Thermo Scientific molecular biology workflow solutions

High-quality essentials for everyday applications

ThermoFisher SCIENTIFIC

Supporting great science through innovation in molecular biology

For over two decades, the Thermo Scientific™ molecular biology portfolio has represented leading technology, enabling 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 selection of PCR plastic consumables.

Today, the people behind our expanding portfolio remain committed to developing tools that deliver the best value for your research, with the performance and affordability that make it easy for you to do more great science.

To learn more, go to
thermofisher.com/thermoscientificmolbio

Contents

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	Cat. No.
Plasmid DNA purification	GeneJET Plasmid Miniprep Kit	50 preps/250 preps	K0502/K0503
	GeneJET Plasmid Midiprep Kit	25 preps/100 preps	K0481/K0482
	GeneJET Plasmid Maxiprep Kit	10 preps/25 preps	K0491/K0492
	GeneJET Endo-Free Plasmid Maxiprep Kit	10 preps	K0861
DNA and RNA fragment purification	GeneJET Gel Extraction Kit	50 preps/250 preps	K0691/K0692
	GeneJET PCR Purification Kit	50 preps/250 preps	K0701/K0702
	GeneJET RNA Cleanup and Concentration Micro Kit	50 preps/250 preps	K0841/K0842
	GeneJET Gel Extraction and DNA Cleanup Micro Kit	50 preps/250 preps	K0831/K0832
Genomic DNA purification	GeneJET Genomic DNA Purification Kit	50 preps/250 preps	K0721/K0722
	GeneJET Plant Genomic DNA Purification Mini Kit	50 preps/250 preps	K0791/K0792
	GeneJET Whole Blood Genomic DNA Purification Mini Kit	50 preps/250 preps	K0781/K0782
	GeneJET FFPE DNA Purification Kit	50 preps/250 preps	K0881/K0882
	GeneJET RNA Purification Kit	50 preps/250 preps	K0731/K0732
Total RNA purification	GeneJET Plant RNA Purification Mini Kit	50 preps/250 preps	K0801/K0802
	GeneJET Whole Blood RNA Purification Mini Kit	50 preps	K0761
	GeneJET Stabilized and Fresh Whole Blood RNA Kit	50 preps	K0871

To learn more, go to **thermofisher.com/genejet**

Reverse transcriptases

For optimal cDNA synthesis performance

Thermo Scientific™ Maxima™ reverse transcriptases (RTs) were developed through molecular evolution, which enabled the introduction and selection of multiple favorable mutations in traditional M-MuLV reverse transcriptase, boosting performance in cDNA synthesis. Maxima RTs 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	Cat. No.
Reverse transcriptases	Maxima Reverse Transcriptase	2,000 U/10,000 U	EP0741/EP0742
	Maxima H Minus Reverse Transcriptase	2,000 U/10,000 U	EP0751/EP0752
cDNA synthesis kits	Maxima First Strand cDNA Synthesis Kit for RT-qPCR	50 rxns/200 rxns	K1641/K1642
	Maxima First Strand cDNA Synthesis Kit for RT-qPCR, with dsDNase	50 rxns/200 rxns	K1671/K1672
	Maxima H Minus First Strand cDNA Synthesis Kit	20 rxns/100 rxns	K1651/K1652
	Maxima H Minus First Strand cDNA Synthesis Kit, with dsDNase	20 rxns/100 rxns	K1681/K1682
dsDNA synthesis kits	Maxima H Minus Double-Stranded cDNA Synthesis Kit	10 rxns	K2561

To learn more, go to **thermofisher.com/maxima**

For routine cDNA synthesis performance

Thermo Scientific™ RevertAid™ reverse transcriptases are based on M-MuLV enzymes and offer routine cDNA synthesis performance in molecular biology applications.

Format	Description	Size	Cat. No.
Reverse transcriptases	RevertAid Reverse Transcriptase	10,000 U/50,000 U	EP0441/EP0442
	RevertAid H Minus Reverse Transcriptase	10,000 U/50,000 U	EP0451/EP0452
cDNA synthesis kits	RevertAid First Strand cDNA Synthesis Kit	20 rxns/100 rxns	K1621/K1622
	RevertAid H Minus First Strand cDNA Synthesis Kit	20 rxns/100 rxns	K1631/K1632

To learn more, go to **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.

DNA polymerases

Trusted performance for high-fidelity PCR

Thermo Scientific™ Phusion™ high-fidelity DNA polymerases are designed to amplify DNA fragments with exceptional robustness and fidelity. Among the available Phusion formats, Thermo Scientific™ Phusion™ Plus DNA Polymerase allows you to skip calculation of annealing temperatures due to its universal annealing feature.

