

life IN THE lab

PRODUCTS, INFORMATION, AND SCIENTAINMENT

ISSUE 12 | WINTER 2015

life
technologies

A Thermo Fisher Scientific Brand

5 Science Advances That Will Change Everything!

page 16

Doing Genome Editing? Use Our Handy Selection Guide

page 18

Disease Spotlight: Breast Cancer

page 21

What's Your PCR IQ?

page 20

Better Together: Thermo Fisher Scientific Integration Update

page 3

Reagent Rewards™ App How Much Will You Save?

page 31



Invitrogen™

Applied Biosystems®

Gibco®

Molecular Probes®

Novex®

Ambion®

Ion Torrent™



Buy 1 get 1 free
on SuperScript®
VILO™
page 8



Free magnet for
every purchase
of Dynabeads®
immunoprecipitation
product
page 22



Just \$3,699 for
PowerEase®
90W Power
Supply
page 23



SIMPLY STUNNING

FLUORESCENCE IMAGING HAS NEVER BEEN EASIER!



Innovative EVOS® cell imaging systems

Minimizes the complexities of microscopy without compromising performance.

lifetechnologies.com/evos

NEW!



Invitrogen™ Countess® II FL Automated Cell Counter

Everything counts, but nothing counts like the Countess® II FL Automated Cell Counter.

lifetechnologies.com/countessII



ReadyProbes™ ready-to-use imaging reagents

No Calculations.
No Dilutions.
No Resuspensions.

lifetechnologies.com/readyprobes

NEW!



More than 40,000 primary antibodies

Offers a wide variety of primary antibodies against key signaling proteins, cellular markers and organelles as well as cell junctions and CD markers.

lifetechnologies.com/antibodies



A LETTER FROM MARK STEVENSON

EXECUTIVE VICE PRESIDENT AND
PRESIDENT, LIFE SCIENCES SOLUTIONS
THERMO FISHER SCIENTIFIC

As one company, we are creating new opportunities to support the convergence of life sciences tools and diagnostics to improve patient care now and in the future.

Dear Valued Customers,

By now, you are certainly aware that Thermo Fisher Scientific acquired Life Technologies in February 2014. Our goal through the combination is to bring the best of both companies together to create unrivaled value for our customers working in research, life sciences, specialty diagnostics and applied markets.

Our combined offering gives customers access to an even broader base of cutting-edge technologies, such as genomics and proteomics, to accelerate life sciences research and improve human health. Our complementary strengths in biosciences and bioprocessing accelerate drug discovery, development and production. And as one company, we are creating new opportunities to support the convergence of life sciences tools and diagnostics to improve patient care now and in the future.

As a part of Thermo Fisher Scientific, the world leader in serving science, we are in an even stronger position to help our customers achieve their goals for innovation and productivity. Our 50,000 employees are proud to work with you to fulfill our mission, which is to enable our customers to make the world healthier, cleaner and safer.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Stevenson".

Mark Stevenson

FAST AND AFFORDABLE

gene expression analysis with Ion Torrent™ solutions



The Ion Proton™ System and Ion AmpliSeq™ Transcriptome Human Gene Expression Kit

Fast and affordable gene expression analysis from limited (as little as 10 ng of total RNA), or degraded samples, such as FFPE tissues, is now a reality. With simultaneous amplification of more than 20,000 RefSeq genes in a single tube, the Ion Proton™ System and Ion AmpliSeq™ Transcriptome Human Gene Expression Kit transform translational and cancer research in tumor profiling and biomarker discovery.

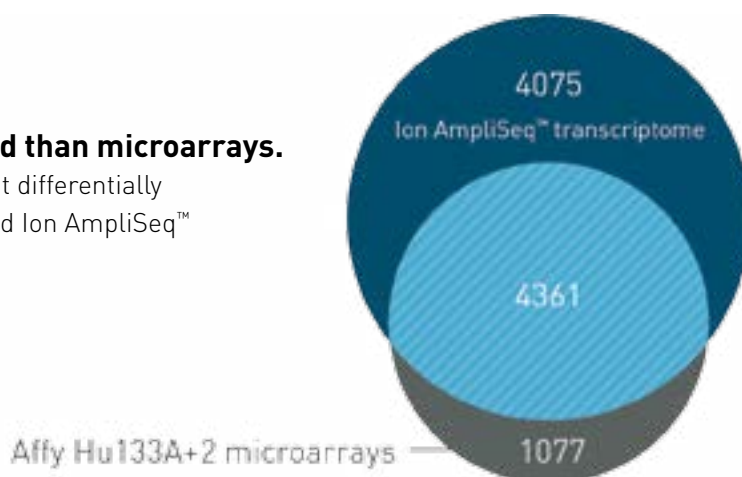
lifetechnologies.com/ampliseqtranscriptome

See the data comparing FFPE and fresh-frozen samples (under Datasets tab):

lifetechnologies.com/ioncommunity

More differentially expressed genes detected than microarrays.

The Venn diagram shows the concordance of significant differentially expressed genes (DEGs) between MAQC microarray and Ion AmpliSeq™ Transcriptome Human Gene Expression Kit data.



Detection of differentially expressed genes (DEGs) by using the Ion AmpliSeq™ Transcriptome Human Gene Expression Kit.

Ion PGM™ Dx System

Empowering diagnostic assay development with next-generation sequencing

The Ion PGM™ Dx Instrument System delivers the speed and simplicity of the Ion Torrent™ platform, combined with key workflow advantages designed specifically for regulated laboratory environments and *in vitro* diagnostic applications. Used in conjunction with Ion PGM™ Dx library kits, Ion OneTouch™ Dx template kits, Ion PGM™ Dx sequencing kits, Ion 318™ Dx chip kits, and data analysis software, the Ion PGM™ Dx Platform is intended for targeted sequencing of human genomic DNA from peripheral whole blood samples.

Learn more at lifetechnologies.com/pgm-dx



Enhance your template prep and Ion Chip™ loading Ion Chef™ System

The Ion Chef™ System simplifies the workflow for the Ion Proton® and Ion PGM™ Systems, providing a fully automated, high-throughput solution for reproducible template preparation and chip loading.

Simplified workflow

- Simplifies and automates template preparation and chip loading in a single system
- Delivers easy setup and operation with intuitive touch screen interface

Reduced variability

- Enables reproducible chip loading for users of any experience level
- Provides sample and reagent tracking with onboard tracking system

Helps save time and labor

- Delivers walk-away automation with typically just 15 minutes of setup time
- Helps increase your lab's productivity with the ability to perform overnight runs

Find out more at lifetechnologies.com/ionchef

Ion PGM™ Hi-Q™ Sequencing Kit

Offers rapid, accurate, and cost-effective sequencing for your research



The Ion PGM™ Hi-Q™ Sequencing Kit contains reagents and consumables for robust and highly accurate sequencing of 200- and 400-base pair libraries using the Ion OneTouch™ 2 System combined with the Ion PGM™ System.

- Robust sequencing for IonAmpliSeq™ panels—improved indel sequencing accuracy observed across targeted resequencing panels, especially with longer amplicon designs
- Higher-quality *de novo* assemblies—up to 90% decrease in indel error rates for microbial sequencing
- Unified workflow—one sequencing kit to support all current IonPGM™ sequencing research applications

Find out more at lifetechnologies.com/iontorrent

QUANTSTUDIO® 3D DIGITAL PCR RARE MUTATION SOLUTION

APPLIED BIOSYSTEMS® INSTRUMENTS AND REAGENTS



Quantify rare mutations at a rate as low as 0.1% with digital PCR

Need a highly sensitive and precise solution for the confirmation or characterization of rare mutations? Then you need TaqMan® SNP Genotyping Assays. These assays have been wet lab validated and optimized on the QuantStudio® 3D Digital PCR System to identify key somatic mutations in these cancer genes: *KRAS*, *BRAF*, *EGFR*, *PIK3CA* and *JAK2*.

