or construct artificial operons for multiple gene expression in bacterial or mammalian cells 	<ul style="list-style-type: none"> Two or more genes can be brought into operative linkage by an intergenic region Combination of the three versions is possible allowing the construction of a large variety of genetic fusions Minimal modification of gene of interest and high cloning efficiency 	<ul style="list-style-type: none"> Internal ribosomal entry site (IRES) for polycistronic gene expression in mammalian cells from one expression vector Shine-Dalgarno (SD) sequences for the construction of artificial operons in <i>E. coli</i> Amino acid linker for the generation of fusion proteins 	430,- (each)
	StarGate Mutagenesis Entry Cloning Set	<ul style="list-style-type: none"> Convenient tool for site-specific modification of the gene of interest 	<ul style="list-style-type: none"> Modification possible within a sequence stretch of up to 80 bases in length Easy-to-use "StarPrimer D'Signer" Software to design the required primers included Donor clone with the mutated GOI can be easily detected using blue/white selection. 	<ul style="list-style-type: none"> StarGate Transfer Reagent Set competent cells and Acceptor Vectors are required in addition 	245,-
	StarGate Acceptor Vectors	<ul style="list-style-type: none"> Acceptor Vectors provide different promoters, tags and signal sequences for the efficient expression of your protein of interest 	<ul style="list-style-type: none"> Up to 50% discount possible Allows expression of the same gene product in parallel experimental set-ups in different hosts or with different tags Can be combined with all StarGate products 	<ul style="list-style-type: none"> Purification tags presently available: Strep-tag II, One-STrEP-tag, 6 x Histidine-tag, FLAG-tag, GST-tag with PreScission (PSC) site Hosts presently available: <i>E. coli</i>, yeast, mammalia, insect cells (baculovirus) 	From 80,-
Integrated DNA Technologies Leuven, Belgium www.idtdna.com Contact: Lynette Brown Phone: 01-319-665-7208 lbrown@idtdna.com	miRCat	<ul style="list-style-type: none"> Small RNA discovery and library creation 	<ul style="list-style-type: none"> Permits cloning from any RNA source in any species Compatible with most existing standard laboratory protocols Material sufficient for ten cloning experiments is provided 	<ul style="list-style-type: none"> Highly flexible microRNA library creation 	675,-
Invitrogen Paisley, UK www.invitrogen.com Contact: Vijay.Mhaiskar@invitrogen.com	TOPO TA, Blunt, or Directional cloning kits	<ul style="list-style-type: none"> PCR cloning of amplified products in 5min with 95% recovery of recombinant clones 	<ul style="list-style-type: none"> 5 min RT reaction, up to 95% recombinant clones, no clean-up steps after PCR reaction Fastest and most reliable cloning method 	<ul style="list-style-type: none"> Proven technology with more than 4000 citations, no need for special primers, several kits available for optimized applications 	Please enquire
	Gateway technology: Entry clones and Expression clones	<ul style="list-style-type: none"> Universal platform to shuttle your gene of interest to as many expression and functional analysis system you need 	<ul style="list-style-type: none"> Fast and reversible recombination reaction, without using restriction enzymes, ligase, subcloning steps, or screening of colonies Orientation and reading frame are maintained with high efficiencies 	<ul style="list-style-type: none"> Compatible to TOPO, start with an Ultimate Orf Clone already, effectively eliminating the need for secondary sequencing or subcloning, allows you to clone hundreds, or even thousands, of genes at the same time for high-throughput purposes 	Please enquire