- High fidelity—Phusion Plus DNA Polymerase is >100x more accurate than *Taq* DNA polymerase
- Convenient—simplified PCR preparation and cycling with Phusion Plus DNA Polymerase due to a universal annealing temperature of 60°C

Green formats for Phusion and DreamTaq polymerases enable direct loading of PCR products on gels.

Format	Description	Size	Cat. No.
Standard	Phusion High-Fidelity DNA Polymerase	100 U/500 U	F530S/F530L
	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 Hot Start II High-Fidelity PCR Master Mix	100 x 50 µL rxns/500 x 50 µL rxns	F565S/F565L
	Phusion Plus DNA Polymerase	100 rxn/500 rxn	F630S/F630L
	Phusion Plus PCR Master Mix	100 rxn/500 rxn	F631S/F631L
	Phusion Plus Green PCR Master Mix	100 rxn/500 rxn	F632S/F632L
Uracil-tolerant	Phusion U Hot Start DNA Polymerase	100 U/500 U	F555S/F555L
	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

To learn more, go to **thermofisher.com/phusion**

Enhanced *Taq* DNA polymerases for routine PCR

Thermo Scientific™ DreamTaq™ DNA polymerases offer a great balance between performance and value. Available in standard and hot-start formats, they deliver enhanced PCR performance that no conventional *Taq* enzyme can match.

- Featuring increased sensitivity and specificity; minimized optimization; and support of a wide range of amplicon lengths
- Multiple formats for maximum flexibility and reliability

Format	Description	Size	Cat. No.
Standard	DreamTaq DNA Polymerase	500 U/2,500 U	EP0702/EP0703
	DreamTaq Green DNA Polymerase	500 U/2,500 U	EP0712/EP0713
	DreamTaq PCR Master Mix	200 x 50 µL rxns/1,000 x 50 µL rxns	K1071/K1072
	DreamTaq Green PCR Master Mix	200 x 50 µL rxns/1,000 x 50 µL rxns	K1081/K1082
Hot-start	DreamTaq Hot Start DNA Polymerase	200 U/500 U/2,500 U	EP1701/EP1702/EP1703
	DreamTaq Hot Start Green DNA Polymerase	200 U/500 U/2,500 U	EP1711/EP1712/EP1713
	DreamTaq Hot Start PCR Master Mix	200 rxns/1,000 rxns	K9011/K9012
	DreamTaq Hot Start Green PCR Master Mix	200 rxns/1,000 rxns	K9021/K9022