Find the wet lab-validated digital PCR assays at: lifetechnologies.com/dpcr-raremutation

See the QuantStudio® 3D Digital PCR System at: lifetechnologies.com/quantstudio3d

Next Generation Sequencing (NGS) Library Quantification

Absolute quantification of NGS libraries with digital PCR lowers sequencing workflow costs

Next-generation sequencing (NGS) libraries can be quantified with minimal sample handling and without the need to generate a standard curve using digital PCR. This method enables accurate and precise library quantification, a critical step in both the Ion Torrent™ and Illumina® workflows, allowing for maximizing sequencing yields downstream. To achieve this high degree of precision, a TaqMan® Assay, designed to span both the forward and reverse adapters specific to each library, is available.



PubGo™ app

Access product information from papers with a single click

Want to quickly identify relevant products and related material from a journal article? With the PubGo™ app, you can. Do you have an older paper that cites products that are no longer available? Not a problem! The PubGo™ app helps find replacement products or suggest possible alternatives.

Find out more and download the app at:
lifetechnologies.com/pubgo



Monkey, mouse, fish, frog, pig, oh my!

Working with these or other animals? Don't lose your precious time in design when we have the solution you need! Whatever the animal model you study, we have a TaqMan® Gene Expression Assay ready for you.

Find out more at: lifetechnologies.com/taqmangeneexpression



Primer pairs when you need them

Primer Designer™ Tool is a free online tool that helps you find the PCR/Sanger primer pair you need for resequencing the human exome. The Primer Designer™ Tool searches a database of >300,000 predesigned primer pairs to find your match, and features a streamlined ordering process that allows easy online purchases.

See how easy finding primers pairs can be at: lifetechnologies.com/primerdesigner



Continued from page 6

This approach limits quantification to library constructs that contain both adapter sequences. Ultimately, using digital PCR to quantify NGS libraries decreases overall sequencing costs by ensuring an accurate quantification upfront, minimizing the need to re-run or repeat sequencing of samples.

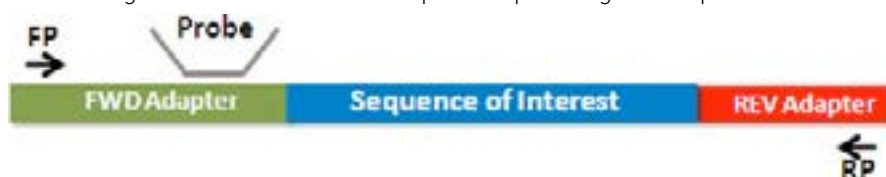


Figure 1. Schematic of TaqMan® assay design for NGS library quantification on the QuantStudio™ 3D Digital PCR system.

The assay contains a forward primer, reverse primer, and TaqMan® probe all complementary to the Ion Torrent™ or Illumina® library adapter sequences.

Find out more at: lifetechnologies.com/librariesquantification

GET **HIGHER** PERFORMANCE

With Applied Biosystems® and
Invitrogen™ instruments and reagents!

qPCR



30 YEARS OF qPCR EXPERIENCE IN ONE BUNDLE

That's why so many researchers trust SuperScript® and SYBR® reagents!

Cited and trusted by researchers, SuperScript® and SYBR® reagents offer high specificity and sensitivity for your qRT-PCR experiments. Both products have been successfully used together for many applications, including gene expression analysis and profiling. Find in-depth technical information on SuperScript® and SYBR® reagents from peer-reviewed publications for your real-time PCR experiments.

Check out what your fellow researchers are publishing:

lifetechnologies.com/superscript-sybr-citations

SuperScript® VILO™ Master Mix

For improved qRT-PCR assay dynamic range

Optimized for reliable generation of first-strand cDNA, the SuperScript® VILO™ cDNA Synthesis Kit and SuperScript® VILO™ Master Mix are ideal choices for synthesizing cDNA for qRT-PCR. The formulations are designed for enhanced cDNA synthesis efficiency and can be used with 1 pg to 2.5 µg of input RNA in a 20 µL reaction. For additional convenience, SuperScript® VILO™ Master Mix features a single-tube format with a simplified workflow.

Find out more at: lifetechnologies.com/vilo

**Buy 1
get
1 free**

On selected SuperScript® VILO™ cDNA Synthesis Kit and Master Mix

Use promotion code MHAGC1. Offer expires March 13, 2015. Terms and conditions apply.

Find out more at: lifetechnologies.com/lifeinthelabhk12

**REAGENT
REWARD**



ELEGANT DESIGN, SMART CHOICE!

SimpliAmp™ Thermal Cycler

The SimpliAmp™ Thermal Cycler is an easy-to-use, accurate, and small thermal cycler designed to fit any lab's needs for everyday PCR. It is designed with reliable Applied Biosystems® engineering, including innovations like the responsive color touch-screen and VeriFlex™ technology for simple and accurate optimization.

Request a demo at: lifetechnologies.com/simpliamp



TECH TALK

Q My tubes are melting in my thermal cycler. What is wrong?

A This can happen if the wrong plastics are used, or if the tubes are not being used with the correct tray/retainer set.

Check for compatible plastics at:

lifetechnologies.com/plastics

Check the user manual for directions on appropriate loading of the sample at:

lifetechnologies.com/technicalservice

- ▶ Veriti™ Thermal Cycler—Loading Samples (p. 3-5)
- ▶ ProFlex™ PCR System—Loading Samples (p. 25)
- ▶ 2720 Thermal Cycler—Loading Samples (p. 3-5)

Q Is there wireless connectivity with the SimpliAmp™ Thermal Cycler?

A Like the ProFlex™ PCR System, the SimpliAmp™ Thermal Cycler can be connected wirelessly with an optional USB dongle (Cat. No. 4483658).

Get the technical support you need

Our technical application scientists love answering your questions! Have a sticky situation? A head scratcher? Visit our online technical support pages. It's likely you'll find the answers you need there. Don't see the answers you need? Let us help! lifetechnologies.com/technicalservice



Join the conversation on Twitter!

Technical application scientists are available Monday–Friday to answer your questions. twitter.com/lifetechsupport

**30%
off**

Save 30% on selected PCR plastics

Use promotion code P1252760. Offer expires March 13, 2015. Terms and conditions apply.

Find out more at: lifetechnologies.com/lifeinthelabhk12

**REAGENT
REWARD**

TaqMan® Flexible Content Panels

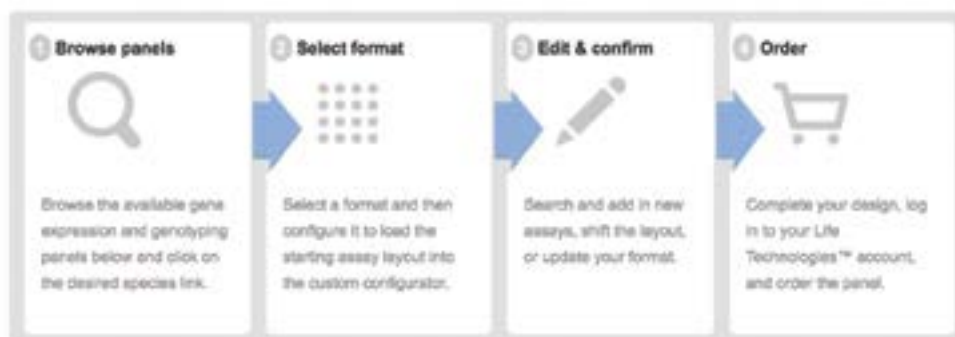
Looking at a large set of genes in a pathway, disease, or biological process can be a great way to identify markers of interest for a given phenotype. TaqMan® flexible content panels offer an easy way to select and design a combination of assays in the format that matches your experiment.

