

**CHECK OUT
OUR LATEST
PRODUCTS FOR
GENOMICS
RESEARCH**



**NextGen
Sequencing
Products**



**Eliminate
Endotoxin at
the source**



**Non-mutagenic
Alternative to
Ethidium Bromide**

CONTENTS

- 03** Simplifying Genomics - Research with Lucigen's Market Leading Products
- 04** NxSeq® Mate Pair Technology - Longest Mate Pair reads available
- 05** Espresso® Solubility & Expression Screening System
- 06** Competent Cells - for Cloning, Phage display or Protein Expression
- 07** Cloning Kits & Vectors
- 08** Non-Toxic, Non-Mutagenic alternative to Ethidium Bromide
- 10** Buffers, Enzymes and Chemicals for Genomics Work



READ ONLINE!

This issue is available to read and download from our website:
www.astralscientific.com.au

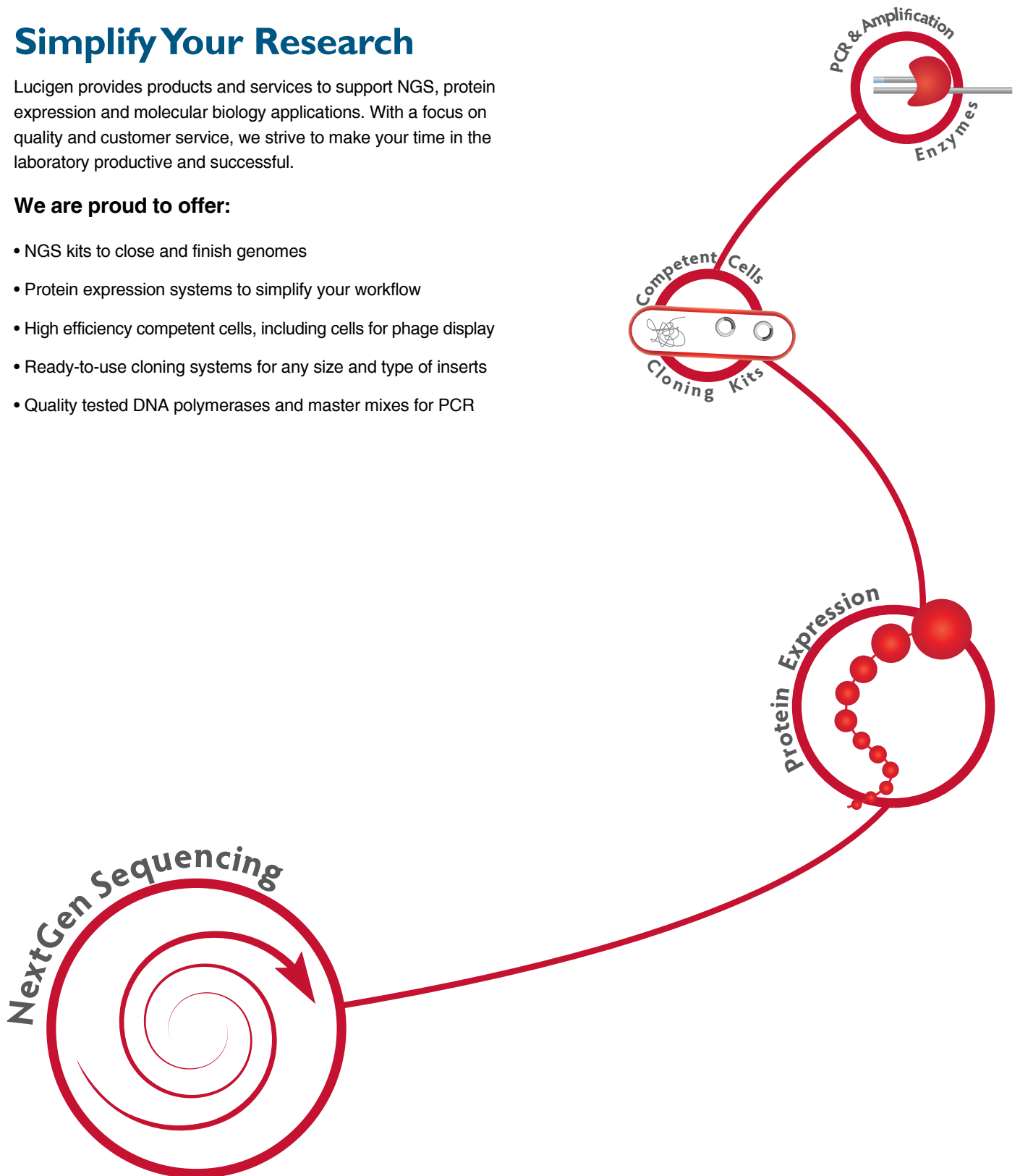
Lucigen's Products for Genomics Research

