

# Thermo Scientific molecular biology workflow solutions

High-quality essentials for everyday applications

# Supporting great science through innovation in molecular biology

For over two decades the Thermo Scientific™ molecular biology portfolio has represented leading technology, ensuring reliable performance for every step of the traditional molecular biology workflow. Our innovations include the first single-buffer restriction enzyme collection, the most widely used high-fidelity DNA polymerases, and the most comprehensive PCR plastic consumables portfolio. Today, the people behind our expanding portfolio remain committed to supporting your research and making it easier for you to do great science.

To learn more, go to

**[thermofisher.com/thermoscientificmolbio](https://thermofisher.com/thermoscientificmolbio)**

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# Thermo Scientific nucleic acid isolation kits

## High yields and exceptional value

Thermo Scientific™ GeneJET™ DNA and RNA purification kits are designed for rapid, efficient, and convenient purification of DNA and RNA from a wide range of samples. The kits utilize a proprietary silica-based membrane technology in the form of a convenient spin column, eliminating the need for expensive resins, toxic phenol-chloroform extractions, or time-consuming alcohol precipitation. Purified DNA or RNA is ready to use in all common molecular biology procedures.

- Efficient nucleic acid extraction and high yields
- High purity of isolated DNA or RNA
- Simple and fast isolation procedure
- Convenient silica-based spin column format



Category	Description	Size	Fisher Scientific Cat. No.
<b>Plasmid DNA purification</b>	GeneJET Plasmid Miniprep Kit	50 preps/250 preps	FERK0502/FERK0503
	GeneJET Plasmid Midiprep Kit	25 preps/100 preps	FERK0481/FERK0482
	GeneJET Plasmid Maxiprep Kit	10 preps/25 preps	FERK0491/FERK0492
	GeneJET Endo-Free Plasmid Maxiprep Kit	10 preps	FERK0861
<b>DNA fragment purification</b>	GeneJET Gel Extraction Kit	50 preps/250 preps	FERK0691/FERK0692
	GeneJET PCR Purification Kit	50 preps/250 preps	FERK0701/ FERK0702
<b>Genomic DNA purification</b>	GeneJET Genomic DNA Purification Kit	50 preps/250 preps	FERK0721/ FERK0722
	GeneJET Plant Genomic DNA Purification Mini Kit	50 preps/250 preps	FERK0791/ FERK0792
	GeneJET Whole Blood Genomic DNA Purification Mini Kit	50 preps/250 preps	FERK0781/ FERK0782
	GeneJET FFPE DNA Purification Kit	50 preps/250 preps	FERK0881/ FERK0882
	GeneJET RNA Purification Kit	50 preps/250 preps	FERK0731/ FERK0732
<b>Total RNA purification</b>	GeneJET Plant RNA Purification Mini Kit	50 preps/250 preps	FERK0801/ FERK0802
	GeneJET Whole Blood RNA Purification Mini Kit	50 preps	FERK0761
	GeneJET Stabilized and Fresh Whole Blood RNA Kit	50 preps	FERK0871

To learn more, go to [thermofisher.com/genejet](http://thermofisher.com/genejet)

# Thermo Scientific reverse transcriptases

## For maximum cDNA synthesis performance

Thermo Scientific™ Maxima™ Reverse Transcriptases were developed through molecular evolution, which enabled the introduction and selection of multiple favorable mutations in traditional M-MuLV reverse transcriptase, maximizing performance in cDNA synthesis. Maxima Reverse Transcriptases are available in multiple formulations supporting a variety of molecular biology applications.

