Cell and Molecular Biology Reagents

CATALOGUE | 2025-2027

TIARIS

Tiaris Biosciences

We are a biotechnology company specialized in the development and manufacturing of molecular and cell biology products for support basic and growing research in the clinical, biotechnological and agricultural laboratories.

We are glad to provide a catalogue focused to solve many nucleic acid extraction needs offering a variety of extraction methods, including kits based on pre-packed silica matrix, magnetic beads and salting out, in manual or automatized configurations; PCR and RT-PCR reagents for real time or end PCR; validated formulation for sample stabilization and preservation of nucleic acids; cloning solutions; cell assays and supporting products for electroforesis and protein and nucleic acid research.

Our kits and services are high-quality products, manufactured in the European Union, designed to support your workflows in the field of Molecular and Cell Biology. We bring the professionalism and enthusiasm of our team, along with over 20 years of experience in the sector. Our team is dedicated to developing innovative products every year and Tiaris has been certified as Innovative SME.

Throughout your purchasing process, you will be assisted by renowned professionals in distribution, backed by exceptional technical support and customer service.

Please feel free to contact us!
✉ *info@tiarisbiosciences.com*
Parque Tecnológico Rabanales 21. Edif Aldebarán. Córdoba. España

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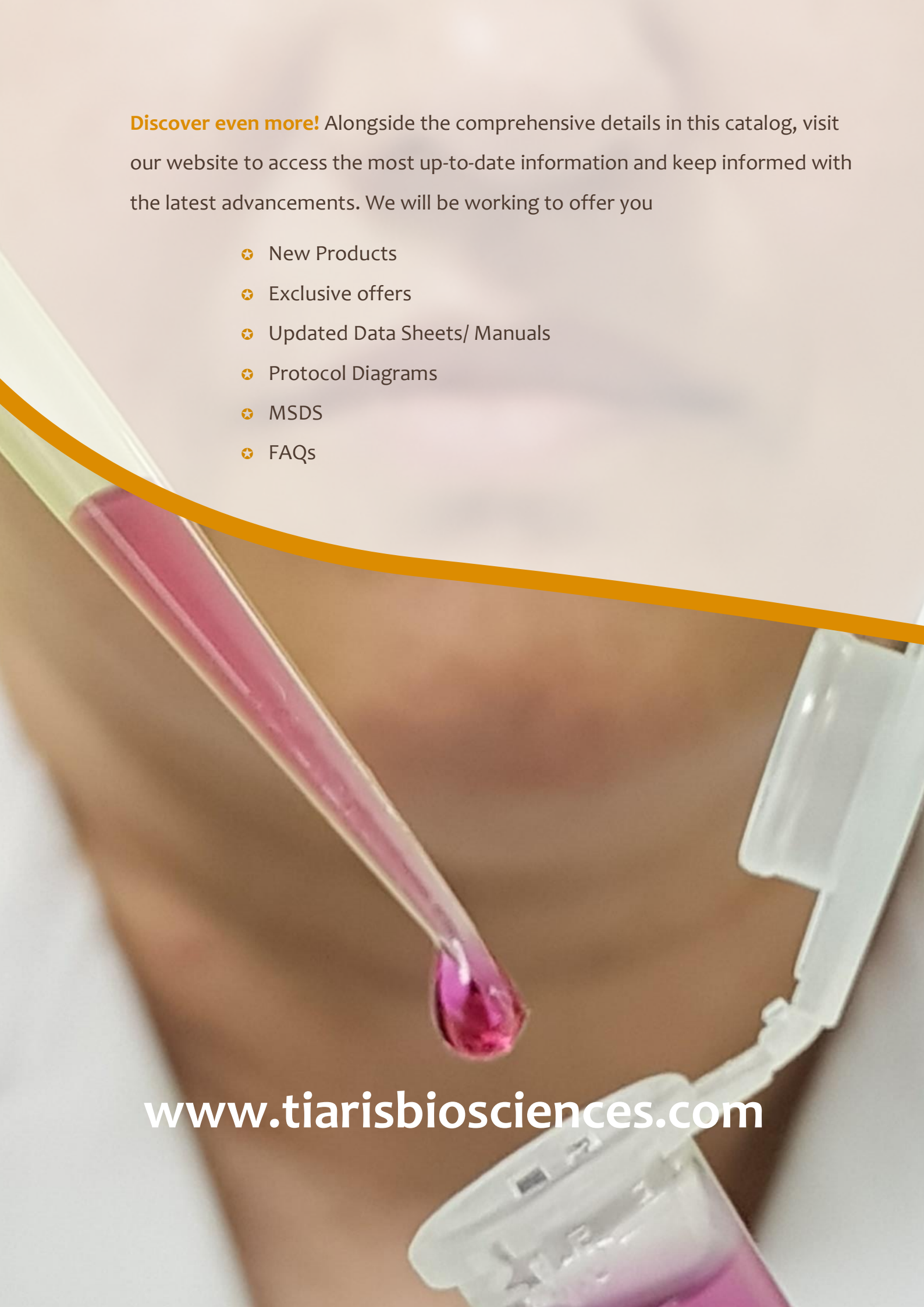
- Updated Data Sheets/ Manuals
- Protocol Diagrams
- MSDS
- FAQs



www.tiarisbiosciences.com

Our values

We provide our clients with advanced tools, ready-to-use solutions, and our expertise to support their success in the field of molecular and cellular biology.

Innovation

Constant innovation to create products that meet your needs.

Quality

Our rigorously tested products ensure accuracy and reliable results.

Technical Support

Your success is our priority. We guide you every step of the way.

Fast Delivery

We guarantee fast and efficient delivery.

Made in Spain

We develop and manufacture our products in Spain

TIARIS AWARDS

Emergent Startup Certification by ENISA

Top 100 Startup 2023 the most innovative companies in Technological Parks in Spain.

Top 101 Start Up Nation highlights the most innovative companies with the greatest impact on the entrepreneurial ecosystem in Spain.

TIARIS GRANTS

"What if, every time I started to invent something, I asked, "How would nature solve this?"

Janine Benyus

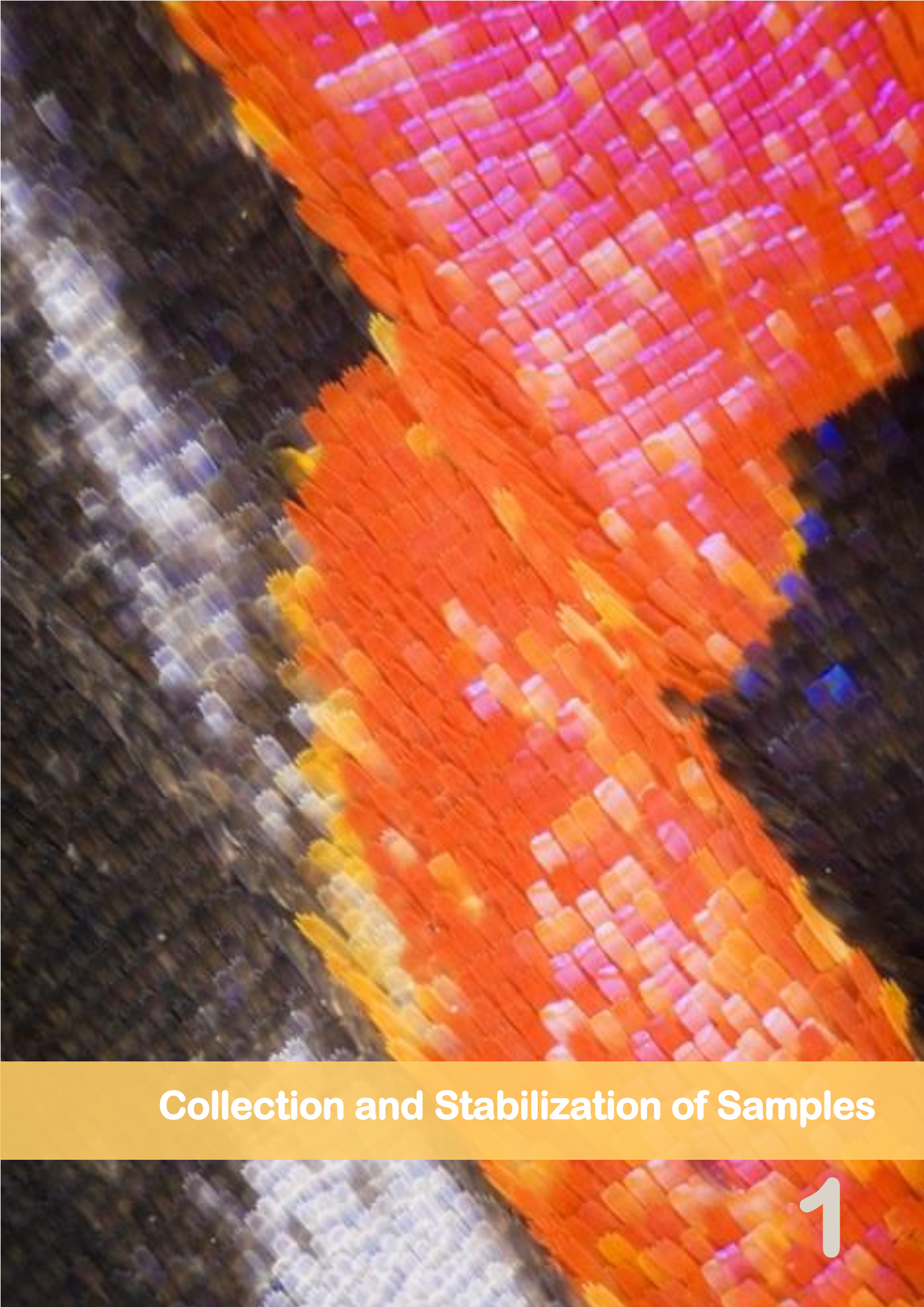
Biomimicry is the term that has been established for developments based on the extrapolation of systems and/ or adaptations found in nature. And when we use this term, we must talk about Janine Benyus (*United States, 1958*), who coined the term and extended the concept of biomimicry to a global audience after the publication of her influential book Biomimicry: Innovation Inspired by Nature, published in 1997.

Benyus' idea of biomimicry centers on the notion that nature, having evolved over billions of years, is a great engineering teacher and offers solutions to many of the challenges we face today. By observing and emulating the strategies used by plants, animals, and ecosystems, we can aim for sustainability through a symbiotic relationship between technology and the environment.

The launch in 2008 of AskNature (*https://asknature.org/*), an open-source database akin to a social network where people can record their observations of nature and suggest applications inspired by their research, was a pioneering idea created by the Biomimicry Institute (*https://biomimicry.net/*), founded by Benyus in 2006. Exploring the examples included on its pages, the microscopic observation of a lotus leaf, a butterfly wing, or a moth's eye is astounding. Tiny bumps are arranged with great precision to form natural structures that provide various functions, such as repelling water, dirt, and bacteria, or creating vibrant colors and enhancing light absorption. It's remarkable to realize that many living organisms achieve through texture what, in industry, we've accomplished using toxic chemicals or large amounts of water and resources to achieve similar effects. The imitation of these nanostructures has led to the development of new materials with unique properties that are aligned with the sustainability of the planet.

Janine Benyus, through biomimicry, urges us to adopt it as a philosophy: to take nature as our mentor and teacher because it works with sunlight, adapts form to function, recycles everything, and tirelessly creates conditions conducive to life. Let's pause to observe and copy nature!

#CopyAndPasteNature



Collection and Stabilization of Samples

1

COLLECTION AND STABILIZATION OF SAMPLES

Samples are the cornerstone of scientific research and diagnostic processes, serving as the foundation for experiments and analyses. The type of biological sample, the timing of collection, the sampling method, as well as storage and transport, are critical factors in all studies involving collected samples. Stabilizing DNA, RNA or proteins in biological samples constitute a significant challenge for researchers.

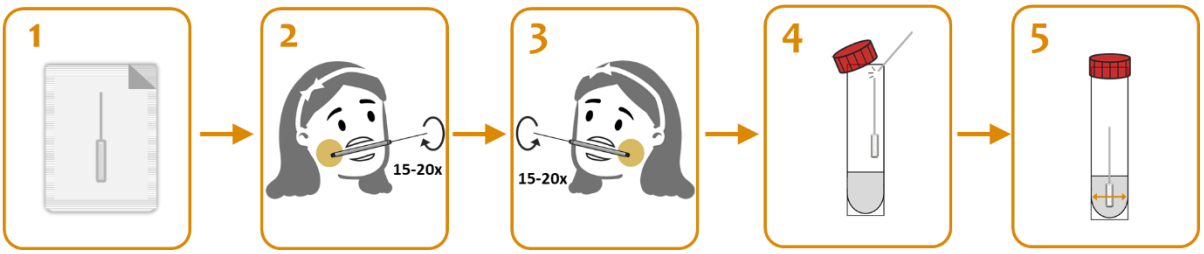
Proper preservation and storage are essential to maintain the integrity of genetic material from a wide range of biological samples. Tiaris® Sample Collection and Stabilization Kits are perfect for any genetic application, offering researchers a solution for sample collection, stabilization, and transport. We provide tools for the collection and stabilization of non-invasive samples such as buccal swabs, saliva, stool, urine, and vaginal samples, helping to ensure maximum quality of your samples.

Non-invasive sample types, such as saliva and urine, facilitate more personalized approaches to medicine. These methods allow for convenient, at-home collection and are versatile in applications like cancer detection and infectious disease screening. They are particularly valuable in situations where blood sampling is impractical or when healthcare systems face high demand and resource constraints.

Benefits of Non-Invasive Samples

BUCCAL SWAB COLLECTION AND STABILIZATION KIT

Buccal Swab Collection and Stabilization Kit is an appropriate system for the collection and preservation of buccal samples obtained through a buccal mucosa swab. Once the sample is collected, the swab is placed in a validated solution for long-term preservation. The kit includes swabs and tubes with the preservation solution.



Open the swab bag

Place the swab in the mouth and rub back and forth

Repeat the rub motion in the other side of mouth.

Break the swab at a breakpoint signal

Close tightly the tube and shake vigorously

Features

- **Non-toxic** preservation solution.
- Samples can be **preserved indefinitely**.
- **Compatible** with most nucleic acid isolation systems.

Applications

- Long-term stabilization of samples at room temperature.
- Collected sample is ready for DNA extraction.

REFERENCES	DESCRIPTION	FORMAT
TBK0307	BUCCAL SWAB COLLECTION & STABILIZATION KIT	50 units
TBK0308	BUCCAL SWAB COLLECTION & STABILIZATION KIT	100 units
TBK0309	BUCCAL SWAB COLLECTION & STABILIZATION KIT	200 units

Complementary Products

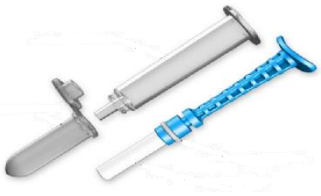
- ✓ **Buccal Swab Genomic DNA Purification Kit** (TBK0136, TBK0137)
- ✓ **HIGH-Q™ Spin Columns Buccal Swab Genomic DNA Purification Kit** (TBK0141, TBK0142)
- ✓ **TIARIS™ Body Fluid Direct PCR** (TBK1023)

SALIVA COLLECTION AND STABILIZATION KITS

Tiaris Biosciences provides different systems to collect saliva samples to stabilize DNA, RNA and proteins. Some of them, include pads to absorb the sample. The pad compression involved an additional step of purification removing mucilaginous components from saliva. The sample is immediately preserved by a stabilizing solution.

Saliva DNA Collection Kits

Saliva DNA collection systems include designs for the collection of samples from infants to adults attending to volume and content of epithelial cells. Saliva is stabilized for subsequent DNA extraction and downstream testing.



Micro-SAL™ Saliva

SimplOFy™ System

DNA-SAL™ Saliva

Super-SAL™ Saliva

Micro-SAL™ Saliva DNA Collection Kit

Micro•SAL™ Saliva Collection Kit is specially conceived for collecting **saliva samples from younger children**. The kit features a reduced-size collector with a small, soft pad that efficiently wicks saliva from the mouth, collecting up to a maximum of 500 µL. The collected saliva is then released from the absorbent pad by compressing it through a narrow-bore tube connected to a standard eppendorf tube.

Features

- **Non-invasive**, simple and painless saliva collection.
- Total Volume of saliva 0.5 mL.
- **Quick collection time**: 1-3 minutes.
- **Delivers clean sample** for immediate stabilization or long-term storage.

Applications

- Ideal choice for effective sampling of oral fluids/ whole saliva from infants.
- An excellent system valid for a variety of downstream applications such as PCR, genotyping, sequencing, etc.

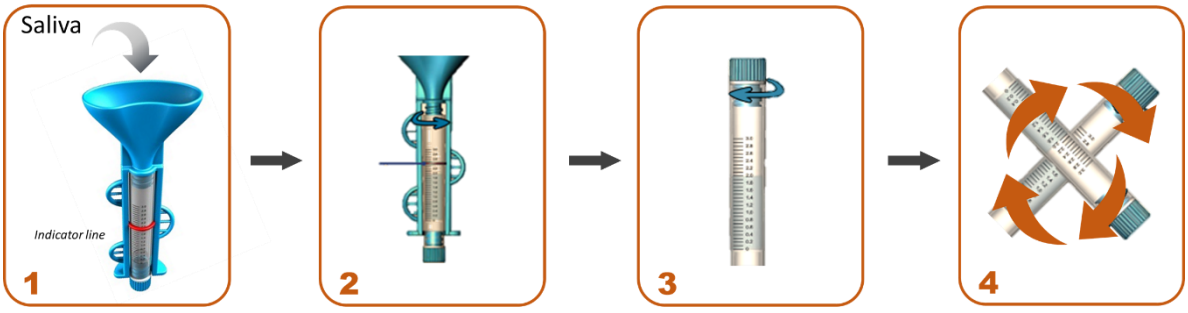
REFERENCES	DESCRIPTION	FORMAT
MRSAL-402	**Micro-Sal™ SALIVA DNA COLLECTION KIT**	50 units
MRSAL-403	**Micro-Sal™ SALIVA DNA COLLECTION KIT**	100 units

Complementary Products

- ✓ **Saliva Genomic DNA Purification Kit** (TBK0146, TBK0147)
- ✓ **HIGH-Q™ Spin Columns Saliva Genomic DNA Purification Kit** (TBK0151, TBK0152)
- ✓ **TIARIS™ Body Fluid Direct PCR** (TBK1023)

SimplOfy™ Saliva DNA Collection Kit

SimplOFy™ Saliva DNA Collection Kit is designed for the collection and stabilization of **whole saliva** for subsequent DNA extraction and downstream testing. This kit is an ideal choice for services requiring home collection and long-term DNA stabilization at the point of collection.



Collect saliva until it reaches indicator line.

Unscrew the funnel in the direction indicated.

Screw tightly the collection tube with the bottom cap.

Mix vigorously by tube inversion (20 times).

Features

- **Suitable for both manual and automated process**: collection tubes are compatible with automation, allowing for high throughput during extraction and subsequent analysis.
- **Easy-to-use attached funnel** to the collection tube.
- **Contains buffer** to preserve the integrity of DNA.
- Sample remains **stable at room temperature,** reducing transportation and storage costs.

Applications

- Ideal choice for services requiring home self-collection and long-term DNA stabilization at the point of collection.
- Long-term stabilization of samples at room temperature.
- Collected sample is ready for DNA extraction.

REFERENCES	DESCRIPTION	FORMAT
SIMPL-301	SimplOFy® SALIVA DNA COLLECTION KIT	50 units
SIMPL-301B	SimplOFy® SALIVA DNA COLLECTION KIT	100 units

Complementary Products

- ✓ **HIGH-Q™ Spin Columns Saliva Genomic DNA Purification Kit** (TBK0151, TBK0152)
- ✓ **Saliva Genomic DNA Purification Kit** (TBK0146, TBK0147)
- ✓ **TIARIS™ Body Fluid Direct PCR** (TBK1023)

DNA-SAL™ Saliva DNA Collection Kit

DNA-SAL™ Saliva DNA Collection Kit is intended for the collection of saliva enriched with epithelial cells for subsequent extraction of DNA from oral specimens.

Epithelial cells are harvested by abrasion of cells on the inside of the cheek, using a series of serrated edges on the platform of the Collection Device.

Features

- Saliva **sample enriched with buccal mucosal cells**.
- **Contains buffer** to preserve the integrity of DNA.
- Sample remains **stable at room temperature**, reducing transportation and storage costs.

Applications

- Ideal candidate for services requiring home collection and long-term DNA stabilization at the point of collection.
- Long-term stabilization of samples at room temperature.
- Collected sample is ready for DNA extraction.

SUPER-SAL™ Saliva DNA Collection Kit

SUPER-SAL™ Saliva Collection Kit is a universal sample collection system. It works by collection of sample by means of a highly absorbent cylindrical-shaped pad. The Super-SAL™ is intended as a high volume saliva collector (> 1.0 mL) providing a *clean* saliva specimen in approximately 1-3 minutes.

Features

- Includes a sample **volume adequacy indicator** that provides an indication of when sufficient saliva has been collected.
- **Sealed system**, designed to be highly amenable to transportation.

Applications

- No invasive collection of a broad range of samples: saliva, vaginal, urine, amniotic fluid, etc.
- Saliva collection from multiple animal species (cows, horses, pigs, cats, dogs, non human primates and humans).
- Valid to collect hormones, bacteria, viruses, certain drugs and proteins.
- The sample may be used immediately, stabilized for later analysis or sent to a laboratory for subsequent analysis.

REFERENCES	DESCRIPTION	FORMAT
DNAS-102	DNA-SAL™ SALIVA COLLECTION KIT	50 units
DNAS-102B	DNA-SAL™ SALIVA COLLECTION KIT	100 units
SSAL-601	SUPER-SAL™ SALIVA COLLECTION KIT	50 units
SSAL-601B	SUPER-SAL™ SALIVA COLLECTION KIT	500 units

Saliva RNA Collection Kits

PURE-SAL™ RNA Collection Kit

PURE-SAL™ RNA was developed for the controlled and standardized collection of RNA or protein biomarkers from oral fluid specimens for subsequent stabilization and analysis in life science and research applications. The harvested, purified saliva specimen is stabilized if required and available for downstream PCR, genotyping, sequencing, proteomics and other applications, depending upon the desired results.

Features

- Utilizes a **highly absorbent pad** to collect saliva, effectively removing a high percentage of mucinous material that can interfere with downstream assays.
- Total Volume: 1 mL of saliva.
- Compresses sample through a proprietary medium.
- **Removes cells** and unwanted components.
- **Delivers clean sample** for immediate stabilization or long-term storage.

Applications

- Platform for isolating liquid biopsy specimens in a single step.
- Cell free DNA or Cell free RNA.
- Isolation of exosomes.
- Downstream applications.

REFERENCES	DESCRIPTION	FORMAT
RPSAL-701	RNAPro-SAL™ COLLECTION KIT	50 units
RPSAL-702	RNAPro-SAL™ COLLECTION KIT	100 units
PRSAL-701R	PURE-SAL™ RNA COLLECTION KIT	50 units
PRSAL-702R	PURE-SAL™ RNA COLLECTION KITT	100 units

RNAPro-SAL™ Collection Kit

RNAPro-SAL™ was developed as an easy to use and cost effective tool for the split sample collection of rich sources of RNA miRNA, mRNA and proteins found in saliva. The proprietary RNAPro-SAL™ kit provides two equivalent samples of saliva which total 1.0 mL of saliva in 1-3 minutes. These may be analyzed later for either RNA or protein components. A unique built in Sample Volume Adequacy Indicator provides a visual indication that an adequate quantity of sample has been collected for downstream analysis and by a compression process, cells and unwanted components from the saliva are removed.