Panels at launch

Gene Expression flexible content panels	
Alzheimer's Disease	Glycosylation
Angiogenesis	Hepatotoxicity
Apoptosis	Hypertension
Cardiotoxicity	Inflammation
Cardiovascular	Nephrotoxicity
Cell Cycle	p53 Signaling
Diabetes	Parkinson's Disease
Endogenous Controls	

SNP Genotyping flexible content panels	
Alzheimer's Disease	Pharmacogenomics
Autism	Type 2 Diabetes

Experience the convenience of predesigned panels with the flexibility to modify the content in a few clicks.



Try it now at: lifetechnologies.com/flexiblepanels

An assay for every genetic occasion

6.2 million TaqMan® human SNP genotyping assays are now available for GWAS validation

Identification of potential causal variants by genome-wide association studies (GWAS) requires validation using a large number of samples. We're making it simpler by adding 1.7 million new TaqMan® SNP Genotyping Assays, increasing our collection total to 6.2 million. And, like all of our TaqMan® Assays, the performance of these new genotyping assays is backed by the TaqMan® Assays Guarantee.* Spend time on results, not assay design or optimization.

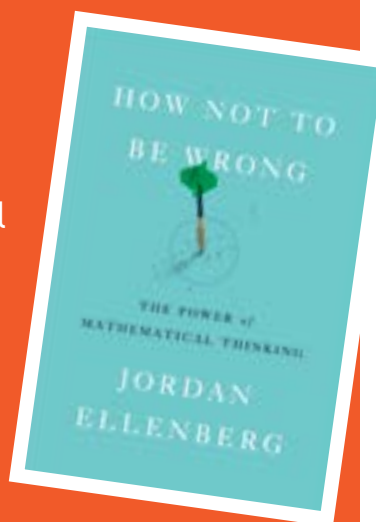
Search for assays now at: lifetechnologies.com/taqmansnp

FRIENDS DON'T THINK YOU'RE NERDY ENOUGH?

Read this!

How Not to Be Wrong:
The Power of Mathematical
Thinking

Jordan Ellenberg
\$17



Ellenberg's book is to mathematics as Freakonomics is to economics. He uses real world examples combined with pop culture to demonstrate the underlying thought processes that mathematicians use to solve problems in the real world, such as polling for election outcomes or where to put armor in fighter aircraft.

Even if you're mathophobic, this book will help you understand, with its great insights, the power of math to reveal relationships that can lead to predictions that are far more likely to be correct than what intuition or common sense may lead you to believe.

As Ellenberg writes, "Knowing mathematics is like wearing a pair of X-ray specs that reveal hidden structures underneath the messy and chaotic surface of the world. With the tools of mathematics in hand, you can understand the world in a deeper, sounder, and more meaningful way."

It's similar to a grammatical style guide for language lovers and explains in layman's terms why mathematics is important, giving many examples applicable to our own lives, and also tells us what math can't do.

Reviewed by **Andrew Green**
Features Editor at Large
Thermo Fisher Scientific



Wow!

That's a lot of protein!

For researchers working with mammalian model systems, recombinant proteins formed by mammalian expression systems are more likely to have the expected posttranslational modifications, to fold correctly, and to function properly in those models. Sino Biological uses mammalian expression systems to generate recombinant proteins that are as close to the native form as can currently be produced.

Life Technologies, through a partnership with Sino Biological, brings you an expanded portfolio of recombinant proteins for a variety of different applications.

- **Value** - Proteins priced below competitive brands
- **Quality** - Mammalian expressed proteins with >90% purity
- **Choice** - Proteins with different sizes, species and tags meeting different needs



We offer wide selection of recombinant proteins:

Species	
Human	Canine
Mouse	Dog
Rabbit	Influenza
Rat	Monkey
Aequorea Victoria	RSV

Expression Host	
Mammalian	E. coli
Insect	

Research Area	
Oncology	Inflammation
Immunology	Angiogenesis
Stem cell research	Drug Development
Neurobiology	Microbiology
Signal transduction	Virology
Apoptosis	Metabolism

Shop now at lifetechnologies.com/recombinantproteins

I CHOOSE

How about reliability and innovation?



LOAD AND GO TrackIt™ DNA Ladders

Our most convenient solution for estimating molecular weight and DNA mass. There is no need to heat, mix, or dilute these ladders prior to loading them on your gel.

lifetechnologies.com/ladders



FAST AND EASY TOPO® cloning kits

TOPO® cloning kits use a 5-minute, room temperature reaction that requires no gel purification or post-PCR modifications, and yields up to 95% recombinants.

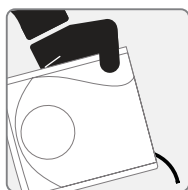
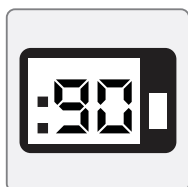
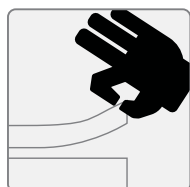
lifetechnologies.com/topo



5-MINUTE LIGATION ExpressLink™ T4 DNA Ligase

Very fast 5-minute ligation of blunt- or cohesive-end DNA fragments or PCR fragments with "A" overhangs in 15 minutes at room temperature (25°C).

lifetechnologies.com/expresslink



VENT, HEAT, ADD STAIN, POUR

Introducing a simplified solution to agarose gel preparation

ReadyPouch™ Agarose Gels are packaged in a ready-to-microwave pouch that contains the right amount of agarose and buffer for a 100 mL gel. They come with an easy-to-use stain dropper. All you need to do is vent the pouch, heat in a microwave oven, add stain, and pour.

lifetechnologies.com/readypouch

NEW!



**Buy 1
get
1 free**

On selected agarose

Use promotion code MHAGC1. Offer expires March 13, 2015. Terms and conditions apply.

Find out more at: lifetechnologies.com/lifeinthelabk12

**REAGENT
REWARD**

CONVENIENCE!

Then **Invitrogen™ instruments and reagents** are the clear choice!

QUANTITATION ISN'T THE SAME WITHOUT IT

Sensitive, accurate, and affordable RNA, DNA, MicroRNA, and protein quantitation

The Qubit® 3.0 Fluorometer enables accurate data in a few seconds with touch-screen-controlled operation and your choice of assays.

**GET IT!
LOVE IT!**

Why do you need the Qubit® 3.0 Fluorometer?

- It quickly and accurately quantifies dsDNA, ssDNA, RNA, MicroRNA and protein, in <5 seconds per sample
- It uses as little as 1 µL of sample
- It stores up to 1,000 sample results
- It features a large 5.7-inch color touch-screen for easy workflow navigation
- It offers the ability to personalize your Qubit® fluorometer with the assays you run most, add new assays, or even create your own with the MyQubit design tool



Do you detect d-glucose or glucose oxidase?

Amplex® Red Glucose/Glucose Oxidase Assay Kit detects d-glucose or glucose oxidase on Qubit® 3.0 Fluorometer.

- Detect concentrations as low as 3 µM d-glucose or 0.05 mU/mL of glucose oxidase
- Format allows for multiple time point measurements
- Designed for minimal autofluorescence interference

Do you measure free cholesterol and cholesteryl esters?

Amplex® Red Cholesterol Assay Kit provides a sensitive, rapid, and simple fluorometric method for detecting very low concentrations of cholesterol using Qubit® 3.0 Fluorometer.