- Superior yields of full-length cDNA
- High reaction temperatures for improved transcription
- High transcription efficiency on long RNA templates
- Formats with integrated gDNA-removal step for simplified workflows



Format	Description	Size	Fisher Scientific Cat. No.
<b>Reverse transcriptases</b>	Maxima Reverse Transcriptase	2,000 U/10,000 U	FEREP0741/FEREP0742
	Maxima H Minus Reverse Transcriptase	2,000 U/10,000 U	FEREP0751/FEREP0752
<b>cDNA synthesis kits</b>	Maxima First Strand cDNA Synthesis Kit for RT-qPCR	50 rxns/200 rxns	FERK1641/FERK1642
	Maxima First Strand cDNA Synthesis Kit for RT-qPCR with dsDNase	50 rxns/200 rxns	FERK1671/FERK1672
	Maxima H Minus First Strand cDNA Synthesis Kit	20 rxns/100 rxns	FERK1651/FERK1652
	Maxima H Minus First Strand cDNA Synthesis Kit with dsDNase	20 rxns/100 rxns	FERK1681/FERK1682
<b>dsDNA synthesis kits</b>	Maxima H Minus Double-Stranded cDNA Synthesis Kit	10 rxns	FERK2561

To learn more, go to [thermofisher.com/maxima](http://thermofisher.com/maxima)

## For routine cDNA synthesis performance

Thermo Scientific™ RevertAid™ Reverse Transcriptases are based on M-MuLV enzyme and offer routine cDNA synthesis performance in molecular biology applications.

Format	Description	Size	Fisher Scientific Cat. No.
<b>Reverse transcriptases</b>	RevertAid Reverse Transcriptase	10,000 U/50,000 U	FEREP0441/FEREP0442
	RevertAid H Minus Reverse Transcriptase	10,000 U/50,000 U	FEREP0451/FEREP0452
<b>cDNA synthesis kits</b>	RevertAid First Strand cDNA Synthesis Kit	20 rxns/100 rxns	FERK1621/FERK1622
	RevertAid H Minus First Strand cDNA Synthesis Kit	20 rxns/100 rxns	FERK1631/FERK1632

To learn more, go to [thermofisher.com/thermoscientificrt](http://thermofisher.com/thermoscientificrt)

## For reliable RNA protection

Thermo Scientific™ RiboLock™ RNase Inhibitor is an engineered thermostable enzyme that inhibits the activity of RNases A, B, and C. The enzyme is active under a wide range of reaction conditions and protects RNA at temperatures up to 55°C, helping to ensure successful reverse transcription in RT-PCR and RT-qPCR applications.

To learn more, go to [thermofisher.com/ribolock](http://thermofisher.com/ribolock)

# Thermo Scientific DNA polymerases

## The gold standard for high-performance PCR

Since their introduction in 2003, Thermo Scientific™ Phusion™ High-Fidelity DNA Polymerases have established the gold standard for high-performance PCR. In Phusion DNA Polymerases, a dsDNA-binding protein is fused to a proofreading polymerase. Due to this fusion technique, Phusion DNA Polymerases generate PCR products with high accuracy and speed even on the most difficult templates.

- High fidelity—52x more accurate than *Taq*, 6x more accurate than *Pfu*
- High speed and shorter reaction times (extension 15–30 s/kb)
- Exceptional tolerance to PCR inhibitors
- Phusion Green formats enable direct loading of PCR products on gels



Format	Description	Size	Fisher Scientific Cat. No.
Standard	Phusion High-Fidelity DNA Polymerase	100 U/500 U	F530S/F530L
	Phusion Green High-Fidelity DNA Polymerase	100 U/500 U	F534S/F534L
	Phusion High-Fidelity PCR Master Mix with GC Buffer	100 x 50 µL rxns/500 x 50 µL rxns	F532S/F532L
	Phusion High-Fidelity PCR Master Mix with HF Buffer	100 x 50 µL rxns/500 x 50 µL rxns	F531S/F531L
Hot-start	Phusion Hot Start II High-Fidelity DNA Polymerase	100 U/500 U	F549S/F549L
	Phusion Green Hot Start II High-Fidelity DNA Polymerase	100 U/500 U	F537S/F537L
	Phusion Hot Start II High-Fidelity PCR Master Mix	100 x 50 µL rxns/500 x 50 µL rxns	F565S/F565L
	Phusion Green Hot Start II High-Fidelity PCR Master Mix	100 x 50 µL rxns/500 x 50 µL rxns	F566S/F566L
	Phusion Flash High-Fidelity PCR Master Mix	100 x 20 µL rxns/500 x 20 µL rxns	F548S/F548L
Uracil-tolerant	Phusion U Hot Start DNA Polymerase	100 U/500 U	F555S/F555L
	Phusion U Green Hot Start DNA Polymerase	100 U/500 U	F556S/F556L
	Phusion U Hot Start PCR Master Mix	100 x 50 µL rxns/500 x 50 µL rxns	F533S/F533L
Multiplex PCR	Phusion U Multiplex PCR Master Mix	100 x 50 µL rxns/500 x 50 µL rxns	F562S/F562L
	Phusion U Green Multiplex PCR Master Mix	100 x 50 µL rxns/500 x 50 µL rxns	F564S/F564L

