

FastDigest Restriction Enzymes

One buffer for 176 enzymes—it's that easy

Thermo Scientific™ FastDigest™ Restriction Enzymes support complete and fast digestions.

Why use FastDigest enzymes?

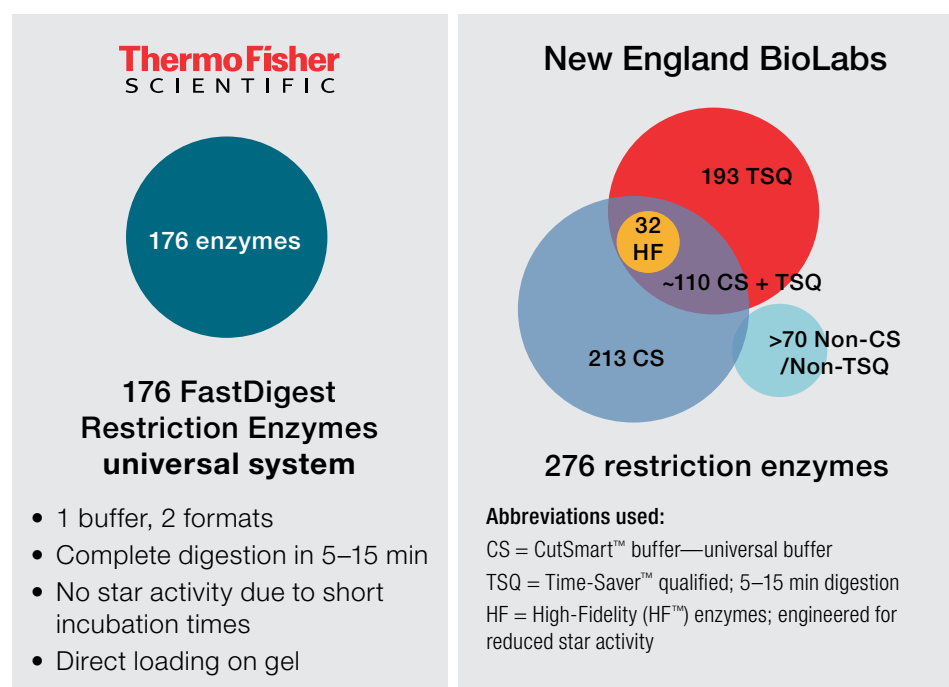
FastDigest enzymes are an advanced line of restriction enzymes that offer fast and complete digestion of DNA in a single, universal buffer.

Why use the colorless buffer?

We recommend using the colorless Thermo Scientific™ FastDigest™ Buffer for applications that require product analysis by fluorescence excitation (e.g., concentration measurements in UV light).

Why use the green buffer?

Thermo Scientific™ FastDigest™ Green Buffer allows for direct loading of the reaction mixture on gels. The green buffer contains a density reagent and two tracking dyes that do not interfere with downstream applications, including dephosphorylation, end-repair reactions, and ligation.



Features (Figure 1):

- The first restriction enzyme offering using a universal buffer
- Double and multiple digestions in a universal buffer for any combination of enzymes
- No sequential digestions and buffer changes
- 176 unique specificities
- Complete digestion in 5–15 minutes
- Direct loading of reaction mixture on gels

Figure 1. Simplicity of FastDigest restriction enzymes, a universal system using one buffer vs. the complicated NEB™ offering. Note, this is an illustrative image depicting the comparison of features between the two companies.

Technical details

- 1 μ L of FastDigest enzyme cleaves 1 μ g of substrate DNA in 5–15 minutes in FastDigest buffer (Figure 2)
- Designed to eliminate star activity due to short incubation times
- All enzymes qualified for rapid and complete digestion of all types of DNA
- Protocols for plasmid, genomic, and viral DNA as well as PCR products are provided

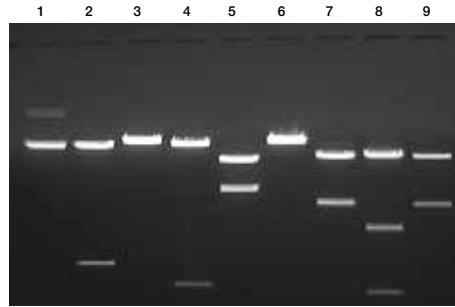
Usage and applications

Choose FastDigest enzymes for traditional molecular cloning techniques, including:

- Clone analysis
- Preparation of DNA for cloning
- Digestion of PCR products
- Restriction fragment length polymorphism (RFLP) genotyping
- Digestion of difficult-to-cleave DNA

A

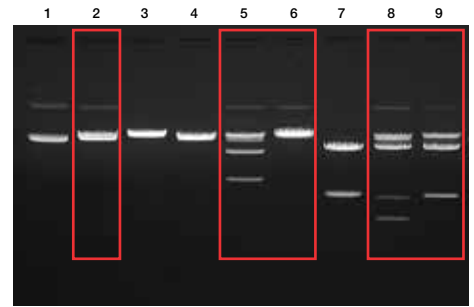
Plasmid DNA digested with FastDigest enzymes



1: undigested plasmid DNA
2: FastDigest BcuI
3: FastDigest XbaI
4: FastDigest NdeI
5: FastDigest Sall
6: FastDigest XmaJI
7: FastDigest Eco31I
8: FastDigest Eco52I
9: FastDigest BglII

B

Plasmid DNA digested with NEB enzymes



1: undigested plasmid DNA
2: Spel-HF
3: XbaI
4: NdeI
5: Sall-HF
6: AvrII
7: BsaI
8: EaqI-HF
9: BglI

Figure 2. Comparison of digestion efficiencies of restriction enzymes. (A) FastDigest restriction enzymes digest plasmid DNA much more efficiently compared to the (B) NEB enzymes. In this experiment, using the NEB protocol, 1 μ g of plasmid DNA was digested in ~15 minutes.

Ordering information

For a complete list of the 176 FastDigest enzyme specificities, visit thermofisher.com/fastdigest

To try our top 13 enzymes, and both the colorless and green FastDigest Buffers, get our Thermo Scientific™ FastDigest™ Value Pack (Cat. No. K1991), or visit thermofisher.com/fdvaluepack

Buffer compatibility with downstream applications

Thermo Scientific™ DNA/RNA modifying enzymes	Activity in FastDigest Green Buffer or FastDigest Buffer (colorless)
DNA Polymerase I, <i>E. coli</i>	100%
Klenow Fragment	100%
Klenow Fragment, exo-	100%
T7 DNA Polymerase	100%
T4 DNA Ligase*	75–100%
FastAP™ Thermosensitive Alkaline Phosphatase	100%
T4 Polynucleotide Kinase (T4 PNK)	100%

* 0.5 mM ATP is required for T4 DNA ligase activity.

Find out more at thermofisher.com/fastdigest

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