- Detects as little as 200 nM (80 ng/mL) cholesterol
- Helps accurately measure cholesterol content of 0.01 µL of human serum
- Detects both free cholesterol and cholesteryl esters
- Allows for multiple time point measurements
- Designed for minimal autofluorescence interference

Do you run NGS?

Qubit® 3.0 Fluorometer and Qubit® dsDNA HS Assay Kit should be used to quantify the double-stranded final library.

NEW!

Qubit® 3.0 NGS Starter Kit for next-generation sequencing

includes:

- One Qubit® 3.0 Fluorometer
- Qubit® assay tubes (set of 500)
- Qubit® dsDNA HS Assay Kit, 500 assay

Want to learn more? Go to: lifetechnologies.com/qubit

FIND THE **RNA/DNA** PURIFICATION PRODUCT THAT'S RIGHT FOR YOU!

**FREE
ONLINE
TOOL!**

It's not always easy to decide exactly which of the many available products is best suited for your specific experiment. Our convenient, interactive RNA product selection guide will help you find the purification product that is recommended for your sample type, starting sample amount, chosen purification technology, and downstream application.

Check out and bookmark the online selection guide at:

lifetechnologies.com/rnaselection



PRESERVE AND PROTECT

Ambion® RNAlater® stabilization solution

You have the power to make time stand still! Simply add RNAlater® stabilization solution to your samples for fast RNA protection.

lifetechnologies.com/rnaler



OLD FAITHFUL

Ambion® TRIzol® reagents

Still the preferred solution for total RNA extraction after more than 25 years—referenced in over 100,000 scientific publications!

lifetechnologies.com/trizol

WHAT'S LURKING ON YOUR BENCHTOP?

No one ever said that working with RNA would be easy. RNase lurks around every corner—like a gremlin. But by following basic good laboratory practices, RNA degradation need not be an issue. Our Ambion® RNA experts have compiled some tips to help repel an RNase attack, including:

- Preparing your workspace
- Sample harvesting
- RNA purification
- RNA storage

Check out the helpful tips at: lifetechnologies.com/rnase



ONE STEP FORWARD

Meet the fast 1-step kits for real-time PCR analysis!

Ambion® Cells-to-CT™ kits offer expression analysis directly from cultured cells without RNA purification. And the 1-step RT-PCR master mix allows all reactions to be performed in a single tube.



Sound too good to be true?

Check out the video and see a demonstration of the simplified protocol.

Find out more:

lifetechnologies.com/cellstoc



PREP TALK

Q

How can I inactivate DNase I?

A

Add 1 μ L of a 25 mM EDTA solution to a 10 μ L reaction mixture containing 1 unit DNase I, Amplification Grade (or at a 1:1 molar ratio of Mg^{2+} :EDTA) to chelate the Mg^{2+} ions in the DNase I buffer. Heat for 10 min at 65°C.

Note: It is vital that the EDTA be added to a final concentration of at least 2 mM prior to heat inactivation, to avoid Mg^{2+} -dependent RNA hydrolysis.

DNases in DNA-free™ and Turbo DNA-free™ kits can be inactivated with the included DNase Inactivation Reagent.

WHY STUDY SINGLE CELLS?

Because tissues are composed of heterogeneous mixtures of cells, gene expression measurements based on the homogenized population don't account for the small but critical changes occurring in individual cells. Single-cell analysis can be critical in applications such as candidate drug screening, cell differentiation and stem cell studies, and measuring individual cell responses to specific stimuli.

Ambion® Single Cell-to-CT™ qRT-PCR Kit

- Pre-optimized workflow for real-time RT-PCR from single cells
- Maximum sensitivity for single-cell analysis
- Complete kit convenience and easy-to-follow protocol

Ambion® Single Cell Lysis Kit

- Enables RNA preparation for 1-10 cells
- No sample loss ensures maximal sensitivity
- Compatible with common enzymatic reactions

Find out more at: lifetechnologies.com/singlecell



5 SCIENCE ADVANCES THAT WILL CHANGE EVERYTHING!

We live in a century of amazing science—never before have scientists been so empowered with access to advanced technologies, global connectedness, and open source initiatives to advance personalized medicine or prevent food-borne illnesses. Healthier, cleaner, safer: that's the world we all are working for. Here we highlight 5 breakthroughs research labs across the world are working on that we think will change everything!

EXOSOMES:

Cells talk all day—their social network of choice is a cell-to-cell messenger service known as exosomes. Like Snapchat® photos, the messages passed via exosomes shouldn't always be sent. Scientists are working on ways to isolate these messengers, stop the bad messages (i.e., spreading of disease), and program in positive messages (i.e., deliver drugs to cure disease).

GENOME EDITING:

Bad coding happens. Your DNA, made up of 4 building blocks (A, T, C, and G) may take a wrong turn along the path of life. To set the code back on course, scientists in the labs around the world are working on editing technologies (i.e., CRISPRs and TALs) to fix broken code (reverse detrimental mutations).

INDUCED PLURIPOTENT STEM CELLS (iPSC):

Embryonic stem cells have come a long way since 1998. In 2006, scientists showed how existing cells, such as skin cells, could be reprogrammed into stem cells and re-differentiated to form a different type of cell in the body, such as a neuron. Imagine Parkinson's disease patients being healed with their own skin cells—but don't just imagine, clinical research trials could begin soon!

FOOD SAFETY:

Remember the 2011 epidemic in Germany that sickened nearly 4,000 people? Food-borne illness hits 1 in 6 Americans each year. Industry, government, and academic scientists are working together to sequence nearly 200 species of *E. coli* to identify toxic strains and aid development of new tests that may help prevent future food-borne outbreaks. Breakthroughs in this field are continuous and may help prevent contaminations that are present in human and animal food in the future.

GENETIC ANALYSIS AND BIOINFORMATICS:

You've heard of genome sequencing; you may have even done the 23andMe® genotyping test. With the dual advancement of genome sequencing instruments and supercomputers, bioinformatics analysis of genetic information is impacting areas from disease research and drug discovery to human identification. One field of special note—pharmacogenomics, the study of how a person's genes affect their response to drugs, is bringing personalized medicine to universal reality.



life
technologies

A Thermo Fisher Scientific Brand

LOOKING FOR **INVITROGEN™ GENOME EDITING** PRODUCTS?

////////////////////// **START HERE!** ////////////////////////



CUSTOM RNAi LIBRARIES: THE ULTIMATE IN FLEXIBILITY

Do you have a favorite list of genes you would like to target with a collection of siRNAs or miRNAs? Would you like an expert bioinformatics team to identify a gene list covering your desired disease or pathway? We can prepare a custom library against any set of human or mouse genes.

For more information and quote requests, go to: lifetechnologies.com/sirna
and lifetechnologies.com/mirnalibraries



TAKE YOUR LAB WALLS FROM DRAB TO FAB

Two new Invitrogen™ posters available! Showcase your area of interest with the latest installments in our genome editing poster series. Choose “Genome editing with engineered nucleases” or “The evolution of genome engineering”.

Request your free poster at:
lifetechnologies.com/genomeeditposters

ALL-AROUND FREEDOM. UNLIMITED GENOME TARGETING.

GeneArt® PerfectMatch TALs provide custom DNA-binding proteins for accurate DNA targeting and precise genome editing. Unlike other technologies and traditional TALs that limit the choice of targets or provide ambiguous results, GeneArt® PerfectMatch TALs enable the targeting of any locus in the genome.