To learn more, go to [thermofisher.com/phusion](http://thermofisher.com/phusion)

## Enhanced *Taq* DNA polymerase for routine PCR

Thermo Scientific™ DreamTaq™ DNA Polymerase is an enhanced *Taq* DNA polymerase designed to support consistent, reliable, and robust amplification, and deliver PCR performance no conventional *Taq* enzyme can match.

- Delivers higher yields, sensitivity, and target length than conventional *Taq* enzymes
- Multiple formats for maximum flexibility and reliability
- DreamTaq Green formats enable direct loading of PCR products on gels



Format	Description	Size	Fisher Scientific Cat. No.
Standard	DreamTaq DNA Polymerase	500 U/2,500 U	FEREP0702/FEREP0703
	DreamTaq Green DNA Polymerase	500 U/2,500 U	FEREP0712/FEREP0713
	DreamTaq PCR Master Mix	200 x 50 µL rxns/1,000 x 50 µL rxns	FERK1071/FERK1072
	DreamTaq Green PCR Master Mix	200 x 50 µL rxns/1,000 x 50 µL rxns	FERK1081/FERK1082

To learn more, go to [thermofisher.com/dreamtaq](http://thermofisher.com/dreamtaq)

# Thermo Scientific solutions for direct PCR

## Amplify without purification

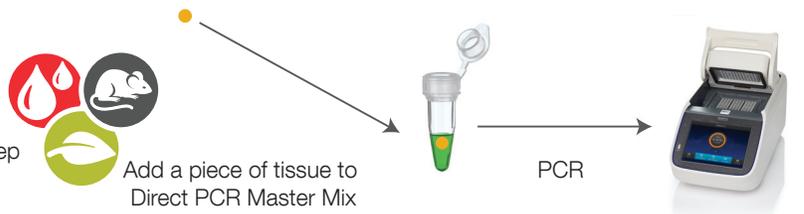
Thermo Scientific™ Direct PCR Master Mixes offer outstanding convenience for DNA amplification by allowing PCR from unpurified samples. A tiny amount of source material is used in the PCR reaction without any purification steps, allowing significant savings in both time and cost. Master mixes include a density reagent and two tracking dyes that allow for direct loading of PCR products on gels for simplified workflows.

- PCR from crude samples—no DNA extraction or purification required
- Very short protocol times—from sample to results in 30 minutes
- Direct loading of PCR products on gels for simplified workflows
- Compatible with a variety of human, animal, and plant tissue samples

### Two short protocols for different needs

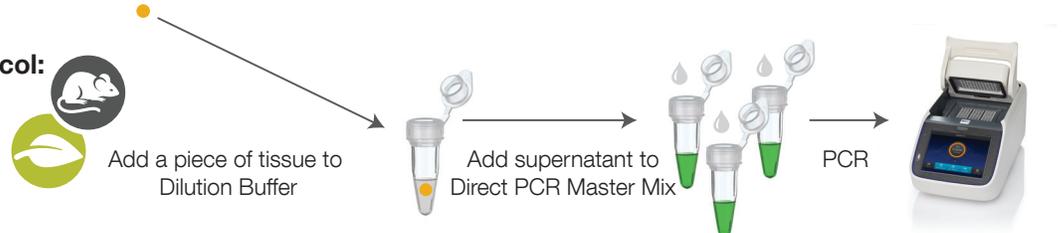
#### Direct protocol:

