






New England Biolabs Restriction Enzymes

Inside the numbers



- 271** | Restriction enzymes sold by NEB
- 229** |  Recombinant enzymes
- 198** |  Enzymes exhibiting 100% activity in a single buffer (NEBuffer 4)
- 177** |  Enzymes supplied with NEBuffer 4
- 168** |  Time-Saver qualified enzymes (digest substrate DNA in 5 minutes)
- 23** |  High Fidelity (HF) enzymes engineered for reduced star activity

Save money through NEB's buffer compatibility

Reliability, versatility and ease-of-use

New England Biolabs provides the largest selection of restriction enzymes that exhibit 100% activity in a single buffer. In fact, 177 restriction enzymes are supplied with NEBuffer 4: Having 198 enzymes at 100% activity in a single buffer (NEBuffer 4) is more than just "added convenience"!

Of the top20 most commonly used restriction enzymes NEB provides 18 enzymes with NEBuffer 4. This unrivaled buffer compatibility results in unmatched convenience in reaction set-up and great savings to your budget!

Only two different buffers are supplied with the top20.

Top20 enzymes: BamHI-HF, BglII, DpnI, EcoRI-HF, EcoRV-HF, HincII, HindIII-HF, KpnI-HF, NcoI-HF, NheI-HF, NotI-HF, PstI-HF, PvuI-HF, SacI-HF, SalI-HF, SmaI, SpeI, SphI-HF, XbaI, XhoI

| Supplier | Buffers supplied with Top20 Enzymes |
|-------------------|-------------------------------------|
| NEB | 2 |
| Fermentas/Thermo | 8 ¹ |
| Life Technologies | 6 |
| Promega | 7 |
| Roche | 6 |
| Takara | 5 |

¹Applies to conventional restriction enzymes only

Example: Double digest EcoRV/ KpnI (NEB vs. Fermentas/Thermo)

New England Biolabs

As you can see in the example below, EcoRV-HF/KpnI-HF both exhibit 100% activities in NEBuffer 4, i.e. each enzyme works at regular 1-fold concentration to obtain 100% cleavage.

| Enzyme | Cat# | Temp | Supplied Buffer | % Activity in NEBuffer | | | |
|-----------|-------|------|-----------------|------------------------|-----|-----|-----|
| | | | | 1 | 2 | 3 | 4 |
| EcoRV-HF™ | R3195 | 37°C | NEBuffer 4 | 25 | 100 | 100 | 100 |
| KpnI-HF™ | R3142 | 37°C | NEBuffer 4 | 100 | 25 | 0 | 100 |

Double digest recommendations for EcoRV-HF™ and KpnI-HF™: Digest in NEBuffer 4 at 37°C.

Fermentas/Thermo

Double digest recommendation: The first digestion should be performed in 1X Tango™ buffer (low salt concentration buffer) with **4-fold excess** of KpnI. Incubate at 37°C for 1 hour. When the first digestion is complete, add 10X concentrated Tango™ buffer (amount "V") to a final 2X concentration (high salt concentration buffer) and Eco32I.

Many conventional restriction enzymes from Fermentas require more units to cleave in double digests! Here: 4-fold excess i.e. 4-times as expensive!

Many restriction enzymes from Fermentas require more units to cleave in double digests!

Example: Double digest KpnI/NotI (NEB vs. Roche)

New England Biolabs

KpnI-HF/NotI-HF both exhibit 100% activities in NEBuffer 4, i.e. each enzyme works at regular 1-fold concentration to obtain 100% cleavage.

Roche

There is no buffer available in which both enzymes exhibit 100% activity! As these two enzymes are not compatible, Roche recommends to perform a sequential digestion to get the job done.

| A | B | L | M | H |
|--------|--------|-------|--------|------|
| 10-25% | 50-75% | 0-10% | 25-50% | 100% |

Not I Activity in SuRE/Cut buffer System

Buffer printed in bold orange is the buffer recommended for optimal activity.

| A | B | L | M | H |
|---------|--------|------|--------|-------|
| 75-100% | 10-25% | 100% | 25-50% | 0-10% |

KpnI Activity in SuRE/Cut buffer System

Buffer printed in orange is the buffer recommended for optimal activity.

Double digests require more time and become more expensive!

Save your budget with New England Biolabs!

Do the math and see the difference!

Example: High Fidelity (HF) vs. FastDigest® (FD) restriction enzymes

| Supplier | Enzyme | Cat. # | Units/vial | Price Euro | Price/Unit | Digestion Costs 1mg λDNA |
|------------------|-------------------|--------|---------------------|------------|------------|--------------------------|
| NEB | BamHI HF | R3136S | 10.000 | 36,50 | 0,003 | € 3,65 |
| Fermentas | BamHI FD | FD0054 | 800FDU ² | 45,00 | 0,056 | € 56,25 |
| NEB | EcoRI HF | R3101S | 10.000 | 49,50 | 0,004 | € 4,95 |
| Fermentas | EcoRI FD | FD0274 | 800FDU | 39,00 | 0,048 | € 48,75 |
| NEB | HindIII HF | R3104S | 10.000 | 49,00 | 0,004 | € 4,90 |
| Fermentas | HindIII FD | FD0504 | 800FDU | 39,00 | 0,048 | € 48,75 |
| NEB | EcoRV HF | R3195S | 4.000 | 58,50 | 0,014 | € 14,60 |
| Fermentas | EcoRV (Eco32I) FD | FD0303 | 200FDU | 38,00 | 0,190 | € 190,00 |