	Superscript pre-made cDNA Libraries	<ul style="list-style-type: none"> Suitable for isolating novel and published cDNAs, PCR of target sequences, and gene expression in eukaryotic cells 	<ul style="list-style-type: none"> Full-length and high yield SuperScript II made cDNA, easy transfer of genes in other systems, e.g. Gateway, rapid route to function analysis 	<ul style="list-style-type: none"> Easy way for protein expression, cloning/ subcloning of DNA fragments 	Please enquire
Merck Chemicals Nottingham, UK Calbiochem Novagen Novabiochem www.merckbio.eu Contact: Technical Service: Phone +44 (0)115 9430 840 techservice@merckbio.eu	PCR Cloning: pET-30 Ek/LIC Vector Kit	<ul style="list-style-type: none"> Protein expression in <i>E. coli</i> 	<ul style="list-style-type: none"> Directional ligation-independent cloning Complete removal of N-terminal fusion tags with rEK > 95% recombinants 	<ul style="list-style-type: none"> N-terminal His-Tag + S-Tag Optional C-terminal His-Tag 	406,-
	PCR Cloning: pET-32 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> Soluble cytoplasmic expression N-terminal Trx-Tag + His-Tag + S-Tag Option. C-terminal His-Tag 	406,-
	PCR Cloning: pET-41 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> N-terminal GST-Tag + His-Tag + S-Tag Optional C-terminal HisTag 	406,-
	PCR Cloning: pET-43.1 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> Soluble cytoplasmic expression N-terminal Nus-Tag + His-Tag + S-Tag Optional C-terminal HSV-Tag + His-Tag 	406,-
	PCR Cloning: pET-44 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> Soluble cytoplasmic expression Enhanced purification w. His-Mag Agarose Beads N-terminal His-Tag + Nus-Tag + His-Tag + S-Tag Optional C-terminal HSV-Tag + His-Tag 	406,-
	PCR Cloning: pET-46 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> N-terminal His-Tag with min. extra amino acids Optional C-terminal S-Tag 	406,-
	PCR Cloning: pET-51 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> N-terminal Strep-Tag II Optional C-terminal His-Tag 	419,-

Cloning Kits

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Merck Chemicals Contact see page 56	PCR Cloning: pET-30 Xa/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal His-Tag + S-Tag ■ Optional C-terminal His-Tag ■ Thrombin and enterokinase cleavage sites 	406,-
	PCR Cloning: pET-32 Xa/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ Soluble cytoplasmic expression ■ N-terminal Trx-Tag + His-Tag + S-Tag ■ Optional C-terminal His-Tag 	406,-
	PCR Cloning: pET-52 3C/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal Strep-TagII ■ Optional N-terminal HRV 3C cleavage site ■ Optional C-terminal thrombin cleav. site + His-Tag 	419,-
	PCR Cloning: pCDF-2 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal His-Tag w. minimal extra amino acids ■ Optional C-terminal S-Tag ■ ColE1-compatible replicon for coexpression 	406,-
	PCR Cloning: pRSF-2 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal His-Tag w. minimal extra amino acids ■ Optional C-terminal S-Tag ■ ColE1-compatible replicon for coexpression 	406,-
	PCR Cloning: pBAC-2cp <i>E. coli</i> Ek/LIC Vector Kit	■ Protein expression in insect cells	See above	<ul style="list-style-type: none"> ■ N-terminal His-Tag + S-Tag ■ Optional C-terminal His-Tag 	406,-
	PCR Cloning: pBACgus-2cp <i>E. coli</i> Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal His-Tag + S-Tag ■ Optional C-terminal His-Tag ■ GUS marker for recombinants 	406,-
	PCR Cloning: pEx-1 Ek/LIC Vector Kit	■ Protein expression: directly in insect cells with no virus infections	See above	<ul style="list-style-type: none"> ■ N-terminal His-Tag + S-Tag ■ Optional C-terminal HSV-Tag 	406,-