Features

- **Dual equivalent sample collection** by split of the collected liquid.
- Provides a **visual indication** of adequate sample collection for downstream analysis.
- **Remotion of cells** and unwanted components from the saliva.

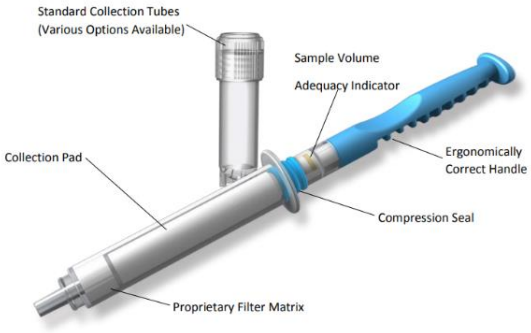
Applications

- Collection of mRNA, miRNA and proteins from saliva samples.
- Cell free DNA or Cell free RNA.
- Isolation of exosomes.
- Proteomics.

Saliva Protein Collection Kit

PURE-Sal™ Protein Collection Kit

PURE-Sal™-Protein Collection Kit provides a simple non-invasive and rapid platform for isolating *liquid biopsy* specimens including proteins and exosomes in a single step. The collected and purified saliva specimen is stabilized and ready for downstream applications, such as proteomics.



Features

- Utilizes a **highly absorbent pad** to collect saliva, effectively removing a high percentage of mucinous material that can interfere with downstream assays.
- Total Volume: 1 mL of saliva.
- Compresses sample through a proprietary medium for **protein preservation**.
- **Removes cells** and unwanted components.
- **Delivers clean** sample for immediate stabilization or long-term storage.

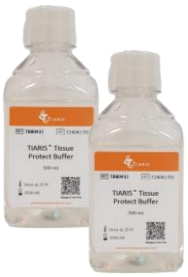
Applications

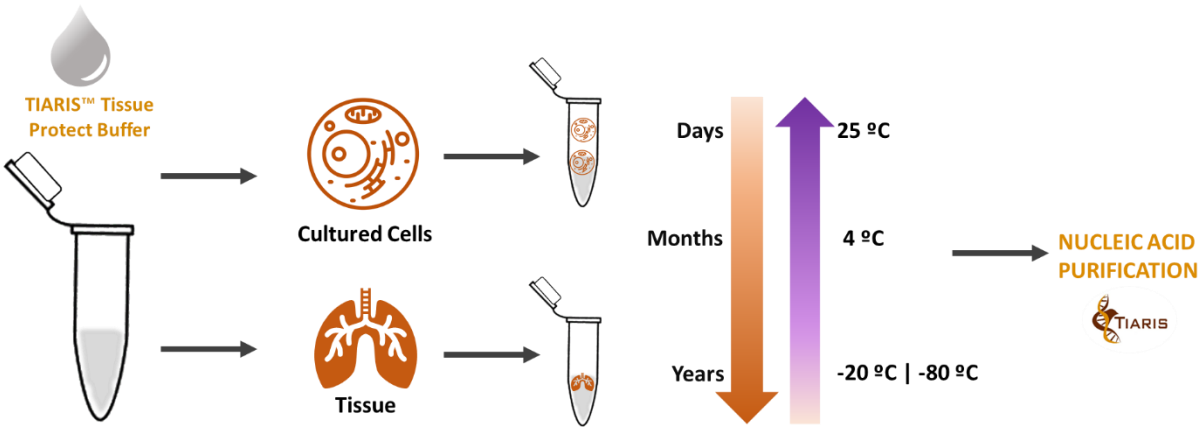
- Platform for isolating liquid biopsy specimens in a single step.
- Proteomic.
- Exosome isolation.

REFERENCES	DESCRIPTION	FORMAT
PRSAL-703P	PURE-SAL™ PROTEIN COLLECTION KIT	50 units
PRSAL-704P	PURE-SAL™ PROTEIN COLLECTION KIT	100 units

TISSUE COLLECTION AND STABILIZATION

TIARIS™ Tissue Protect Buffer is a highly effective solution for the stabilization and preservation of nucleic acids present in various tissues. Once the sample is placed in the solution, any nucleases present are immediately inactivated.





Features

- **Non-toxic** preservation solution.
- Suitable **for most tissues** (*ears, mouse tails, organs*), cultured cells, plants, bacteria, yeast, fungi, etc.
- **Compatible** with nucleic acid purification kits.

Applications

- Long-term stabilization of samples at room temperature.
- Collected sample is ready for genomic DNA extraction.

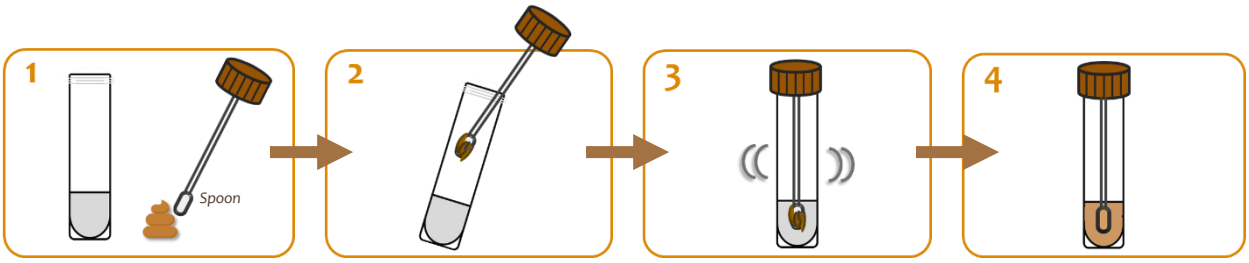
REFERENCES	DESCRIPTION	FORMAT
TBB0430	TIARIS™ TISSUE PROTECT BUFFER	50 x 1.5 mL
TBB0431	TIARIS™ TISSUE PROTECT BUFFER	100 mL
TBB0432	TIARIS™ TISSUE PROTECT BUFFER	500 mL

Complementary Products

- ✓ **HIGH-Q™ Spin Columns Tissue Genomic DNA Purification Kit** (TBK0163, TBK0164)
- ✓ **HIGH-Q™ Spin Columns Tissue Genomic RNA Purification Kit** (TBK0268, TBK0269)
- ✓ **TIARIS™ Tissue Direct PCR** (TBK1015, TBK1016)

STOOL SAMPLE COLLECTION AND STABILIZATION KIT

Stool Collection and Stabilization Kit allows for the collection, preservation, and stabilization of human and animal stool samples. The preservation solution is contained in a tube that includes a small spoon for easy sampling. The samples can be stored at room temperature, maintaining a constant microbial composition under these conditions.



1. Collect the sample on plastic wrap and transfer a portion with the spoon of the collection tube.
2. Soak the sample into the preservation solution. Close tightly the tube.
3. Mix well the sample by shaking.
4. Place the stool sample at ambient temperature or freeze at –20°C or –80°C (*recommended for long-term storage, > 6 months*).

Features

- Samples do not need to be processed immediately.
- Suitable for sample **preservation at room temperature**.
- **Preserves the integrity of nucleic acids and microbiota profiles**.
- **Compatible** with nucleic acid purification kits and procedures.

Applications

- Long-term stabilization of samples at room temperature.
- Collected sample is ready for DNA extraction.
- Compatible with diverse purification systems.

REFERENCES	DESCRIPTION	FORMAT
TBK0302	STOOL SAMPLE COLLECTION & STABILIZATION KIT	50 units
TBK0303	STOOL SAMPLE COLLECTION & STABILIZATION KIT	100 units
TBK0304	STOOL SAMPLE COLLECTION & STABILIZATION KIT	200 units

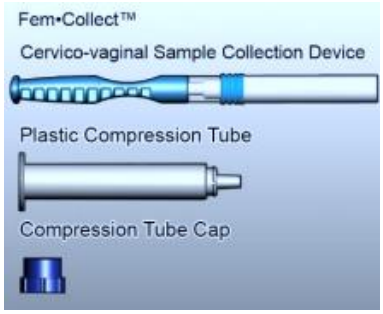
Complementary Products

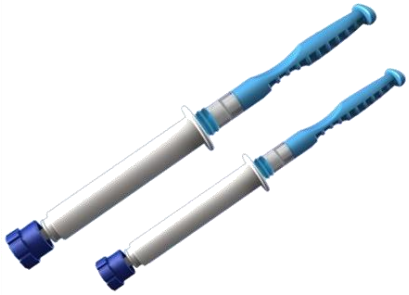
✓ **HIGH-Q™ Spin Columns Stool Genomic DNA Purification Kit** (TBK0289, TBK0290)

CERVICAL AND VAGINAL SAMPLE COLLECTION

Vaginal specimens collected using minimally invasive tools such as the FEM-COLLECT™ device may represent a means of self-collection, streamlining research protocols and at the same time presenting a more comfortable and private process for the subject. The FEM-COLLECT™ Cervicovaginal Specimen Collection Device uses a very safe, highly absorbent pad to gently harvest cells / DNA from the vaginal canal to be used for research purposes.

Cells / DNA adhere to the absorbent pad component of the FEM-COLLECT™ in a short collection process lasting 5 minutes. Upon removal of the device from the cervicovaginal canal the sample pad is immediately protected with a compression tube that preserves the integrity of the sample during transportation to a laboratory where downstream testing may be performed.





Features

- **Minimally invasive sample** collection.
- **Highly absorbent pad** to harvest cells from the vaginal canal.
- **Short collection process**.
- Sample remains **stable at room temperature**, reducing transportation and storage costs.
- Highly absorptive medium, collects a rich sample available for multiple downstream processes.

Applications

- More comfortable and private process to home self-sample collection and long-term DNA stabilization at the point of collection.
- Vaginal self-collection for screening programs.

REFERENCES	DESCRIPTION	FORMAT
CVGL-801	FEM-COLLECT® CERVICO-VAGINAL SAMPLE COLLECTION KIT	15 pack
CVGL-701	FEM-COLLECT® CERVICO-VAGINAL SAMPLE COLLECTION KIT	150 pack

Complementary Products

✓ **HIGH-Q™ Spin Columns Vaginal Genomic DNA Purification Kit** (TBK0175, TBK0176)

"Biomimicry is the conscious emulation of life's genious."

Janine Benyus

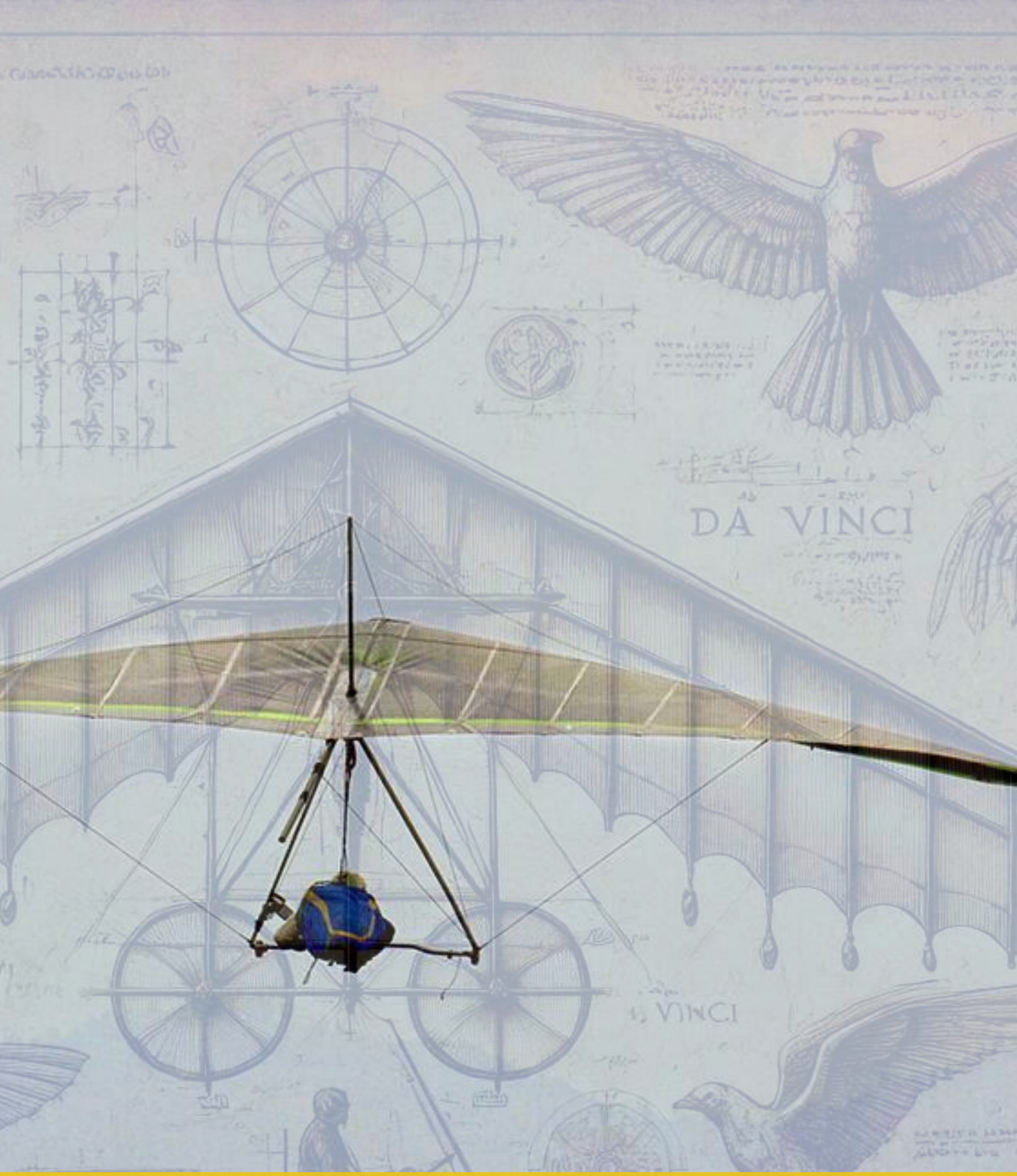
Leonardo da Vinci (*1452–1519*), the quintessential polymath of the Renaissance, sought to replicate nature's mastery in all his inventions. His fascination with the mechanics of bird flight culminated in the Codex on the Flight of Birds, written in 1505, a remarkable document showcasing Leonardo's systematic analysis. He meticulously dissected birds to understand how their muscles, bones, and feathers worked in harmony to achieve lift and propulsion. The codex contains sketches of glider-like devices designed to soar through the air with fixed wings, reflecting his understanding of passive flight, akin to large birds like eagles. Within it, Leonardo explored concepts such as air pressure, resistance, and other principles that would later become fundamental to modern aerodynamics.

His studies of bird wings, including their structure, wing angle adjustments for controlling altitude and direction, and flight patterns, heavily influenced his designs for flying machines. One notable creation was the ornithopter, a device with mechanical wings that mimicked a bird's flapping motion. While it was never successfully built in his time, the ornithopter is recognized as a precursor to modern aviation and a brilliant example of Leonardo's biomimetic genius.

Beyond the ornithopter, Leonardo also conceptualized a helical air screw, an early version of the helicopter. This invention drew inspiration from the flight of spinning seeds that spiral as they fall, demonstrating his keen use of aerodynamics observed in nature. The air screw featured a spiral-shaped sail designed to compress air and generate lift, mirroring how seeds exploit air currents for dispersal. Although the technology to realize these ideas did not exist in his era, these designs highlight Leonardo's ability to draw inspiration from nature and envision possibilities far ahead of his time.

Leonardo's bird-inspired inventions were far from mere fantasies; they represented a profound belief in nature as the ultimate teacher. His dedication to studying birds and other natural systems laid the groundwork for modern aviation and biomimetic engineering. By combining observation, experimentation, and imagination, Leonardo not only celebrated the brilliance of nature but also reminded humanity of its capacity to innovate by learning from it. His work continues to inspire biomimicry today, showing that even in our technologically advanced world, nature holds answers to some of our most complex challenges.

#SeeBeyondLooking



Nucleic Acid Purification

2

NUCLEIC ACID PURIFICATION

We offer kits for nucleic acid purification from various biological samples. For greater flexibility, we provide kits based on the salting-out principle for molecule precipitation, pre-packed columns with homogeneous silica gel (High-Q™ Spin Columns) and magnetic systems are also available. Choosing one of these systems largely depends on the sample type and initial sample size. In all cases, the results are excellent in terms of yield, purity, and quality for all downstream applications.

Purification System Selection Guide

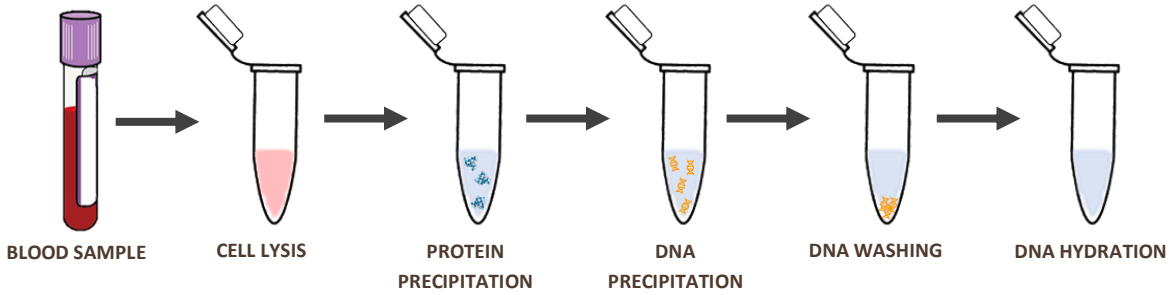
	DNA	RNA	SAMPLE TYPE: BLOOD	CULTURED CELL	BUCCAL SWAB	SALIVA	TISSUE	KERATINOUS TISSUE	PLANTS	MICROBIAL	STOOL	SOIL	ENZIMATIC REACTIONS & AGAROSE GEL
Blood Genomic DNA Purification Mini Kit *(TBK0127-0128)* **| Midi Kit** *(TBK0129-0130)* **| Maxi Kit** *(TBK0131-0132)*	✓		●										
High-Q™ Spin-Column Blood & Cell Culture Genomic DNA Purification Kit *(TBK0122-0123)*	✓		●	●									
High-Q™ Magnetic Blood Genomic DNA Purification Kit *(TBK0386-0387)*	✓		●										
High-Q™ Automated Magnetic-16 Blood Genomic DNA Purification Kit *(TBK0215-0218)*	✓		●										
High-Q™ Automated Magnetic-96 Blood Genomic DNA Purification Kit *(TBK0219)*	✓		●										
Buccal Swab Genomic DNA Purification Kit *(TBK0136-0137)*	✓				●								
Saliva Genomic DNA Purification Kit *(TBK0146-0147)*	✓					●							
High-Q™ Spin-Column Buccal Swab Genomic DNA Purification Kit *(TBK0141-0142)*	✓				●								
High-Q™ Spin-Column Saliva Genomic DNA Purification Kit *(TBK0151-0152)*	✓					●							
Tissue Genomic DNA Purification Mini Kit ***(TBK0156-0157)*** **| Midi Kit** *(TBK0158-0159)*	✓						●						
High-Q™ Spin-Column Tissue Genomic DNA Purification Kit *(TBK0163-0164)*	✓						●						
High-Q™ Spin-Column Keratinous Tissue Genomic DNA Purification Kit *(TBK0172-0173)*	✓							●					
High-Q™ Spin-Column Vaginal Genomic DNA Purification Kit *(TBK0175-0176)*	✓						●						
High-Q™ Magnetic Tissue Genomic DNA Purification Kit *(TBK0389-0390)*	✓						●						
High-Q™ Automated Magnetic-16 Tissue Genomic DNA Purification Kit *(TBK0330-0333)*	✓						●						
High-Q™ Automated Magnetic-96 Tissue Genomic DNA Purification Kit *(TBK0334)*	✓						●						
High-Q™ Spin-Column Plant Genomic DNA Purification Kit *(TBK0167-0169)*	✓								●				
High-Q™ 96-Spin-Column Plant Genomic DNA Purification Kit *(TBK0204-0205)*	✓								●				
High-Q™ Magnetic Plant Genomic DNA Purification Kit *(TBK0227-0228)*	✓								●				

	DNA	RNA	SAMPLE TYPE: BLOOD	CULTURED CELL	BUCCAL SWAB	SALIVA	TISSUE	KERATINOUS TISSUE	PLANTS	MICROBIAL	STOOL	SOIL	ENZIMATIC REACTIONS & AGAROSE GEL
High-Q™ Automated Magnetic-16 Plant Genomic DNA Purification Kit *(TBK0220-0223)*	✓								●				
High-Q™ Automated Magnetic-96 Plant Genomic DNA Purification Kit *(TBK0224)*	✓								●				
High-Q™ Spin-Column Bacterial Genomic DNA Purification Kit *(TBK0116-0117)*	✓									●			
High-Q™ Spin-Column Yeast Genomic DNA Purification Kit *(TBK0181-0182)*	✓									●			
High-Q™ Spin-Column Fungal Genomic DNA Purification Kit *(TBK0255-0256)*	✓									●			
High-Q™ Spin-Column Stool Genomic DNA Purification Kit *(TBK0289-0290)*	✓										●		
High-Q™ Spin-Column Microbiome Soil DNA Purification Kit *(TBK0417)*	✓											●	
High-Q™ Magnetic Soil Genomic DNA Purification Kit *(TBK0392-0393)*	✓											●	
Plasmid DNA Purification Kit *(TBK0183-0184)*	✓									●			
High-Q™ Spin-Column Plasmid DNA Purification Kit *(TBK0186-0187)*	✓									●			
Exo/ SAP Cleanup Kit *(TBK0298-0299)*	✓												●
High-Q™ Spin-Column Cleanup DNA Purification Kit *(TBK0196-0197)*	✓												●
High-Q™ Spin-Column Gel Extraction & Cleanup Purification Kit *(TBK0191-0192)*	✓												●
Tiarizol™ Reagent *(TBR0100-0101)*	✓	✓	●	●	●	●	●	●	●	●	●		
High-Q™ Spin-Column Tiarizol™ Plus RNA Purification Kit *(TBK0244-0245)*		✓	●	●	●	●	●	●	●	●	●		
High-Q™ Spin-Column Blood RNA Purification Kit *(TBK0266-0267)*		✓	●										
High-Q™ Spin-Column Cultured Cell RNA Purification Kit *(TBK0262-0263)*		✓		●									
High-Q™ Magnetic Cultured Cell RNA Purification Kit *(TBK0410-0411)*		✓		●									
High-Q™ Spin-Column Tissue RNA Purification Kit *(TBK0268-0269)*		✓					●						
High-Q™ Magnetic Tissue RNA Purification Kit *(TBK0404-0405)*		✓					●						
High-Q™ Spin-Column Plant RNA Purification Kit *(TBK0279-0281)*		✓							●				
High-Q™ Magnetic Plant RNA Purification Kit *(TBK0407-0408)*		✓							●				
High-Q™-16-Automated Magnetic Plant Genomic RNA Purification Kit *(TBK0380-0383)*									●				
High-Q™ Spin-Column Bacterial RNA Purification Kit *(TBK0271-0272)*		✓								●			
High-Q™ Spin-Column Viral RNA Purification Kit *(TBK0212-0214)*		✓								●			
High-Q™ 16-Magnetic Viral RNA Purification Kit *(TBK0230-0232)*		✓								●			

Salting-out *High-Q™ Spin Column* *Magnetic Beads* *Enzymatic Reaction* *Phase Separation*

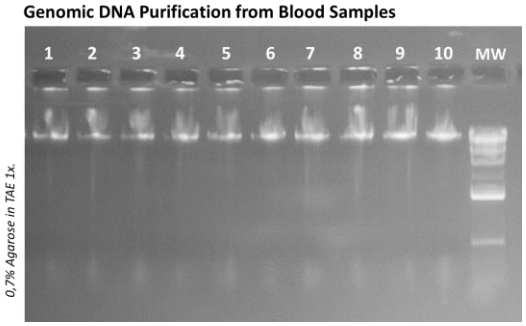
GENOMIC DNA PURIFICATION

Blood Genomic DNA Purification Kit | *Salting out*



Features

- For **fresh or frozen whole blood.**
- Valid for blood in heparin, citrate or EDTA.
- Efficient procedures that **allow sample scale up.**
- Use of **non-toxic products.**
- **High-yield** (~30 µg/ mL) and high-purity purification ($A_{260}/_{280}$ =1.7-2.0).
- **Optimal DNA quality** for downstream applications.



