

# 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.

### Thermo Fisher Scientific



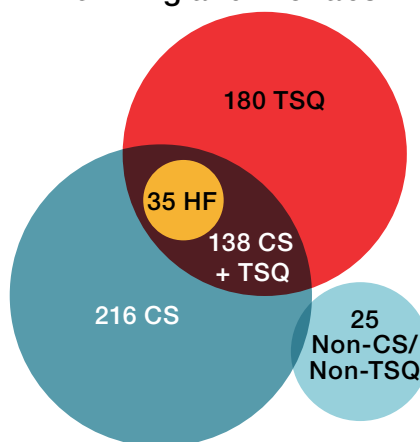
**176 FastDigest restriction enzymes universal system**

- 1 buffer, 2 formats
- Complete digestion in 5–15 min
- No star activity due to short incubation times
- Direct loading on a gel

### 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.

### New England BioLabs



**277 restriction enzymes**

- CS = rCutSmart™ buffer—universal buffer
- TSQ = Time-Saver™ Qualified enzyme; 5–15 min digestion
- HF = High-Fidelity (HF™) enzyme; engineered for reduced star activity

### 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).

### Features (Figure 1):

- The first restriction enzyme offering that uses 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 versus the complicated NEB™ offerings.** Note, this is an illustrative image depicting the comparison between features of restriction enzymes offered by the two companies.

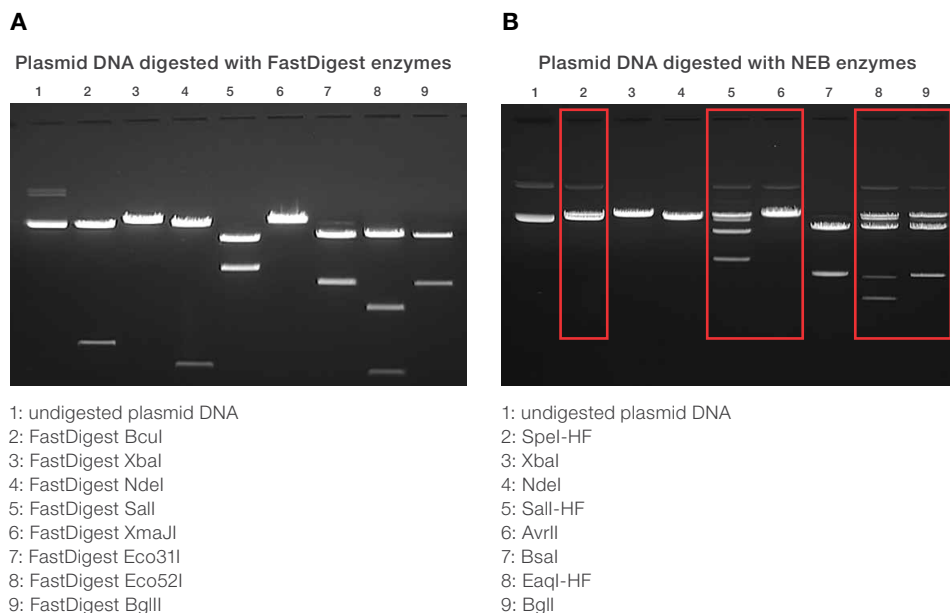
### Technical details

- 1  $\mu$ L of FastDigest enzyme cleaves 1  $\mu$ 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
- Golden Gate cloning
- *In vitro* transcription



**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  $\mu$ 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](https://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](https://thermofisher.com/fdvaluepack)

### Buffer compatibility with downstream applications

Thermo Scientific™ DNA/RNA modifying enzymes	Activity in FastDigest Green Buffer or FastDigest Buffer (colorless)	Cat. No.
DNA Polymerase I, <i>E. coli</i>	100%	EP0041/2
Klenow Fragment	100%	EP0051/2
Klenow Fragment, exo <sup>-</sup>	100%	EP0421/2
T7 DNA Polymerase	100%	EP0081
T4 DNA Ligase*	75–100%	EL0011/2
FastAP™ Thermosensitive Alkaline Phosphatase	100%	EF0651/2/4
T4 Polynucleotide Kinase (T4 PNK)	100%	EK0031/2
T4 DNA Polymerase	100%	EP0061/2

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

Learn more at [thermofisher.com/fastdigest](https://thermofisher.com/fastdigest)

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