Experience the power of GeneArt® PerfectMatch TALs: lifetechnologies.com/tal

EASILY DETERMINE THE CLEAVAGE EFFICIENCY OF CRISPR/TAL

The GeneArt® Genomic Cleavage Detection Kit allows rapid and reproducibly determine the cleavage efficiency of your CRISPR and TALs.

- **Easy**—no genomic DNA isolation, direct PCR amplification
- **Rapid**—4 hour total processing time
- **Quantative**—gel band density directly correlated to target indel introduction

Find out more at: lifetechnologies.com/genomiccleavage

WHAT'S YOUR PCR I.Q.?

Think you know everything there is to know about PCR? Test your knowledge with our fun quiz. Answers are shown below, but remember, no peeking!

1. In 1989, the journal *Science* named this enzyme as its first "Molecule of the Year".

- a.** Restriction endonuclease
- b.** *Taq* polymerase
- c.** Methylase
- d.** Reverse transcriptase

2. PCR entered the mainstream media via an episode of this television show.

- a.** "A Different World"
- b.** "Star Trek: The Next Generation"
- c.** "Unsolved Mysteries"
- d.** "Murder, She Wrote"

3. DNA fingerprinting using PCR was accepted in court as reliable forensic evidence, and became well-known in the US when prosecutors relied on DNA evidence in this person's criminal trial.

- a.** Naomi Smith
- b.** O.J. Simpson
- c.** Kirk Bloodsworth

4. A basic PCR reaction has three phases: exponential, linear, and plateau. Which one of these three PCR techniques measures the amount of accumulated PCR products?

- a.** Digital PCR
- b.** Real-time PCR
- c.** Endpoint PCR

5. In 1983, Kary Mullis had a "Eureka" moment (that led to the discovery of PCR) while doing what?

- a.** Driving a winding road
- b.** Drinking a beer at a pub
- c.** Walking through an art exhibition

6. In 1957, the first DNA polymerase was identified by Arthur Kornberg in which organism?

- a.** T7 phage
- b.** *Escherichia coli*
- c.** *Thermus aquaticus*

7. In 1970, D. Baltimore challenged the central dogma of molecular biology with which of the following?

- a.** *Taq* polymerase
- b.** Reverse transcriptase
- c.** Restriction enzymes



8. The following enzyme is a reverse transcriptase.

- a.** Integrase
- b.** Ligase
- c.** Telomerase

9. For one-step RT-PCR, which primer option should be used?

- a.** Oligo(dT)
- b.** Random primers
- c.** Sequence-specific primers
- d.** All of the above

10. Why does raising the temperature in the reaction help with first-strand cDNA synthesis when using thermostable reverse transcriptases?

- a.** Raising the reaction temperature to 50°C helps alleviate complex secondary structures
- b.** Raising the reaction temperature speeds up the process 5x
- c.** Raising the reaction temperature does not help with cDNA synthesis

How did you do?

1–3 correct—Rookie: You may need a refresher course. Find amazing PCR resources at lifetechnologies.com/elevatepcr

4–7 correct—Pilot: You're on your way to becoming a PCR ace! Get there faster with our Real-Time PCR Troubleshooting Tool at lifetechnologies.com/pcrsupport

8–10 correct—Ace: You really know your PCR. Check out products to make your research even more successful at lifetechnologies.com/pcr

Answers: 1 = b, 2 = b, 3 = c, 4 = b, 5 = c, 6 = b, 7 = c, 8 = b, 9 = c, 10 = a

SEQUENCING INCREASES OUR UNDERSTANDING OF BREAST CANCER



Conventional cancer therapies fail in many patients, and for women with triple-negative breast cancer, the picture is particularly grim. But a new study employing a personalized, sequencing-based approach is bringing new hope to women who, a short time ago, had little reason for optimism.

13

Research was conducted using retrospective samples from 13 women with triple-negative breast cancer who had previously failed all other treatments. These samples were sequenced on Life Technologies™ instruments at the Translational Genomics Research Institute.



Doctors examined the DNA sequence obtained from tumor tissue and placed each woman on therapies selected by taking the sequencing data into consideration. Some women were enrolled in clinical trials for new drugs not yet on the market.



We are collaborating on a global basis with academic and pharmaceutical partners to show how sequencing may help solve what is one of the largest and most complex medical problems affecting our world.

Almost all lives are at some point touched by cancer. Fundamentally changing how this disease is diagnosed and treated will make life better for all.

Ion AmpliSeq™ BRCA1 and BRCA2 Panel

A community panel designed with leading researchers

It contains primer pairs that target the coding regions of the tumor suppressor genes BRCA1 and BRCA2, which have been implicated in hereditary breast and ovarian cancers.

- High coverage of the target region
- High-performance amplicons and uniformity
- Fast turnaround time coupled with throughput flexibility
- Adoptable by other translational research labs

Learn more at : lifetechnologies.com/ampliseqcommunity

"The Ion AmpliSeq™ BRCA panel enabled us to develop a quick and easy high-throughput workflow, with minimal hands-on time. It is an accurate solution—of the 65 samples tested to date, we detected all expected mutations."

Dr. Arjen Mensenkamp
Clinical molecular geneticist

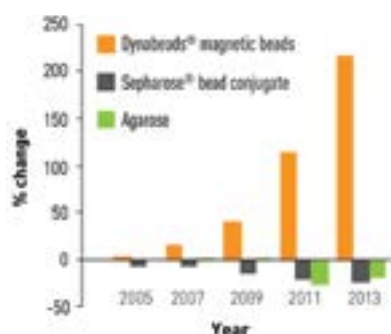


IMMUNOPRECIPITATION IS GOING

MAGNETIC!

While Sepharose® beads are still great for purification of large amounts of protein or antibody, it's not well suited for the smaller-scale isolation of specific proteins and protein complexes more common today.

The key today is balancing the capacity/yield, reproducibility, purity, and cost.



Dynabeads® magnetic separation is the fastest growing method for IP and ChIP. This graph shows the percent increase/decrease of published papers using top IP and ChIP products. Source: Google Scholar, Oct. 2014.

Why is the number of immunoprecipitation (IP) publications citing Dynabeads® magnetic beads skyrocketing?

- Minimal nonspecific binding
- Easy handling, ~30 min protocol, no centrifugation, automatable
- Allows you to balance capacity/yield, reproducibility, purity, and cost



4 COMMON IP MYTHS DEBUNKED

Check out our myth-busting video series at: lifetechnologies.com/ipmyths

MYTH	FACT
Background can't be avoided.	Almost all background is removed using Dynabeads® magnetic beads because all antibodies are accessible on the smooth bead surface, limiting nonspecific background.
Pre-clearing is necessary to get good IP results.	Pre-clearing step is unnecessary with Dynabeads® magnetic beads. You can save time and you use half the amount of solid phase, which helps save money.
Higher capacity is better for IP.	The high capacity of Sepharose® beads comes from high surface area that may also traps a lot of unwanted protein and wastes a lot of antibody. Even with lots of washing, you will end up with unwanted background. Good capacity with high yield is best!
Dynabeads® magnetic beads are expensive.	With no pre-clearing and less antibodies used, Dynabeads® magnetic beads help save you money by balancing optimal capacity/yield, reproducibility, and purity.

**FREE
MAGNET!**

Purchase a Dynabeads® immunoprecipitation product and get a free magnet or 50% off for DynaMag™-2 Magnet!

Use promotion code RHKCATA for free magnet and RHKDYNA for DynaMag™-2 Magnet. Please contact your sales representative when you place order.

Offer expires March 13, 2015. Terms and conditions apply.

Customer can use the offer only once. Offer only applies to a maximum of one DynaMag-2 magnet (cat. no. 12321D) at 50% discount or one free magnet (Cat.no. 10916S) per customer.