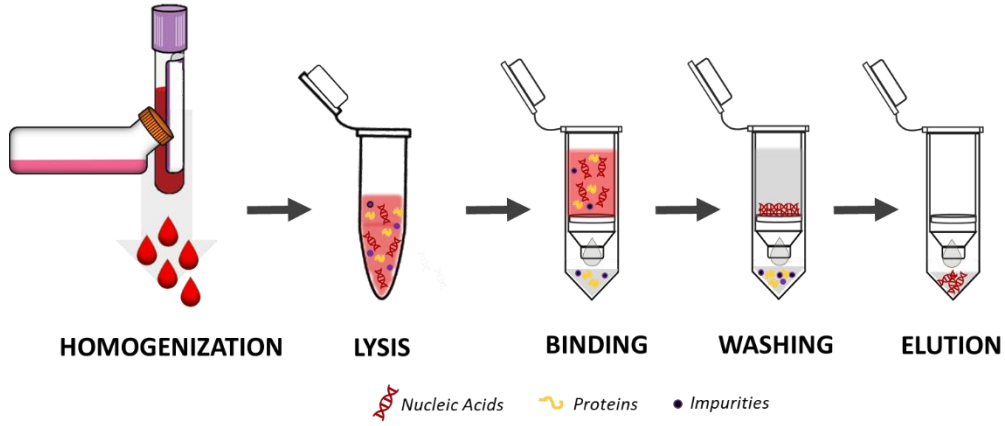
Applications

- PCR and real-time qPCR.
- DNA digestion for Southern.
- SNP Analysis.
- Sequencing.

REFERENCES	DESCRIPTION	SAMPLE SIZE	FORMAT
TBK0127	BLOOD GENOMIC DNA PURIFICATION MINI KIT	200 µL	50 rxn
TBK0128	BLOOD GENOMIC DNA PURIFICATION MINI KIT	200 µL	200 rxn
TBK0129	BLOOD GENOMIC DNA PURIFICATION MIDI KIT	2 mL	20 rxn
TBK0130	BLOOD GENOMIC DNA PURIFICATION MIDI KIT	2 mL	200 rxn
TBK0131	BLOOD GENOMIC DNA PURIFICATION MAXI KIT	5 mL	8 rxn
TBK0132	BLOOD GENOMIC DNA PURIFICATION MAXI KIT	5 mL	80 rxn

Blood Genomic DNA Purification Kit | *High-Q™ Spin Column*

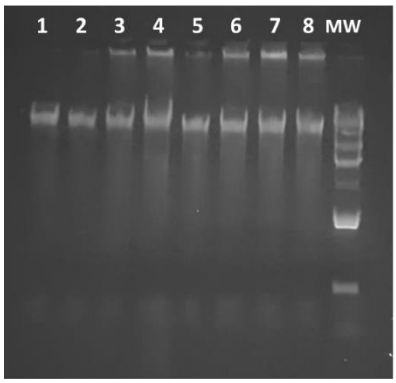
Silica-membrane-based DNA purification kit to obtain genomic DNA with high quality and purity. Suitable for blood, plasma, serum and other body fluids as well as for cell culture samples.



Features

- Valid for blood in heparin, citrate or EDTA.
- **High-yield** (~2-15 µg) and high-purity purification ($A_{260/280}$ =1.7-2.0).
- **Optimal DNA quality** for downstream applications.
- **Versatile**, kit useful to isolate genomic DNA from blood and cultured cells.

Blood gDNA Purification based on High-Q™ Spin Column Kit



0.7% Agarose in TAE1x stained with TiarisStain™

Applications

- Isolation of genomic DNA from fresh or frozen blood from animals or humans.
- Isolation of genomic DNA from cultured cells.
- PCR and real-time qPCR.
- DNA digestion for Southern.
- SNP Analysis.
- Sequencing.

REFERENCES	DESCRIPTION	FORMAT
TBK0122	HIGH-Q™ SPIN-COLUMN BLOOD & CELL CULTURE GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0123	HIGH-Q™ SPIN-COLUMN BLOOD & CELL CULTURE GENOMIC DNA PURIFICATION KIT	200 rxn

Complementary Products

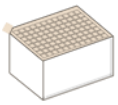
- ✓ **HIGH-Q™ Agarose LE** (TBR0120, TBR0121, TBR0122)
- ✓ **TAE Buffer 10x** (TBB0355, TBB0356)
- ✓ **TiariStain™ Green Safe** (TBR0226)

Blood Genomic DNA Purification Kit | *Magnetic Beads*

Blood genomic DNA purification kits based on magnetic principles are available in a wide variety of formats. They can be used manually with magnets or magnetic racks, or in automated systems designed for instruments that process 32 or 96 samples per run.

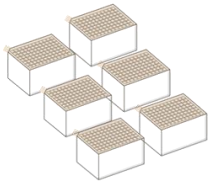
Manual

- ✓ Low throughput.
- ✓ For magnetic racks.



Automated Procedure

- ✓ 16 Samples per plate, up 32 per run.
- ✓ Medium throughput.
- ✓ For Bioer, Biobase or similar instruments.



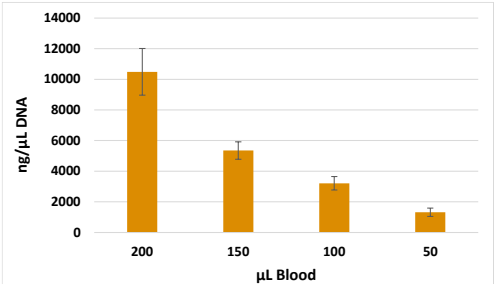
Automated Procedure

- ✓ 96 Samples per plate, 96 per run.
- ✓ High throughput.
- ✓ For KingFisher or similar instruments.

Features

- **Low to high throughput.**
- **Highest DNA quality** for all downstream applications.
- Yield related with blood sample.

Yield obtained in dependence of blood input.



REFERENCES	DESCRIPTION	FORMAT	PREFILLED PLATES
TBK0386	HIGH-Q™ MAGNETIC BLOOD GENOMIC DNA PURIFICATION KIT	100 rxn*	
TBK0387	HIGH-Q™ MAGNETIC BLOOD GENOMIC DNA PURIFICATION KIT	400 rxn*	
TBK0215-NP	HIGH-Q™ AUTOMATED MAGNETIC-16 BLOOD GENOMIC DNA PURIFICATION KIT	480 rxn**	-
TBK0215-P	HIGH-Q™ AUTOMATED MAGNETIC-16 BLOOD GENOMIC DNA PURIFICATION KIT	480 rxn**	30
TBK0216-NP	HIGH-Q™ AUTOMATED MAGNETIC-16 BLOOD GENOMIC DNA PURIFICATION KIT	320 rxn**	-
TBK0216-P	HIGH-Q™ AUTOMATED MAGNETIC-16 BLOOD GENOMIC DNA PURIFICATION KIT	320 rxn**	20
TBK0217-NP	HIGH-Q™ AUTOMATED MAGNETIC-16 BLOOD GENOMIC DNA PURIFICATION KIT	160 rxn**	-
TBK0217-P	HIGH-Q™ AUTOMATED MAGNETIC-16 BLOOD GENOMIC DNA PURIFICATION KIT	160 rxn**	10
TBK0218-NP	HIGH-Q™ AUTOMATED MAGNETIC-16 BLOOD GENOMIC DNA PURIFICATION KIT	32 rxn**	-
TBK0218-P	HIGH-Q™ AUTOMATED MAGNETIC-16 BLOOD GENOMIC DNA PURIFICATION KIT	32 rxn**	2
TBK0219-P	HIGH-Q™ AUTOMATED MAGNETIC-96 BLOOD GENOMIC DNA PURIFICATION KIT	96 rxn***	6

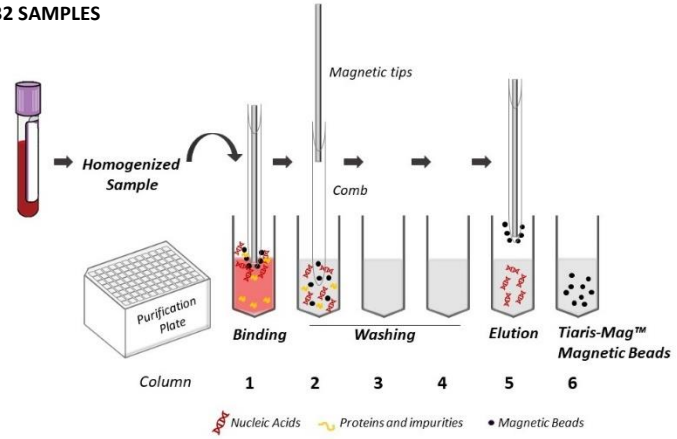
NP, non-prefilled plates | P, prefilled plates

** Manual Procedure*

*** Automated Procedure, 16 samples per plate, 32 samples at the same time (Bioer, Biobase or similar instruments)*

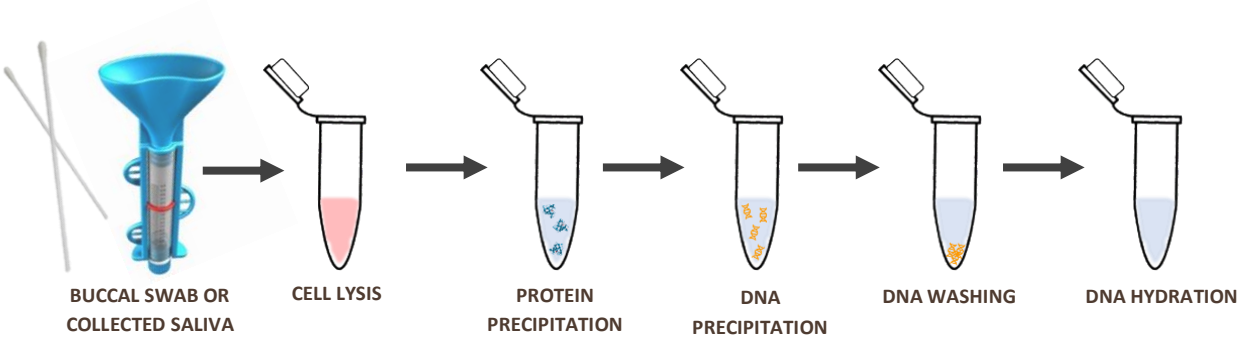
**** Automated Procedure, 96 samples at the same time (KingFisher or similar instruments)*

AUTOMATED SYSTEM FOR 32 SAMPLES



Buccal Swab and Saliva Genomic DNA Purification Kit | *Salting out*

Both buccal swab or saliva genomic DNA Purification kits are excellent tools based on salting-out principle to produced higher quantity and quality DNA from swab or saliva samples.



Features

- Use of **no invasive samples**.
- **Cost-efficient** method.
- Detailed and **protocol workflow diagrams**.
- **High-yield and purity** purification.
- **Optimal DNA** for downstream applications.

Applications

- Standard and quantitative PCR.
- Genotyping.
- SNP Analysis.
- Sequencing.

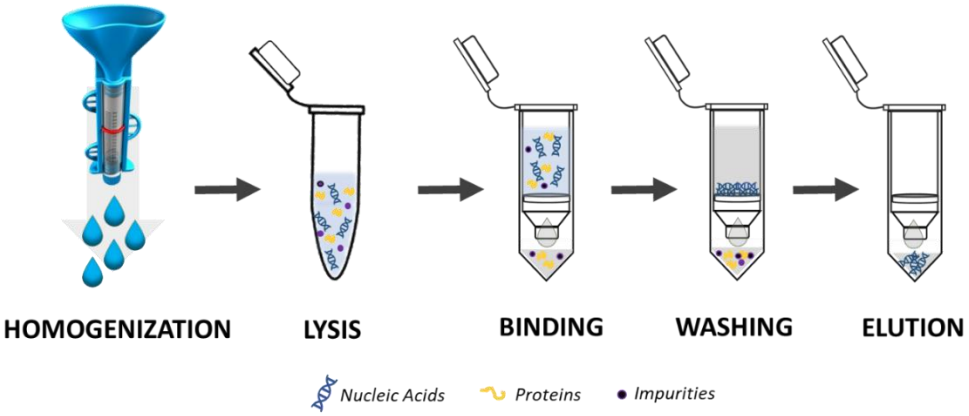
REFERENCES	DESCRIPTION	FORMAT
TBK0136	BUCCAL SWAB GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0137	BUCCAL SWAB GENOMIC DNA PURIFICATION KIT	200 rxn
TBK0146	SALIVA GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0147	SALIVA GENOMIC DNA PURIFICATION KIT	200 rxn

Complementary Products

- ✓ **SimplOFy® Saliva DNA Collection Kit** (SIMPL-301, SIMPL-301B)
- ✓ **Buccal Swab Collection & Stabilization Kit** (TBK0307, TBK0308, TBK0309)

Buccal Swab & Saliva Genomic DNA Purification Kit | *High-Q™ Spin Column*

These kits provide a noninvasive method for obtaining genomic DNA. They are silica-membrane-based DNA purification kits to obtain total DNA from mucosal epithelial cells with high quality and purity. Suitable for DNA extraction from buccal, nasal and vaginal swabs.



Features

- Use of **no invasive samples**.
- Based on High-Q™ silica columns.
- Detailed protocol including **workflow diagram**.
- **High-yield** purification.
- **Optimal DNA** for downstream applications.

Applications

- Standard and quantitative PCR.
- Genotyping.
- SNP Analysis.
- Sequencing.

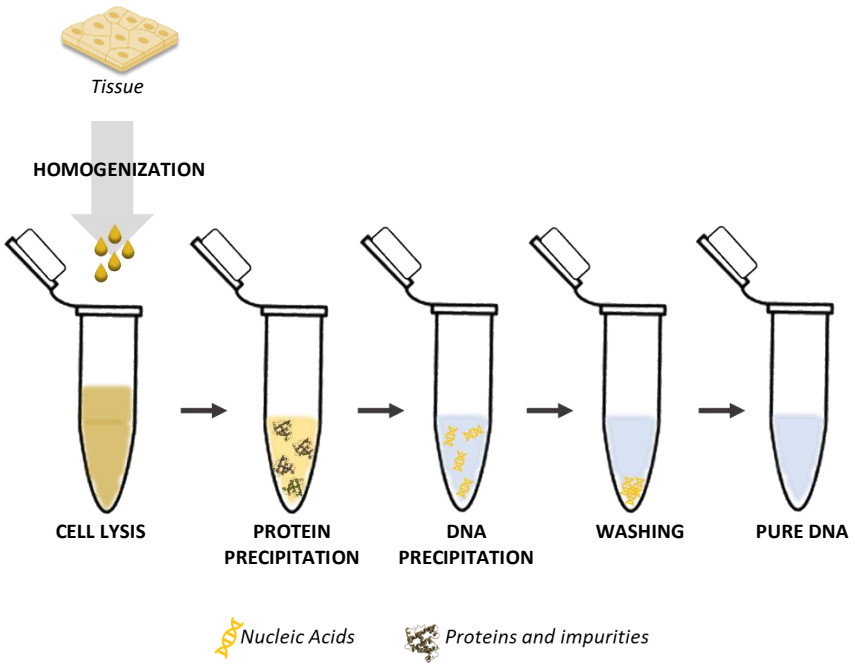
REFERENCES	DESCRIPTION	FORMAT
TBK0141	HIGH-Q™ SPIN COLUMN BUCCAL SWAB GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0142	HIGH-Q™ SPIN COLUMN BUCCAL SWAB GENOMIC DNA PURIFICATION KIT	200 rxn
TBK0151	HIGH-Q™ SPIN COLUMN SALIVA GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0152	HIGH-Q™ SPIN COLUMN SALIVA GENOMIC DNA PURIFICATION KIT	200 rxn

Complementary Products

- ✓ **DNA-SAL™ Saliva Collection Kit** (DNAS-102, DNAS-102B)
- ✓ **Buccal Swab Collection & Stabilization Kit** (TBK0307, TBK0308, TBK0309)

Tissue Genomic DNA Purification Kit | *Salting Out*

Tissue Genomic DNA Purification Kit based on salting-out principle produces higher quantity and quality of DNA. These kits are optimized to obtain high molecular weight genomic DNA from fresh or frozen tissue. The protocol involved tissue homogenization, cell lysis, protein and DNA precipitation and salts elimination by washing of DNA before resuspension of DNA.



Features

- Cost-effective.
- **High yield** and purity,
- **Scalable**, easily to process many samples simultaneously.
- **No phenol extraction**.
- **Fast and easy** protocol.

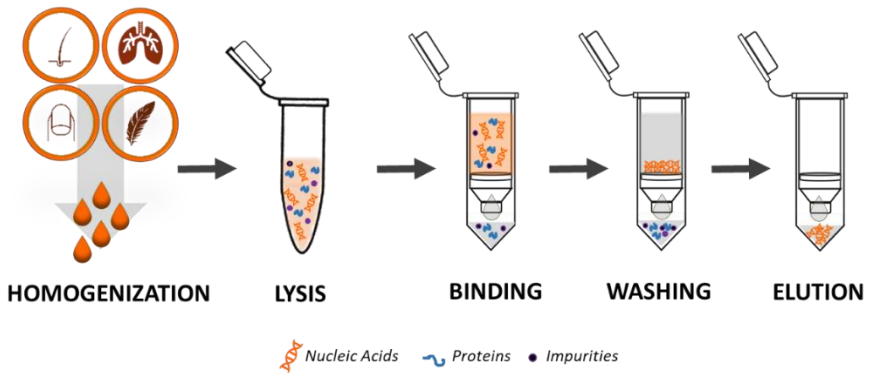
Applications

DNA obtained is suitable for downstream molecular biology applications such as PCR, enzymatic digestion for cloning or Southern, genotyping, etc.

REFERENCES	DESCRIPTION	SAMPLE SIZE	FORMAT
TBK0156	TISSUE GENOMIC DNA PURIFICATION MINI KIT	5- 10 mg	50 rxn
TBK0157	TISSUE GENOMIC DNA PURIFICATION MINI KIT	5-10 mg	200 rxn
TBK0158	TISSUE GENOMIC DNA PURIFICATION MIDI KIT	50-100 mg	20 rxn
TBK0159	TISSUE GENOMIC DNA PURIFICATION MIDI KIT	50-100 mg	50 rxn

Tissue Genomic DNA Purification Kit | *High-Q™ Spin Columns*

Tissue genomic DNA isolation kits are efficient silica-membrane-based systems designed for genomic DNA purification from a wide variety of tissue sources, including kidney, heart, lungs, brain, muscles, liver, spleen, vaginal, keratinous tissue, etc. The use of an optimized lysis buffer guarantees a high yield, while our High-Q™ Spin Columns recover high-quality DNA suitable for downstream applications like PCR, multiplex-PCR, genotyping and a wide range of other enzymatic reactions.



Features

- **Versatile**, efficient DNA purification from a wide variety of animal and human tissues.
- Starting material **up to 100 mg of tissue sample**.
- Typical yields are 0.5- 50 µg of DNA depending on the material tissue used.
- No organic extraction, no ethanol precipitation.
- **Easy and Fast protocol**.

Tissue	Sample Amount	µg DNA
Brain	25 mg	15-30
Heart	25 mg	5-10
Kidney	25 mg	10-25
Liver	25 mg	15-30
Lung	25 mg	5-10
Mouse Tail	0.5-1.0 cm	5-25
Nail	20 mg	0.5-2.3
Rat Tail	0.6 cm	20-35
Spleen	10 mg	5-25

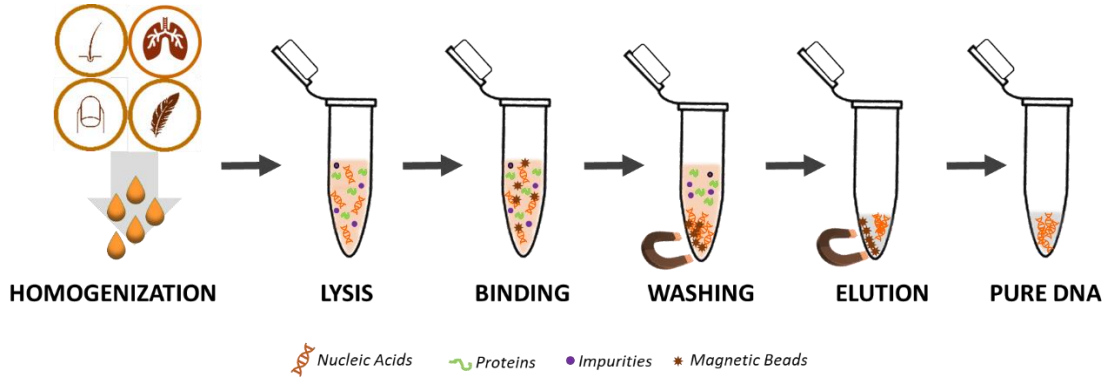
Applications

- Purification of DNA tissue using different starting plant materials: frozen, fresh, or stabilized with Tiaris™ Tissue Protect (*TBB0431*).
- DNA obtained is optimal for downstream molecular biology applications such as PCR, enzymatic digestion for cloning or Southern, genotyping, etc.

REFERENCES	DESCRIPTION	FORMAT
TBK0163	HIGH-Q™-SPIN COLUMN TISSUE GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0164	HIGH-Q™-SPIN COLUMN TISSUE GENOMIC DNA PURIFICATION KIT	200 rxn
TBK0172	HIGH-Q™-SPIN COLUMN KERATINOUS TISSUE GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0173	HIGH-Q™-SPIN COLUMN KERATINOUS TISSUE GENOMIC DNA PURIFICATION KIT	200 rxn
TBK0175	HIGH-Q™-SPIN COLUMN VAGINAL GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0176	HIGH-Q™-SPIN COLUMN VAGINAL GENOMIC DNA PURIFICATION KIT	200 rxn

Tissue Genomic DNA Purification Kit | *Magnetic Beads*

Magnetic Tissue DNA Purification Kits are a new generation of nucleic acid purification system intended for manual or automated purification. It is based on Tiaris-Mag™ Magnetic beads, a homogenous silica-coated paramagnetic beads for purification of nucleic acids combined with a powerful step of lysis using an optimized lysis buffers that contain large amounts of detergents and reducing agents and proteinase K. Released nucleic acids are bound to the surface of Tiaris-Mag™ Magnetic beads in the presence of a chaotropic salt. Nucleic acid bound to the beads is then efficiently washed and eluted using a magnetic separation device, removing contaminants.



Features

- **Medium throughput**.
- Quick and convenient **DNA extraction from different samples**.
- Yield between 5-100 µg of genomic DNA.
- **Highest DNA quality** for all downstream applications.
- **Validated** with different tissues: ear cartilage, tail, liver, kidney, etc.

Applications

- Standard and quantitative PCR.
- Genotyping.
- Sequencing.
- Enzyme digestion.

