

Fermentas

Marketplace Worldwide

No. 8 / 2009 · Information and Products for Life Science Labs

Real-time PCR

- Maxima™ SYBR Green/ROX qPCR Master Mix (2X) 2 p.
- Maxima™ SYBR Green/Fluorescein qPCR Master Mix (2X) 2 p.
- Maxima™ SYBR Green qPCR Master Mix (2X), ROX Solution provided 2 p.
- Maxima™ Probe/ROX qPCR Master Mix (2X) 2 p.
- Maxima™ Probe qPCR Master Mix (2X), ROX Solution provided 2 p.

Protein Extraction

- ProteoBlock™ Protease Inhibitor Cocktail 4 p.
- ProteoJET™ Mammalian Cell Lysis Reagent 4 p.
- ProteoJET™ Membrane Protein Extraction Kit 5 p.
- ProteoJET™ Cytoplasmic and Nuclear Protein Extraction Kit 5 p.

Protein Electrophoresis

- Spectra™ Multicolor Protein Ladders 6 p.
- PageRuler™ Unstained Protein Ladders 6 p.

Protein Detection

- PageSilver™ Silver Staining Kit 7 p.
- PageBlue™ Protein Staining Solution 7 p.

FastDigest® Restriction Enzymes 8 p.



NEW

Maxima™ qPCR Master Mixes

High Specificity and Sensitivity of qPCR



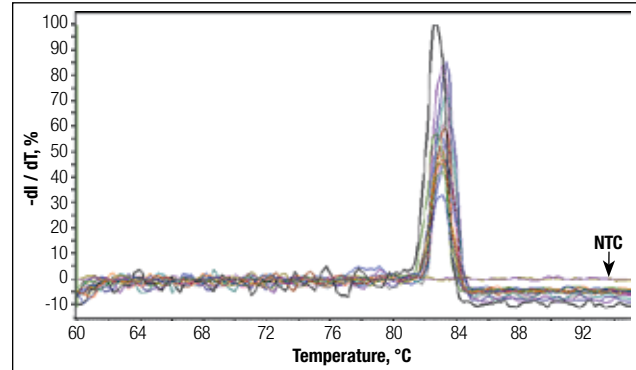
All the advantages at a glance

- **Specificity** – Maxima™ Hot Start *Taq* DNA Polymerase and the optimized buffer eliminate non-specific amplification and formation of primer dimers.
- **Sensitivity** – detects low copy number targets.
- **Wide linear range** – accurate quantification across 9 orders of magnitude.
- **Reproducibility and convenience** – ready-to-use 2X master mix.

Application

- Real-time PCR and RT-PCR using SYBR Green or sequence-specific probes.

High qPCR specificity



Melting curve analysis after amplification of 10-fold dilutions of supercoiled plasmid DNA, starting from 10 ng down to 0.1 fg, using the Maxima™ SYBR Green/ROX qPCR Master Mix (2X). NTC is the non-template control.

Instrument compatibility

Product	Cat #	Size	Applied Biosystems		Bio-Rad	Stratagene	Roche	Corbett	Eppendorf	Cepheid
			7300, 7900HT, ABI PRISM® 7000, ABI PRISM® 7700, StepOne Plus™, StepOne™	7500	iCycler iQ™, MyiQ™, iQ5™	Mx4000®, Mx3005P™, Mx3000P™	LightCycler® 480, LightCycler® 2	Rotor-Gene™ 3000, Rotor-Gene™ 6000	MasterCycler® ep realplex	SmartCycler®
Maxima™ SYBR Green/ROX qPCR Master Mix (2X)	K0221	2x1.25 ml	***	*	*	*	*	*	*	*
	K0222	10x1.25 ml								
Maxima™ SYBR Green/Fluorescein qPCR Master Mix (2X)	K0241	2x1.25 ml			***					
	K0242	10x1.25 ml								
Maxima™ SYBR Green qPCR Master Mix (2X), ROX Solution provided	K0251	2x1.25 ml	*	***	*	***	***	***	***	***
	K0252	10x1.25 ml								
Maxima™ Probe/ROX qPCR Master Mix (2X)	K0231	2x1.25 ml	***	*	*	*	*	*	*	*
	K0232	10x1.25 ml								
Maxima™ Probe qPCR Master Mix (2X), ROX Solution provided	K0261	2x1.25 ml	*	***	***	***	***	***	***	***
	K0262	10x1.25 ml								

* – Suitable.