Simplify Your Research

Lucigen provides products and services to support NGS, protein expression and molecular biology applications. With a focus on quality and customer service, we strive to make your time in the laboratory productive and successful.

We are proud to offer:

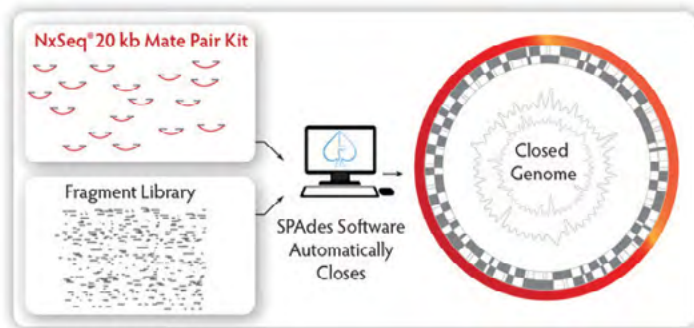
- NGS kits to close and finish genomes
- Protein expression systems to simplify your workflow
- High efficiency competent cells, including cells for phage display
- Ready-to-use cloning systems for any size and type of inserts
- Quality tested DNA polymerases and master mixes for PCR



NxSeq® Mate Pair Technology

Close Your Microbial Genome With Two Libraries

- 20 kb mate pair library will close your microbial genome in conjunction with a fragment library
- Ideal for *de novo* sequencing
- Increased N50s and larger scaffolds from your assembly
- Available for Illumina and Ion Torrent Platforms



Additional NxSeq Products include:

NxSeq 40 kb Mate Pair Cloning Kit

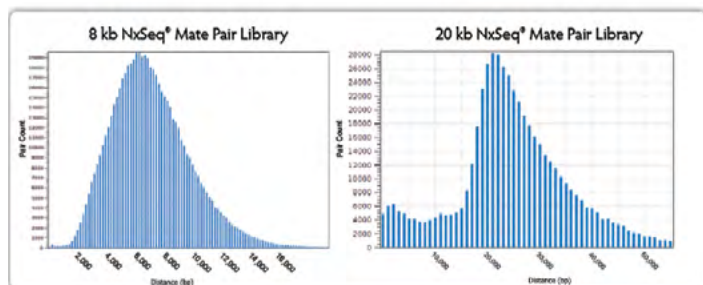
Get true long mate pair libraries for Next Generation Sequencing. Illumina primer sequences built right in to the vector. Ideal for completing *de novo*, whole genome sequencing projects.

NxSeq DNA Sample Prep Kits

Save up to 2 hours off your NGS workflow

Ion TrueMate™ Library Kits

Ion Torrent version is available from Life Technologies



An 8 kb NxSeq Long Mate Pair library was constructed using bead-based, gel-free methods, and a 20 kb mate pair library was constructed using gel isolation. Resulting true mate pairs were mapped against the respective reference genome to determine the resulting mate pair distances.