REFERENCES	DESCRIPTION	FORMAT	PREFILLED PLATES
TBK0389	HIGH-Q™ MAGNETIC-TISSUE GENOMIC DNA PURIFICATION KIT	100 rxn*	-
TBK0390	HIGH-Q™ MAGNETIC-TISSUE GENOMIC DNA PURIFICATION KIT	400 rxn*	-
TBK0330-NP	HIGH-Q™ AUTOMATED MAGNETIC-16 TISSUE GENOMIC DNA PURIFICATION KIT	64 rxn**	-
TBK0330-P	HIGH-Q™ AUTOMATED MAGNETIC-16 TISSUE GENOMIC DNA PURIFICATION KIT	64 rxn**	4
TBK0331-NP	HIGH-Q™ AUTOMATED MAGNETIC-16 TISSUE GENOMIC DNA PURIFICATION KIT	160 rxn**	-
TBK0331-P	HIGH-Q™ AUTOMATED MAGNETIC-16 TISSUE GENOMIC DNA PURIFICATION KIT	160 rxn**	10
TBK0332-NP	HIGH-Q™ AUTOMATED MAGNETIC-16 TISSUE GENOMIC DNA PURIFICATION KIT	320 rxn**	-
TBK0332-P	HIGH-Q™ AUTOMATED MAGNETIC-16 TISSUE GENOMIC DNA PURIFICATION KIT	320 rxn**	20
TBK0333-NP	HIGH-Q™ AUTOMATED MAGNETIC-16 TISSUE GENOMIC DNA PURIFICATION KIT	480 rxn**	-
TBK0333-P	HIGH-Q™ AUTOMATED MAGNETIC-16 TISSUE GENOMIC DNA PURIFICATION KIT	480 rxn**	30
TBK0334	HIGH-Q™ AUTOMATED MAGNETIC-96 TISSUE GENOMIC DNA PURIFICATION KIT	96 rxn***	6

NP, non-prefilled plates | P, prefilled plates

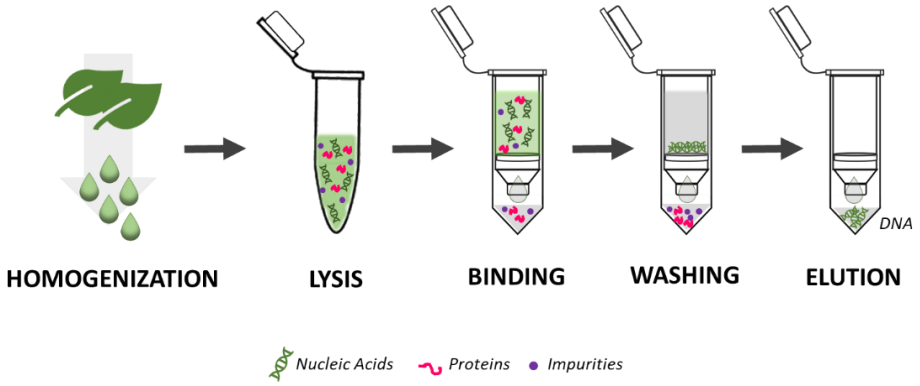
** Manual Procedure*

*** Automated Procedure, 16 samples per plate, 32 samples at the same time (Bioer, Biobase or similar instruments)*

**** Automated Procedure, 96 samples at the same time (KingFisher or similar instruments)*

Plant Genomic DNA Purification Kit | *High-Q™ Spin Columns*

Plant genomic isolation based on the use of High-Q™ Spin Columns is suitable for DNA purification from a wide variety of plant species. The kit combines a lysis step with an optimized lysis buffer and the binding and washing of DNA adsorbed in High-Q™ Spin Columns allowing the obtention of good quality DNA.



Features

- **Easy and Fast protocol**.
- Starting material up to 100 mg of **fresh material** and up to 50 mg of **dried plant** material.
- Typical **yields are 2- 50 µg of DNA** depending on the material plant used.
- Detailed protocol including **workflow diagram**
- No organic extraction, no ethanol precipitation.
- **High DNA purity**, the isolated DNA is ready to use for downstream molecular biology applications.

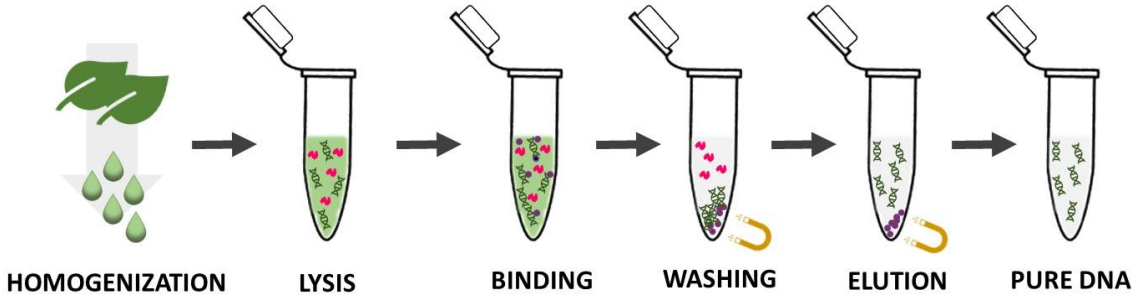
Applications

- Purification of DNA from plant tissue, including plant cells, leaves, seeds, fruits or roots.
- Purification of DNA plant using different starting plant materials: frozen, fresh or dried.
- DNA obtained is suitable for downstream molecular biology applications such as PCR, enzymatic digestion for cloning or Southern, genotyping, etc.

REFERENCES	DESCRIPTION	FORMAT
TBK0167	HIGH-Q™-SPIN COLUMN PLANT GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0168		100 rxn
TBK0169		200 rxn
TBK0204	HIGH-Q™-96 SPIN COLUMN PLANT GENOMIC DNA PURIFICATION KIT	96 rxn
TBK0205		192 rxn

Vacuum system to purify DNA using High-Q™ 96 minispin columns.

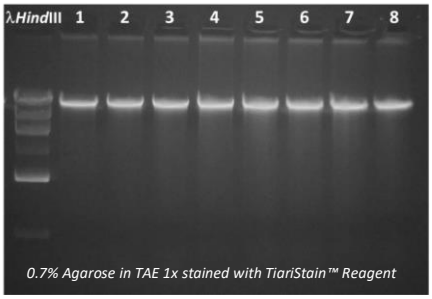
Plant Genomic DNA Purification Kit | *Magnetic Beads*



Features

- **Versatile**, useful for manual (*low throughput*) or automated procedures (*medium or high throughput*).
- **High yield**, 2- 30 µg of DNA depending on the plant material used.

Magnetic DNA Purification from Spinach Samples.



Applications

- Purification of DNA from plant tissue, including plant cells, leaves, seeds, fruits or roots.
- Purification of DNA plant using different starting plant materials: frozen, fresh or dried.
- DNA obtained is suitable for downstream molecular biology applications such as PCR, enzymatic digestion for cloning or Southern, genotyping, etc.

REFERENCES	DESCRIPTION	FORMAT	PREFILLED PLATES
TBK0227	MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	100 rxn*	-
TBK0228	MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	400 rxn*	-
TBK0220-NP	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	64 rxn**	-
TBK0220-P	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	64 rxn**	4
TBK0221-NP	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	160 rxn**	-
TBK0221-P	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	160 rxn**	10
TBK0222-NP	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	320 rxn**	-
TBK0222-P	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	320 rxn**	20
TBK0223-NP	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	480 rxn**	-
TBK0223-P	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	480 rxn**	30
TBK0224	HIGH-Q™-96-AUTOMATED MAGNETIC PLANT GENOMIC DNA PURIFICATION KIT	96 rxn***	6

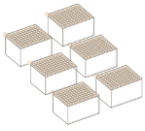
NP, non-prefilled plates | P, prefilled plates

*** Manual**

- ✓ Low throughput.
- ✓ For magnetic racks.

**** Automated Procedure**

- ✓ 16 Samples per plate, 32 per run.
- ✓ Medium throughput.
- ✓ For Bioer, Biobase or similar instruments.

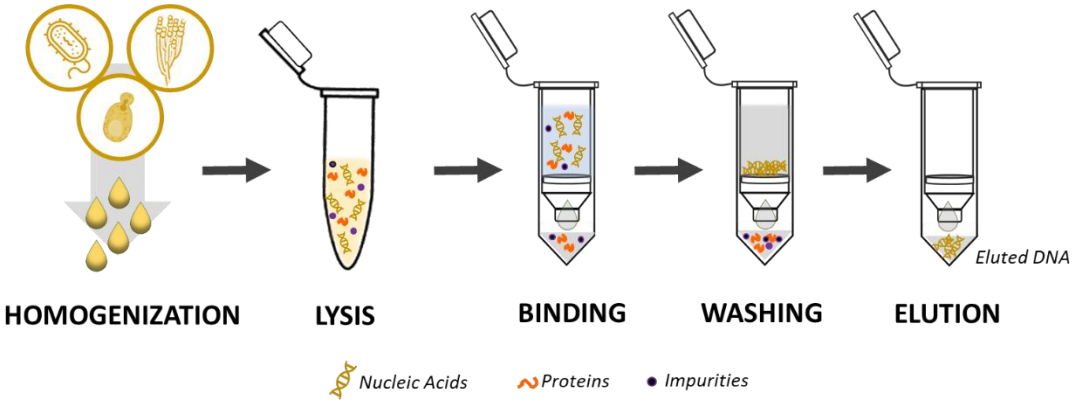


***** Automated Procedure**

- ✓ 96 Samples per plate, 96 per run.
- ✓ High throughput.
- ✓ For KingFisher or similar instruments.

Microbial Genomic DNA Purification Kit | *High-Q™ Spin Columns*

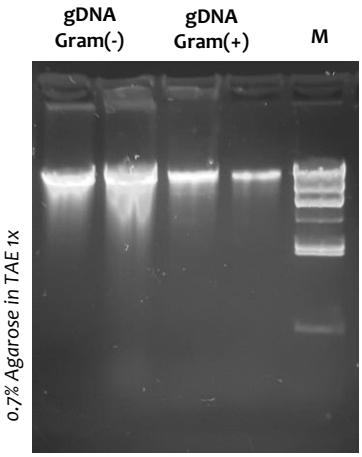
These are optimized kits to purified genomic DNA from bacterial, yeast or fungal culture. Purification is based on High-Q™ silica spin columns in presence of chaotropic salts. Genomic DNA obtained has high quantity and quality.



Features

- **High yield and purity**, 3-20 µg, A_{260}/A_{280} ~1.8.
- **Scalable**, easily to process many samples simultaneously.
- **No phenol extraction**.
- **Fast, easy and cost-effective protocol**.

Bacterial DNA Purification



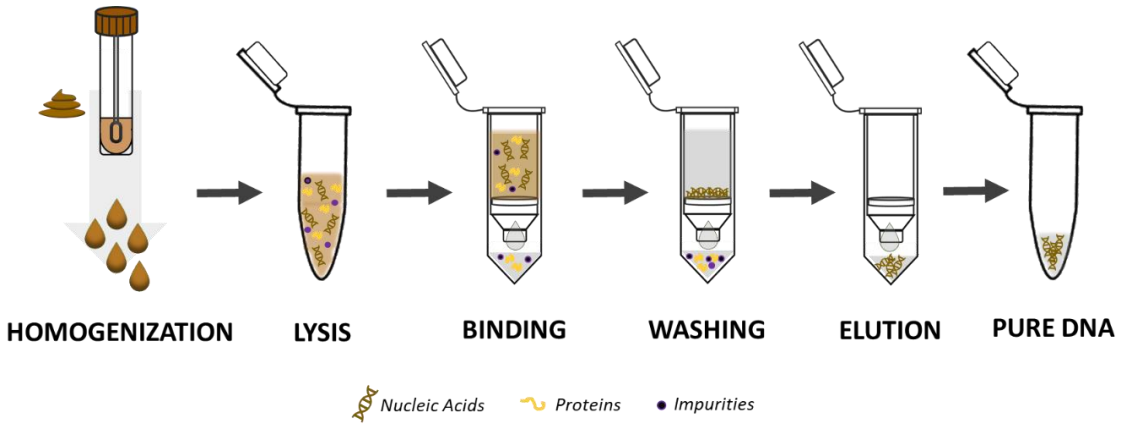
Applications

- Isolation of genomic DNA from bacteria yeast or fungi.
- DNA obtained is suitable for downstream molecular biology applications.

REFERENCES	DESCRIPTION	FORMAT
TBK0116	HIGH-Q™-SPIN COLUMN BACTERIAL GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0117		200 rxn
TBK0181	HIGH-Q™-SPIN COLUMN YEAST GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0182		200 rxn
TBK0255	HIGH-Q™-SPIN COLUMN FUNGAL GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0256		200 rxn

Stool Genomic DNA Purification Kit | *High-Q™ Spin Columns*

High-Q™ Spin-Column Stool DNA Purification Kit provides a convenient method to isolate total DNA from fresh or frozen stool samples. The kit can also be used to isolate DNA from stool samples preserved using our Stool Collection and Preservation Kit. The stool sample is homogenized and disrupted under denaturing conditions using a specially formulated lysis buffer. Humic acid, proteins, polysaccharides, and other contaminants are subsequently precipitated and removed using a proprietary inhibitor removal buffer. Genomic DNA in the sample is then bound by the High-Q™ Spin Column followed two rapid wash steps to remove trace contaminants, and pure DNA is eluted with Elution Buffer. DNA obtained is suitable for downstream molecular biology applications.



Features

- Fast, easy and cost-effective protocol.
- **Eliminates PCR inhibitors** including humic acids.
- **High quality DNA** for sensitive downstream applications such as PCR and other enzymatic reactions.
- **Safe**, no phenol extraction.
- Expected Yield: 3-15 µg, based on the quality and quantity of the starting material utilized.

Applications

- PCR techniques.
- Restriction enzyme digestion.
- Microbiome analysis (NGS).
- Hybridization methods.
- Sequencing reactions.

REFERENCES	DESCRIPTION	FORMAT
TBK0289	HIGH-Q™-SPIN COLUMN STOOL GENOMIC DNA PURIFICATION KIT	50 rxn
TBK0290	HIGH-Q™-SPIN COLUMN STOOL GENOMIC DNA PURIFICATION KIT	200 rxn

Complementary Products

✓ **Stool Sample Collection & Stabilization Kit** (TBK0302, TBK0303, TBK0304)

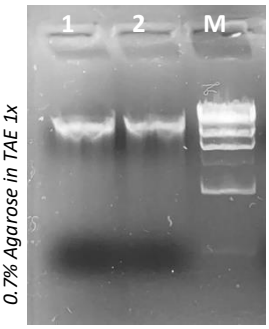
Soil Genomic DNA Purification Kit | *High-Q™ Spin Columns*

High-Q™ Spin-Column Soil Microbiome DNA Purification Kit is an easy silica-membrane-based system for DNA purification from different soil types. The combination of an optimized lysis buffer, heat and mechanical disruptions using beads, guarantees a good yield. The use of High-Q™ Microbiome Soil Spin Columns and the PCR inhibitors removing buffer allow a good quality DNA, suitable for downstream applications.

Features

- **Fast, easy and cost-effective protocol**.
- Eliminates PCR inhibitors including humic acids.
- **High quality DNA** for sensitive downstream applications such as PCR and other enzymatic reactions.
- **Safe**, no phenol extraction.
- Expected Yield: 1-10 µg, based on the type of soil and quality of the starting material utilized.

Soil DNA Purification



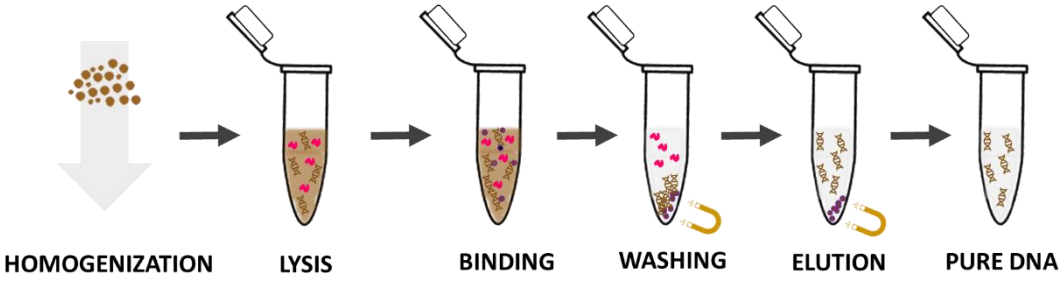
Applications

- PCR techniques.
- Restriction enzyme digestion.
- Microbiome analysis (NGS).
- Hybridization methods.
- Sequencing reactions.

REFERENCES	DESCRIPTION	FORMAT
TBK0417	HIGH-Q™-SPIN COLUMN SOIL MICROBIOME DNA PURIFICATION KIT	50 rxn

Soil Genomic DNA Purification Kit | *Magnetic Beads*

Purification of soil DNA based on magnetic principle is an excellent choice to isolate genomic DNA from bacteria, archaea, fungi, and algae in soil samples. The process begins with homogenizing the soil sample using a lysis buffer combined with ceramic beads. Insoluble particles, proteins, and PCR inhibitors like humic acid are then removed using a specialized inhibitor removal buffer. Any remaining PCR inhibitors are eliminated by precipitation. DNA binds to the surface of magnetic beads and is subsequently released using a proprietary buffer system. High-Q™ Magnetic Soil DNA Purification Kit is a manual purification procedure but the kit is compatible with automated magnetic bead separation instruments and workstations, making it highly adaptable for automation.



Features

- **Safe**, no phenol extraction.
- **Eliminates PCR inhibitors** including humic acids.
- Expected Yield: 1-10 µg, based on the quality and quantity of the starting material utilized.

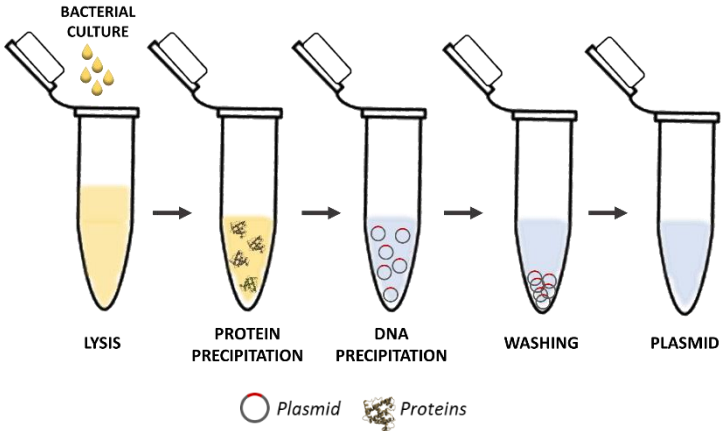
Applications

- PCR techniques.
- Restriction enzyme digestion.
- Microbiome analysis (NGS).
- Hybridization methods.
- Sequencing reactions.

REFERENCES	DESCRIPTION	FORMAT
TBK0392	HIGH-Q™-MAGNETIC SOIL DNA PURIFICATION KIT	100 rxn
TBK0393	HIGH-Q™-MAGNETIC SOIL DNA PURIFICATION KIT	400 rxn

PLASMID DNA PURIFICATION

Plasmid DNA Purification | *Salting out*



Features

- Cost efficient.
- High yield.
- Scalable.

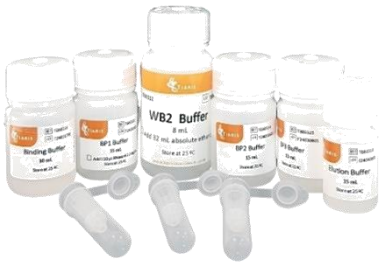
Applications

- Cloning.
- Restriction enzymes digestion.
- PCR and qPCR.
- Bacterial transformation.

Plasmid DNA Purification | *High-Q™ Spin Columns*

Features

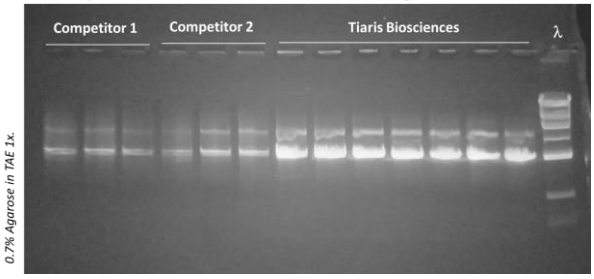
- **Scalable**, easily to process many samples simultaneously.
- **Safe**, no phenol extraction.
- High yield and purity, 2-38 µg, A_{260}/A_{280} ~1.8; A_{260}/A_{230} ~ 2.0.
- **Fast, easy and cost-effective protocol**.



Applications

- Cloning.
- PCR and qPCR.
- Transfection.
- Sequencing.
- Restriction enzyme digestion.
- *In vitro* transcription.
- Library construction.
- Gene editing.
- Mutagenesis studies.
- Bacterial transformation.

Comparison of Plasmid DNA Purification using Different Kits

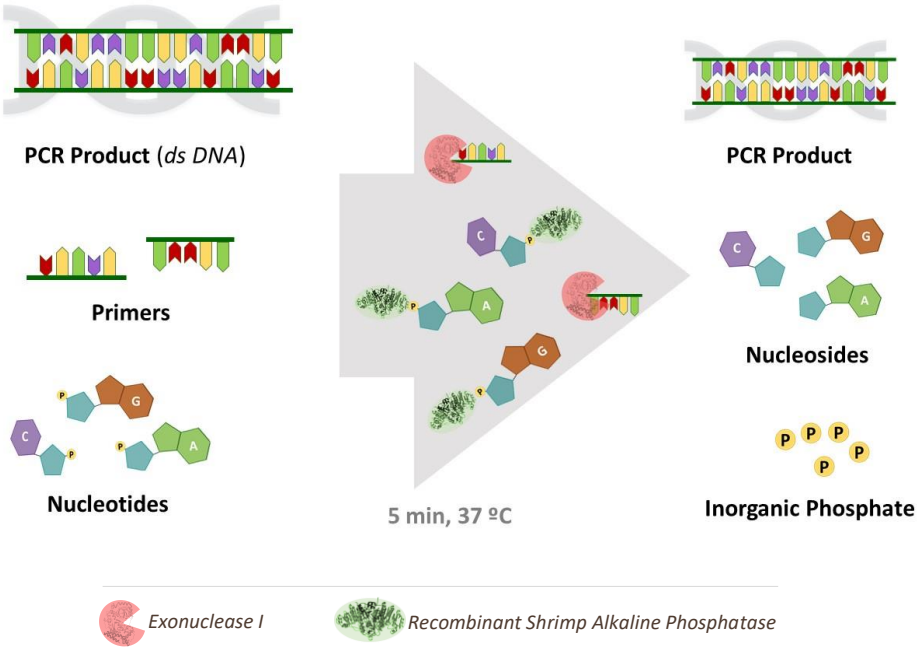


REFERENCES	DESCRIPTION	FORMAT
TBK0183	PLASMID DNA PURIFICATION KIT	100 rxn
TBK0184	PLASMID DNA PURIFICATION KIT	400 rxn
TBK0186	HIGH-Q™-SPIN COLUMN PLASMID DNA PURIFICATION KIT	50 rxn
TBK0187	HIGH-Q™-SPIN COLUMN PLASMID DNA PURIFICATION KIT	200 rxn

DNA CLEANUP

Exo SAP

High-Q™ Exo/SAP kit is an enzymatic PCR Clean-Up kit, comprising exonuclease I (Exo I) and recombinant Shrimp Alkaline Phosphatase (rSAP) in an optimal molar ratio. It is designed to degrade dNTPs and unused primers in a single reaction tube in only 5 minutes. No further treatment is required and recovery is 100%, even for very short PCR products.