	PCR Cloning: pEx-2 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal GST-Tag + His-Tag + S-Tag ■ Optional C-terminal HSV-Tag 	406,-
	PCR Cloning: pEx-3 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ Signal sequence for secretion of target protein ■ N-terminal GST-Tag + His-Tag + S-Tag ■ Optional C-terminal HSV-Tag 	406,-
	PCR Cloning: pEx-7 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal His-Tag w. minimal extra amino acids ■ Optional C-terminal S-Tag 	406,-
	PCR Cloning: pEx-8 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal Strep-Tag II ■ Optional C-terminal His-Tag 	419,-
	PCR Cloning: pEx-9 3C/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal Strep-Tag II ■ Optional N-terminal HRV 3C cleavage site ■ Opt. C-terminal thrombin cleavage site + His-Tag 	419,-
	PCR Cloning: pEx-10 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ Signal sequence for secretion of target protein ■ N-terminal Strep-Tag II ■ Optional C-terminal His-Tag 	419,-
	PCR Cloning: pTriEx-4 Ek/LIC Vector Kit	■ Protein expression in <i>E. coli</i> , baculovirus and mammalian	See above	<ul style="list-style-type: none"> ■ N-terminal His-Tag + S-Tag ■ Optional C-terminal HSV-Tag + His-Tag ■ Thrombin and enterokinase cleavage sites 	406,-
	PCR Cloning: pTriEx-5 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal Strep-Tag II ■ Optional C-terminal His-Tag 	419,-
	PCR Cloning: pTriEx-6 3C/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ N-terminal Strep-Tag II ■ Optional N-terminal HRV 3C cleavage site ■ Optional C-terminal thrombin cleav. site + His-Tag 	419,-
	PCR Cloning: pTriEx-7 Ek/LIC Vector Kit	See above	See above	<ul style="list-style-type: none"> ■ Signal sequence for secretion of target protein ■ N-terminal Strep-Tag II ■ Optional C-terminal His-Tag 	419,-
	PCR Cloning: pEx/Bac-1 Ek/LIC Vector Kit	■ Dual purpose insect cell expression	See above	<ul style="list-style-type: none"> ■ AcNPV hr5/ie1 enhancer/early promoter for transient expression ■ AcNPV p10 very late promoter f. baculov. express. ■ AcNPV-derived virus regions for recombination at the polh locus ■ N-terminal Strep-Tag II ■ Optional C-terminal His-Tag 	406,-
	PCR Cloning: pEx/Bac-3 3C/LIC Vector Kit	■ Dual purpose insect cell expression	<ul style="list-style-type: none"> ■ Directional ligation-independent cloning ■ > 95% recombinants ■ Complete removal of N-terminal fusion tags with HRV3C plus removal of C-terminal fusion tags with Thrombin 	See above	406,-
PCR Cloning: pEx/Bac-4 Ek/LIC Vector Kit	See above	<ul style="list-style-type: none"> ■ Directional ligation-independent cloning ■ > 95% recombinants ■ Complete removal of N-terminal fusion tags with rEK 	<ul style="list-style-type: none"> ■ AcNPV hr5/ie1 enhancer/early promoter for transient expression ■ AcNPV p10 very late promoter f. baculov. express. ■ AcNPV-derived virus reg. f. recomb. at polh locus ■ N-terminal GST-Tag ■ Optional C-terminal His-Tag 	406,-	
PCR Cloning: pEx/Bac-5 3C/LIC Vector Kit	See above	<ul style="list-style-type: none"> ■ Directional ligation-independent cloning ■ > 95% recombinants ■ Complete removal of N-terminal fusion tags with HRV3C plus removal of C-terminal fusion tags with Thrombin 	<ul style="list-style-type: none"> ■ See above ■ Optional C-terminal Strep-Tag II 	387,-	

Cloning Kits

Company	Product/Name	Application(s)	3 reasons for buying	Miscellaneous, Specialities, Generally	Price [EUR]
Merck Chemicals Contact see page 56	Clonables Ligation/ Transformation Kit	<ul style="list-style-type: none"> Enables convenient, dependable, high-efficiency ligation and transformation of any compatible DNA ends 	<ul style="list-style-type: none"> 15-min ligation, 8-min transformation with ampicillin selection Ligation components premixed to decrease pipetting steps and increase reliability Optimized for cohesive ends, single base overhangs, and blunt ends 	<ul style="list-style-type: none"> Contains sufficient reagents to perform 11 ligation and transformation reactions Includes a control vector and insert mix to verify performance 	160,-