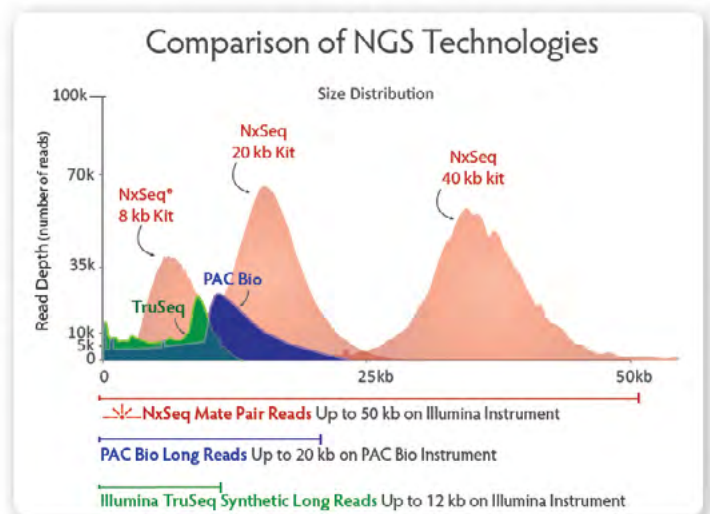
NxSeq Goes The Distance!

- Lucigen offers the longest mate pair reads available for NGS libraries, giving you the power to close and finish even complex genomes.
- Get up to 50 kb mate pair reads for your genome assembly

NGS Services Available

Close and finish genomes quickly and affordably with technology only available from Lucigen

- Custom Library Construction and Sequencing Service:
 - High throughput fragment libraries.
 - Up to 20 kb mate pair libraries, ideal for microbial genomes.
 - 40 kb Fosmid mate pair libraries available for more complex genomes.
- BAC Library Sequencing Service:
 - Economical sequencing of your BAC libraries.



PRODUCT DESCRIPTION	PART NO.	SIZE
NxSeq® Long Mate Pair Library Kit	13000-1	10 libraries
NxSeq® Long Mate Pair Library Kit and Index Kit	13100-1	10 libraries + 12 indices (5 rxns each)
NxSeq® Long Mate Pair Index Kit	13200-1	12 indices (5 rxns each)
NxSeq® Long Mate Pair Library Kit, Box 1	13300-1	10 rxns
NxSeq® Long Mate Pair Library Kit, Box 2	13400-1	10 rxns

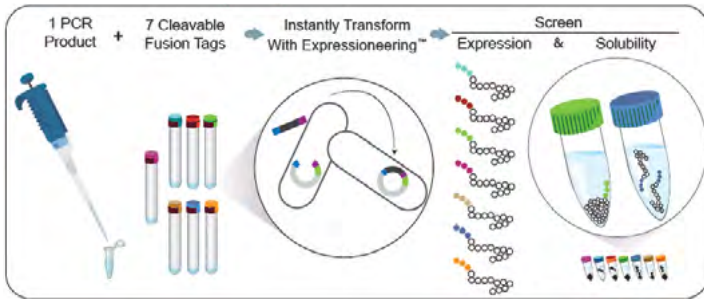
Expresso® Solubility & Expression Screening System

Screen 7 Solubility Fusion Tags at Once

One convenient screening kit containing 7 fusion tag vectors proven to increase protein expression and solubility.

- One PCR amplicon to simultaneously generate all your constructs
- Rapid protein screening with TEV-cleavable fusion tags
- Expressioneering™ for instant, seamless cloning

Simplify Your Workflow



Expressioneering™ Technology

Surprisingly Simple Protein Expression Faster & Easier than Ligation Independent Cloning

Expressioneering™ Technology uses *in vivo* homologous recombination to seamlessly clone PCR fragments into optimized expression vectors without the need for enzymes or purification steps. The desired insert is simply amplified with primers that include 18 bases that overlap with the ends of the Expresso vector. The unpurified PCR amplicon is mixed with the pre-processed expression plasmid and the high-efficiency competent cells provided. The cells are then directly plated on appropriate media.