Features

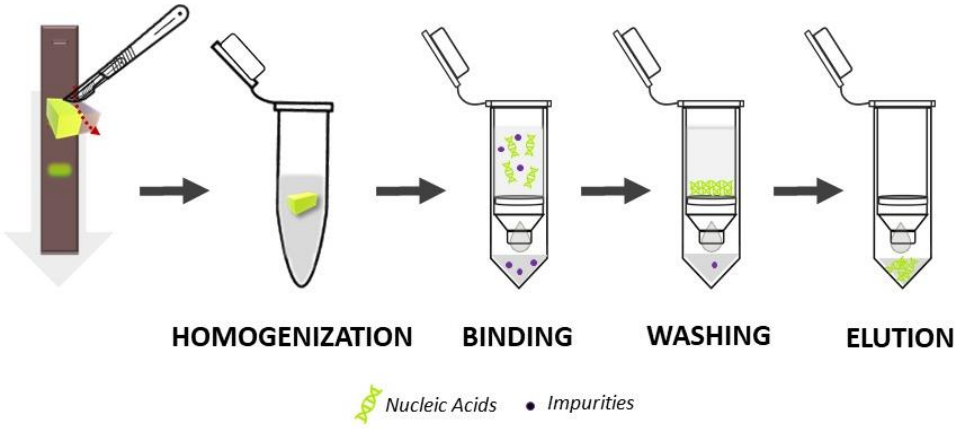
- No need spin columns or magnetic beads.
- **Fast**, just 15 minutes protocol.
- Add directly to PCR product.
- **100 % Sample Recovery**.
- **Scalable f**or different reaction sizes.
- **No interference** with downstream applications.

Applications

- PCR Clean-up prior to sequencing or genotyping.
- Removes excess primers and dNTPs.

REFERENCES	DESCRIPTION	FORMAT
TBK0298	EXO/SAP CLEANUP KIT	100 rxn
TBK0299	EXO/SAP CLEANUP KIT	500 rxn

Gel Extraction & Cleanup Purification Reactions | *High-Q™ Spin Columns*



Features

- **Easy and fast** protocol.
- Complete removal of DNA contaminants.
- **Excellent DNA recovery**: 70-85%.
- **No phenol extraction.**

Applications

- DNA isolation from DNA embedded in agarose gels or enzymatic reaction mixtures such as PCR, restriction digestion, labelling reactions, dephosphorylation, etc.
- DNA obtained is suitable for downstream molecular biology applications such as cloning, PCR, sequencing, digestion, genotyping, etc.

Cleanup Purification Reactions | *High-Q™ Spin Columns*

Features

- Complete removal of DNA contaminants.
- **Purification of small fragments** ≥ 75 bp.
- **High DNA recovery** >80%.
- **No phenol** extraction.
- Easy and Fast protocol.

Applications

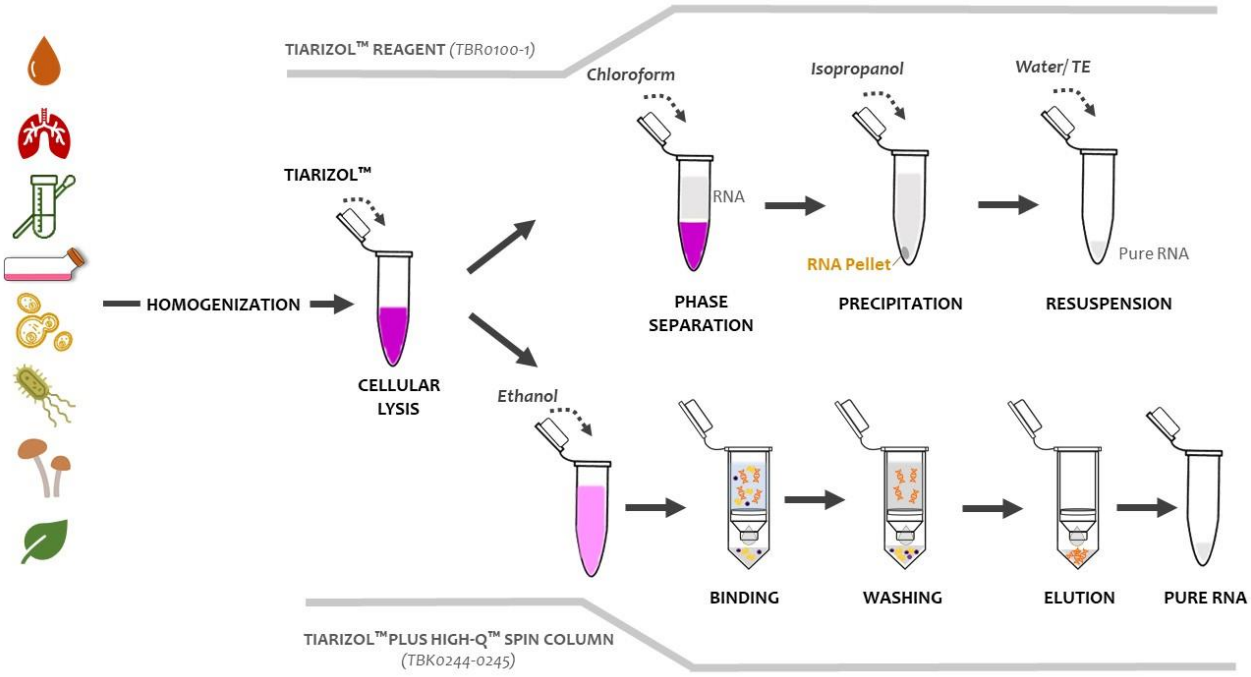
- DNA isolation from enzymatic reaction mixtures (PCR, restriction digestion, labelling reactions, dephosphorylation, etc).
- DNA obtained is suitable for downstream applications.

REFERENCES	DESCRIPTION	FORMAT
TBK0191	HIGH-Q™-SPIN COLUMN GEL EXTRACTION & CLEANUP PURIFICATION KIT	50 rxn
TBK0192		200 rxn
TBK0196	HIGH-Q™-SPIN COLUMN CLEANUP DNA PURIFICATION KIT	50 rxn
TBK0197		200 rxn

RNA PURIFICATION

Broad Range Sample | *Tiarizol™*

TIARIZOL™ Reagent is a ready-to-use solution that makes it easy to isolate high-quality total RNA or even DNA, and proteins all at once from various biological samples. This single-phase mix of phenol and guanidine isothiocyanate is specifically designed to separate RNA, DNA, and proteins from cell and tissue samples of human, animal, plant, bacterial, or yeast origin, and it gets the job done in under an hour.



Features

- **High yield and purity** ($A_{260}/_{280}$~ 2.0).
- Extraction based on **two phases separation.**
- **Strong lysis capability**, even for complex samples.
- **Optimized formulation** to obtain nucleic acids and proteins from tissues, cells, serum, viruses, and bacteria.
- **No sample splitting is needed** for isolation of different molecules.

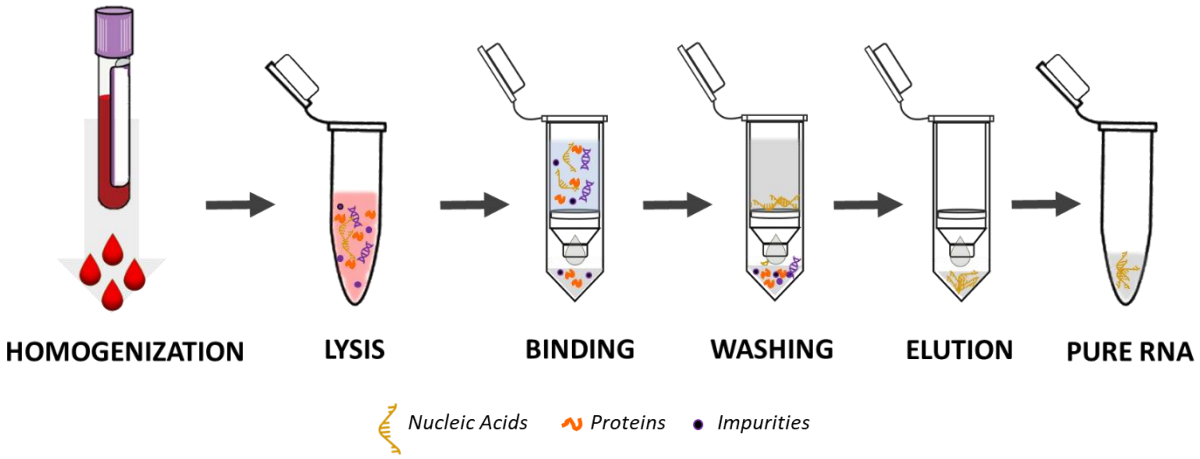
Applications

- RT-PCR and RT-qPCR.
- Northern.
- *In vitro* translation.
- Nuclease Protection Assay.
- cDNA libraries obtention.

REFERENCES	DESCRIPTION	FORMAT
TBR0100	TIARIZOL™-REAGENT	50 mL
TBR0101		2 x 50 mL
TBK0244	HIGH-Q™-SPIN COLUMN TIARIZOL PLUS RNA PURIFICATION KIT	50 rxn
TBK0245		200 rxn

Blood RNA Purification | *High-Q™ Spin Columns*

High-Q™-Spin-Column Blood RNA Purification Kit is an easy silica-membrane-based system for RNA purification from blood. An optimized lysis buffer guarantees a good yield while the use of High-Q™ RNA Spin Columns allow a good quality RNA, suitable for downstream applications.



Features

- **Safety**, no phenol extraction, no ethanol precipitation.
- **High yield** 0.8-3 µg RNA from blood, 24-30 µg from cultured cells.
- Isolated **RNA is ready to use** for downstream molecular biology applications.
- **Suitable** for blood and cell culture samples.

Applications

- Purification of RNA from whole blood and from cultured cells.
- RNA obtained is suitable for downstream molecular biology applications such as RT-PCR, RT-qPCR, Northern, cDNA library, nuclease protection assay, *in vitro* translation, etc.

REFERENCES	DESCRIPTION	FORMAT
TBK0266	HIGH-Q™-SPIN COLUMN BLOOD RNA PURIFICATION KIT	50 rxn
TBK0267	HIGH-Q™-SPIN COLUMN BLOOD RNA PURIFICATION KIT	100 rxn

Complementary Products

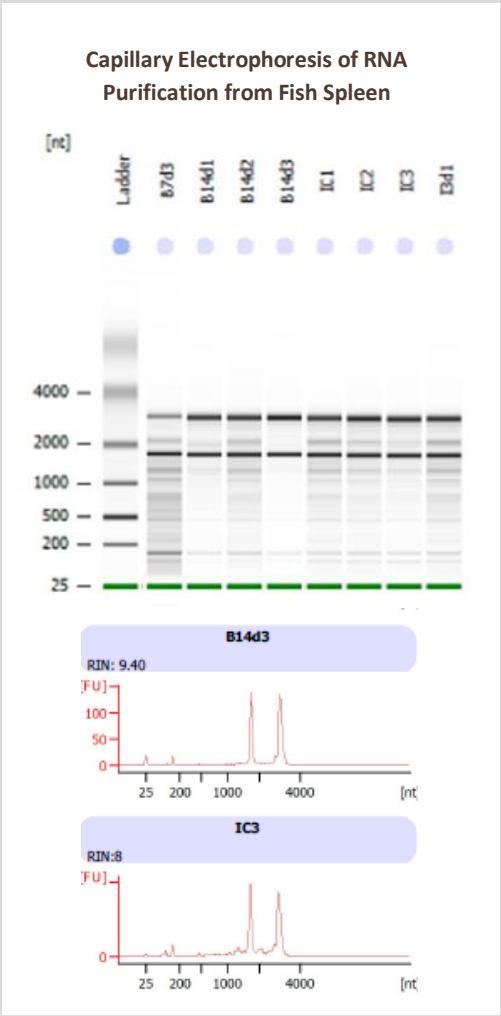
- ✓ **Q-PLUS™ One-Step Probe RT-qPCR Master Mix 2x** (TBK0010, TBK0011)
- ✓ **TIARIS™ RNase Decontamination Solution** (TBR0310)
- ✓ **Water, nuclease free** (TBB0297-0301)

Tissue RNA Purification | *High-Q™ Spin Columns*

Kits designed to RNA purification from human and animal tissue (*e.g. muscle, spleen, intestine, liver, heat, brain, rodent tail*), insects and biopsy material. High-Q™-Spin-Column Tissue RNA Purification Kit is an easy silica-membrane-based system for RNA purification from a wide variety of animal tissues. An optimized lysis buffer guarantees a good yield while the use of High-Q™ RNA Spin Columns allow a good quality RNA, suitable for downstream applications.

Features

- **Safety**, no phenol extraction, no ethanol precipitation.
- **High yield**: up to 100 µg and purity (A_{260}/A_{280} ~2.0; A_{260}/A_{230} ~2.0-2.2; RIN ≥ 8).
- Isolated **RNA is ready to use** for downstream molecular biology applications.
- Easy and fast protocol.
- Purification of RNA from **human and animal tissue** (*e.g. muscle, spleen, intestine, liver, heat, brain, rodent tail*), insects, biopsy material.



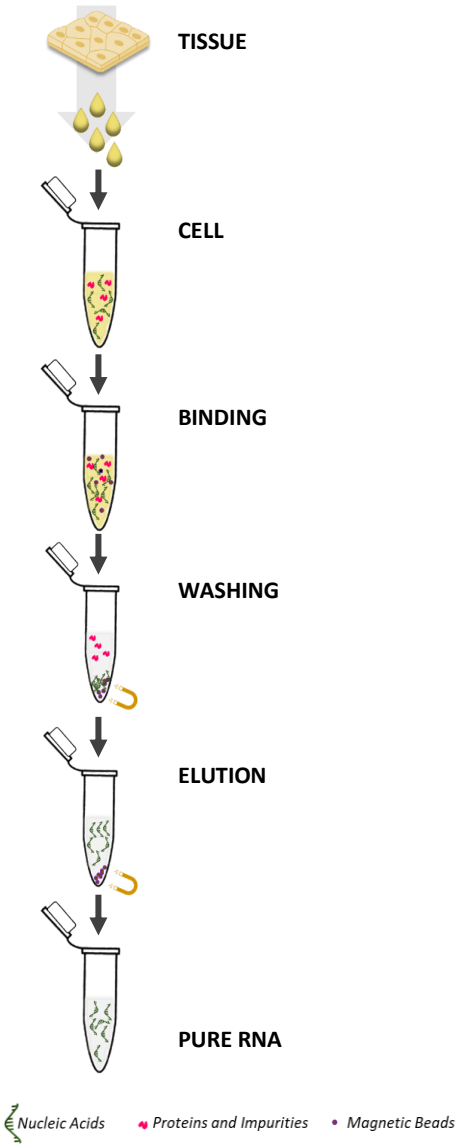
Applications

- RT-PCR and RT-qPCR.
- Northern.
- *In vitro* translation.
- Nuclease Protection Assay.

REFERENCES	DESCRIPTION	FORMAT
TBK0268	HIGH-Q™-SPIN COLUMN TISSUE RNA PURIFICATION KIT	50 rxn
TBK0269	HIGH-Q™-SPIN COLUMN TISSUE RNA PURIFICATION KIT	100 rxn

Tissue RNA Purification | *Magnetic Beads*

High-Q™-Magnetic Tissue RNA Purification Kit is a highly efficient method for isolating high-quality RNA while minimizing degradation. This technique utilizes magnetic beads to selectively capture RNA in the presence of chaotropic salts. The process begins with tissue homogenization and lysis, followed by RNA binding to the magnetic beads, multiple wash steps to remove proteins, genomic DNA, and other contaminants, and finally, RNA elution in a suitable buffer



Features

- **Easy and fast protocol**.
- **Compatible** with automation procedure.
- **Safety**, no phenol extraction, no ethanol precipitation.
- **High purity** (A_{260}/A_{280} ~2.0; A_{260}/A_{230} ~2.0-2.2; RIN ≥ 8).
- **Higher recovery rates**.

Applications

- Purification of RNA from human and animal tissue
- RT-PCR and RT-qPCR.
- NGS sequencing.
- *In vitro* translation.
- Nuclease Protection Assay.
- Northern.

REFERENCES	DESCRIPTION	FORMAT	PREFILLED PLATES
TBK0404	HIGH-Q™-MAGNETIC TISSUE RNA PURIFICATION KIT	50 rxn*	-
TBK0405	HIGH-Q™-MAGNETIC TISSUE RNA PURIFICATION KIT	200 rxn*	-
TBK0425-NP	HIGH-Q™-16-AUTOMATED MAGNETIC TISSUE GENOMIC RNA PURIFICATION KIT	96 rxn**	-
TBK0425-P	HIGH-Q™-16-AUTOMATED MAGNETIC TISSUE GENOMIC RNA PURIFICATION KIT	96 rxn**	6
TBK0426-NP	HIGH-Q™-16-AUTOMATED MAGNETIC TISSUE GENOMIC RNA PURIFICATION KIT	160 rxn**	-
TBK0426-P	HIGH-Q™-16-AUTOMATED MAGNETIC TISSUE GENOMIC RNA PURIFICATION KIT	160 rxn**	10
TBK0427-NP	HIGH-Q™-16-AUTOMATED MAGNETIC TISSUE GENOMIC RNA PURIFICATION KIT	320 rxn**	-
TBK0427-P	HIGH-Q™-16-AUTOMATED MAGNETIC TISSUE GENOMIC RNA PURIFICATION KIT	320 rxn**	20
TBK0428-NP	HIGH-Q™-16-AUTOMATED MAGNETIC TISSUE GENOMIC RNA PURIFICATION KIT	480 rxn**	-
TBK0428-P	HIGH-Q™-16-AUTOMATED MAGNETIC TISSUE GENOMIC RNA PURIFICATION KIT	480 rxn**	30

NP, non-prefilled plates | P, prefilled plates

*** Manual**

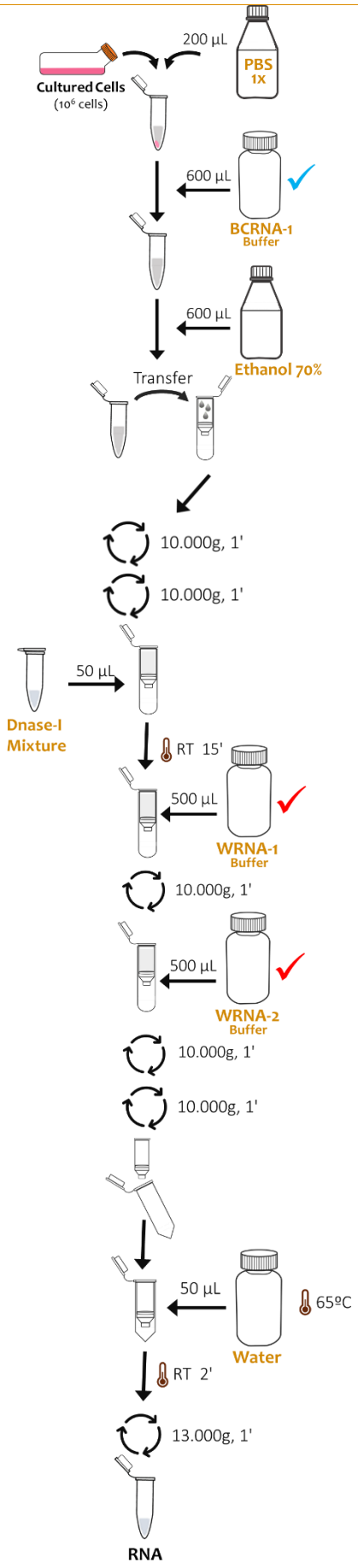
- ✓ Low throughput.
- ✓ For magnetic racks.

**** Automated Procedure**

- ✓ 16 Samples per plate, 32 per run.
- ✓ Medium throughput.
- ✓ For Bioer, Biobase or similar instruments.

Cultured Cell RNA Purification | *High-Q™ Spin Columns*

High-Q™-Spin-Columns Viral RNA Purification Kit is a silica-membrane-based RNA purification kit to obtain viral RNA from cell-free samples with high quality and purity. An optimized lysis buffer ensures high RNA yield, while the use of High-Q™ RNA Spin Columns produces high-quality RNA that is ideal for downstream applications. Suitable for a broad range of viruses and sources.



Features

- **Safety**, no phenol extraction, no ethanol precipitation.
- **High yield** (10-30 µg) and **purity** (A_{260}/A_{280} ~2.0; A_{260}/A_{230} ~2.0-2.2).
- Isolated **RNA is ready to use** for downstream molecular biology applications.
- Detailed protocol including **workflow diagram**
- Easy and fast protocol.

Applications

- Purification of RNA from cultured cells.
- RNA obtained is suitable for downstream molecular biology applications such as RT-PCR, RT-qPCR, Northern, cDNA library, nuclease protection assay, *in vitro* translation, etc.

REFERENCES	DESCRIPTION	FORMAT
TBK0262	HIGH-Q™-SPIN COLUMN CULTURED CELL RNA PURIFICATION KIT	50 rxn
TBK0263	HIGH-Q™-SPIN COLUMN CULTURED CELL RNA PURIFICATION KIT	100 rxn

Complementary Products

- ✓ **PBS 1x, pH 7.4** (TBB0360, TBB0361)
- ✓ **PBS 1x, pH 7.4 Powder** (TBB0600)
- ✓ **Antibiotic-Antimycotic Solution 100x** (TBR0328)
- ✓ **Penicillin-Streptomycin Solution 100x** (TBR0325)

Cultured Cell RNA Purification | *Magnetic Beads*

Isolation of RNA from cultured cells is efficiently achieved using a magnetic system. The High-Q™ Magnetic Cultured Cell RNA Purification Kit is a reliable, magnetic-based system designed for rapid and high-quality RNA purification from cultured cells. Following cell lysis, magnetic beads selectively capture RNA in the presence of chaotropic salts, ensuring effective isolation. The RNA bound to the magnetic beads undergoes multiple washing steps to remove contaminants, resulting in highly pure RNA. Finally, the purified RNA is eluted in a suitable buffer, making it ready for downstream applications such as RT-PCR, qPCR, and sequencing.

Features

- **Medium and high-throughput** friendly.
- **Easy and fast** protocol.
- **Safe**, no phenol extraction or ethanol precipitation steps involved.
- **High yield** (10-30 µg) and **purity** (A_{260}/A_{280} ~2.0; A_{260}/A_{230} ~2.0-2.2; RIN ≥ 8).

Applications

RNA obtained is ready for typical downstream molecular biology applications:

- RT-PCR and RT-qPCR.
- NGS Sequencing.
- cDNA library.
- Nuclease protection assay.
- *In vitro* translation.

REFERENCES	DESCRIPTION	FORMAT
TBK0410	HIGH-Q™-MAGNETIC CULTURED CELL RNA PURIFICATION KIT	50 rxn
TBK0411	HIGH-Q™-MAGNETIC CULTURED CELL RNA PURIFICATION KIT	200 rxn

Complementary Products

- ✓ **Q-PLUS™ One-Step Green RT-qPCR Master Mix 2x** (TBK0014, TBK0015)
- ✓ **Water, nuclease free** (TBB0297-0301)

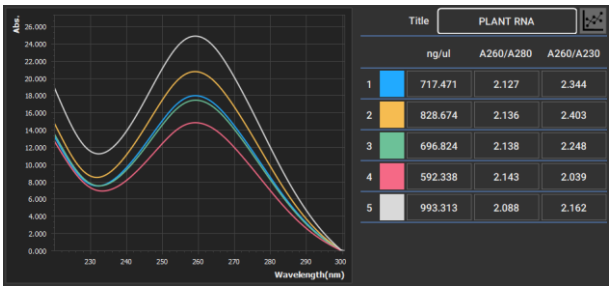
Plant RNA Purification | *High-Q™ Spin Columns*

Excellent kit designed to RNA purification from plant tissue, including plant cells, leaves, seeds, fruits or roots. The kit is suitable to use different starting plant materials: frozen, fresh or dried. High-Q™-Spin-Column Plant RNA Purification Kit is based on the use of silica-membrane prepacked columns for RNA purification from a wide variety of plant species and vegetal material. An optimized lysis buffer guarantees a good yield while the use of High-Q™ RNA Spin Columns allow a good quality RNA, suitable for downstream applications.