²FDU: FastDigest units

Relative costs of the Top20 most commonly used enzymes




















| Supplier | Relative Cost | Discount ³ |
|----------------------------|----------------------------------|-----------------------|
| New England Biolabs | € 1.217,50 | Not applicable |
| Fermentas/Thermo | Conventional RE FastDigest RE | - ±91% |
| Roche | € 3.921,70 | ±69% |
| Promega | € 1.997,40 | ±39% |



















³Average discount from List Price needed to match New England Biolabs Pricing

Price comparison (€/unit) is based on the most recent small pack price list published in May 2011 by the suppliers on their website.

NEB offers high quality restriction enzymes at a fair price!

New England Biolabs Top20 enzymes

| | Cat# | Enzyme | |
|-----|--------------|------------|---|
| 1. | R3136 | BamHI-HF |   |
| 2. | R0144 | BglII |   |
| 3. | R0176 | DpnI |   |
| 4. | R3101 | EcoRI-HF |   |
| 5. | R3195 | EcoRV-HF |   |
| 5. | R0103 | HincII |  |
| 7. | R3104 | HindIII-HF |   |
| 8. | R3142 | KpnI-HF |   |
| 9. | R3193 | NcoI-HF |   |
| 10. | R3131 | NheI-HF |   |

| | Cat# | Enzyme | |
|-----|--------------|---------|---|
| 11. | R3189 | NotI-HF |   |
| 12. | R3140 | PstI-HF |   |
| 13. | R3150 | PvuI-HF |   |
| 14. | R3156 | SacI-HF |   |
| 15. | R3138 | SalI-HF |   |
| 16. | R0141 | SmaI |   |
| 17. | R0133 | SpeI |   |
| 18. | R3182 | SphI-HF |   |
| 19. | R0145 | XbaI |   |
| 20. | R0146 | XhoI |   |

 = NEBuffer 3

 = NEBuffer 4

 = Timesaver (5 min. digest)






High Fidelity (HF™) restriction enzymes

As part of our ongoing commitment to the study and improvement of restriction enzymes, we are pleased to introduce a new generation of engineered and optimized restriction enzymes!

Why Choose an HF Enzyme?

In addition to reduced star activity, HF restriction enzymes work optimally in NEBuffer 4, which has the highest level of enzyme compatibility and will simplify double digest reactions. They are also Time-Saver qualified and digest substrate DNA in five minutes (for more information on Time-Saver qualification, see www.bioke.com). In order to distinguish these engineered enzymes, the letters -HF™ have been added to the restriction enzyme name. These enzymes are packaged with purple labels to distinguish them from our existing enzymes.

High Fidelity (HF™) Restriction Enzymes Properties:

-  Engineered for performance
-  Dramatically reduced star activity
-  Optimized for NEBuffer 4
-  Time-Saver™ qualified for 5 min digests
-  Same low price as their wildtype counterparts

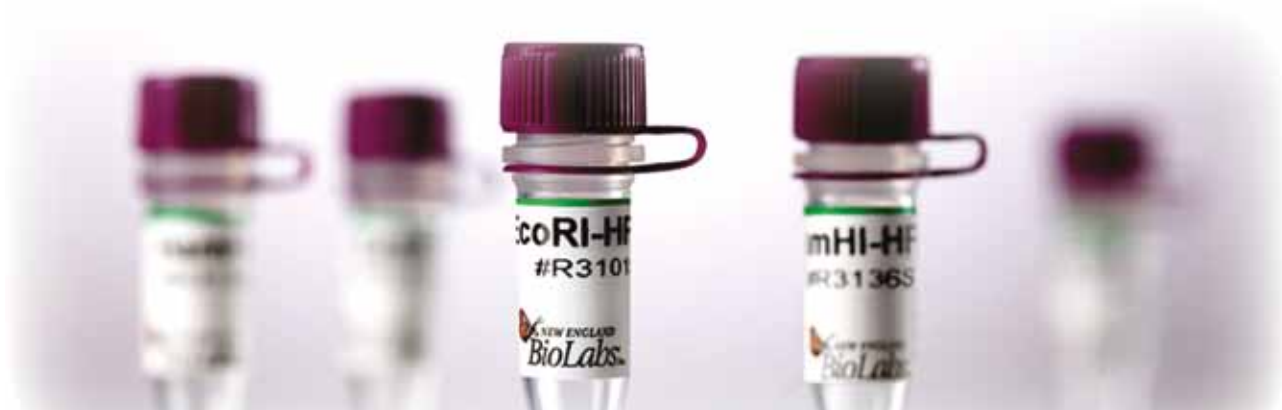


Download the New England Biolabs iPhone App! For quick access to restriction enzyme information

NEB Tools for the iPhone enables quick and easy access to the most requested restriction enzyme information, and allows you to plan your experiments from anywhere.

Features:

- Use Enzyme Finder to select a restriction enzyme by category or recognition sequence, or search by name to find information on any NEB enzyme.
- Determine buffer and reaction conditions for experiments requiring two restriction enzymes using the Double Digest Finder.



Contact us for a detailed overview of your savings when using NEB restriction enzymes!