Additional Expresso Kits:

ULTRA PURE PROTEIN

Expresso Biotin®

- Ultra-pure protein through AviTag™ biotinylation and single column streptavidin capture
- Dual affinity tags for full length protein purification: AviTag + 6HIS
- >90% pure protein in hours with minimal hands on time

TIGHTLY CONTROLLED EXPRESSION

Expresso Rhamnose

- Rhamnose-inducible for tunable protein expression
- Single strain for transformation and expression
- Perfect for high throughput protein expression

MAMMALIAN PROTEIN EXPRESSION

Expresso CMV

- Precise: no scars results in highly accurate sequences and proteins
- Small: Only 3.4 kb – higher transfection efficiency, easier downstream manipulation
- CMV promoter for strong, constitutive eukaryotic expression

SOLUBLE PROTEINS

Expresso SUMO

- Increases expression efficiency and decreases likelihood of inclusion bodies
- Recover native protein with SUMO Express Protease
- Available in all *E. coli* Expresso kits: Expresso Biotin, Expresso Rhamnose, Expresso T7

ROUTINE PROTEIN EXPRESSION

Expresso T7

- IPTG-inducible for maximal protein expression
- Supplied with two competent HI-Control™ strains for cloning and expression
- N- or C-terminal 6X His-tagged proteins

Competent Cells

Choose your application - Cloning, Phage Display or Protein Expression

Cells for Cloning

E.cloni[®] Competent Cells For Cloning

- Your most cost-effective source for competent cells
- Transformation efficiencies up to $\geq 4 \times 10^{10}$ cfu/ μ g
- Broad line of strains for all your cloning needs

Endura[™] Competent Cells

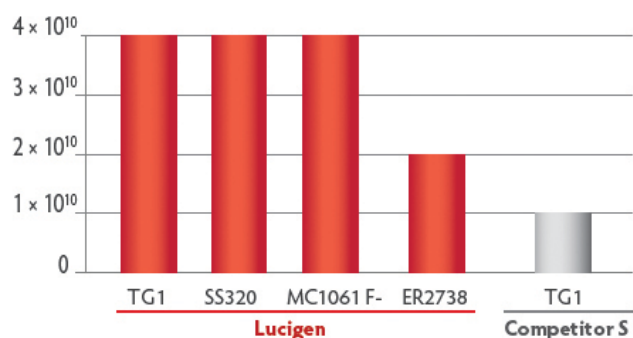
Cells of choice for CRISPR/Cas9 lentiviral vectors

- Clone unstable sequences with reliable results
- Direct replacement for Life Tech Stbl3[™] and Agilent SURE strain
- High efficiency: over 1×10^8 cfu/ μ g (chem) or 1×10^{10} cfu/ μ g (electro)

Phage Display Competent Cells

- Perfect for antibody or peptide phage display libraries
- Highest transformation efficiencies available anywhere
- TG1, SS320, and E2738 and MC1061F- strains available
- Amber suppressor and non-amber suppressor lines for maximum flexibility
- Create larger libraries and speed your discovery

Transformation efficiency (cfu/ μ g)



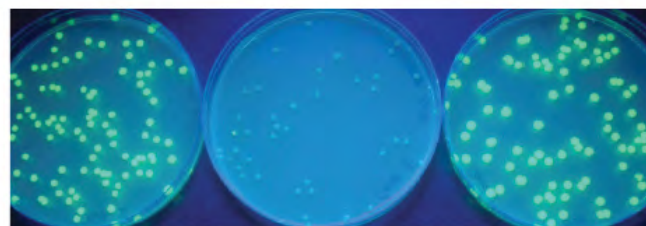
Custom Competent Cells

- Highest efficiency cells produced from any strain. Quick production time - usually under two weeks
- Individualized dispensing: get your favourite cells in volumes that make sense for your workflow

Cells for Protein Expression

OverExpress[™] C41(DE3) and C43(DE3)

- Effective in expressing toxic and membrane proteins from any organism in a T7 vector
- Over 350 publications attest to OverExpress performance



C41 BL21 C43

Expression of toxic protein. Green Fluorescent Protein was expressed from a T7 promoter construct in C41, BL21, or C43 competent cells.

ClearColi[®] Technology Eliminates Endotoxin at the Source

- *E.coli* plasmid and protein production strains lacking endotoxic LPS
- Ideal for mammalian cell transfection, immunogenicity and toxicity assays
- May reduce false positives in cytokine assays, improve transfection results
- Eliminate LPS contaminants



ClearColi K-12

- Cloning and plasmid production
- Mammalian transfection without endotoxin cleanup
- Transient protein expression

ClearColi BL21(DE3)

- Human cell immunogenicity and toxicity assays
- Therapeutic protein production
- Membrane and lipid-binding protein production

Cloning Kits and Vectors

Cloning Systems

Clone Virtually Any Size Of Insert - from routine sequences to “unclonable” DNA!