Features

- **Safety**, no phenol extraction, no ethanol precipitation.
- High yield (3-30 µg/ 100 mg vegetal material) and purity (A_{260}/A_{280} ~2.0; A_{260}/A_{230} ~2.0-2.2).

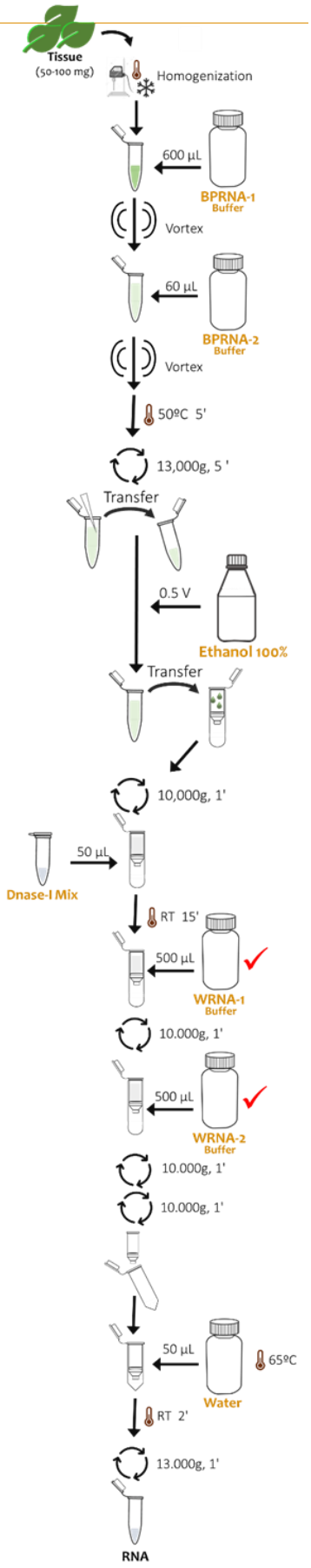
Quantitation of purified plant RNA by nanodrop.



- Isolated **RNA is ready to use** for downstream molecular biology applications.
- Purification of RNA from plant tissue, including **plant cells, leaves, seeds, fruits or roots**.
- Purification of RNA plant using different starting plant materials: frozen, fresh or dried.

Applications

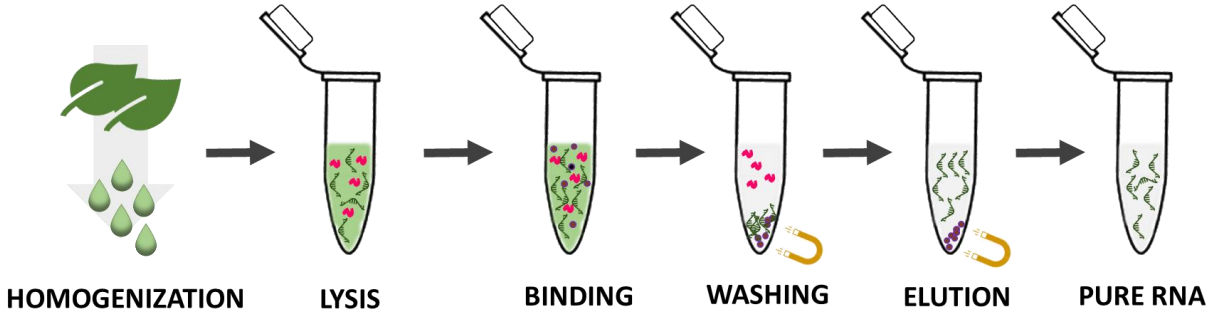
- RT-PCR and RT-qPCR.
- Northern.
- *In vitro* translation.
- Nuclease Protection Assay.
- cDNA libraries obtention.



REFERENCES	DESCRIPTION	FORMAT
TBK0279	HIGH-Q™-SPIN COLUMN PLANT RNA PURIFICATION KIT	20 rxn
TBK0280	HIGH-Q™-SPIN COLUMN PLANT RNA PURIFICATION KIT	50 rxn
TBK0281	HIGH-Q™-SPIN COLUMN PLANT RNA PURIFICATION KIT	100 rxn

Plant RNA Purification | *Magnetic Beads*

High-Q™-Magnetic Plant RNA Purification Kit is a magnetic-based system for RNA purification from vegetal tissue. Magnetic beads selectively capture RNA in the presence of chaotropic salts. The process typically involves cell lysis, RNA binding to the magnetic beads, multiple wash steps to remove contaminants such as proteins, DNA, and cellular debris, and finally, RNA elution in a suitable buffer.



Features

- **Safety**, no phenol extraction procedure.
- **Eliminates PCR inhibitors**.
- **Compatible** with automation procedure.
- **Higher recovery rates**.
- Isolation of **plant RNA from different starting plant materials**: frozen, fresh or dried.
- Purification of RNA from plant tissue, including **plant cells, leaves, seeds, fruits or roots**.

Applications

Isolated RNA is ready for typical downstream molecular biology applications:

- RT-PCR and RT-qPCR.
- Transcriptomics.
- *In vitro* translation.
- Nuclease Protection Assay.
- Arrays.

REFERENCES	DESCRIPTION	FORMAT	PREFILLED PLATES
TBK0407	HIGH-Q™-MAGNETIC PLANT RNA PURIFICATION KIT	50 rxn*	-
TBK0408	HIGH-Q™-MAGNETIC PLANT RNA PURIFICATION KIT	200 rxn*	-
TBK0380-NP	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC RNA PURIFICATION KIT	96 rxn**	-
TBK0380-P	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC RNA PURIFICATION KIT	96 rxn**	6
TBK0381-NP	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC RNA PURIFICATION KIT	160 rxn**	-
TBK0381-P	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC RNA PURIFICATION KIT	160 rxn**	10
TBK0382-NP	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC RNA PURIFICATION KIT	320 rxn**	-
TBK0382-P	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC RNA PURIFICATION KIT	320 rxn**	20
TBK0383-NP	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC RNA PURIFICATION KIT	480 rxn**	-
TBK0383-P	HIGH-Q™-16-AUTOMATED MAGNETIC PLANT GENOMIC RNA PURIFICATION KIT	480 rxn**	30

NP, non-prefilled plates | P, prefilled plates

*** Manual**

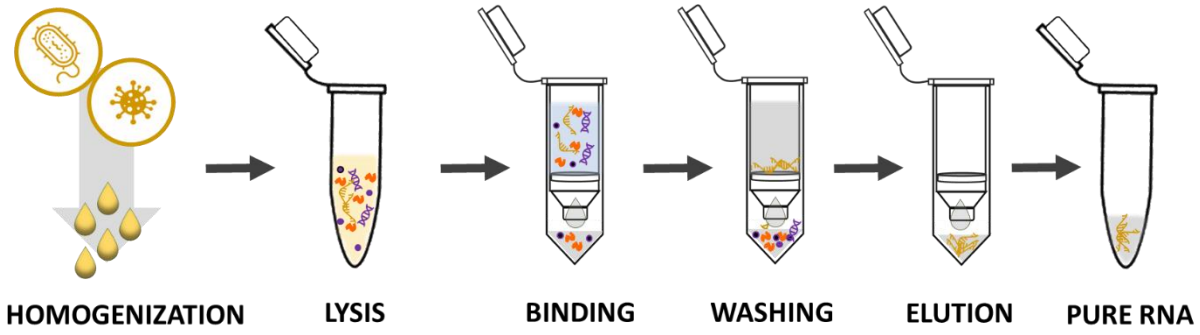
- ✓ Low throughput.
- ✓ For magnetic racks.

**** Automated Procedure**

- ✓ 16 Samples per plate, 32 per run.
- ✓ Medium throughput.
- ✓ For Bioer, Biobase or similar instruments.

Microbial RNA Purification | *High-Q™ Spin Columns*

In the presence of a chaotropic salt, microbial RNA selectively binds to High-Q™ membrane. While the RNA remains attached, a series of quick wash and spin steps efficiently remove contaminating cellular components. Finally, microbial RNA is released from the membrane using a low-salt elution. This process eliminates the need for RNA precipitation, organic solvent extractions, or extensive RNA handling.



Features

- **Suitable** for bacterial, yeast and viral RNA purification.
- **Safe**, method does not require phenol extraction.
- **Easy protocol**.
- **Excellent yield and purity**.

Applications

- RT-PCR and RT-qPCR.
- Northern.
- Viral detection and quantitation.
- Genotyping.

REFERENCES	DESCRIPTION	FORMAT
TBK0271	HIGH-Q™-SPIN COLUMN BACTERIAL RNA PURIFICATION KIT	50 rxn
TBK0272		100 rxn
TBK0212	HIGH-Q™-SPIN COLUMN VIRAL RNA PURIFICATION KIT	50 rxn
TBK0213		100 rxn
TBK0214		200 rxn

Complementary Products

- ✓ **Q-PLUS™ One-Step Green RT-qPCR Master Mix 2x** (TBK0014, TBK0015)
- ✓ **TIARIS™ One-Step RT-PCR Kit** (TBK1040)
- ✓ **TIARIS™ RNase Decontamination Solution** (TBR0310)

Viral RNA Purification | *Magnetic Beads*

Magnetic viral RNA purification kits are optimized nucleic acid purification kits intended for automated purification systems. It is based on magnetic beads technology for purification of biomolecules. High-Q™ Magnetic beads use is combined with heating steps enhancing sample lysis and elution. The samples are firstly lysed and the nucleic acids are bound to the surface of silica-coated paramagnetic beads in the presence of a chaotropic salt. The specialized buffering system allows RNA to bind to the magnetic beads while contaminants and impurities are efficiently washed away, and pure RNA is eluted using a magnetic separation device.

Features

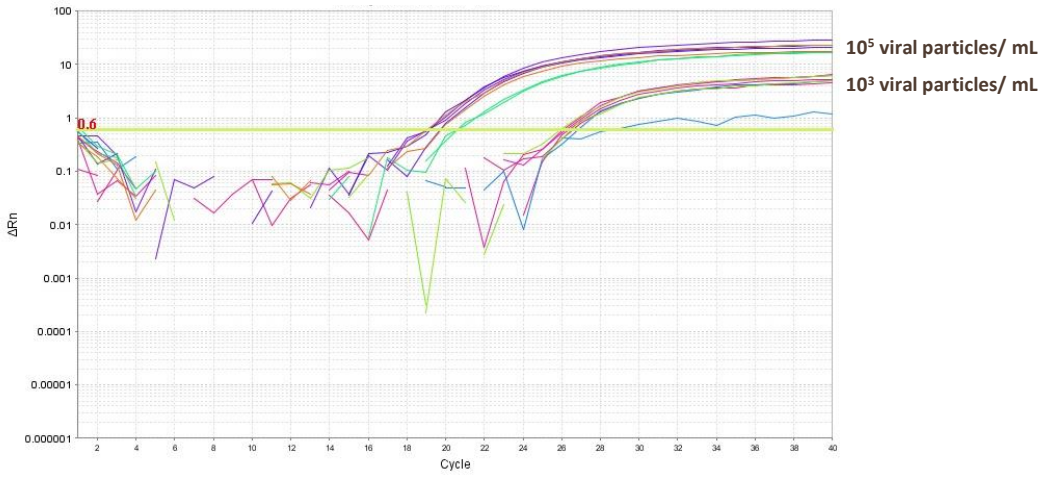
- **Fast and medium** (32 samples)/ **high** (96 samples) **throughput** RNA purification.
- **Versatile,** isolation of nucleic acid of a broad range of RNA viruses.
- **Highest RNA quality** for all downstream applications.
- **High yield** extraction.
- Included in the kit are all plastic accessories, including tip combs.

Applications

Ready-to-use RNA for high performance in downstream applications:

- RT-PCR and RT-qPCR.
- Viral detection and quantitation.
- Genotyping.

Analysis of viral RNA purification from ecotropic viral supernatant.



REFERENCES	DESCRIPTION	FORMAT	PLATES
TBK0230	HIGH-Q™16-MAGNETIC VIRAL RNA PURIFICATION KIT	32 rxn	2
TBK0231		96 rxn	6
TBK0232		192 rxn	12
TBK0235	HIGH-Q™96-MAGNETIC VIRAL RNA PURIFICATION KIT	96 rxn	6

ENZYMES AND OTHER RELATED REAGENTS

Proteinase K

Proteinase K is a serine protease with broad cleavage specificity. The enzyme, isolated from the fungus *Tritirachium album,* is produced as recombinant protein and extensively purified . It is used in DNA and RNA extraction protocols to eliminate proteins.

REFERENCES	DESCRIPTION	FORMAT
TBZ0305	PROTEINASE K, ≥ 30 U/mg (lyophilized powder)	30 mg
TBZ0306		5 x 30 mg
TBZ0307		100 mg
TBZ0308	PROTEINASE K, 20 mg/ mL	1.5 mL
TBZ0309		5 x 1 mL
TBZ0310	PROTEINASE K, 50 mg/ mL	5 x 1 mL

Lysozyme

Lysozyme is a polypeptide of 129 aminoacids isolated from chicken white eggs. The protein hydrolyzes (β 1-4) bonds between N-acetylmuramic acid and N-acetyl-D-glucosamine residues in peptidoglycan and between N-acetyl-D-glucosamine residues in chitodextrin. It is used to lyse bacterial cells in plasmid purification process.

RNase

RNase A is a member of a superfamily of pancreatic ribonucleases. The enzyme binds an RNA substrate and localizes a cytidine or uridine to the enzyme active site. The action of two histidine in the active site removes a proton from the 2′-OH of the pyrimidine, causing the formation of a cyclic 2′,3′-phosphate. Phosphate cyclization releases the portion of the RNA chain that is 3′ to the pyrimidine, resulting in cleavage of the RNA strand. The cyclized phosphate is then hydrolyzed creating a 2′-OH and 3′-phosphate on the 3′-terminal ribose of the cleaved RNA.

Guanidinium Thiocyanate

It is a powerful chaotropic agent widely used in molecular biology for the extraction and purification of nucleic acids. This chemical disrupts cellular structures and denatures proteins, making it an essential component in RNA and DNA extraction protocols.

REFERENCES	DESCRIPTION	FORMAT
TBZ0311	LYSOZYME, ≥ 15000 U/mg (from chicken white egg)	10 g
TBZ0312		30 mg
TBZ0313	LYSOZYME SOLUTION, 50 mg/ mL	1 mL
TBZ0315	RNase SOLUTION DNase FREE, 10 mg/ mL	1 mL
TBZ0317	RNase SOLUTION DNase FREE, 100 mg/ mL	1 mL
TBZ0318	RNase 100 mg (lyophilized powder)	100 mg
TBR0130	GUANIDINIUM THIOCYANATE	100 g
TBR0131		500 g
TBR0131	GUANIDINIUM THIOCYANATE, 6M	500 mL
TBB0400	RED BLOOD CELL LYSIS BUFFER 1x	100 mL
TBB0401	RED BLOOD CELL LYSIS BUFFER 10x	100 mL
TBR0104	TCEP SOLUTION	5 x 1.5 mL

"When the forest and the city are functionally indistinguishable, then we know we reached sustainability."

Janine Benyus

Mick Pearce is a renowned Zimbabwean architect, known for his innovative approach to sustainable design. Born in Harare in 1938, Pearce developed a career marked by his commitment to ecological architecture, always seeking solutions that are efficient and environmentally friendly. His most significant work is the Eastgate Centre in Harare, inspired by termite mounds.

This icon of biomimetic architecture was inaugurated in 1996. The building houses a shopping center and offices that maintain a temperature of 21-25°C without the use of conventional air conditioning systems. Pearce's approach, initially met with skepticism, mimics how termites regulate the internal temperature of their nests despite extreme external temperature fluctuations. The process involves drawing cool night air into large floor cavities and releasing it during the day through grilles. The Eastgate Centre's design reduces energy consumption by approximately 90% compared to similarly sized buildings that rely on traditional heating and cooling systems.

This is achieved by circulating air through chimneys and ducts that enable a constant exchange of fresh air. During the day, the building's heat dissipates through these chimneys, while at night, cooler air is drawn in to maintain a pleasant temperature during warmer hours. This nature-inspired approach is not only energy-efficient but also cost-effective, generating global interest in biomimetic design.

In addition to its innovative ventilation system, the Eastgate Centre is constructed with local materials that further reduce the environmental impact of its construction and operation. The use of bricks and concrete with high thermal mass allows the building to absorb and release heat gradually, contributing to thermal stability. The result is a building that is not only functional but also aesthetically integrated with its surroundings, reflecting a fusion of modernity and sustainability.

Mick Pearce has received global recognition for this project, which remains a benchmark in sustainable architecture. His example has influenced architects and engineers worldwide, demonstrating that nature-inspired solutions can offer viable alternatives to conventional construction methods. The Eastgate Centre is not just an iconic building but a testament to the potential of biomimicry and ecological thinking in contemporary architecture.

#FindingAnswersInNature

PCR Reagents

3

PCR REAGENTS

PCR Selection Guide

	PCR STANDARD	FAST PCR	HIGH %GC	COMPLEX TARGETS	LARGE FRAGMENTS	HIGH FIDELITY	ISOTHERMAL PCR	QUANTITATIVE PCR	SNP DETECTION	DIRECT PCR
STOUT™ Taq DNA Polymerase *(TBZ0201-02, TBK0023-24)*	✓									
STOUT™ Taq DNA Polymerase Master Mix 2x *(TBK0029-30)*	✓									
STOUT™ Red PCR Master Mix 2x *(TBK0026-27)*	✓									
STOUT™ Green PCR Master Mix 2x *(TBK0032-33)*	✓									
Native Taq DNA Polymerase *(TBZ0360-62)*	✓									
STOUT™ FAST DNA Polymerase *(TBK1011-12)*		✓								
STOUT™ FAST PCR Master Mix 2x *(TBK0051-52)*		✓								
STOUT™ FAST Red Master Mix 2x *(TBK0053-54)*		✓								
WARM™ HotStart Taq DNA polymerase *(TBK0036-37)*			✓	✓						
WARM™ HotStart PCR Master Mix *(TBK0042-43)*			✓	✓						
WARM™ FAST HotStart Taq DNA Polymerase *(TBK1026-27)*		✓	✓	✓						✓
WARM™ FAST HotStart Master Mix 2x *(TBK1028-29)*		✓	✓	✓						✓
WARM™ FAST HotStart Red Master Mix 2x *(TBK0039-40)*		✓	✓	✓						✓
TOO™ LONG DNA Polymerase *(TBK0046-47)*					✓					
TOO™ LONG DNA Polymerase Master Mix *(TBK0049-50)*					✓					
Pfu DNA Polymerase *(TBK0086-87)*						✓				
TIARIS™ FAST High Fidelity DNA Polymerase *(TBK1034)*						✓				
TIARIS™ LAMP BstI DNA Polymerase *(TBK0083-84)*							✓			
Q-PLUS™ Green Real Time qPCR Master Mix *(TBK0056-59)*								✓		
Q-PLUS™ Probe Real Time qPCR Master Mix *(TBK0071-74)*								✓		
TIARIS™ SNP DNA Polymerase *(TBZ0357-58)*									✓	
TIARIS™ SNP DNA Polymerase Kit *(TBK0061, TBK0062)*									✓	
TIARIS™ Tissue Direct PCR *(TBK1015-16)*										✓
TIARIS™ Blood Direct PCR *(TBK1018-19)*										✓
TIARIS™ Plant Direct PCR *(TBK1021)*										✓
TIARIS™ Body Fluid Direct PCR *(TBK1023)*										✓

STANDARD PCR

STOUT™ Recombinant Taq DNA Polymerase

STOUT™ Recombinant Taq DNA Polymerase is a thermostable polymerase from *Thermus aquaticus* produced in *Escherichia coli*. Highly purified the enzyme has a strong 5′ to 3′ polymerase activity. It has a weak 5′ to 3′ exonuclease activity while 3′ to 5′ exonuclease activity is absent. The enzyme is presented with all the components shipped in separate vials (*with and without dNTPs*) and in an optimized formulation to enable successful amplification in a process with reduced manipulation. It is used to end-point PCR reactions.

STOUT™ RECOMBINANT TAQ DNA POLYMERASE

Include:

- STOUT™ Recombinant Taq DNA Polymerase, 5U/ µL
- STOUT™ PCR Buffer, 10x
- $MgCl_2$ 25 mM

STOUT™ RECOMBINANT TAQ DNA POLYMERASE KIT

Include:

- STOUT™ Recombinant Taq DNA Polymerase, 5U/ µL
- STOUT™ PCR Buffer, 10x
- $MgCl_2$ 25 mM
- High-Q™ dNTPs 10 mM TOTAL

STOUT™ RECOMBINANT TAQ DNA POLYMERASE MASTER MIX

Include:

- STOUT™ Recombinant Taq DNA Polymerase Master Mix, 2x
- PCR Grade Water, nuclease free

Features

- Optimal amplification length: ≤ 5 kb.
- **High thermostability**, the enzyme half-life at 94 °C is 40 minutes.
- Addition without template of **3′ adenine at the end of PCR fragment**.
- **Non proofreading enzyme**.
- **Immediate activation**.
- Amplification rate, 1 minute per kb.

Applications

- Daily research: standard PCR for targets up 5 kb, recombinant clone or cell line checking, etc.
- Generation of PCR fragments for TA cloning.
- DNA sequencing.

REFERENCES	DESCRIPTION	FORMAT
TBZ0201	STOUT™ RECOMBINANT TAQ DNA POLYMERASE, 5 U/µL	500 U
TBZ0202		1000 U
TBK0023	STOUT™ RECOMBINANT TAQ DNA POLYMERASE KIT	500 U
TBK0024		1000 U
TBK0029	STOUT™ RECOMBINANT TAQ DNA POLYMERASE MASTER MIX, 2x	200 rxn
TBK0030		400 rxn

Complementary Products

- ✓ **HIGH-Q™ Agarose-LE** (TBR0120, TBR0121, TBR0122)
- ✓ **TAE Buffer 10x** (TBB0355, TBB0356)
- ✓ **TIARIS™ Ruler 100-1000 bp** (TBR0237, TBR0238)
- ✓ **COBALT™ Loading Buffer 6x** (TBB0321)

STOUT™ Red PCR Master Mix 2.5x

STOUT™ Red PCR Master Mix is an optimized formulation to enable successful amplification in a process with reduced manipulation. The formula contains $MgCl_2$, pure dNTPs, PCR enhancer and our highly purified thermostable STOUT™ Recombinant Taq DNA Polymerase. The master mix is a dense solution (2.5x concentrated) for direct loading of PCR products onto agarose gel.

Features

- **Ready to use**.
- **Includes a red tracking dye** to monitor the sample electrophoresis.
- All STOUT™ Recombinant Taq DNA Polymerase characteristics:
  - High thermostability, the enzyme half-life at 94°C is 40 minutes.
  - Optimal amplification length: ≤ 5 kb.
  - Addition without template of 3′ adenine at the end of PCR fragment.
  - Non proofreading enzyme, error rate 1–20 × 10^{-5} errors/ bp per cycle.
  - Immediate activation.
  - Amplification rate, 1 minute per kb.

Applications

- Optima formulation to use in routine PCR, requiring to add only specific primers and template.
- Generation of PCR fragments for TA cloning.
- Molecular screening by PCR.

REFERENCES	DESCRIPTION	FORMAT
TBK0026	STOUT™ RED PCR MASTER MIX 2.5 X	200 rxn
TBK0027		400 rxn
TBK0032	STOUT™ GREEN PCR MASTER MIX 2X	200 rxn
TBK0033		400 rxn

STOUT™ Green PCR Master Mix 2x

STOUT™ Green PCR Master Mix (2x) is an optimized formulation to enable successful amplification in a process with reduced manipulation. The formula contains MgCl2, pure dNTPs, PCR enhancer and our highly purified thermostable STOUT™ Recombinant Taq DNA Polymerase. The master mix is a dense solution (2x concentrated) for direct loading of PCR products onto agarose gel.