	DNA Ligation Kit	<ul style="list-style-type: none"> Provides the necessary components for convenient, reproducible ligation of DNA fragments 	<ul style="list-style-type: none"> Optimized and tested for PCR cloning, ligation of cDNA and PCR products into plasmid and phage lambda vectors, and for linker ligations 	<ul style="list-style-type: none"> Contains components for 50 blunt-end or single-base overhang ligations, or up to 500 2- to 4-base cohesive-end ligations Incl. T4 DNA Ligase, Ligase Dilution Buffer, 10X Ligation Buffer, DTT, ATP + Nuclease-free Water 	161,-
	pSTBlue-1 Perfectly Blunt Cloning Kit	<ul style="list-style-type: none"> Suitable for archiving, subcloning, sequencing & in vitro transcript. Cloning of DNA generated by PCR using any type of DNA polymerase. 	<ul style="list-style-type: none"> > 95% recombinants Blue/white screening Compatible with any DNA polymerase 	<ul style="list-style-type: none"> Dual opposed SP6/T7 promoters Amp or Kan selection Dual EcoR I sites flank insert 	253,- (20 rxn kit) 421,- (40 rxn kit)
	PCR Cloning: pT7Blue-3 Perfectly Blunt Cloning Kit	See above	See above	<ul style="list-style-type: none"> T7 promoter Amp or Kan selection Dual EcoR I sites flank insert 	253,- (20) 421,- (40)
	PCR Cloning: pT7Blue Perfectly Blunt Cloning Kit	See above	See above	<ul style="list-style-type: none"> T7 promoter Nde I/BamH I sites flank insert 	253,- (20) 421,- (40)
	PCR Cloning: pT7Blue-2 Perfectly Blunt Cloning Kit	See above	See above	<ul style="list-style-type: none"> T7 promoter N-terminal S-Tag sequence Optimal Kozak translation initiation Xenopus globin 5'-UTR 	253,- (20) 421,- (40)
	PCR Cloning: pETBlue-1 Perfectly Blunt Cloning Kit	<ul style="list-style-type: none"> Suitable for T7-driven in vitro protein synthesis and sequencing Cloning of DNA generated by PCR using any type of DNA polymerase. 	-	<ul style="list-style-type: none"> T7 promoter No fusion tags Insert provides ATG start codon 	282,- (20) 457,- (40)
	PCR Cloning: pETBlue-2 Perfectly Blunt Cloning Kit	See above	See above	<ul style="list-style-type: none"> T7 promoter Optional C-terminal HSV-Tag, His-Tag sequence Vector provides ATG start codon 	282,- (20) 457,- (40)
	PCR Cloning: pSTBlue-1 Acceptor Vector Kit	<ul style="list-style-type: none"> Suitable for archiving, subcloning, sequencing & in vitro transcription Cloning of DNA generated by PCR using any type of DNA polymerase. 	<ul style="list-style-type: none"> > 80% recombinants Blue/white screening Clonables 2X Ligation Premix 	<ul style="list-style-type: none"> Dual opposed SP6/T7 promoters Amp or Kan selection Dual EcoR I sites flank insert 	253,- (20) 421,- (40)
	PCR Cloning: pETBlue-1 Acceptor Vector Kit	<ul style="list-style-type: none"> T7lac-driven, tightly controlled, high-level expression in <i>E. coli</i> Designed to simplify cloning of PCR gener. using DNA polymerase. that leave single 3'-dA overhangs 	See above	<ul style="list-style-type: none"> No fusion tags Insert provides ATG start codon 	282,- (20) 465,- (40)
	PCR Cloning: pSTBlue-1 Perfectly Blunt Giga Cloning Kit	<ul style="list-style-type: none"> Cloning of DNA generated by PCR using any type of DNA polymerase 	<ul style="list-style-type: none"> Features NovaBlue Giga Singles Competent Cells for increased transformation efficiency > 95% recombinants Blue/white screening Compatible with any DNA polymerase 	<ul style="list-style-type: none"> Dual opposed SP6/T7 promoters Amp or Kan selection Dual EcoR I sites flank insert 	261,- (20) 440,- (40)