Lucigen’s novel, transcription-free vectors reduce cloning bias, improve efficiency, and increase stability for your most demanding cloning applications.



CloneSmart® Cloning Kits

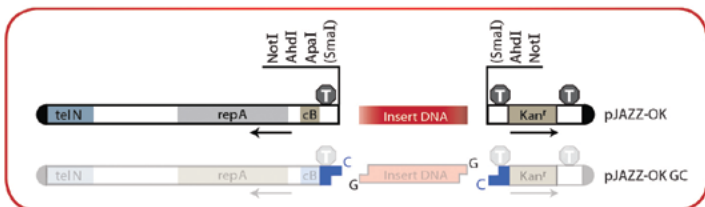
- Pre-processed pSMART® vectors for the ultimate ease of use
- Transcription-free design stabilizes toxic inserts
- Ultra-low background – no need for screening your clones

BigEasy® Cloning Kits

- Efficiently clone any insert up to 30 kb into unique pJAZZ® vectors
- Maximum insert stability
- Create libraries from AT-rich or GC-rich genomes
- Clone entire gene clusters or operons

CopyRight® v2.0 Fosmid & BAC Cloning Kits

- Reliably clone up to 200 kb inserts – capture entire gene clusters
- High insert stability increases sequence coverage and reduces bias
- Inducible copy number



DNA Polymerases

The Ideal Combination of Performance, Convenience, and Value

Our polymerases represent a superb option for all your amplification needs. With excellent robustness and great value, your lab can reduce costs without sacrificing performance.

EconoTaq® PLUS and PLUS GREEN 2X Master Mixes

- Outstanding performance and value for your everyday PCR applications
- Complete 2X Master mix with PCR enhancer for robust amplification
- PLUS GREEN includes loading and tracking dyes

Accura™ Hot Start 2X Master Mix

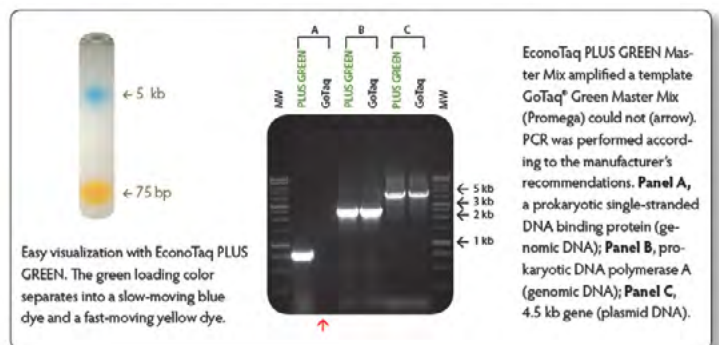
- Ideal for cloning and protein expression applications
- Robust amplification and sensitivity
- Supreme ease of use: just add your primers and template

OmniAmp™ RNA & DNA LAMP Kit

- Powerful native reverse transcriptase and strand displacement activities allow gene-specific LAMP and RT-LAMP at up to 72°C
- Extreme thermostability: 98°C hot start ensures denaturation of challenging sequences

Taq98® Hot Start 2X Master Mix

- Amplify challenging >70% GC-rich templates
- Supreme ease of use: just add your primers and template



Fluorescent DNA Quantitation Kit

Specific Quantitation

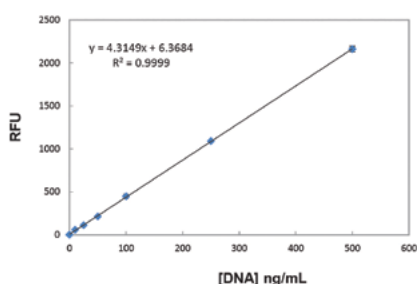
Uses the fluorescent bisBenzimide H33258 dye to bind to AT sequences of the minor groove of double-stranded DNA. The sample is excited at 360 nm and when the dye binds to dsDNA an emission spectrum at 460 nm is produced.