Features

- **Ready to use**.
- Includes **two tracking dyes** to monitor the sample electrophoresis.
- All **STOUT™ Recombinant Taq DNA polymerase characteristics**.

Applications

- Daily research: standard PCR for targets up 5 kb, recombinant clone or cell line checking, etc.
- Generation of PCR fragments for TA cloning.

Native Taq Polymerase (DNA Free Polymerase)

Native Taq polymerase is a non-recombinant enzyme produced in *Thermus aquaticus*. The enzyme is suitable to amplify *Escherichia coli* targets without interference of recombinant strain genetic material. It is a highly processive 5' - 3' DNA polymerase, lacking 3' - 5' exonuclease activity.

Features

- *E.coli* **genomic DNA Free Enzyme**.
- Optimal amplification length: 7 kb.
- **Highly processive** polymerase.
- **Lack 3' - 5' exonuclease activity**.

Applications

- PCR of *Escherichia coli* DNA.
- Any applications based on bacterial 16S analysis.

REFERENCES	DESCRIPTION	FORMAT
TBZ0360	NATIVE TAQ POLYMERASE	250 U
TBZ0361	NATIVE TAQ POLYMERASE	500 U
TBZ0362	NATIVE TAQ POLYMERASE	1000 U

FAST PCR

STOUT™ Fast DNA Polymerase Kit

STOUT™ FAST DNA Polymerase is a robust enzyme with a characteristic extreme speed amplification rate. The extreme speed of STOUT™ FAST DNA polymerase allows the use of an extension rate of 4-8 kb/ min, making this the ideal choice for consistent results in fast routine PCR amplifications with excellent yield and consistency. The kit includes in separate vials: the enzyme and the reaction buffer containing $MgCl_2$, ultrapure dNTPs, enhancers and stabilizers, optimized to increased PCR success rates.

Features

- Extension Rate **up 2 seconds per kb**, < 1kb.
- The enzyme has **5'→ 3' polymerase activity** and **5'→ 3' exonuclease activity**.
- Absent 3'→ 5' exonuclease activity.
- Addition without template of **3' adenine at the ends of PCR** fragment.
- **Immediate activation**.
- Include **ultrapure dNTPs**.

Applications

- Faster Routine PCR
- Generation of PCR fragments for TA cloning.

REFERENCES	DESCRIPTION	FORMAT
TBK1011	STOUT™ FAST DNA POLYMERASE KIT	500 U
TBK1012	STOUT™ FAST DNA POLYMERASE KIT	2500 U

STOUT™ Fast PCR Master Mix 2x

We offer two STOUT™ Fast Master Mix formulations: STOUT™ Fast PCR Master Mix and STOUT™ Fast Red Master Mix. Both are 2× concentrated, optimized formulations designed to enable successful amplification with minimal handling. While STOUT™ Fast PCR Master Mix is a colorless solution, STOUT™ Fast Red Master Mix contains a tracking dye for direct loading of PCR products onto agarose gels.

Features

- **Ready to use.**
- **Fast Amplification** of PCR targets up to 5 kb.
- **High Extension Rate,** 2 seconds/ kb for targets < 1 kb.
- All STOUT™ Fast DNA Polymerase characteristics.

Applications

- Faster Routine PCR
- Generation of PCR fragments for TA cloning.
- Genotyping.
- Screening by PCR.

STOUT™ Fast Red Master Mix 2x

It is a convenient formulation to daily fast PCR reactions that includes STOUT™ Fast DNA polymerase, a recombinant enzyme with a fast polymerization range (4-8 kb/ min) generating consistent amplification results. The master mix contains a density reagent and a red tracking dye, allowing for the direct loading of PCR products onto agarose gels. The colored buffer does not interfere with PCR performance and is fully compatible with downstream applications.

Features

- **Ready to use.**
- All **STOUT™ Fast DNA Polymerase characteristics.**

Applications

- Faster Routine PCR.
- Screening by PCR amplification.
- Generation of PCR fragments for TA cloning.

REFERENCES	DESCRIPTION	FORMAT
TBK0051	STOUT™ FAST PCR MASTER MIX 2X	80 rxn
TBK0052		400 rxn
TBK0053	STOUT™ FAST RED MASTER MIX 2X	80 rxn
TBK0054		400 rxn

Complementary Products

- ✓ **HIGH-Q™ Spin-Column DNA Cleanup Purification Kit** (TBK0196, TBK0197)
- ✓ **HIGH-Q™ Agarose LE** (TBR0120, TBR0121, TBR0122)

HIGH GC CONTENT & COMPLEX STRUCTURE AMPLIFICATION

WARM™ Hot-Start DNA Polymerase Kit

WARM™ Hot-Start Taq DNA polymerase is a thermostable polymerase from *Thermus aquaticus* produced in *Escherichia coli* reversibly inactivated by antibody binding. Once the enzyme is activated it has a strong 5′ to 3′ polymerase activity.

Features

- **Enhanced specificity and sensibility**, amplifies low copy number targets with reduced non-specific.
- Thermostable half-life at 94 °C is 40 minutes.
- **Suitable for TA cloning purposes**, the enzyme adds 3′ adenine at the end of PCR fragment.
- Activation controlled, **inactive at low temperature** and fully activated at temperature > 70°C.
- Error Rate 1–20×10^{-5} errors/ bp per cycle.

Applications

- Daily research: standard PCR for targets up 5 kb, recombinant clone or cell line checking, etc.
- Generation of PCR fragments for TA cloning.
- DNA labelling due to capacity to incorporate modified nucleotides.
- Real time PCR to quantify DNA or cDNA targets, gene expression, SNPs.

WARM™ Hot-Start PCR Master Mix 2x

WARM™ Hot-Start PCR Master Mix is an optimized formulation to enable successful amplification in a process with reduced manipulation. The formula includes the hot-start enzyme WARM™ START Taq DNA polymerase and highly purity dNTPs.

Features

- **Ready to use**, avoiding mistakes in PCR reaction preparation.
- All **characteristics of WARM™ Hot-Start DNA Polymerase**.

REFERENCES	DESCRIPTION	FORMAT
TBK0036	WARM™ HOT-START TAQ DNA POLYMERASE KIT	500 U
TBK0037		1000 U
TBK0042	WARM™ HOT-START PCR MASTER MIX 2x	200 rxn
TBK0043		400 rxn

WARM™ Fast Hot-Start DNA Polymerase Kit

WARM™ Fast Hot-Start DNA Polymerase Kit is a convenient kit to speed amplification of DNA samples. The kit contains the robust WARM™ Fast Hot-Start polymerase, an engineered DNA polymerase that combines hot-start capability, high processivity, and ultra-fast extension speed (2 sec/kb) and an optimized buffer composed of MgCl2 15 mM, highly purity High-Q™ dNTPs 5 mM each, and enhancers.

Features

- **Amplification up 5 kb** amplicons.
- Extension rate **2 seconds per kb** (< 1kb) and 15 seconds per kb (> 1 kb to 5 kb).
- Suitable for TA cloning purposes, **the enzyme adds 3´adenine at the end of PCR fragment**.
- **Activation Controlled**, inactive at low temperatures and fully activated at high temperature.

Applications

- Amplification of complex targets.
- Direct PCR of unpurified samples (*blood, urine*).
- Generation of PCR fragments for TA cloning.
- Multiplex PCR.

WARM™ Fast Hot-Start Master Mix 2x

It is a ready-to-use master mix containing the WARM™ Fast Hot-Start DNA Polymerase. The buffer composition has been optimized through high-throughput screening, resulting in enhanced resistance to common PCR inhibitors. PCR product is fully compatible with downstream applications.

Features

- **Ready to use**.
- All characteristics and applications of WARM™ Hot-Start DNA Polymerase.

WARM™ Fast Hot-Start Red Master Mix 2x

It is a convenient ready to use master mix based on the use of WARM™ Fast Hot-Start DNA polymerase. It is an optimized master mix that also contains a density reagent and a red tracking dye, allowing for the direct loading of PCR products onto agarose gels and monitoring the migration. The colored buffer does not interfere with PCR performance and is fully compatible with downstream applications.

Features

- **Ready to use.**
- All characteristics and applications of WARM™ Hot-Start DNA Polymerase.

REFERENCES	DESCRIPTION	FORMAT
TBK1026	WARM™ FAST HOT-START TAQ DNA POLYMERASE	250 U
TBK1027		500 U
TBK1028	WARM™ FAST HOT-START MASTER MIX 2X	80 rxn
TBK1029		400 rxn
TBK0039	WARM™ FAST HOT-START RED MASTER MIX 2X	80 rxn
TBK0040		400 rxn

LARGE FRAGMENTS

TOO™ Long DNA Polymerase Kit

TOO™ LONG DNA Polymerase Kit is a convenient kit that includes TOO™ LONG DNA polymerase and highly pure High-Q™ dNTPs to enable the amplification of targets since 5 kb to 20 kb. TOO™ LONG DNA polymerase is a blended enzyme preparation which combines a polymerase with 3′-5′ exonuclease activity with a polymerase lacking 3′-5′ exonuclease activity. PCR amplification generates a mixture of A-overhang-ended (predominantly) and blunt-ended PCR products.

Features

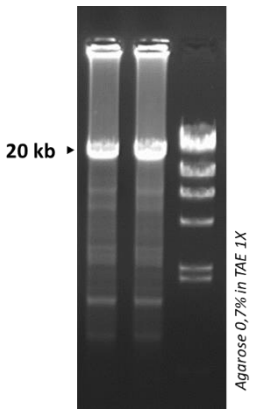
- **Efficient long targets amplifications** (5-20 kb).
- PCR fragments **suitable to be cloning in TA-vectors or blunt vectors**.
- **Increased yield and fidelity** of PCR products.
- Error Rate 5.6 x10^{-6} errors/bp per cycle.

Applications

- Suitable as a direct replacement for ordinary STOUT™ Recombinant Taq DNA Polymerase in most applications.
- Generation of PCR fragments for TA or blunt cloning.
- Sequencing.
- DNA Labeling.
- Amplifications of long target sequences.

TOO™ Long DNA Polymerase Master Mix

TOO™ LONG DNA Polymerase Master Mix (2x) is an optimized formulation to enable the amplification of targets since 5 kb to 20 kb. It is based in a blended enzyme preparation which combine a polymerase with 3′-5′ exonuclease activity with a polymerase lacking 3′-5′ exonuclease activity. PCR amplification generates a mixture of A-overhang-ended (predominantly) and blunt-ended PCR products.



Features

- **Ready to use** formulation, avoiding mistakes in PCR reaction preparation.
- All characteristics of TOO™ Long DNA Polymerase.

REFERENCES	DESCRIPTION	FORMAT
TBK0046	TOO™ LONG DNA POLYMERASE KIT	500 U
TBK0047		1000 U
TBK0049	TOO™ LONG DNA POLYMERASE MASTER MIX	100 rxn
TBK0050		200 rxn

HIGH FIDELITY AMPLIFICATIONS

TIARIS™ Pfu DNA Polymerase Kit

TIARIS™ Pfu DNA Polymerase Kit is an ideal kit when high fidelity is an important requirement in your PCR. The kit includes the proofreading enzyme TIARIS™ Pfu DNA polymerase and the highly purity High-Q™ dNTPs. TIARIS™ Pfu DNA polymerase (90 kDa) is a recombinant high fidelity polymerase from *Pyrococcus furiosus* produced in *Escherichia coli*. The enzyme has a strong 5′ to 3′ polymerase activity and 3′ to 5′ exonuclease activity which corrects nucleotide incorporation errors, thereby increasing fidelity and accuracy.

Features

- **High accuracy and fidelity** PCR with an error rate of 1.3×10^{-6} errors/bp per cycle.
- Elongation velocity is 0.2~0.4 kb/ min (70~75°C).
- **Suitable for blunt cloning purposes**, the enzyme produces blunt-end PCR fragments.
- **Highly thermostable enzyme**, which retains 94-99% of its activity after 1 hour at 95°C.
- PCR amplification > 2 kb require optimization.

Applications

- Broad range of techniques that require high fidelity PCR products such as: cloning, expression of gene of interest, mutagenesis.
- Generation of PCR fragments for blunt cloning.
- Filling 5′ protruding ends.

TIARIS™ Fast High-Fidelity DNA Polymerase Kit

TIARIS™ Fast High-Fidelity DNA polymerase is a robust enzyme with 3'→ 5' exonuclease (proofreading) activity and enhanced DNA binding, resulting in improved processivity, yield, and extremely low error-rate included in TIARIS™ Fast High-Fidelity DNA Polymerase Kit. The enzyme has an error-rate of approximately 1 error per 4.4×10^{7} nucleotides incorporated, which is 50x lower than Taq DNA polymerase.

Features

- **High fidelity** (50x Taq DNA polymerase).
- **Fast PCR** due to short extension rate: 2kb/min.
- **Suitable for blunt cloning purposes**, the enzyme produces blunt-end PCR fragments.
- **Robust performance**, minimal optimization needed.
- dNTPs included.

Applications

High-fidelity PCR, site-directed mutagenesis, crude sample PCR, blunt-end cloning, among others, where robustness and proofreading are important.

REFERENCES	DESCRIPTION	FORMAT
TBK0086	TIARIS™ PFU DNA POLYMERASE KIT	100 U
TBK0087		500 U
TBK1034	TIARIS™ FAST HIGH-FIDELITY DNA POLYMERASE KIT	250 U

Complementary Products

- ✓ **pSHARP™-BLUNT Vector Cloning Kit** (TBK0800, TBK0801)
- ✓ **HIGH-Q™ Spin-Column DNA Cleanup Purification Kit** (TBK0196, TBK0197)

ISOTHERMAL PCR

TIARIS™ LAMP *Bst*I DNA Polymerase

TIARIS™ LAMP *Bst*I DNA polymerase Kit is a convenient kit to amplify. It includes a mesophilic polymerase from *Geobacillus stearothermophilus*. Large fragment of *Bst*I polymerase is produced in a recombinant way in *Escherichia coli*. The enzyme allows a rapid and efficient amplification by its strong displacement activity. The kit is useful to amplify minimally purified samples.

Features

- **Strand displacement.**
- **Without exonuclease activity.**
- Optimal activity at 60-65°C.
- Inactivated at 80°C.
- **Highly sensitivity,** amplification factor >10^9.
- **Flexible readout.**

Applications

- Suitable to amplified minimally processed samples.
- Nucleic acid amplification by LAMP or RT-LAMP.
- DNA sequencing.
- Whole genome amplification.
- Point of care or *in situ* detection systems.

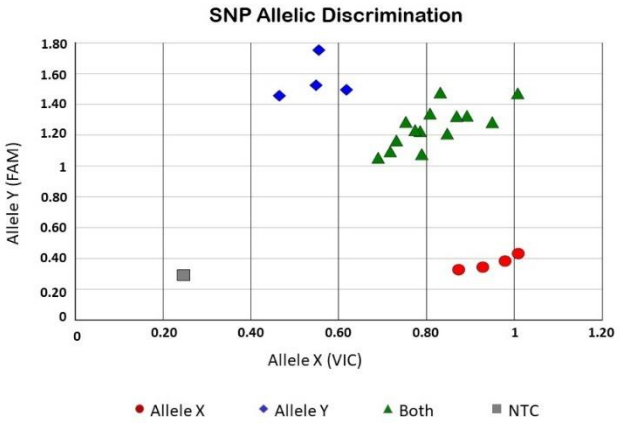
REFERENCES	DESCRIPTION	FORMAT
TBK0083	TIARIS™ LAMP BST DNA POLYMERASE KIT	1600 U
TBK0084	TIARIS™ LAMP BST DNA POLYMERASE KIT	3200 U

SINGLE NUCLEOTIDE POLYMORPHISM (SNP) ANALYSIS

TIARIS™ SNP DNA Polymerase

NEW

TIARIS™ SNP DNA Polymerase is designed to single nucleotide polymorphisms discrimination. The enzyme is an aptamer Hot-Start polymerase, with a high discrimination rate of 3´mismatch.



Features

- **Require activation** at >55°C.
- **100% accuracy in mismatch detection.**

Applications

- SNP genotyping.
- Suitable for hydrolysis probe-based assay, due to its 5'-3'-nuclease activity.

REFERENCES	DESCRIPTION	FORMAT
TBZ0357	TIARIS™ SNP DNA POLYMERASE	250 U
TBZ0358	TIARIS™ SNP DNA POLYMERASE	1000 U
TBK0061	TIARIS™ SNP DNA POLYMERASE KIT	1.25 mL
TBK0062	TIARIS™ SNP DNA POLYMERASE KIT	2 x 1.25 mL

QUANTITATIVE PCR, qPCR

Q-PLUS™-Green or Probe Real Time qPCR Master Mix, without ROX are optimized Master Mix to be used in real time quantitative PCR. The Master Mix contains an antibody-based hot-start DNA polymerase, ultrapure dNTPs, $MgCl_2$, PCR enhancers and a stabilization compound. Both kits include a separate vial of ROX that can be optionally added to the qPCR reaction Mix. The final concentration of ROX will vary depending on each real-time cycler manufacturer's specification.

Features

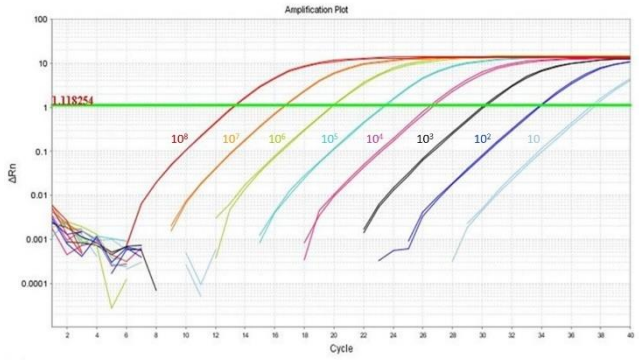
- **Ready to use**.
- Enhanced specificity and sensibility, **amplifies low copy number targets** with reduced non-specific.
- **Compatible** with fast and standard PCR program.

Applications

- Real time quantitative PCR.
- Gene copy number determination
- Microbial detection.
- Genotyping.

Q-PLUS™ Green Real Time qPCR Master Mix

Q-PLUS™-Green Real Time qPCR Master Mix, without ROX is an optimized formula 2x, dye-based Master Mix to be used in real time quantitative PCR. The detection involves the inclusion of SYBR Green.



Q-PLUS™ Probe Real Time qPCR Master Mix

Q-PLUS™-Probe Real Time qPCR Master Mix, without ROX is an optimized Master Mix 2x to be used in real time quantitative PCR. The detection involves the prevention of fluorescence of a fluorophore by the close proximity with a quencher and the 5'–3' exonuclease activity of Taq polymerase to cleave the dual-labeled probe. The fluorescent signal intensity detected is proportional to the number of amplicons.

REFERENCES	DESCRIPTION	FORMAT
TBK0056	Q-PLUS™ GREEN REAL TIME qPCR MASTER MIX	200 rxn
TBK0057	Q-PLUS™ GREEN REAL TIME qPCR MASTER MIX	400 rxn
TBK0058	Q-PLUS™ GREEN REAL TIME qPCR MASTER MIX	500 rxn
TBK0059	Q-PLUS™ GREEN REAL TIME qPCR MASTER MIX	1000 rxn

REFERENCES	DESCRIPTION	FORMAT
TBK0071	Q-PLUS™ PROBE REAL TIME qPCR MASTER MIX	200 rxn
TBK0072	Q-PLUS™ PROBE REAL TIME qPCR MASTER MIX	400 rxn
TBK0073	Q-PLUS™ PROBE REAL TIME qPCR MASTER MIX	500 rxn
TBK0074	Q-PLUS™ PROBE REAL TIME qPCR MASTER MIX	1000 rxn

DIRECT PCR

TIARIS™ Direct PCR kits allow direct PCR analysis of different samples, without the need of DNA purification and sample preparation. The kit combines a simple but efficient DNA extraction method with direct amplification using our Fast Hot-Start DNA Polymerase in a convenient and easy-to-use manner. DNA extraction is carried out in a single tube, without the need of multiple washing steps, therefore minimizing contamination risks.

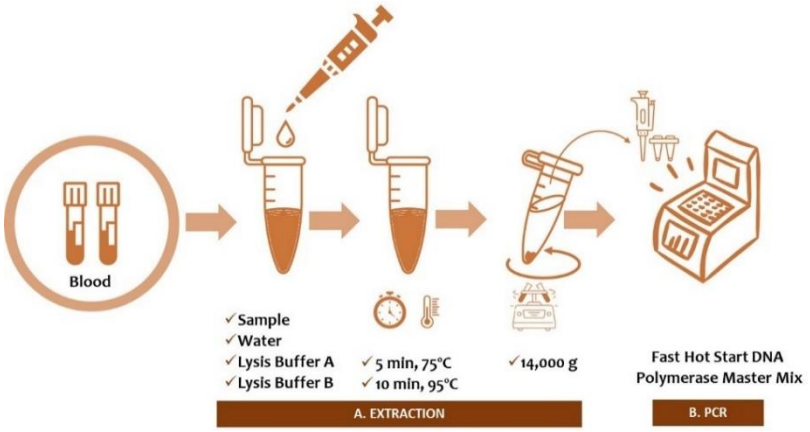
Recommended Amounts for Extraction Conditions included

	BLOOD	2-8 µL Fresh Blood in EDTA
	FTA CARD	2 mm^2
	BUCCAL SWAB	1 unit
	HAIR FOLLICLES	1-10 follicles
	MOUSE TAIL	5 mg (1-2 mm)
	MOUSE EAR	5 mg (2-4 mm^2)
	ANIMAL TISSUE	3-30 mg
	PARAFFIN TISSUE BLOCK	1 mm^3
	PLANTS	30 mg

Features

- **DNA is ready for PCR** in only 15 minutes.
- All Fast Hot-Start DNA Polymerase characteristics:
  - Amplicon size up to 5kb.
  - Extension Rate 4-8 kb per minute.
- **Compatible** with fast and standard PCR program.

TIARIS™ Blood Direct PCR



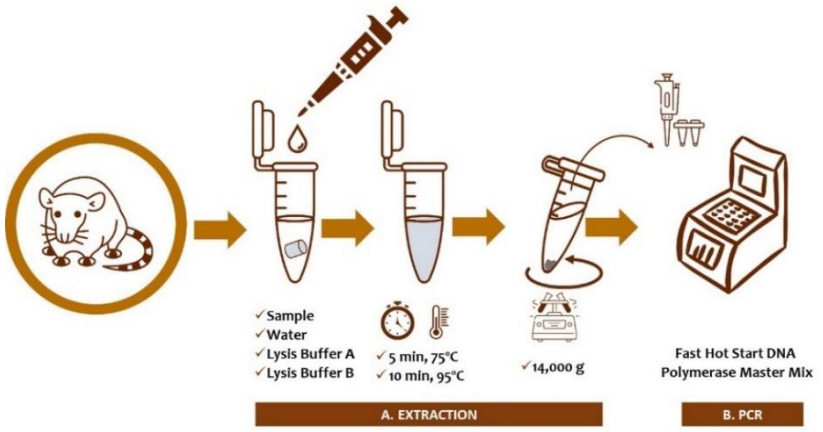
Applications

- Direct PCR analysis of fresh blood, blood stored at 4°C and dried blood spot stored on DBS commercial cards.
- Genotyping analysis.

REFERENCES	DESCRIPTION	FORMAT
TBK1018	TIARIS™ BLOOD DIRECT PCR	80 rxn
TBK1019	TIARIS™ BLOOD DIRECT PCR	480 rxn

TIARIS™ Tissue Direct PCR

TIARIS™ Tissue Direct PCR kit is designed to be used with a variety of samples, including mouse ear and tail, FFPE tissue and human hair. DNA extraction is carried out in a single tube, without the need of multiple washing steps, therefore minimizing the risk of contamination. Fast Hot Start DNA Polymerase Master Mix contains premixed gel loading dye which allows direct sample loading on the gel.