To learn more, go to **thermofisher.com/dreamtaq**

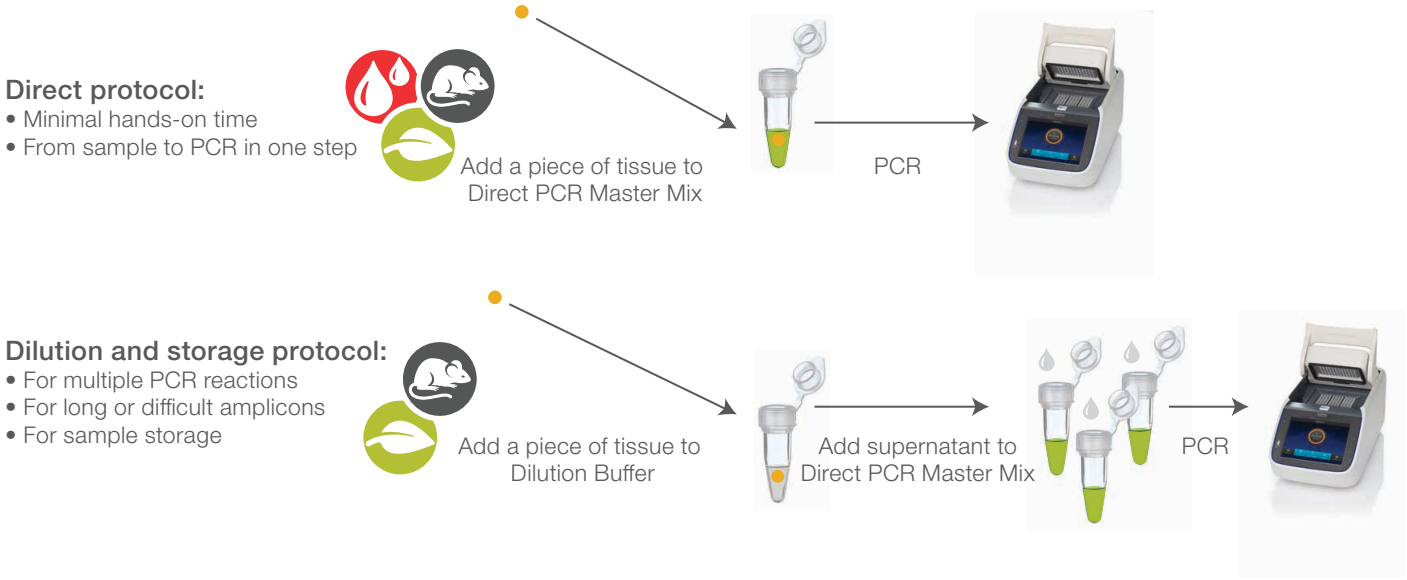
Solutions for direct PCR

Amplify without purification

Thermo Scientific™ Direct PCR master mixes offer outstanding convenience for DNA amplification by supporting PCR from unpurified samples. A tiny amount of source material is used in the PCR reaction without any purification steps, providing 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.

- 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



Sample type	Description	Size		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

To learn more, go to **thermofisher.com/directpcr**

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

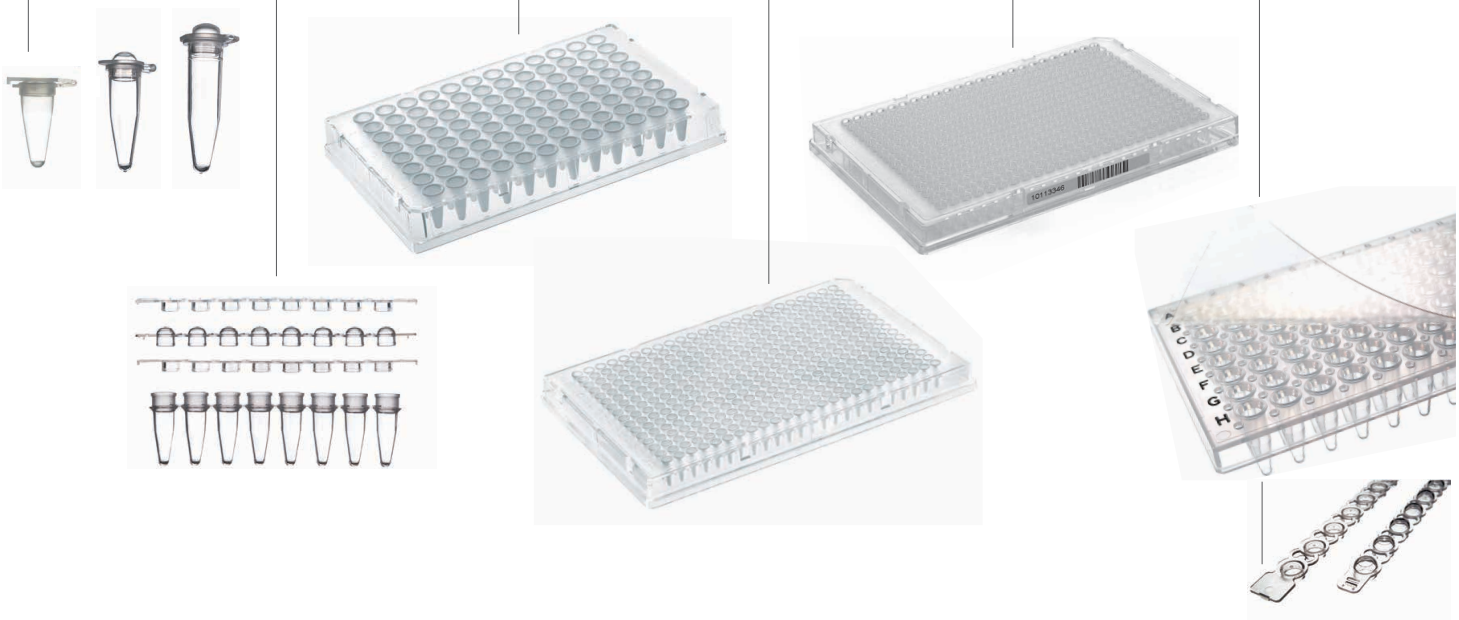
Tube strips
8-tube strips for PCR with separate or attached caps

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**

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 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 that produce bright, sharp bands
- Environmentally friendly shipping