Find out more at: lifetechnologies.com/immunoprecipitation



Protein research needs have changed since the introduction of Sepharose® beads in the 1970s!



What would it take for you to change your protocol for IP?

- Easy workflow
- Consistent performance
- Ability to remove almost all background
- Faster protocol time

No problem! Dynabeads® magnetic beads can do all of the above and more! Here's what people are saying about the kits!



"Dynabeads® Protein G are so easy to work with and the background is minimal. I don't know what I would ever do without them now."

"I love how simple these are to use. They also save me a lot of time by not having to pre-clear or obsess about the wash steps."

"I love the ease of this reagent. Faster and cleaner."



ONE TANK—181 GELS! MINI GEL TANK

Now run your favorite NuPAGE®, Novex®, and Bolt® gels in the same tank. Our Mini Gel Tank enables versatility, easy loading, and enhanced visualization.

Explore more choices at:

lifetechnologies.com/minigeltank



SUPERIOR WESTERNS AND ANTIBODY SAVINGS IBIND™ WESTERN DEVICE

Obtain greater sensitivity and reproducibility as compared to manual processing methods. Automated, hands-free processing enables better blot-to-blot consistency, while using up to 80% less primary antibody.

View robust data at:

lifetechnologies.com/ibind



FAST AND INTUITIVE

PowerEase® Power Supply
Designed specifically for mini-gel electrophoresis and western transfer.

PowerEase® Power Supply from \$3,699

PS0091 PowerEase® 90W Power Supply Just \$3,699

PS0301 PowerEase® 300W Power Supply Just \$6,399

Use promotion code P1252760. Offer expires March 13, 2015.

Terms and conditions apply.

Find out more at: lifetechnologies.com/powersupplies

FREE Tank

Get a Mini Gel Tank or Mini Blot Transfer Modules free

Buy 5 boxes of selected protein mini gels in any combination at list price and receive a Mini Gel Tank free.
Buy 7 boxes of selected protein mini gels in any combination at list price and receive two Mini Blot Transfer Modules free.

Use promotion code RHKPROA. Please contact your sales representative when you place order.
Offer expires March 13, 2015. Terms and conditions apply.

Find out more at: lifetechnologies.com/lifeinthelabhk12

ANOTHER DAY IN THE GIBCO® LIFE OF CELLS

FROM THE CULTURE
DISH TO A VIDEO SCREEN
NEAR YOU!

You know every cell type has its own personality—so do we. That's why we've brought several cell types to life by means of clay animation in the Gibco® Life of Cells video series. You'll recognize these characters from your own studies. Mr. Jurkat, Vero, CHO S, Stem Cell, and Ms. HUVEC each display their unique personality as they star in their own video.

**Ready for a giggle? Check out the
Gibco® Life of Cells videos at:**
lifetechnologies.com/lifeofcells

WHICH CELL TYPE IS NEXT?

Is there a cell type that you think would look great in a clay animation video?

Let us know at: lifetechnologies.com/lifeofcells

CHO S



So you want protein, protein, and more protein! No problem! I am CHO S and I am a protein powerhouse. Turn to me when you want to clone, transfect, and express!

Stem Cell



The name's Cell, Stem Cell, and I'm full of... potential! Culture me, characterize me, differentiate me! Whatever the role, I'm your guy!

Vero



Hey, Vero here! You guys treat me poorly—testing for the effects of chemicals, toxins, parasites, or even infecting me with me a virus. Lay it on me—I can take it, and then some!

Ms. HUVEC



Hello, my name is Ms. HUVEC. Some people think I can be pretty demanding... oh well, you give me what I want and I'll give you relevant data. Just sayin'.

NOW BECOME CERTIFIED BY THE LEADING AUTHORITY IN CELL CULTURE

Learn the basic techniques for effective, reproducible laboratory cell culture, including optimized procedures and products that will help you get the consistency your lab work demands. Students completing this course will be eligible to take the free Gibco® Cell Culture Basics certification test and earn the corresponding certificate.

Learn more: www.canvas.net/courses/cell-culture-basics

TAKE CARE OF YOUR CELLS

Gibco® media, supplements, cells, and cell culture reagents are designed to deliver reproducibility and performance for results you can count on every day.

lifetechnologies.com/gibco



Mr. Jurkat



COLLECT
THEM
ALL!

I'm Mr. Jurkat—from the immortalized cell line of the late 1970s. Maybe you already use me in your T cell experiments or cancer research, or perhaps you know me for my high IL-2 production! It's not bragging if it's true!



Ms. HUVEC
Feb 16 – Mar 6,
2015

Mr. Jurkat
Mar 23 – Apr 3,
2015

Stem Cell
Jan 19 – 30,
2015

Vero
Feb 2 – 13,
2015

CHO S.
Mar 9 – 20,
2015

How to get the Life of Cells minifigures?

Now you can start collecting Gibco® Life of Cells minifigures, based on our famous "Gibco® Life of Cells" video series characters. Simply collect ten cap labels from Gibco® media and reagents, stick them on the Gibco® scoreboard and return the Gibco® scoreboard to us on specified dates. It's that easy! Be one of the first researchers to get your hands on the limited-edition Gibco® Life of Cells minifigures.

Find out more at: lifetechnologies.com/lifeofcells

The Life of Cells minifigures. Where will yours go?

Tweet us your picture: @Gibco with #lifeofcells

Or post on our G ibco® Facebook page: facebook.com/gibco

EXPRESS YOURSELF!

YOUR STEM CELLS THRIVE WITH THE ESSENTIALS

A seamless system for feeder-free, xeno-free culture. When used together, the “Essentials” culture media streamline the generation, expansion, and differentiation of pluripotent stem cells (PSCs) by consistently maintaining all three steps in a feeder-free, xeno-free system.

Find out at: lifetechnologies.com/essentialmedia

COMPONENTS: 8 IS GREAT

Gibco® Essential 8™ Medium is a feeder-free, xeno-free medium—originally developed in the laboratory of stem cell research pioneer James Thomson—which contains only the 8 essential components needed to grow and expand pluripotent stem cells. Why are 8 media components better than 20?



Essential 8™ Medium

Consistently grow and expand pluripotent stem cells, while minimizing variability.

"Essential 8™ Medium does exactly what you need it to do. And because it's so simple, it can be made in a more controlled way."

Emile Nuwaysir, PhD
Cellular Dynamics International



Essential 6™ Medium

Used with Essential 8™ Medium, enables more efficient cell reprogramming.

"My experience with Essential 6™ Medium is very positive—iPS colonies are bigger with more defined colony borders compared to our standard induction."

Timo Otonkoski
Biomedicum Stem Cell Center, Finland

CULTURE AND TRANSFECT ACROSS MANY CELL TYPES WITH **INVITROGEN™** AND **GIBCO®** REAGENTS

transfection

NEW!



Get a >20-fold increase in your membrane protein yield!

For researchers studying G protein-coupled receptors (GPCRs) and other membrane proteins, the Expi293™ MembranePro™ Expression System offers enriched, functional membrane proteins.

- **Efficient**—greater than 20-fold increase in membrane protein yield compared to the adherent culture system
- **Scalable**—easy scale-up without the need for multiple flasks
- **Easy to use**—no enzymatic or mechanical dissociation required

lifetechnologies.com/membranepro

"Lipofectamine® MessengerMAX™ reagent can transfect mesenchymal stem cells at high efficiency without the toxic effects of viral vectors."

Daniel Cohen, PhD
University of Pennsylvania

NEW!