	PCR Cloning: pSTBlue-1 Acceptor Vector Kit	<ul style="list-style-type: none"> Cloning of PCR products generated using DNA polymerases that leave single 3'-dA overhangs 	<ul style="list-style-type: none"> > 80% recombinants Blue/white screening Clonables 2X Ligation Premix 	See above	253,- (20) 421,- (40)
	PCR Cloning: STBlue-1 Acceptor Vector Giga Kit	See above	<ul style="list-style-type: none"> Features NovaBlue Giga Singles Competent Cells for increased transformation efficiency > 80% recombinants Blue/white screening Clonables 2X Ligation Premix 	<ul style="list-style-type: none"> Dual opposed SP6/T7 promoters Amp or Kan selection Dual EcoR I sites flank insert 	261,- (20) 440,- (40)
	PCR Cloning: pETBlue-1 Acceptor Vector Kit	See above	<ul style="list-style-type: none"> > 80% recombinants Blue/white screening Clonable 2X Ligation Premix 	See above	282,- (20) 465,- (40)
	MoBiTec Göttingen, Germany www.mobitec.com Contact: Arne Schulz Phone: +49-551-707 2270 info@mobitec.com	Vector p3T for PCR product cloning	<ul style="list-style-type: none"> Direct cloning of PCR products 	<ul style="list-style-type: none"> Direct cloning of PCR products via multiple dA extensions Results in higher efficiencies than with single dA/dT overhangs Only little amplified DNA necessary 	<ul style="list-style-type: none"> p3T vector size is only 3 kb
pMCS5 Versatile cloning vector		<ul style="list-style-type: none"> End-cloning, labeling, linearization of recombinant clones, generation of ssDNA 	<ul style="list-style-type: none"> Ultimate multiple cloning site (MCS) with 59 unique restriction sites Suitable cloning site f. almost any application 	-	172,-
Exontrap vector for selective cloning of exons		<ul style="list-style-type: none"> Search for new eukaryotic genes Intron/exon mapping Exon libraries for screening the genome w. labeled cDNA Removal of introns before sequencing Expression of eukaryotic genes 	<ul style="list-style-type: none"> Intrinsic splicing function, allowing selective cloning of exon sequences from large genomic eukaryotic DNA fragments 	-	172,- (Vector) 424,- (Kit incl. Primers)
pCorrectClone cloning vector with suizid system		<ul style="list-style-type: none"> Highly efficient cloning of PCR products, cDNA or other DNA 	<ul style="list-style-type: none"> Only transformants with insert will grow in selective medium Cloning efficiency up to 95% Dephosphorylation becomes superfluous, no blue/white screen necessary 	<ul style="list-style-type: none"> Vector can be used with any <i>E. coli</i> strain Strong Lambda-Promotor 	289,- (Vec.) 324,- (Kit, Ligase, buff.) 427,- (Kit incl. <i>E. coli</i>)

Cloning Kits

Company	Product/Name	Application(s)	3 reasons for buying	Miscellaneous, Specialities, Generally	Price [EUR]
MoBiTec Contact see page 58	pORF-Clone vectors for improved cloning of open reading frames in yeast	<ul style="list-style-type: none"> Construction of cDNA libraries enriched for yeast clones possessing authentic ORFs 	<ul style="list-style-type: none"> Eucaryotic host enables highly efficient expression of soluble proteins with correct modifications Easy affinity purification and detection of recombinant proteins One-step screening procedure 	-	192,-
Promega Mannheim, Germany www.promega.com Contact: Jan Adam, Technical Services: Phone 00800/77663428 de_techserv@promega.com	pGEM-T and pGEM-T Easy Vector Systems	<ul style="list-style-type: none"> Cloning of PCR products with single A overhangs 	<ul style="list-style-type: none"> Complete System, available with or without JM109 competent cells Rapid ligation Blue/White screening possible 	<ul style="list-style-type: none"> Complete system including LigaFast Rapid DNA Ligation System which allows reactions to be completed in 1 h Linearized vector with single T overhangs Insertion site flanked by 2 BstZI respectively EcoRI sites and a huge MCS allowing release of Insert by single-enzyme digestion 	Please enquire