Sensitive to Low Nanogram Levels

Can be used to quantify dsDNA in the low nanogram per ml (10 ng/ml) range up to 5 micrograms per ml (5 µg/ml).

Highly Selective for DNA

This assay can tolerate RNA or protein contamination that may be present in crude extracts.



PRODUCT DESCRIPTION	PART NO.	SIZE
Fluorescent DNA Quantitation Kit Includes: Fluorescent DNA Assay Buffer, 10X, 200 mL Fluorescent DNA Dye, 250µL Fluorescent DNA Standard, 1mL <i>Contains sufficient reagents for 750 x 2ml reactions</i>	AM1B1558-KIT	1 kit

EZ-Vision® DNA Dye as Loading Buffer Non-toxic, non-mutagenic alternative to ethidium bromide

Convenient Solution

All-in-one solution contains a fluorescent DNA dye supplied in a 6X loading buffer which eliminates the need for post-staining and destaining.

Instant Visualization

Fluorescent dye allows for immediate visualization of DNA bands on a standard UV transilluminator.

Safer to Use

Formula is both non-toxic and non-mutagenic and eliminates the need to use ethidium bromide.

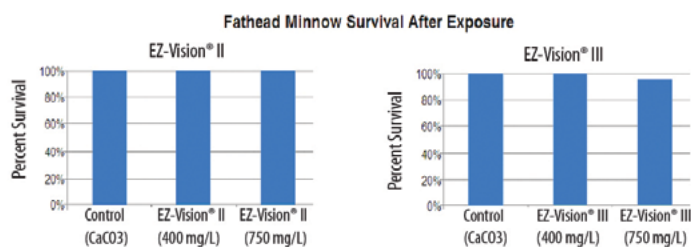
Available with three different tracking dye options, each containing the same non-hazardous DNA dye and loading buffer.

EZ-Vision® One
One Tracking Dye

EZ-Vision® Two
Two Tracking Dyes

EZ-Vision® Three
Three Tracking Dyes

EZ-Vision® One, Two and Three. Left image: 1% TAE agarose gel showing the fluorescence of AMRESCO's 1 kb Ladder stained with EZ-Vision® One (lane 1), EZ-Vision® Two (lane 2) and EZ-Vision® Three (lane 3). Right image: Digital camera photograph of the same gel as left image, showing the colors and migration position of the one fast migrating tracking dye of EZ-Vision® One (lane 1), the two tracking dyes of EZ-Vision® Two (lane 2), and the three tracking dyes of EZ-Vision® Three (lane 3).



Environmental Toxicity Testing of EZ-Vision® Products. EZ-Vision® environmental hazard testing was determined by the CCR Title 22 Fathead Minnow Hazardous Waste Screen Bioassay. Both EZ-Vision® Two and EZ-Vision® Three were determined non-hazardous with LC50 > 750 mg/l.

PRODUCT DESCRIPTION	PART NO.	SIZE
EZ Vision® One DNA Dye as Loading Buffer, 6X	AMN472-KIT	5 x 1ml
EZ Vision® Two DNA Dye as Loading Buffer, 6X	AMN650-KIT	5 x 1ml
EZ Vision® Three DNA Dye as Loading Buffer, 6X	AMN313-KIT	5 x 1ml

EZ-Vision® In-Gel Solution

EZ-Vision® fluorescent DNA dye, now available as an *in gel* solution for electrophoresis

Convenient Solution

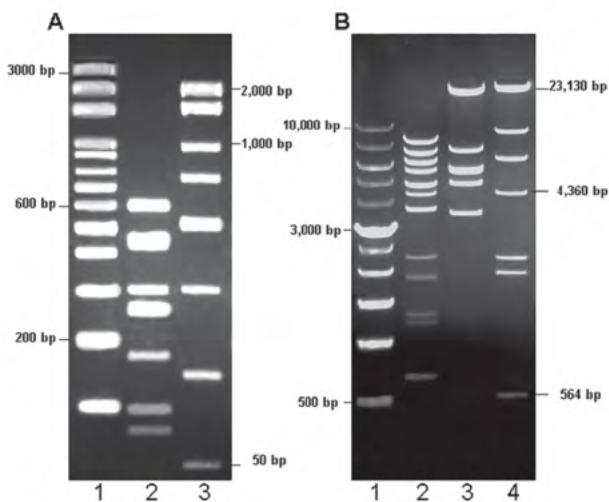
Solution can be added to molten agarose for in-gel staining or used as a post-stain. Available as 10,000X concentrate or in a convenient dropper bottle format.