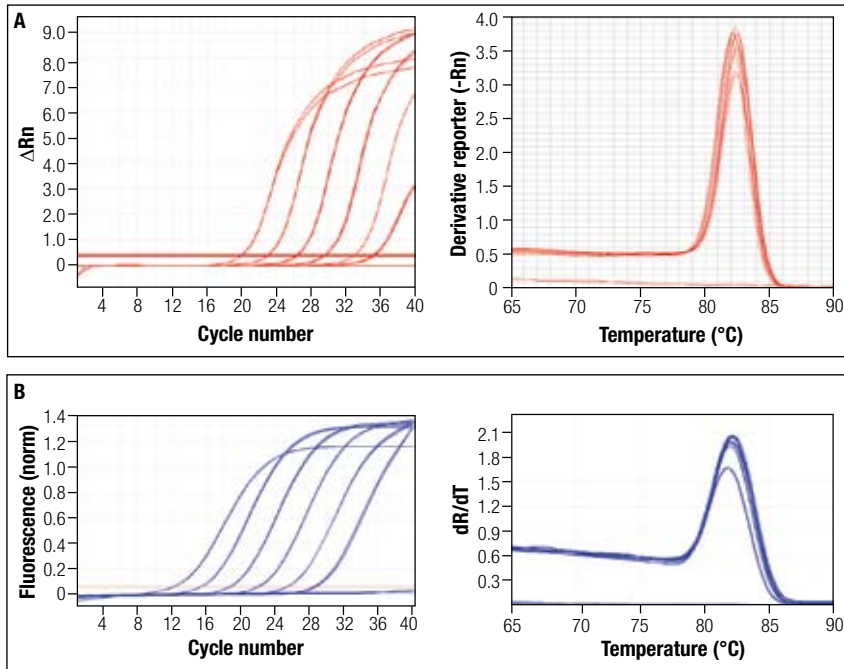
*** – Best.

– Real-time PCR and RT-PCR using SYBR Green dye.

– Real-time PCR and RT-PCR using sequence-specific probes.

Purchase of **Maxima™ qPCR Master Mixes** include an immunity from suit under patents specified in the product insert to use only the amount purchased for the purchaser's own internal research. No other patent rights (such as 5' Nuclease Process patent rights) are conveyed expressly, by implication, or by estoppel. Further information on purchasing licenses may be obtained by contacting the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA. For complete license disclaimer see www.fermentas.com

Specific and reproducible qPCR with two different real-time PCR instruments using Maxima™ SYBR Green qPCR Master Mix (2X), ROX Solution provided



Amplification plot and melting curve analysis.

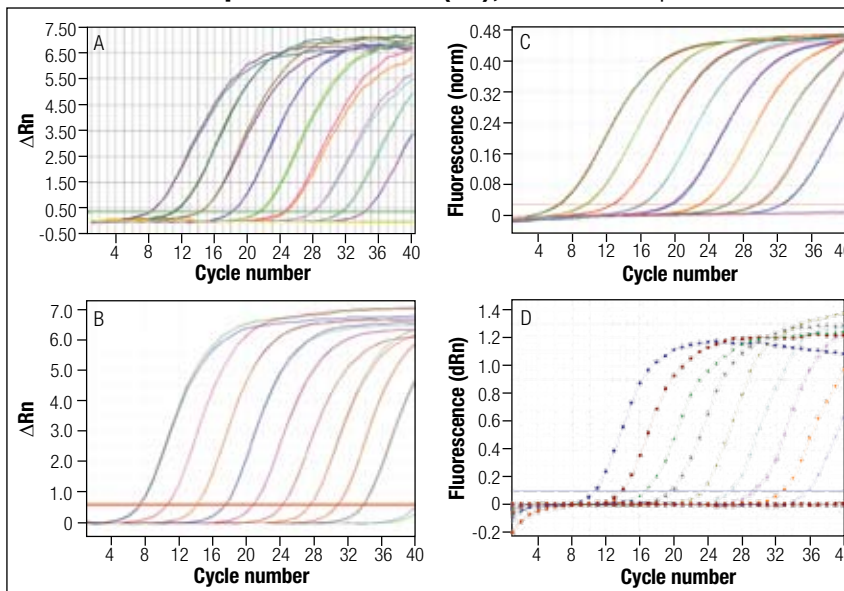
Amplification of the human cMyc gene was performed on serial dilutions of Jurkat cell total RNA (10 ng to 100 fg).