- Minimal hands-on time
- From sample to PCR in one step



#### Dilution and storage protocol:

- For multiple PCR reactions
- For long or difficult amplicons
- For sample storage



Sample type	Description	Size		Fisher Scientific Cat. No.
		Direct protocol	Dilution and storage protocol	
Animal and human tissues	Phire Tissue Direct PCR Master Mix	100 rxns/500 rxns	250 rxns/1,250 rxns	F170S/F170L
Plant tissues, bacteria, yeast	Phire Plant Direct PCR Master Mix	100 rxns/500 rxns	250 rxns/1,250 rxns	F160S/F160L
Animal and human blood	Phusion Blood Direct PCR Master Mix	100 rxns/500 rxns	NA	F175S/F175L

#### Direct PCR Tissue Puncher

The best direct PCR results are obtained by using a very small amount of tissue sample as starting material. The Thermo Scientific™ Tissue Puncher 0.3 mm (Fisher Cat. No. F200S) is a convenient tool for cutting small tissue-punch discs for direct PCR protocols. It is compatible with a variety of materials, including animal and plant tissues as well as Whatman™ 903™ and FTA™ cards.



To learn more, go to [thermofisher.com/directpcr](http://thermofisher.com/directpcr)

# Thermo Scientific PCR plastic consumables

## Not all PCR plastics are created equal

For over 25 years, the Thermo Scientific™ PCR portfolio has been supplying high-quality PCR plastic consumables for molecular biology research. These products are designed to support maximum PCR performance and are manufactured with robust processes and extensive quality controls. The comprehensive portfolio of Thermo Scientific PCR plastic consumables includes individual tubes, tube strips, 96- and 384-well plates, and sealing options compatible with a broad range of PCR and qPCR instruments.

- Clean room production—certified free from DNA, RNases, and DNases
- Specialized solutions for low-, medium-, and high-throughput PCR and qPCR experiments
- Broad PCR and qPCR instrument compatibility including automated platforms
- Barcoded product options



### Tubes

Individual PCR tubes with attached caps



### Tube strips

8-tube strips for PCR with separate or attached caps



### 96-well plates

Full-, semi-, or non-skirted 96-well PCR plates with different profiles; ultra-rigid plates for robotic applications



### 384-well plates

Full-skirted standard or extra-volume 384-well PCR plates; ultra-rigid plates for robotic applications



### Barcoded plates

Barcoded 96- or 384-well PCR plates for reliable sample tracking



### Sealing options

Cap strips, adhesive seals, and sealing mats compatible with PCR and qPCR applications



To learn more, go to [thermofisher.com/thermoscientificplastics](https://www.thermofisher.com/thermoscientificplastics)

# Thermo Scientific electrophoresis reagents

## DNA ladders designed with accuracy in mind

Thermo Scientific™ GeneRuler™ DNA Ladders are produced from chromatography-purified individual DNA fragments and are used for accurate analysis of DNA fragments in agarose or polyacrylamide gels. They are ideal for sizing and in-gel DNA quantification. GeneRuler DNA ladders are available in conventional as well as ready-to-use formats (premixed with loading dye).

- Broad selection of DNA ladders
- Bright, sharp bands
- Environmentally friendly shipping