Instant Visualization

Fluorescent DNA dye allows for immediate visualization of DNA in agarose gels on a standard UV transilluminator.

Safer to Use

Formula is a non-toxic, non-mutagenic alternative to ethidium bromide with comparable sensitivity.

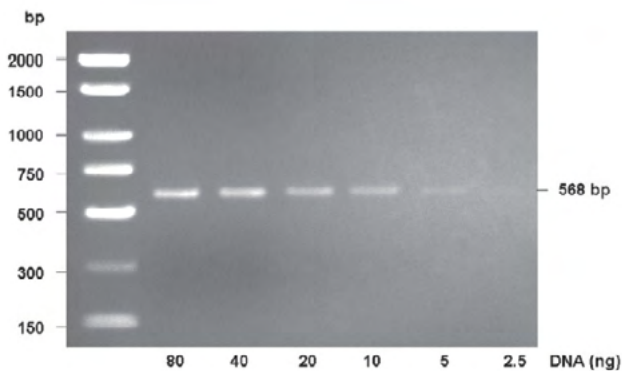


EZ-Vision® In-Gel Detection of Different Sized DNA. DNA markers were mixed with 6X Agarose Gel Loading Buffer and applied to either a 2.5% (A) or a 0.6% (B) TAE agarose gel. AMRESCO's 100 bp Ladder (AMK180), DNA MicroMarker™ (AME840) and PCR DNA Marker™ (AME854) were loaded in lanes 1-3, respectively (A). AMRESCO's 1 kb Ladder (AMK181), Low Range I™ Marker (AME261), Low Range II™ Marker (AME683) and Low Range III™ Marker (AME687) were loaded in lanes 1-4, respectively (B). Samples were resolved for 1 hour at 6.4 V/cm in 1X TAE buffer. Fluorescent visualization of DNA was achieved with a 600 msec UV exposure using a SYBR® Green filter with the Syngene GBox-HR Gel Doc System.

PRODUCT DESCRIPTION	PART NO.	SIZE
EZ-Vision® In-Gel Solution, 10,000X Sufficient for 100 x 50 ml mini gels.	AMN391-0.5ML	0.5ml
EZ-Vision® In-Gel Solution, Dropper Bottle* Sufficient for 100 x 50 ml mini gels.	AMN391-5MLDRP	5ml
Sufficient for 300 x 50 ml mini gels.	AMN391-15MLDRP	15ml

Safer alternatives

Instant band visualization with non-toxic, non-mutagenic dye

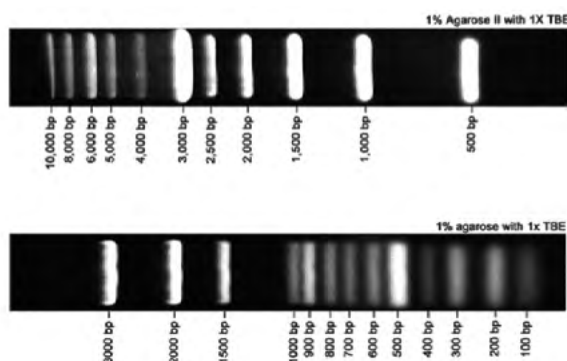


EZ-Vision® In-Gel Sensitivity DNA (2.5 ng - 80 ng) was mixed with 6X Agarose Gel Loading Buffer and applied to a 1% TAE agarose gel. Samples were resolved for 1 hour at 6.4 V/cm in 1X TAE buffer. Fluorescent visualization of DNA was achieved with a 500 msec UV exposure using a Sybr Green filter with the Syngene GBox-HR Gel Doc System.