	pTARGET Mammalian Expression Vector System	<ul style="list-style-type: none"> Direct cloning of PCR products with single A overhangs into mammalian expression vector 	<ul style="list-style-type: none"> No subcloning step required Complete System including Ligase and JM109 competent cells Neomycin selection marker 	<ul style="list-style-type: none"> CMV enhancer/promoter for strong constitutive expression in Mammalian cells Linearized vector with single T overhangsBlue/White screening possible 	Please enquire
	Flexi Cloning System	<ul style="list-style-type: none"> Simple transfer of inserts between vectors for multiple applications 	<ul style="list-style-type: none"> Fast: no gel purification of fragments required Efficient: no need to re-sequence clones Simple: online primer design tool 	<ul style="list-style-type: none"> Lethal barnase gene as positive selection for successful ligation of insert Based on rare-cutting enzymes SgfI and PmlI Vectors available with different tags & promoters 	Please enquire
PromoCell Heidelberg, Germany www.promokine.info Contact: Technical Support Phone: +49 6221 64934-0 info@promokine.info	StarGate Transfer Reagent Set & StarGate Standard Entry Cloning Set	<ul style="list-style-type: none"> Subcloning of your gene of interest into diverse high-level expression vectors 	<ul style="list-style-type: none"> Highest level cloning efficiency Minimal modification of the gene of interest Easy generation of fusion proteins 	<ul style="list-style-type: none"> Enables combination of different elements and different hosts Facilitates polycistronic gene expression 	250,- (20 rxn) 195,- (Entry Cloning Set)
	StarGate Mutagenesis Entry Cloning Set	-	<ul style="list-style-type: none"> Uncomplicated generation of Donor mutants Parallel automated mutagenesis possible Fully compatible with the StarGate system 	<ul style="list-style-type: none"> Fast and efficient mutagenesis Cost-effective and time-saving Comes with easy-to-use primer designer software Royalty-free license policy 	-
	pPK-CMV FastClone Kits for Mammalian Expression	<ul style="list-style-type: none"> For rapid, directional cloning of target genes into high-level mammalian expression vectors 	<ul style="list-style-type: none"> Fast and convenient procedure More than 85% cloning efficiency No need for restriction or ligation enzymes 	<ul style="list-style-type: none"> Superior Expression levels in mammalian cells Available for native, HA- or 6 x His-tag expression No incorporation of unwanted sequences Kits for efficient in vitro transcription/translation also available 	269,- (20 rxn)
Roche Diagnostics Find your local contact names and phone number at www.roche-applied-science.com	Rapid DNA Dephosphorylation & Ligation Kit	<ul style="list-style-type: none"> Dephosphorylation and ligation of sticky- or blunt-ended DNA fragments 	<ul style="list-style-type: none"> Phosphate groups are removed in 10 min and DNA is ligated in 5 min Ligation is performed at room temperature and dephosphorylation can be performed directly in restriction enzyme digests Highly efficient ligation reactions 	<ul style="list-style-type: none"> Ready to use buffers Ligated DNA is suitable for direct use in transformation experiments Contains the new recombinant rAPid Alkaline Phosphatase, the tool of choice for dephosphorylation of 5' phosphates from nucleic acids 	Local prices