Range, bp*	Description	Size	Fisher Scientific Cat. No.
250–10,000	GeneRuler 1 kb DNA Ladder	5 x 50 µg/25 x 50 µg	FERSM0311/FERSM0312
	GeneRuler 1 kb DNA Ladder, ready-to-use	50 µg/5 x 50 µg	FERSM0314/FERSM0313
75–20,000	GeneRuler 1 kb Plus DNA Ladder	5 x 50 µg/25 x 50 µg	FERSM1331/FERSM1332
	GeneRuler 1 kb Plus DNA Ladder, ready-to-use	50 µg/5 x 50 µg	FERSM1334/FERSM1333
100–1,000	GeneRuler 100 bp DNA Ladder	50 µg/5 x 50 µg	FERSM0241/FERSM0242
	GeneRuler 100 bp DNA Ladder, ready-to-use	50 µg/5 x 50 µg	FERSM0243/FERSM0244
100–3,000	GeneRuler 100 bp Plus DNA Ladder	50 µg/5 x 50 µg	FERSM0321/FERSM0322
	GeneRuler 100 bp Plus DNA Ladder, ready-to-use	50 µg/5 x 50 µg	FERSM0323/FERSM0324
50–1,000	GeneRuler 50 bp DNA Ladder	50 µg/5 x 50 µg	FERSM0371/FERSM0372
	GeneRuler 50 bp DNA Ladder, ready-to-use	50 µg	FERSM0373

\* GeneRuler DNA ladders are also available in ultra low (10–300 bp), low (25–700 bp), and high (10,171–48,502 bp) ranges.

To learn more, go to [thermofisher.com/dnaladders](http://thermofisher.com/dnaladders)

## RNA ladders for fragment sizing and in-gel quantification

Thermo Scientific™ RiboRuler™ RNA Ladders are produced from chromatography-purified RNA transcripts and are free from degraded RNA or NTPs. They produce sharp bands of uniform intensity and have easy-to-remember band sizes and quantities allowing for RNA fragment sizing and approximate quantification. RiboRuler RNA ladders are available in conventional as well as ready-to-use formats (premixed with loading dye).

To learn more, go to [thermofisher.com/rnaladders](http://thermofisher.com/rnaladders)

## High-quality agarose

Thermo Scientific™ TopVision™ Agarose is a highly purified DNase- and RNase-free agarose that comes in two melting point options (standard and low melting temperature) and two formats (powder and tablets).

- Suitable for DNA and RNA analysis
- Excellent gel transparency



Format	Description	Size	Fisher Scientific Cat. No.
Powder	TopVision Agarose	100 g/500 g	FERR0491/FERR0492
	TopVision Low Melting Point Agarose	25 g	FERR0801
Tablets	TopVision Agarose Tablets	200/1,000 tablets	FERR2801/FERR2802

To learn more, go to [thermofisher.com/topvision](http://thermofisher.com/topvision)

# Thermo Scientific restriction digestion and modifying enzymes

## Restriction digestion as easy as it gets

Thermo Scientific™ FastDigest™ enzymes are a line of restriction enzymes that are all 100% active in a single buffer. The universal FastDigest and FastDigest Green Buffers allow single, double, or multiple DNA digestion within 5–15 minutes, eliminating any need for buffer changes or subsequent DNA clean-up steps. Thermo Scientific™ DNA-modifying enzymes have 100% activity in this buffer as well. The FastDigest Green Buffer includes a density reagent and two tracking dyes that allow for direct loading of digestion reaction products on gels.

- 100% activity of all FastDigest enzymes in one buffer
- Complete DNA digestion in 5–15 minutes
- 100% buffer compatibility with downstream applications
- Direct loading of reaction products on gels



### FastDigest Value Pack

The Thermo Scientific™ FastDigest™ Value Pack (Fisher Cat. No. FERK1991) is a collection of 13 popular FastDigest enzymes supplied with FastDigest and FastDigest Green Buffers. Each enzyme is supplied in an amount sufficient for 20 standard restriction digestion reactions. The FastDigest enzymes included in the pack are: BamHI, BglII, EcoRI, EcoRV (Eco321), HindIII, KpnI, NdeI, NotI, PstI, Sall, SmaI, XbaI, and XhoI.

Find all 176 enzymes at [thermofisher.com/fastdigest](http://thermofisher.com/fastdigest)



## DNA- and RNA-modifying enzymes

Thermo Scientific™ modifying enzymes are of high quality and purity, and support common modifications of RNA and DNA molecules. These enzymes include phosphatases, kinases, DNA and RNA polymerases, ligases, and other nucleases.