Instruments used:

A – ABI 7500.

B – Corbett RotorGene™ 3000.

Uniform and reproducible results with four different real-time PCR instruments using Maxima™ Probe qPCR Master Mix (2X), ROX Solution provided



Amplification plot.

Amplification of serial 10-fold dilutions of cDNA synthesized from a specific RNA transcript (10 ng - 100 fg) in duplex reactions.

Instruments used:

A – ABI PRISM® 7000.

B – ABI 7500.

C – Corbett RotorGene™ 3000.

D – Stratagene Mx3005P.

NEW ProteoBlock™ Protease Inhibitor Cocktail

Efficient Inhibition of Proteases and Esterases



All the advantages at a glance

- **Convenient** – ready-to-use 100X solution.
- **Efficient inhibition of** broad range of proteases and esterases during protein extraction.
- **Flexible format** – EDTA supplied in a separate vial.

Application

- Inhibition of proteolysis during protein extraction procedures from various cell or tissue samples for high yields of intact, functional proteins.

Components of ProteoBlock™ Protease Inhibitor Cocktail

Component	Concentration (100X)	Target proteases
AEBSF HCl	100 mM	Serine proteases
Aprotinin	80 μM	Serine proteases and esterases
Bestatin	5 mM	Aminopeptidases
E64	1.5 mM	Cysteine and thiol proteases
Leupeptin	2 mM	Cysteine and thiol proteases
Pepstatin A	1 mM	Acid proteases, many aspartic proteases
EDTA*	0.5 M	Metalloproteases

* Supplied in a separate vial.

Product	Cat. #	Size
ProteoBlock™ Protease Inhibitor Cocktail	R1321	2x1.25 ml

ProteoJET™ Mammalian Cell Lysis Reagent

Highly Efficient Total Protein Extraction



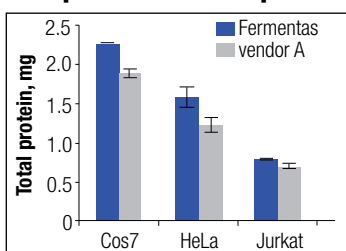
All the advantages at a glance

- **High yield** total protein extraction from mammalian cultured cells or tissue samples.
- **Ready-to-use** formulation.
- **Convenient** – room temperature procedure.

Application

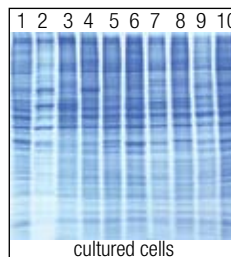
- Extraction of total native, non-denatured protein from mammalian tissues or cultured cells (adherent and suspension).

Comparison of total protein yields

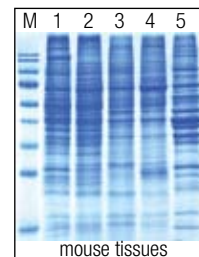


Proteins were extracted from 5 x 10⁶ cells of different cell lines.

Total protein extraction from cells and tissues



- 1 – HEP2C cells.
- 2 – human primary fibroblast cells.
- 3 – NIH3T3 cells.
- 4 – HEK293 cells.
- 5 – Cos7 cells.
- 6 – HeLa cells.
- 7 – B50 cells.
- 8 – CHO cells.
- 9 – Raji cells.
- 10 – Jurkat cells.



- M – PageRuler™ Prestained Protein Ladder, (#SM0671).
- 1 – Liver.
 - 2 – Kidney.
 - 3 – Spleen.
 - 4 – Lung.
 - 5 – Muscle.

Product	Cat. #	Size
ProteoJET™ Mammalian Cell Lysis Reagent	K0301	250 ml

NEW

ProteoJET™ Membrane Protein Extraction Kit

Isolation of Membrane and Cytoplasmic Protein Fractions



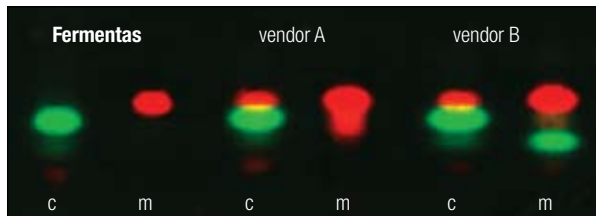
All the advantages at a glance

- **High yields** of non-denatured, functionally active membrane proteins.
- **Excellent fractionation** – no cross-contamination between membrane and cytoplasmic fractions.
- **Fast and simple protocol.**

Application

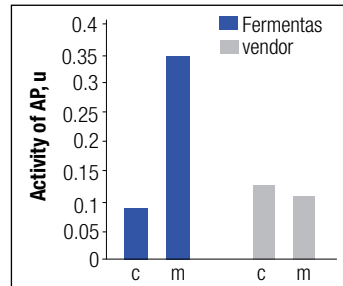
- Extraction of native, non-denatured membrane and cytoplasmic protein fractions from mammalian cultured cells or tissue samples.