Buffers, Enzymes and Chemicals for Genomics Work

EZ-Vision® MW DNA Ladders

Ready-to-use DNA ladders premixed with EZ-Vision® visualization dye



EZ-Vision® 100 bp DNA Ladder
13 fragments ranging from 100 - 3,000 bp.

EZ-Vision® 1 kb DNA Ladder
11 fragments ranging from 500 - 10,000 bp.

PRODUCT DESCRIPTION	PART NO.	PACK SIZE
ELECTROPHORESIS		
<p>EZ-Vision® 100 bp DNA Ladder</p> <p>100 bp ladder premixed with EZ-Vision® visualization dye</p> <ul style="list-style-type: none"> • 13 fragments ranging from 100 - 3,000 bp • Sufficient for 50 assays 	AMN856-300UL	300µl
<p>EZ-Vision® 1 kb DNA Ladder</p> <p>1 kb ladder premixed with EZ-Vision® visualization dye</p> <ul style="list-style-type: none"> • 11 fragments ranging from 500 - 10,000 bp • Sufficient for 100 assays 	AMN854-600UL	600µl
<p>Agarose MB</p> <p>All purpose agarose suitable for analytical and preparative applications; nuclease & protease-free.</p>	BIOD0012-250G	250g
<p>Agarose SFR™</p> <p>Super fine resolution, low melting agarose for analytical and preparative electrophoresis.</p>	AMJ234-25G AMJ234-100G	25g 100g
<p>TAE Buffer, 25X Liquid Concentrate</p> <p>DNA electrophoresis buffer for DNA recovery and resolution of large fragments.</p>	PARTA8280-1L	1L
<p>TAE Buffer, 50X Liquid Concentrate</p> <p>DNA electrophoresis buffer for DNA recovery and resolution of large fragments.</p>	AMK915-1.6L	1.6L
<p>TAE Buffer, 50X 100ml - 5 Pouches</p> <p>50X concentrate of DNA electrophoresis buffer in a convenient foil pouch. Each pouch makes 1 L of 50X TAE buffer.</p>	12-9144-5	5 pouches
<p>TBE Buffer, 10X Liquid Concentrate</p> <p>DNA electrophoresis buffer resolution of small fragments.</p>	AM0658-4L	4L
<p>TBE Buffer, 10X Concentrate</p> <p>DNA electrophoresis buffer in a convenient foil pouch. Each pack makes 1 L of 10X TBE buffer.</p>	12-9112-10	10 pouches

Key Enzymes for Nucleic Acid and Protein Modification

A range of high purity, high activity enzymes for your critical research work

PRODUCT DESCRIPTION	PART NO.	PACK SIZE
DNase 1 (RNase Free)	AM0649-50KU	50,000U
	AM0649-100KU	100,000U
PHI29 DNA Polymerase (10U/μl)	BIOBEP0091-250U	250U
	BIOBEP0092-1000	1000U
Endonuclease IV (2U/μl)	BIOBEN0591-100U	100U
Lambda Endonuclease (5H/μl)	BIOBEN0561-1000	1000U
RNase H (5U/μl)	BIOBEN0202-500U	500U
RNase I (10U/μl)	BIOBEN0601-1000	1000U
T4 Endonuclease V (5U/μl)	BIOBEN0141-250U	250U
Uracil DNA Glycosylase (1U/μl)	BIOES446-200U	200U
DNA Polymerase 1 (10U/μl)	BIOBEP0041-500U	500U
RNase A (DNase Free)	BIORB0473-25MG	25mg
	BIORB0473-100MG	100mg
	BIORB0473-500MG	500mg
RNase A Solution	BIORB0474-1ML	1ml
Proteinase K (DNase & RNase Free)	AM0706-100MG	100mg
	AMK525-1G	1g
Proteinase K Solution (DNase & RNase Free)	P-1266-2ML	2ml
	P-1266-10ML	10ml
Lysozyme	BIOLDB0308-1G	1g
	BIOLDB0308-5G	5g
	BIOLDB0308-100G	100g
LongLife™ Zymolase High Yeast Lytic activity, low non-specific activity	786-036	2 x 0.5ml