Lipofectamine® MessengerMAX™ Transfection Reagent is your ticket to higher mRNA transfection efficiency

Lipofectamine® MessengerMAX™ mRNA Transfection Reagent delivers amazing transfection efficiency in neurons and a broad-spectrum of primary cells, enabling improved application outcomes and more biologically relevant research.

- Amazing transfection efficiency in neurons and primary cell types
- Faster protein expression with no risk of genomic integration
- Up to 10X higher cleavage efficiency with CRISPR mRNA

lifetechnologies.com/messengermax

**FREE
T-shirt!**

Purchase Lipofectamine® MessengerMAX™ reagent and receive a cool T-shirt

No promotion code needed. Offer expires March 31, 2015. Terms and conditions apply.

Find out more at: lifetechnologies.com/messengermax



GET BEAUTIFUL RESULTS AGAIN AND AGAIN

WITH INSTRUMENTS POWERED BY MOLECULAR PROBES® REAGENTS



BOUNDARY-BREAKING

Attune® NxT Acoustic Focusing Cytometer

The Attune® NxT Acoustic Focusing Cytometer combines superior precision, speed, and sensitivity in a modular design that can grow with you. With up to 4 lasers and 14 colors, the Attune® NxT cytometer is designed to accommodate most experimental design needs and lab budgets. Boundaries, beware. lifetechnologies.com/attune

FLOW CYTOMETRY REAGENTS

LIVE/DEAD® fixable dead cell stain kits

Now you have the flexibility you need—choose your color, laser, and pack size.

lifetechnologies.com/livedeadfixable

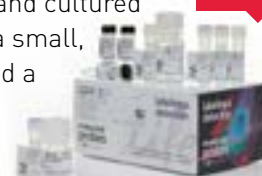
BackDrop® Background Suppressor for Microplate Assays

Designed to effectively suppress background fluorescence in live-cell microplate assays. When this reagent is used with green-fluorescent dyes or proteins, the signal-to-noise ratio improves greatly.



Click-iT® Plus TUNEL Assay for Multiplexed In Situ Detection

Detects apoptotic cells in tissue and cultured cell samples through the use of a small, highly specific labeling moiety and a bright fluorescent dye.



WesternDot® secondary antibody conjugates

Differently labeled WesternDot® antibodies can be applied to a single blot for simultaneous detection of multiple proteins using standard gel or blot imaging platforms. No stripping and re-probing or multiple blots are required for multiple protein detection as commonly needed with ECL or colorimetric detection.



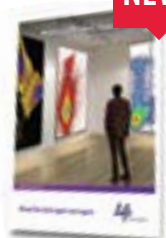
Check out the new products at: lifetechnologies.com/newprobes

FLOW CYTOMETRY RESOURCES

Answers to your flow cytometry questions

Get your free copy of the new Molecular Probes® Flow Cytometry Products and Resource Guide.

lifetechnologies.com/flowguide



Flow cytometry tutorials

A Molecular Probes® training videos teaching the principles of flow cytometry; learn about how a flow cytometer works, what kind of data can be collected and displayed by flow cytometry, and much more.

lifetechnologies.com/flowtutorials

BEAUTIFUL IMAGES AGAIN AND AGAIN

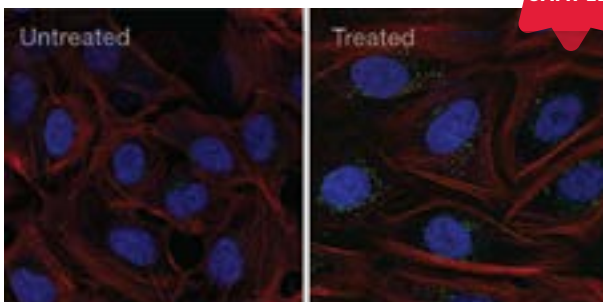
Molecular Probes® School of Fluorescence



NEW!

Learn the fundamentals of fluorescence imaging. The Molecular Probes® School of Fluorescence is a comprehensive online guide where our bench scientists share the best tips, tricks, and protocols that will help you capture beautiful images again and again.

lifetechnologies.com/imagingbasics



WORRY-FREE FLUORESCENCE IMAGING

Problem: Weak or uneven staining, especially with antibodies.

Possible cause: Improper cell permeabilization.

Solution: The Image-iT® Fixation/Permeabilization Kit provides optimal permeabilization conditions for most cell types.

Request a free sample at:

lifetechnologies.com/freefixedsamples



BENCH TALK



Gopinath M. Sundaram

Senior Research Fellow
Institute of Medical Biology, Singapore

Research area

Role of microRNAs in cutaneous wound healing in human skin.

The challenge

We are studying how microRNAs regulate wound healing using a human *ex vivo* organ culture system and cultured keratinocytes as tools. In order to study the function of a specific miRNA or its target mRNA, it is essential to manipulate their levels. The challenge is the intracellular delivery of miRNA mimics/inhibitors/siRNAs at close to 100% efficiency, in order to see the effect on cells. Keratinocytes are known to be difficult to transfect.

How he tackled it

After trying multiple transfection reagents and vendors, we tried Lipofectamine® RNAiMAX Transfection Reagent. Most other transfection reagents give about 50–75% transfection efficiency; Lipofectamine® RNAiMAX yields 90% transfection efficiency with siRNAs, and I was able to achieve more than 80% knockdown of my target genes. On top of that, Lipofectamine® RNAiMAX also works well for miRNA mimic/inhibitor transfection. Toxicity of transfection reagents to keratinocytes, which I encountered with other transfection reagents, was minimal with Lipofectamine® RNAiMAX, and I have transfected cells multiple times without adverse side effects.

Bleaching of fluorescent signals in confocal imaging of cells/tissues after immunocyto/histochemistry was a major obstacle in my research. Shifting to Molecular Probes® fluorescent secondary antibodies with Alexa Fluor® conjugates (instead of conventional FITC/TRITC dyes) gives much more stable fluorescent signals without significant loss due to bleaching.

The happy result

Consistent target mRNA knockdown or miRNA modulation was achieved using Lipofectamine® RNAiMAX with 100% confidence. Plus, stable knockdown of target genes was seen up to 5 days posttransfection. Success!

OBTAIN THE HIGHEST-QUALITY DATA YOUR SYSTEM CAN DELIVER

FLUORESCENT MICROSPHERES FOR CALIBRATING MICROSCOPES

Regular instrument calibration and adjustment are required for high-precision imaging of fluorescent probes, particularly in multicolor applications such as confocal laser scanning microscopy that involve multiple exposures, repetitive scans, or three-dimensional sectioning. We offer a range Molecular Probes® calibration products to help you achieve optimum performance from your imaging system.

Confirm Color Alignment With Focalcheck™ Beads

Our Molecular Probes® FocalCheck™ fluorescent microspheres are specifically designed for examining the alignment, sensitivity, and stability of confocal laser scanning microscopes. They are particularly useful for confirming the optical sectioning thickness ("Z-resolution") in three-dimensional imaging applications. FocalCheck™ microspheres are provided in suspension or mounted on slides and in several different multicolored configurations of fluorescent ring stains with or without contrasting fluorescent dyes throughout the bead. The sharp ring stains produce a striking visual representation of instrument misalignment or other aberrations, making them ideal reference standards.