Excellent fractionation of membrane and cytoplasmic proteins

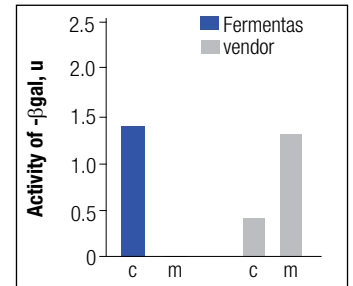


HeLa cells were transfected with two plasmids encoding for Green fluorescent protein localized in the cytoplasm and for Red fluorescent protein localized in the membrane. Protein extraction was followed by native electrophoresis and visualization by fluorescent imaging.

Functional, active extracted proteins



Activity of alkaline phosphatase (AP), a typical membrane protein.



Activity of β -galactosidase (β -gal), a typical cytoplasmic protein.

c – cytoplasmic proteins, m – membrane proteins.

Product	Cat. #	Size
ProteoJET™ Membrane Protein Extraction Kit	K0321	50 preps

ProteoJET™ Cytoplasmic and Nuclear Protein Extraction Kit

Isolation of Nuclear and Cytoplasmic Protein Fractions



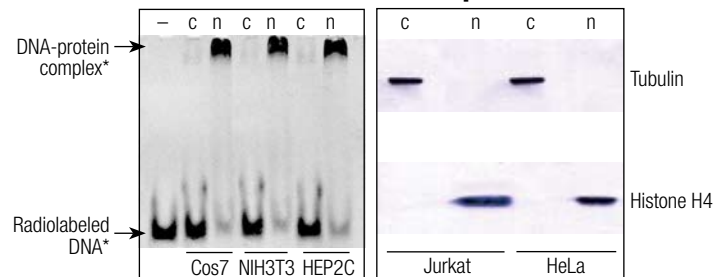
All the advantages at a glance

- **High yield** of non-denatured, functionally active nuclear proteins.
- **High quality fractionation** – no cross-contamination between cytoplasmic and nuclear fractions.
- **Fast** – procedure takes less than one hour.

Application

- Extraction of native, non-denatured nuclear and cytoplasmic protein fractions from mammalian cultured cells or tissue samples.

Excellent fractionation of proteins



EMSA (electrophoretic mobility shift assay)

Western blot analysis

* [γ^{33} -P] labeled DNA containing AP-1 transcription factor binding sequence.

-- no proteins, c – cytoplasmic proteins, n – nuclear proteins.

Product	Cat. #	Size
ProteoJET™ Cytoplasmic and Nuclear Protein Extraction Kit	K0311	50 preps

Spectra™ Multicolor Protein Ladders

Easy Tracking on Gel



All the advantages at a glance

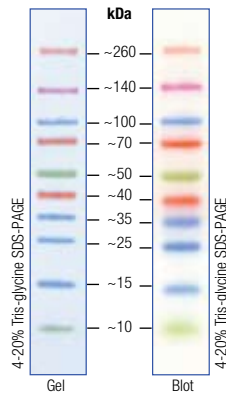
- **Broad range** – 1.7-300 kDa.
- **Ready-to-load** – no need to boil.
- **Sharp bands and stable colors.**
- **Excellent Western transfer.**
- **Multicolor easy tracking.**

Applications

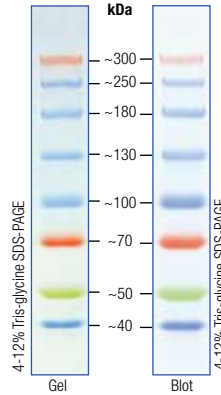
- Monitoring protein migration during SDS-polyacrylamide gel electrophoresis.
- Monitoring protein transfer onto membranes during Western blotting.
- Approximate sizing of proteins on SDS-polyacrylamide gels and Western blots.