Enzyme type	Description	Size	Fisher Scientific Cat. No.
<b>Phosphatases and kinases</b>	FastAP Thermosensitive Alkaline Phosphatase (1 U/μL)	1,000 U/5 x 1,000 U/300 U	FEREF0651/FEREF0652/FEREF0654
	T4 Polynucleotide Kinase (10 U/μL)	500 U/2,500 U	FEREK0031/FEREK0032
<b>DNA polymerases</b>	T4 DNA Polymerase (5 U/μL)	100 U/500 U	FEREP0061/FEREP0062
	T7 DNA Polymerase (10 U/μL)	300 U	FEREP0081
	Klenow Fragment (10/μL)	300 U/1,500 U	FEREP0051/FEREP0052
<b>Deoxyribonucleases (DNases)</b>	Exonuclease I (20 U/μL)	4,000 U/20,000 U	FEREN0581/FEREN0582
	DNase I, RNase-free (1 U/μL)	1,000 U	FEREN0521
<b>Ligases</b>	T4 DNA Ligase (5 U/μL)	200 U/1,000 U	FEREL0014/FEREL0011
<b>RNA polymerases</b>	T7 RNA Polymerase, HC (200 U/μL)	25,000 U	FEREP0113
<b>Ribonucleases (RNases)</b>	RNase A, DNase- and protease-free (10 mg/mL)	10 mg	FEREN0531
	RNase H (5 U/μL)	100 U/500 U	FEREN0201/FEREN0202

Find all modifying enzymes at [thermofisher.com/tsmodifyingenzymes](http://thermofisher.com/tsmodifyingenzymes)

# Thermo Scientific cloning kits

## Universal cloning kit for any type of DNA fragment

The Thermo Scientific™ CloneJET™ PCR Cloning Kit is an advanced positive-selection system for fast and highly efficient cloning of PCR products generated with any DNA polymerase. Additionally, any other blunt or sticky-end, phosphorylated or non-phosphorylated DNA fragment can also be cloned using this kit.

- Fast—ligation in only 5–10 minutes
- High efficiency—more than 99% positive clones
- No cloning background with the positive selection vector
- Eliminates the need for blue/white screening

To learn more, go to [thermofisher.com/clonejet](http://thermofisher.com/clonejet)



## Ligation-independent cloning kits

The Thermo Scientific™ aLICator™ LIC Cloning and Expression System is designed for fast and efficient ligation-independent cloning with subsequent tightly regulated gene expression in *E. coli*. The included pLATE bacterial expression vectors are designed for high levels of target protein expression as well as minimized basal (uninduced) expression.

- No need to cut and ligate DNA with traditional methods
- Tight control for protein production
- One-step on-column His-tag removal

To learn more, go to [thermofisher.com/alicator](http://thermofisher.com/alicator)



## Kits for DNA ligation and end repair

The Thermo Scientific™ Rapid DNA Ligation Kit enables fast sticky-end or blunt-end DNA ligation in only 5 minutes at room temperature. The fast ligation efficiency is equal to that obtained with T4 DNA ligase in a standard 1-hour ligation. The reaction mixture can be used directly for bacterial transformation.