Range, bp*	Description	Size	Cat. No.
250–10,000	GeneRuler 1 kb DNA Ladder	5 x 50 µg/25 x 50 µg	SM0311/SM0312
	GeneRuler 1 kb DNA Ladder, ready-to-use	50 µg/5 x 50 µg	SM0314/SM0313
75–20,000	GeneRuler 1 kb Plus DNA Ladder	5 x 50 µg/25 x 50 µg	SM1331/SM1332
	GeneRuler 1 kb Plus DNA Ladder, ready-to-use	50 µg/5 x 50 µg	SM1334/SM1333
100–1,000	GeneRuler 100 bp DNA Ladder	50 µg/5 x 50 µg	SM0241/SM0242
	GeneRuler 100 bp DNA Ladder, ready-to-use	50 µg/5 x 50 µg	SM0243/SM0244
100–3,000	GeneRuler 100 bp Plus DNA Ladder	50 µg/5 x 50 µg	SM0321/SM0322
	GeneRuler 100 bp Plus DNA Ladder, ready-to-use	50 µg/5 x 50 µg	SM0323/SM0324
50–1,000	GeneRuler 50 bp DNA Ladder	50 µg/5 x 50 µg	SM0371/SM0372
	GeneRuler 50 bp DNA Ladder, ready-to-use	50 µg	SM0373

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

To learn more, go to **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**

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	Cat. No.
Powder	TopVision Agarose	100 g/500 g	R0491/R0492
	TopVision Low Melting Point Agarose	25 g	R0801
Tablets	TopVision Agarose Tablets	200/1,000 tablets	R2801/R2802

To learn more, go to **thermofisher.com/topvision**

Restriction and modifying enzymes

Restriction digestion simplified

Thermo Scientific™ FastDigest™ enzymes are a line of restriction enzymes that are all 100% active in a single buffer. The universal Thermo Scientific™ 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 cleanup 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

FastDigest Value Pack

The Thermo Scientific™ FastDigest™ Value Pack (Cat. No. K1991) 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, SalI, SmaI, XbaI, and XhoI.

Find all 176 enzymes at **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	Cat. No.
Phosphatases and kinases	FastAP Thermosensitive Alkaline Phosphatase (1 U/µL)	1,000 U/5 x 1,000 U/300 U	EF0651/EF0652/ EF0654
	T4 Polynucleotide Kinase (10 U/µL)	500 U/2,500 U	EK0031/EK0032
DNA polymerases	T4 DNA Polymerase (5 U/µL)	100 U/500 U	EP0061/EP0062
	T7 DNA Polymerase (10 U/µL)	300 U	EP0081
	Klenow Fragment (10 U/µL)	300 U/1,500 U	EP0051/EP0052
Deoxyribonucleases (DNases)	Exonuclease I (20 U/µL)	4,000 U/20,000 U	EN0581/EN0582
	DNase I, RNase-free (1 U/µL)	1,000 U	EN0521
Ligases	T4 DNA Ligase (5 U/µL)	200 U/1,000 U	EL0014/EL0011
RNA polymerases	T7 RNA Polymerase, HC (200 U/µL)	25,000 U	EP0113
Ribonucleases (RNases)	RNase A, DNase- and protease-free (10 mg/mL)	10 mg	EN0531
	RNase H (5 U/µL)	100 U/500 U	EN0201/EN0202

Find all modifying enzymes at **thermofisher.com/tsmodifyingenzymes**

Cloning kits

Universal cloning kit for any type of DNA fragment

The Thermo Scientific™ CloneJET™ PCR Cloning Kit utilizes positive selection for fast and simple cloning. This kit supports highly efficient cloning of PCR products generated with any thermostable DNA polymerase and allows both blunt- or sticky-end phosphorylated or non-phosphorylated DNA fragments to be cloned.

- 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**

Ligation-independent cloning kits

Streamline and facilitate the process of cloning an insert into an expression vector with the Thermo Scientific™ aLICator™ LIC Cloning and Expression System. 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**

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	Cat. No.
Universal cloning kit	CloneJET PCR Cloning Kit	20 rxns/40 rxns	K1231/K1232
Ligation-independent cloning kits	aLICator LIC Cloning and Expression Kits	20 rxns	K1241, K1251, K1261, K1281
	aLICator LIC Cloning and Expression Systems	30 rxns	K1271, K1291
Kit for DNA ligation	Rapid DNA Ligation Kit	50 rxns/150 rxns	K1422/K1423
Kit for DNA end repair	Fast DNA End Repair Kit	50 rxns	K0771

To learn more, go to **thermofisher.com/cloningtools**

Visit our molecular biology resource library for webinars, videos, and articles at **thermofisher.com/mbresources**

/ThermoSciBio @ThermoSciBio

To learn more, go to
thermofisher.com/thermoscientificmolbio

ThermoFisher SCIENTIFIC