Product	Cat. #	Size
Spectra™ Multicolor Broad Range Protein Ladder	SM1841 SM1842	2x250 µl 10x250 µl
Spectra™ Multicolor High Range Protein Ladder	SM1851	2x250 µl
Spectra™ Multicolor Low Range Protein Ladder	SM1861	250 µl

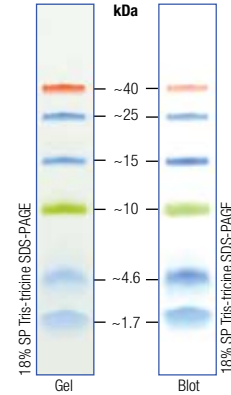
Spectra™ Multicolor Broad Range Protein Ladder



Spectra™ Multicolor High Range Protein Ladder



Spectra™ Multicolor Low Range Protein Ladder



PageRuler™ Unstained Protein Ladders

Accurate Sizing of Proteins



All the advantages at a glance

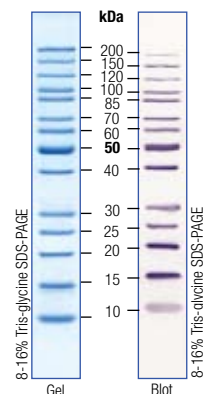
- **Broad range** – 3.4-250 kDa.
- **Ready-to-use** – supplied in loading buffer for direct loading on gels.
- **Sharp bands.**
- **Reference bands** of greater intensity.
- **Ladder proteins contain an integral Strep-tag® II sequence.**

Application

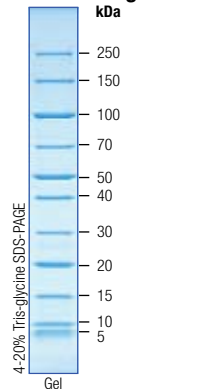
- Accurate protein sizing on SDS-polyacrylamide gels and Western blots.

Product	Cat. #	Size
PageRuler™ Unstained Protein Ladder	SM0661	2x250 µl
PageRuler™ Unstained Broad Range Protein Ladder	SM1881	2x250 µl
PageRuler™ Unstained Low Range Protein Ladder	SM1891	2x250 µl

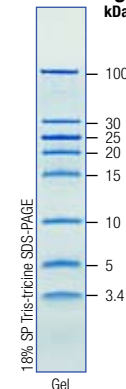
PageRuler™ Unstained Protein Ladder



PageRuler™ Unstained Broad Range Protein Ladder



PageRuler™ Unstained Low Range Protein Ladder



PageSilver™ Silver Staining Kit

High Sensitivity



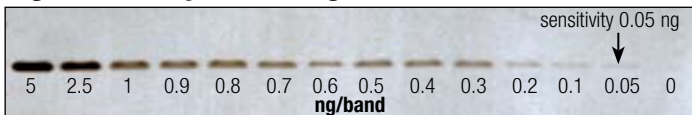
All the advantages at a glance

- **High sensitivity** – 0.05 ng of protein per band.
- **Clear background.**
- **Fast staining** – 60 minutes.
- **Stains both proteins and nucleic acids.**

Applications

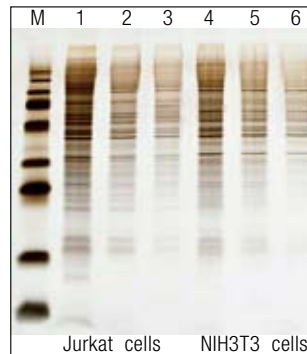
- Highly sensitive staining of proteins, DNA and RNA in polyacrylamide gels.
- Stains both non-denaturing or denaturing polyacrylamide gels containing SDS or urea.
- Visualization of nanogram quantities of DNA and RNA.
- *In situ* zymography.

High sensitivity of staining



Different amounts of BSA were run on 4-12% Tris-glycine SDS-PAGE and stained with the PageSilver™ Silver Staining Kit according to protocol for maximum sensitivity.

Highly sensitive protein staining in a clear background



Decreasing amounts of cell lysates were separated on 4-12% Tris-glycine SDS-PAGE and stained with the PageSilver™ Silver Staining Kit.

M – PageRuler™ Plus Prestained Protein Ladder (#SM1811).

1, 4 – 500 ng of total protein.

2, 5 – 200 ng of total protein.

3, 6 – 100 ng of total protein.