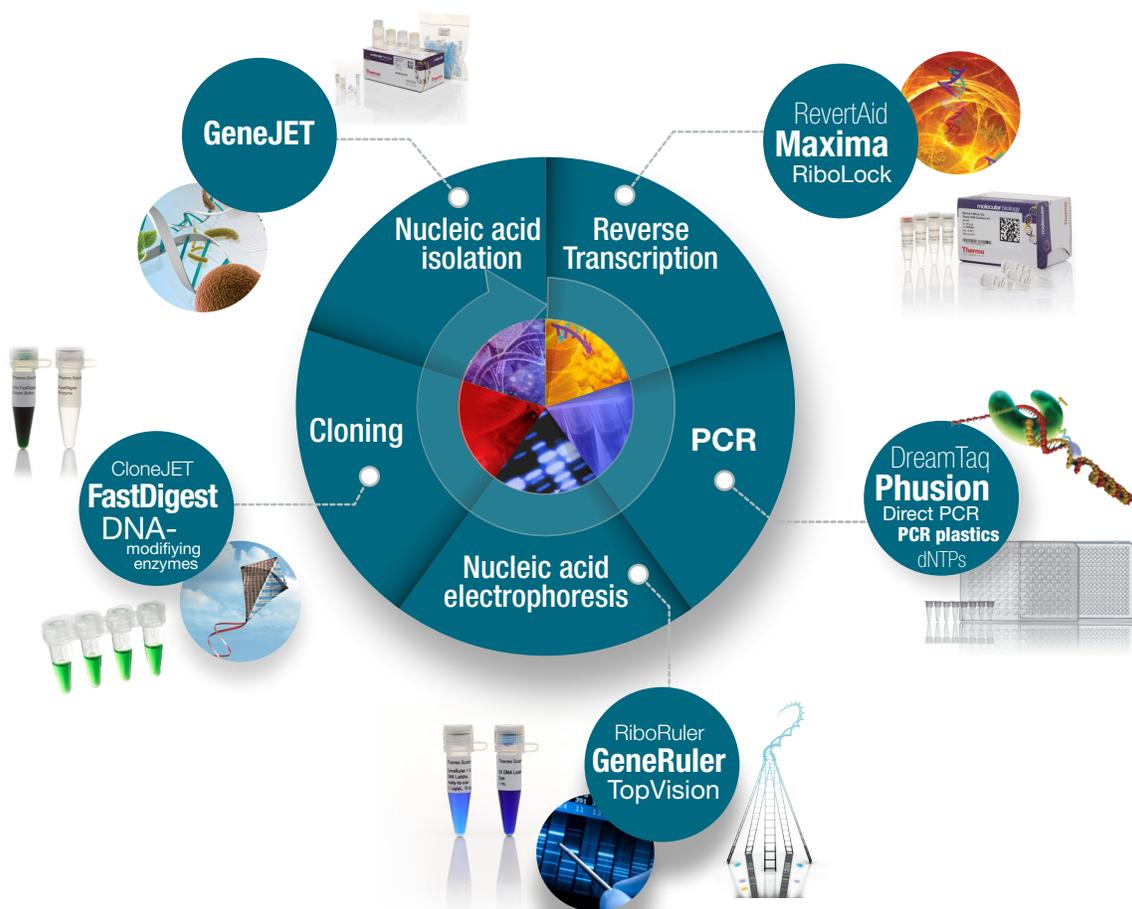
The Thermo Scientific™ Fast DNA End Repair Kit is used for blunting and phosphorylation of DNA ends in just 5 minutes for subsequent use in blunt-end ligation.

Cloning kit	Description	Size	Fisher Scientific Cat. No.
Universal cloning kit	CloneJET PCR Cloning Kit	20 rxns/40 rxns	FERK1231/FERK1232
Ligation-independent cloning kits	aLICator LIC Cloning and Expression Kits	20 rxns	FERK1241, FERK1251, FERK1261, FERK1281
	aLICator LIC Cloning and Expression Systems	30 rxns	FERK1271, FERK1291
Kit for DNA ligation	Rapid DNA Ligation Kit	50 rxns/150 rxns	FERK1422/FERK1423
Kit for DNA end repair	Fast DNA End Repair Kit	50 rxns	FERK0771

To learn more, go to [thermofisher.com/cloningtools](http://thermofisher.com/cloningtools)

# Thermo Scientific molecular biology reagents and plastic consumables

Optimized solutions for every step of your molecular biology workflow



To learn more, go to

[thermofisher.com/thermoscientificmolbio](http://thermofisher.com/thermoscientificmolbio)



**In the United States:**

For customer service, call 1-800-766-7000

To fax an order, use 1-800-926-1166

To order online: [fishersci.com](http://fishersci.com)

**In Canada:**

For customer service, call 1-800-234-7437

To fax an order, use 1-800-463-2996

To order online: [fishersci.ca](http://fishersci.ca)