Selected Products

Catalog #	Name	Size
F24633	FocalCheck™ Fluorescent Microspheres Kit, 6 µm, mounted on slides	1 kit
F7238	FocalCheck™ Microspheres, 15 µm, fluorescent green ring stain/dark red throughout	0.5mL
F36909	FocalCheck™ Fluorescence Microscope Test Slide #1, for alignment, intensity, & calibration	1 each

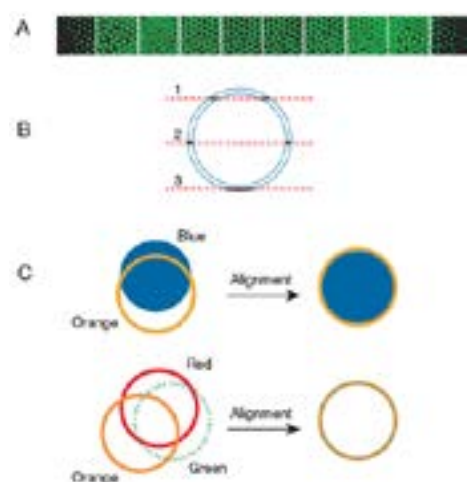


Figure 1.
Confocal laser-scanning microscope optical cross-sectioning and alignment with FocalCheck™ microspheres.

- (A) Serial optical sectioning from top to bottom along the z-axis of ring-stained microspheres reveals a continuous pattern of disc-to-ring-to-disc images.
- (B) The diameter of the fluorescent ring (or disc) seen is dependent on the depth of the optical focal plane.
- (C) In the confocal laser-scanning microscope, separate light paths exist for UV and visible wavelengths, and emitted fluorescence is detected by different photomultipliers. Proper optical alignment in three dimensions may be obtained with either of two types of FocalCheck™ microspheres:
- 1) microspheres with a ring stain and a second fluorescent stain throughout the bead; or
 - 2) microspheres containing three different fluorescent ring stains.

Adjust Color Registration With Tetraspeck™

TetraSpeck™ Fluorescent Microspheres facilitate the chromatic registration of conventional fluorescence microscopes, confocal laser scanning microscopes, and associated image-processing equipment. They are available in five diameters, spanning the range from subresolution to nearly cell-size particles. They are stained throughout with four different fluorescent dyes, yielding beads that each display four well-separated excitation/emission peaks.

Selected Products

Catalog #	Name	Size
T7279	TetraSpeck™ Microspheres, 0.1 µm, fluorescent blue/green/orange/dark red	0.5mL
T7280	TetraSpeck™ Microspheres, 0.2 µm, fluorescent blue/green/orange/dark red	0.5mL

Learn more at: lifetechnologies.com/microscopecalibration



TURN YOUR REAGENTS INTO REWARDS

Have you downloaded the Reagent Rewards™ app?

When you join the Reagent Rewards™ program, you'll earn points each time you purchase and scan a qualifying product on your smart device.* We've added more qualifying products to the program, so now you can build up those points faster than ever and redeem them for gifts and discounts.

Reagent Rewards™ members can earn points when they buy qualifying:

- Endpoint PCR reagents
- Real-time PCR reagents
- Cloning and competent cells
- Sample preparation reagents
- GeneArt® Gene Synthesis reagents
- Molecular Probes® fluorescence reagents

So what are you waiting for? Find out more at:
lifetechnologies.com/reagentrewards



Look for this icon
throughout the issue
for qualifying products

* Available for iOS® and Android™ devices. Terms and conditions apply.

Life in the Lab, Issue 12, Winter 2015

"Life in the Lab" is published quarterly by Thermo Fisher Scientific • 5791 Van Allen Way, Carlsbad, CA 92008

For Research Use Only. Not for use in diagnostic procedures.

Life Technologies Limited
Units 01, 09-13 & 15-18, Level 13, Tower 1, Kowloon Commerce Centre, No. 51 Kwai Cheong Road, Kwai Chung, N.T., Hong Kong
General Line: 31077600 | Customer Care Hotline: 24078450 | Fax: 24082280

©2014 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified. TaqMan is a registered trademark of Roche Molecular Systems, Inc., used under permission and license. Essential 8 is a trademark of Cellular Dynamics International, Inc. iOS is a registered trademark of Apple, Inc. Android is a trademark of Google, Inc. Sepharose is a registered trademark of GE Healthcare. TRIzol is a registered trademark of Molecular Research Center, Inc. Facebook is a registered trademark of Facebook, Inc. Twitter is a registered trademark of Twitter, Inc. Snapchat is a registered trademark of Snapchat, Inc. C0011783 1214

WE'RE HERE TO **HELP YOU SAVE**

To make your research a bit more affordable, we've featured many money-saving promotions throughout this issue. For your convenience, some favorites are listed here.

If you'd like more information about any of these promotions, or other promotions found in this issue, simply go to:

lifetechnologies.com/lifeinthelabhk12

**Buy
1 get 1
free**



On selected agarose

Use promotion code MHAGC1.

**FREE
MINIS!**



Free Gibco® Life of Cells minifigures

With qualifying Gibco® cell culture purchase.

No promotion code needed.

**Buy
1 get 1
free**



**On selected SuperScript® VIL0™
cDNA Synthesis Kit and Master Mix**

Use promotion code MHAGC1.

**30%
off**



Save 30% on selected PCR Plastics

Use promotion code P1252760.

**FREE
MAGNET!**



**Purchase a Dynabeads® immunoprecipitation
product and get a free magnet or 50% off for
DynaMag™-2 Magnet**

Use promotion code RHKCATA for free magnet and
RHKDyna for DynaMag™-2 Magnet.

Please contact your sales representative when you place order.

**FREE
T-shirt!**



**Purchase Lipofectamine®
MessengerMAX™ reagent and
receive a cool T-shirt**

No promotion code needed.

**SAVE
BIG!**



Free tank/ transfer modules!

Buy 5 boxes of selected protein mini gels in any combination at list price and receive a Mini Gel Tank free.

Buy 7 boxes of selected protein mini gels in any combination at list price and receive two Mini Blot Transfer Modules free.

Use promotion code RHKPROA. Please contact your sales representative when you place order.

Offer expires March 13, 2015. Terms and conditions apply.

**FROM
\$3,699**



Just \$3,699 for PowerEase® 90W Power Supply

Just \$6,399 for PowerEase® 300W Power Supply

Use promotion code P1252760. Offer expires March 13, 2015. Terms and conditions apply.

**Join the Reagent Rewards™ program to
earn points each time you purchase and
scan qualifying products.**

Look for this icon on qualifying products

- Endpoint PCR reagents
- Real-time PCR reagents
- Cloning and competent cells
- Sample preparation reagents
- GeneArt® Gene Synthesis reagents
- Molecular Probes® fluorescence reagents

lifetechnologies.com/reagentrewards



Invitrogen™

Applied Biosystems®

Gibco®

Molecular Probes®

Novex®

Ambion®

Ion Torrent™

For Research Use Only. Not for use in diagnostic procedures.

Abbreviated terms and conditions

Use promotion codes as noted. All promotions are open to qualified academic end users in Hong Kong. Offers will apply to qualifying orders received by Life Technologies no later than March 13, 2015, (unless otherwise noted), or until promotional supplies are depleted, whichever comes first. Quantities may be limited, and other restrictions may apply to these promotions. Promotion code must be presented at the time of order. Discounts apply to the list price in effect at the time the order is received by Life Technologies. Each promotion cannot be combined with other discounts or promotions. For Dynabeads immunoprecipitation kit promotion, customer can use the offer only once. Offer only applies to a maximum of one DynaMag-2 magnet (cat. no. 12321D) at 50% discount or one free magnet (Cat.no. 10916S) per customer. By placing an order, you warrant that you are not prohibited by employment, contract, or law from accepting a gift from Life Technologies. All offers are void where prohibited by federal, state, provincial, or local laws or regulation or agency/institutional policy. Other restrictions apply. Life Technologies Limited reserves at its sole discretion to determine the eligibility to receive the special offer. To see complete terms and conditions, go to lifetechnologies.com/lifeinthelabhk12