Product	Cat. #	Size
PageSilver™ Silver Staining Kit	K0681	for 25 mini gels

PageBlue™ Protein Staining Solution

Ready-to-use



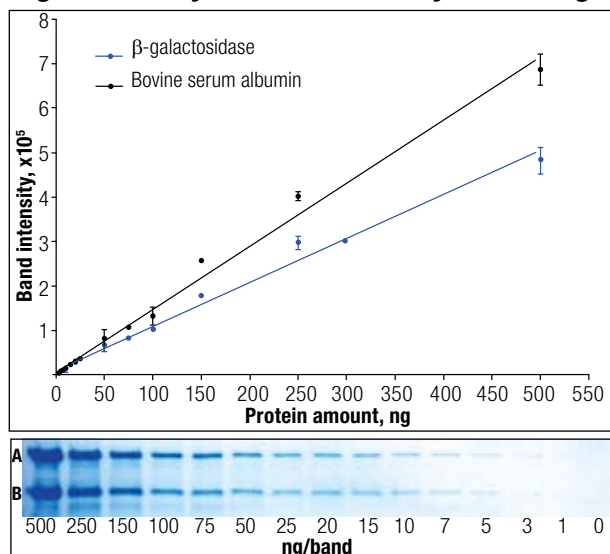
All the advantages at a glance

- **Ready-to-use.**
- **High sensitivity** – 5 ng of protein can be detected. More sensitive than Coomassie Brilliant Blue R-250.
- **No destaining is required.**
- **Safe** – does not contain methanol or acetic acid.
- **Broad linear dynamic range.**
- **Fast staining** – 25-40 minutes.
- **Cost efficient** – can be reused up to 3 times.

Applications

- Visualization and quantification of proteins separated in 1D, 2D, IEF polyacrylamide gels.
- Protein staining after transfer onto PVDF membranes.
- *In situ* zymography.
- Compatible with mass spectrometry, silver staining.

High sensitivity and wide linear dynamic range



A – β -galactosidase, B – bovine serum albumin.

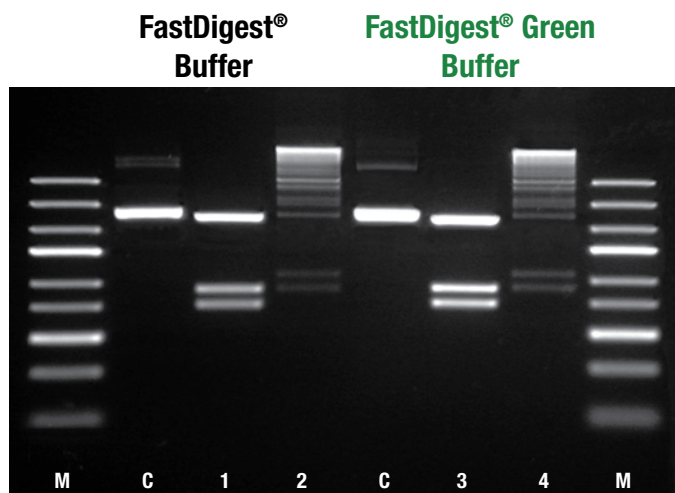
Electrophoresis conditions: 12% Tris-glycine SDS-PAGE, 0.75 mm gel, well width 3 mm.

Product	Cat. #	Size
PageBlue™ Protein Staining Solution	R0571	1 liter (for up to 150 mini gels)

Restriction Enzymes Choose Green!

Save Time – Digest DNA in FastDigest® Green Buffer and load directly on a gel

- 100% activity of all FastDigest® enzymes in the new green universal digestion buffer.
- 100% buffer compatibility with all downstream applications.
- Complete digestion in 5-15 minutes.
- Direct loading of a reaction mixture on gels.



M – GeneRuler™ Express DNA Ladder (#SM1551).

C – undigested plasmid DNA control.

1 – plasmid DNA triple digested with FastDigest® EcoRI, FastDigest® KpnI and FastDigest® SmaI in FastDigest® Buffer.

2 – the reaction mixture after ligation in FastDigest® Buffer.

3 – plasmid DNA triple digested with FastDigest® EcoRI, FastDigest® KpnI and FastDigest® SmaI in FastDigest® Green Buffer.

4 – the reaction mixture after ligation in FastDigest® Green Buffer.



1 – Reaction mixture containing FastDigest® Green Buffer before electrophoresis.

2 – Reaction mixture containing FastDigest® Green Buffer after electrophoresis.

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