	Rapid DNA Ligation Kit	<ul style="list-style-type: none"> Ligation of either sticky- or blunt-ended DNA fragments 	<ul style="list-style-type: none"> Ligation takes only 5 min Ligation is performed at room temperature Kit can be used for all common ligation reactions 	<ul style="list-style-type: none"> Ready to use buffers rAPid Alkaline Phosphatase has to be added for dephosphorylation reactions Ligated DNA is suitable for direct use in transformation experiments 	Local prices
	rAPid Alkaline Phosphatase	<ul style="list-style-type: none"> Alkaline phosphatase treatment prevents self-ligation of fragments 	<ul style="list-style-type: none"> Recombination expression ensures consistency and safety Inactivated after only 2 minutes at + 75°C Removal of 5'-phosphoryl groups from nucleic acids, preparation of templates for 5'-end labeling, dephosphorylation of proteins 	<ul style="list-style-type: none"> Preparation of nucleic acids for the Rapid DNA Ligation Kit Performs equally as well as Shrimp Alkaline Phosphatase or Bovine Alkaline Phosphatase 	Local prices
	High Pure PCR Cleanup Micro Kit	<ul style="list-style-type: none"> Purification of DNA for direct use in subsequent enzymatic reactions 	<ul style="list-style-type: none"> Purification within less than 10 min Selectively isolate specific DNA fragment sizes Generate contaminant-free DNA 	<ul style="list-style-type: none"> Very small elution volumes (10 µl) Filter tubes are suitable for standard tabletop microcentrifuges Highly purified DNA for efficient cloning applications with e.g. Rapid DNA Dephos & Ligation Kit 	Local prices
	High Pure Plasmid Isolation Kit	<ul style="list-style-type: none"> Preparation of highly purified plasmid DNA in small quantities 	<ul style="list-style-type: none"> 24 samples can be processed at the same time in less than 30 min Contaminants are removed without precipitation Kit removes RNA and other impurities 	<ul style="list-style-type: none"> Filter tubes are suitable for standard tabletop microcentrifuges Preparation of 15 µg purified plasmid DNA from bacterial cultures Highly purified plasmid DNA for efficient cloning applications 	Local prices
Takara Bio Europe Saint-Germain-en-Laye, France www.takara-bio.eu Contact Distributor: Lonza Verviers Phone: +32 87 321 611 Info.europe@lonza.com	DNA Ligation Kit <Mighty Mix>	<ul style="list-style-type: none"> Quick and easy ligations of any DNA insert into plasmid 	<ul style="list-style-type: none"> Cost effective Easy usage Fast ligation 	<ul style="list-style-type: none"> Ligation in as little as 5 minutes at RTEasy; only one solution premix limits pipeting step Convenient for all type of cloning Ligation reaction can directly be used for transformation with low background 	157,90
	DNA Ligation Kit, Version 2.1	<ul style="list-style-type: none"> Efficient DNA ligation with enhanced transformation capability 	<ul style="list-style-type: none"> Flexible Efficient Suitable for DNA concatenation 	<ul style="list-style-type: none"> Allows fast and easy ligation of DNA into plasmid with only one premixed solution containing T4 DNA Ligase and buffer Concatenation is also possible; even difficult clones can be obtained by using the Transformation enhancer provided. 	209,10
	DNA Ligation Kit LONG	<ul style="list-style-type: none"> Vector construction with long DNA fragments BAC library constructionCloning of long cDNA fragments 	<ul style="list-style-type: none"> Unique kit for long DNA insertion (2-18 kB) Unsurpassed efficiency, especially for long DNA fragments LONG ligation plasmid and insert control included 	<ul style="list-style-type: none"> For cloning DNA fragments over 10 kb in length Contains an optimized ligase/buffer system which enables ligation of long fragments without difficult techniquesand special expertise It is especially well-suited for the construction of BAC libraries 	173,23