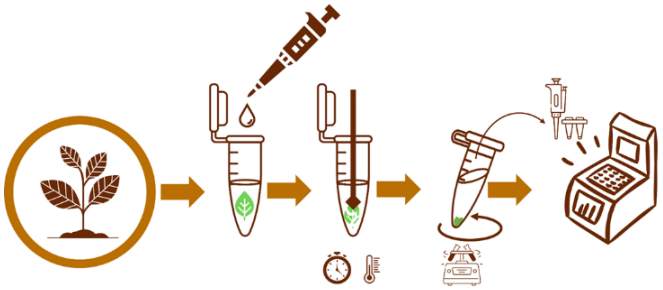


Applications

- Direct PCR analysis of tissue, including mammalian tissue (*mouse ear and tail*), FFPE tissue and human hair.
- Mouse Genotyping.
- Genetic Screening.
- Multiplex PCR.

REFERENCES	DESCRIPTION	FORMAT
TBK1015	TIARIS™ TISSUE DIRECT PCR	80 rxn
TBK1016	TIARIS™ TISSUE DIRECT PCR	480 rxn

TIARIS™ Plant Direct PCR



Applications

- Direct PCR analysis of vegetal tissue (*leaves*).
- Genetic Screening.

TIARIS™ Body Fluid Direct PCR

REFERENCES	DESCRIPTION	FORMAT
TBK1021	TIARIS™ PLANT DIRECT PCR	80 rxn
TBK1023	TIARIS™ BODY FLUID DIRECT PCR	80 rxn

Complementary Products

- ✓ **TIARIS™ Tissue Protect Buffer** (TBB0430, TBB0431, TBB0432)
- ✓ **HIGH-Q™ Agarose LE** (TBR0120, TBR0121, TBR0122)
- ✓ **TiariStain Green Safe 20x** (TBR0226)

SPECIFIC PCR DETECTION KITS

Q-PLUS™ *Salmonella* Detection Kit

Q-PLUS™ *Salmonell*a Detection Kit is an excellent tool for a rapid and highly sensitive detection of *Salmonella spp*. It allows molecular detection of pathogenic *Salmonella spp* in samples previously enriched, reducing the time of well-established microbiological diagnostic process. Q-PLUS™ *Salmonella* Detection Kit is based on Taqman® probes signaling after the amplification of a specific Salmonella target (FAM probe). The kit also includes an Internal Positive Control (ROX probe) for monitoring PCR inhibition and false negative results. Negative Control is used to check the absence of contamination.

Features

- **Optimal performance** on water and a wide range of food matrices.
- **Highest sensitivity**: high priming efficiency and 1-10 cells per 25 g food sample (10-10^2 fg gDNA) can be detected with 100% specificity.
- **100% inclusivity and 100% exclusivity** in tested strains.
- **Compatible** with all real time thermocyclers.

Applications

Fast and reliable detection of *Salmonella spp* in food and environmental samples after a pre-enrichment step according to DIN EN ISO 20837 and 20838.

REFERENCES	DESCRIPTION	FORMAT
TBK1045	Q-PLUS™ SALMONELLA DETECTION KIT	100 rxn

Q-PLUS™ *Legionella spp.* Detection Kit

Q-PLUS™ *Legionella spp.* Detection Kit is an excellent and validated tool for a rapid detection of *Legionella spp*. It allows molecular detection of pathogenic *Legionella spp* in samples previously concentrated. Q-PLUS™ *Legionella spp.* Detection Kit is based on Taqman® probes signaling after the amplification of a specific *Legionella* target (FAM probe). The kit also includes an Internal Positive Control (ROX probe) for monitoring PCR inhibition and false negative results. Negative Control is used to check the absence of contamination.

Features

- **Highest sensitivity**: detection limit is ~ 5 pg of *Legionella* DNA allowing the detection of as little 10^3 cells/L of water, with a specificity of 100%.
- **100% inclusivity and 100% exclusivity** in tested strains.
- **Compatible** with all real time thermocyclers.

Applications

Fast and reliable detection of *Legionella spp* in water according to to ISO 22118: 2011.

REFERENCES	DESCRIPTION	FORMAT
TBK1049	Q-PLUS™ LEGIONELLA SPP DETECTION KIT	100 rxn

Q-PLUS™ *Legionella pneumophila* Detection Kit

Q-PLUS™ *Legionella pneumophila* Detection Kit is an excellent and validated tool for a rapid and highly sensitive detection of *Legionella pneumophila*. Q-PLUS™- *Legionella pneumophila* Detection Kit is based on Taqman® probes signaling after the amplification of a specific *Legionella* target (FAM probe). The kit also includes an Internal Positive Control (ROX probe) for monitoring PCR inhibition and false negative results. Negative Control is used to check the absence of contamination.

Features

- **Highest sensitivity:** detection limit is ~ 5 pg of *Legionella pneumophila* DNA allowing the detection of as little 10^3 cells/L of water, with a specificity of 100%.
- **100% inclusivity and 100% exclusivity** in tested strains.
- **Compatible** with all real time thermocyclers.

Applications

Fast and reliable detection of *Legionella pneumophila* in water according to ISO 22118: 2011.

REFERENCES	DESCRIPTION	FORMAT
TBK1051	Q-PLUS™ LEGIONELLA PNEUMOPHILA DETECTION KIT	100 rxn

see also

TIARIS PHYTODETECT®

MOLECULAR DETECTION OF VEGETAL PATHOGENS

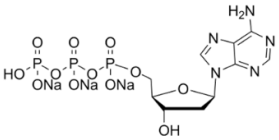
www.phytodetect.tiarisbiosciences.com

REFERENCE	PATHOGEN	END PCR	REAL TIME
VIRUS			
TBK1090	Apple Chlorotic Leaf Spot Virus (ACLSV)	●	
TBK1092	Apple Mosaic Virus (ApMV)	●	
TBK1094	Barley Mild Mosaic Virus (BaMMV)	●	
TBK1096	Cherry Leafroll Virus (CLRV)	●	
TBK1098	Citrus Tristeza Virus (CTV)	●	
TBK1084	Cucumber Green Mottle Mosaic Virus (CGMMV)		●
TBK1085	Cucumber Green Mottle Mosaic Virus (CGMMV)	●	
TBK1081	Cucumber Vein Yellowing Virus (CVYV)	●	
TBK1102	Cucurbit Aphid-Borne Yellows Virus (CABYV)	●	
TBK1104	Cucurbit Chlorotic Yellow Virus (CCYV)	●	
TBK1106	Cucurbit Yellow Stunning Disorder Virus (CYSDV)	●	
TBK1108	Impatients Necrotic Spot Virus (INSV)	●	
TBK1075	Papaya Ringspot Virus (PRSV)	●	
TBK1080	Pepino Mosaic Virus (PepMV)		●
TBK1100	Plum Pox Virus (PPV)	●	
TBK1110	Potato Leafroll Virus (PLRV)	●	
TBK1112	Potato Virus Y (PVY)	●	
TBK1114	Prunus Necrotic Ringspot Virus (PNRSV)	●	
TBK1086	Tomato Blotch Fruit Virus (ToBFV)	●	
TBK1087	Tomato Blotch Fruit Virus (ToBFV)		●
TBK1070	Tomato Brown Rugose Fruit Virus (ToBRFV)		●
TBK1073	Tomato Chlorosis Virus (ToCV)		●
TBK1074	Tomato Chlorosis Virus (ToCV)	●	
TBK1088	Tomato Infectious Chlorosis Virus (TICV)		●
TBK1079	Tomato Leaf Curl New Delhi Virus (ToLCNDV)		●
TBK1077	Tomato Mosaic Virus (ToMV)	●	
TBK1072	Tomato Mottle Mosaic Virus (ToMMV)	●	
TBK1076	Tomato Spotted Wilt Virus (TSWV)		●
TBK1078	Tomato Yellow Leaf Curl Virus (TYLCV)	●	

REFERENCE	PATHOGEN	END PCR	REAL TIME
BACTERIA			
TBK1116	*Acidovorax avenae* subsp. *citrulli*	●	
TBK1118	*Clavibacter michiganensis* subsp. *insidiosus*	●	
TBK1120	*Clavibacter michiganensis* subsp. *michiganensis*	●	
TBK1121	*Clavibacter michiganensis* subsp. *michiganensis*		●
TBK1122	*Clavibacter michiganensis* subsp. *sepedonicus*	●	
TBK1124	*Erwinia amylovora*	●	
TBK1125	*Erwinia amylovora*		●
TBK1126	*Ralstonia solanacearum*	●	
TBK1128	*Xanthomonas arboricola* pv. *pruni*	●	
TBK1130	*Xanthomonas citri* subsp. *citri*	●	
TBK1132	*Xanthomonas fragariae*	●	
TBK1134	*Xanthomonas hortorum* pv. *pelargonii*	●	
TBK1136	*Xanthomonas oryzae*	●	
TBK1138	*Xylophilus ampelinus*	●	
TBK1140	*Xylella fastidiosa*	●	
FUNGI			
TBK1150	*Colletotrichum spp.*	●	
TBK1152	*Fusarium culmorum*	●	
TBK1154	*Fusarium graminearum*	●	
TBK1156	*Fusarium oxysporum*	●	
TBK1158	*Fusarium solani*	●	
TBK1160	*Phytophtora fragariae*	●	
TBK1162	*Sclerotinia sclerotiorum*	●	
TBK1164	*Verticillium albo-atrum*		●
TBK1166	*Verticillium dahliae*		●

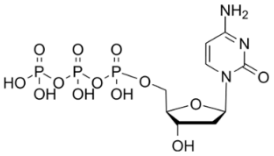
RELATED REAGENTS

Nucleotides



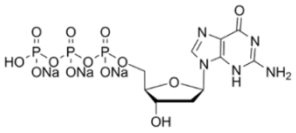
dATP

MW 491.18 g/mol (free acid).
λmax 259 nm.
ε = 15.1 L mmol^{-1}cm^{-1}.



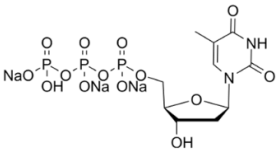
dCTP

MW 467.15 g/mol (free acid).
λmax 271 nm.
ε = 8.9 L mmol^{-1}cm^{-1}.



dGTP

MW 507.18 g/mol (free acid).
λmax 252 nm.
ε = 14.2 L mmol^{-1}cm^{-1}.



dTTP

MW: 482.17 g/mol (free acid).
λmax 267 nm.
ε = 9.5 L mmol^{-1}cm^{-1}.

Features

- Highest purity, > 99%.
- Aqueous solution at pH 8.5.

Applications

- Standard and quantitative PCR.
- RT-PCR and RT-qPCR.
- Consistent amplifications with more demanding enzymes such as high fidelity enzymes and long polymerases.

REFERENCES	DESCRIPTION	FORMAT
TBR0200	HIGH-Q™ dATP SOLUTION, 100 mM	400 µL
TBR0201		200 µL
TBR0202	HIGH-Q™ dCTP SOLUTION, 100 mM	400 µL
TBR0203		200 µL
TBR0204	HIGH-Q™ dCTP SOLUTION, 100 mM	400 µL
TBR0205		200 µL
TBR0206	HIGH-Q™ dTTP SOLUTION, 100 mM	400 µL
TBR0207		200 µL
TBR0198	HIGH-Q™ dNTP MIX, 8 mM TOTAL, 2 mM EACH	5 x 1 mL
TBR0199		1 mL
TBR0208	HIGH-Q™ dNTP MIX, 10 mM TOTAL, 2.5 mM EACH	5 x 1 mL
TBR0209		1 mL
TBR0211	HIGH-Q™ dNTP MIX, 100 mM TOTAL, 25 mM EACH	1 mL
TBR0212	HIGH-Q™ dNTP SOLUTION SET, 100 mM EACH	4 x 200 µL
TBR0213		4 x 400 µL

Other Reagents

REFERENCES	DESCRIPTION	FORMAT
TBR0105	BETAINE ENHANCER SOLUTION 5M	1.5 mL
TBR0106		5 x 1.5 mL
TBR0215	$MgCl_2$ 25 mM	10 x 1.5 mL
TBR0216		100 mL
TBR0217	$MgCl_2$ 50 mM	10 x 1.5 mL
TBR0218	$MgCl_2$ 1 M	100 mL
TBB0310	STOUT™ PCR BUFFER 10X	10 x 1.5 mL
TBB0311	WARM™ HOT-START PCR BUFFER 10X	10 x 1.5 mL
TBB0312	TOO™ LONG PCR BUFFER 10X	10 x 1.5 mL
TBB0303	PCR GRADE WATER, NUCLEASE FREE	10 x 1.5 mL
TBR0259	DMSO, MOLECULAR BIOLOGY GRADE	10 x 1.5 mL
TBR0260		50 mL
TBR0261		100 mL

"If we are to use our tools in the service of fitting in on Earth, our basic relationship to nature – even the story we tell ourselves about who we are in the universe – has to change."

Janine Benyus

The development of SONAR (Sound Navigation and Ranging), a technology designed to detect underwater objects using sound waves, has found an invaluable source of inspiration in biomimetics. From its first applications during World War I to today's advanced systems, sonar has evolved by observing how certain animals, such as dolphins and bats, use echolocation to navigate, hunt, and recognize their surroundings. These species emit ultrasonic waves (>20 kHz) into their environment, and the returning echoes are analyzed within milliseconds, creating a three-dimensional map of their surroundings. This basic principle, adapted by engineers, forms the foundation of active sonar, which sends sound pulses into aquatic environments and measures the time and characteristics of the echoes to determine the position, size, and movement of objects.

Both bats and dolphins have significantly influenced the design of sonar systems. Bats, which operate in the air, use frequency-modulated ultrasonic pulses to obtain precise information about distances and velocities. Similarly, modern active sonar systems incorporate modulated signals, such as chirps, to maximize resolution and clarity of echoes. Dolphins, on the other hand, use ultrasonic clicks in water, dynamically adjusting the frequency and intensity of their signals based on the distance and size of their target. This behavior has served as a model for the creation of adaptive sonar systems capable of changing their acoustic parameters according to environmental conditions and the characteristics of the target.

One key similarity between animal echolocation and sonar is the ability to adjust signals to suit the environment. For instance, dolphins optimize the energy of their clicks to overcome water density and ambient noise, a strategy replicated by engineers in low-impact environmental technologies. Furthermore, the auditory precision of these animals, which allows them to discriminate between complex echoes, has inspired systems that combine advanced signal processing with artificial intelligence algorithms to improve detection in challenging environments. Bioacoustic studies of animals have also led to the design of multi-frequency and multi-beam systems, emulating dolphins' ability to focus on specific details in their surroundings while maintaining a broad overview.

Biomimetics has inspired the development of more efficient and precise sonar technology, expanding its applications beyond the military field. In the civilian sector, sonar is crucial for exploring underwater resources such as oil and gas, as well as for oceanographic research, including seabed mapping and studying currents and marine habitats. It is also used for locating fish schools with high precision, increasing the efficiency and sustainability of fishing operations, as well as in rescue missions and the identification of shipwrecks. Additionally, the principles of sonar have transcended their original underwater use and, when adapted, are employed in medical ultrasounds and even in mobility aids such as sonar-equipped canes for the visually impaired. It is remarkable how nature can guide technological progress in such an efficient and precise manner.

#EchoesOfNature

RNA Research

4

RNA RESEARCH

cDNA SYNTHESIS

RNase Inhibitor

RNase Inhibitor is a robust inhibitor that specifically inhibits RNase A, B and C. It is not effective against RNase 1, RNase T1, S1 Nuclease, RNase H or RNase from *Aspergillus*. It is a recombinant enzyme from murine origin produced in *Escherichia coli*. The enzyme is highly purified to be used in applications where the integrity of RNA is important. This enzyme has improved resistance to oxidation compared to the human and porcine RNase inhibitors.

Features

- Purity ≥ 99%.
- Molecular weight, **~ 50 kDa**.
- Compatible with AMV or M-MLV Reverse Transcriptase.
- **Compatible with Taq DNA polymerases and RNA polymerases** (T3, T7, SP6).

Applications

- First-strand cDNA synthesis experiments.
- RT-PCR and RT-qPCR.
- RNA labeling.
- In vitro transcription/translation.
- Ideal for reactions where low DTT concentrations are required (e.g., Real-time PCR).

M-MuLV Reverse Transcriptase

M-MuLV Reverse Transcriptase is a recombinant reverse transcriptase from Moloney Murine Leukemia Virus produced in *Escherichia coli*. Highly purified the enzyme is an useful RNA-dependent DNA polymerase to synthesize cDNA using a RNA template and an oligo(dT) primer or a specific reverse primer.

Features

- **Recombinant enzyme**, MW 69 kDa.
- The enzyme **lacks of 3'→5' and 5'→3' exonuclease activity**.
- The enzyme has **not RNase H activity**.

Applications

- First-strand cDNA synthesis experiments.
- RT-PCR.
- RT-qPCR.

REFERENCES	DESCRIPTION	FORMAT
TBZ0320	RNase INHIBITOR, 4000 u	100 µL
TBZ0321	M-MuLV REVERSE TRANSCRIPTASE, 200 U/ µL	20,000 U
TBZ0322	M-MuLV REVERSE TRANSCRIPTASE, 200 U/ µL	100,000 U

Complementary Products

- ✓ **HIGH-Q™ dNTP Mix 10 mM** (TBR0208, TBR0209)
- ✓ **HIGH-Q™ dNTP Mix 100 mM** (TBR0211)

RT-PCR & RT-qPCR

TIARIS™ One-Step RT-PCR Kit

Tiaris™ One-Step RT-PCR Kit is designed for first-strand cDNA synthesis and subsequent PCR in a single-tube reaction procedure, decreasing contamination risk and reducing hands-on time considerably. The kit consists of a RT mix and a PCR Master Mix. The RT mix comprises a mutant M-MuLV reverse transcriptase without RNase H activity and increased thermostability, and an advanced RNase inhibitor to avoid RNA degradation. The Master mix contains all the reagent (*except PCR primers and template*) needed for running PCR reactions.

Features

- **Thermostable reverse transcriptase**, allows cDNA synthesis at 45-55°C.
- Modified M-MuLV reverse transcriptase **lacks RNase H activity**.
- **High yield, specificity and sensitivity**.

Applications

- cDNA synthesis.
- Rapid one-step RT-PCR, one-tube RNA quantification, reducing experimental variation and contamination with a convenient RT-PCR protocol.
- Gene expression analysis by end-point RT-PCR.

REFERENCES	DESCRIPTION	FORMAT
TBK1040	TIARIS™ ONE-STEP RT-PCR KIT	100 rxn

Q-PLUS™ One-Step Green RT-qPCR Master Mix 2x

Q-PLUS™ One-Step Green RT-qPCR Master Mix allows first-strand cDNA synthesis and subsequent qPCR in a single-tube reaction procedure, decreasing contamination risk and reducing hands-on time considerably. The kit includes our Q-PLUS™ Green qPCR Master mix developed for fast PCR, provided as a 2x reaction mixture, which contains all components necessary for real-time PCR, including a green fluorescent dye, ultrapure dNTPs, stabilizers and enhancers. In addition, a separate RT mix that comprises a balanced mixture of both reverse transcriptase and ribonuclease inhibitor is also provided.

Features

- High Efficiency in **multiplex reactions**.
- High Efficiency in **GC/ AT-rich templates**.
- Early C_T values – **Rapid extension rate**.
- **Extreme sensitivity** – increased limit of detection.
- Includes a separate vial ROX that can be added to the qPCR reaction based on thermocycler manufacturer's specification.

Applications

- Absolute quantification
- Gene copy number determination
- Gene expression analysis.

Q-PLUS™ One-Step Probe RT-qPCR Master Mix 2x

The kit includes our Q-PLUS™- Probe qPCR Master Mix, presented as a 2× reaction mixture. This master mix incorporates all essential components for real-time PCR, including ultrapure dNTPs, stabilizers, and enhancers, designed for the efficient amplification and detection in qPCR based on a wide range of probe-based technologies, including Taqman®, Molecular Beacons® and Scorpion® probes. In addition, a separate RT mix that comprises a balanced mixture of both reverse transcriptase and ribonuclease inhibitor is also provided.

Features

- High efficiency in **multiplex reactions**.
- **High efficiency** in GC/ AT-rich templates.
- **Early C_T values**, rapid extension rate.
- **Extreme sensitivity**.
- **Compatible with fast and standard PCR** program.

Applications

- One-Step RT-qPCR.
- Absolute quantification.
- Gene copy number determination.
- Gene expression analysis.

REFERENCES	DESCRIPTION	FORMAT
TBK0014	Q-PLUS™ ONE-STEP GREEN RT-qPCR MASTER MIX 2X	100 rxn
TBK0015	Q-PLUS™ ONE-STEP GREEN RT-qPCR MASTER MIX 2X	500 rxn
TBK0010	Q-PLUS™ ONE-STEP PROBE RT-qPCR MASTER MIX 2X	100 rxn
TBK0011	Q-PLUS™ ONE-STEP PROBE RT-qPCR MASTER MIX 2X	500 rxn

IN VITRO TRANSCRIPTION

T7 RNA Polymerase

T7 RNA polymerase is a highly specific and efficient enzyme derived from bacteriophage T7 produced in *Escherichia coli*. T7 RNA polymerase is responsible for synthesizing RNA from DNA templates that contain a T7 promoter sequence. Its remarkable specificity for this promoter ensures that only the desired target sequence is transcribed, minimizing off-target effects. Unlike many host RNA polymerases, T7 RNA polymerase operates independently of cellular machinery, making it an ideal tool for controlled transcription in a laboratory setting.

REFERENCES	DESCRIPTION	FORMAT
TBZ0216	T7 RNA POLYMERASE 50 U/ µL	5000 U

Features

- Recombinant enzyme.
- Monomer, 99 kDa.
- Requires Mg^{2+} as cofactor.
- Low error rate.

Applications

- *In vitro* transcription from T7 promoter.
- Synthesis of single strand RNA.
- RNA Labeling.
- Studies of RNA secondary structure and RNA-protein interactions, RNA splicing.

RELATED REAGENTS

TIARIS™ RNase Decontamination Solution

TIARIS™ RNase Decontamination Solution is a convenient and effective solution for the inactivation and removal of RNases and DNases from laboratory bench, biosafety cabinet and PCR equipment. It is based on the action of anionic surfactants and a secondary alcohol on nucleases.

REFERENCES	DESCRIPTION	FORMAT
TBR0310	TIARIS™ RNASE DECONTAMINATION SOLUTION	500 mL

Water, DEPC treated

Water, DEPC treated is a molecular biology grade water obtained by diethylpyrocarbonate (DEPC) treatment and autoclaving of ultra-filtrated water. DEPC efficiently inhibits RNases by covalent modification. DEPC-treated water is ideal for molecular biology procedures where DNase and RNase activity must be absent.

REFERENCES	DESCRIPTION	FORMAT
TBB0304	WATER, DEPC TREATED	1 L
TBB0305	WATER, DEPC TREATED	0.5 L
TBB0306	WATER, DEPC TREATED	5x 1.5 mL

There are literally as many ideas as there are organisms.

Janine Benyus

Throughout history, the wisdom of Mother Nature has inspired keen observers in the creation of various inventions, new materials, and incredible architectural works. George de Mestral (*Switzerland, 1907-1990*) stands out on this list for creating Velcro®, one of the most widespread, useful, and versatile innovations of the 20th century.

From a young age, he showed a fascination with how things worked around him, and by the age of 12, he had already patented his first invention: a toy airplane. This curiosity for engineering and innovative design led him to study at the *École Polytechnique Fédérale de Lausanne*, where he gained a solid formation in engineering.

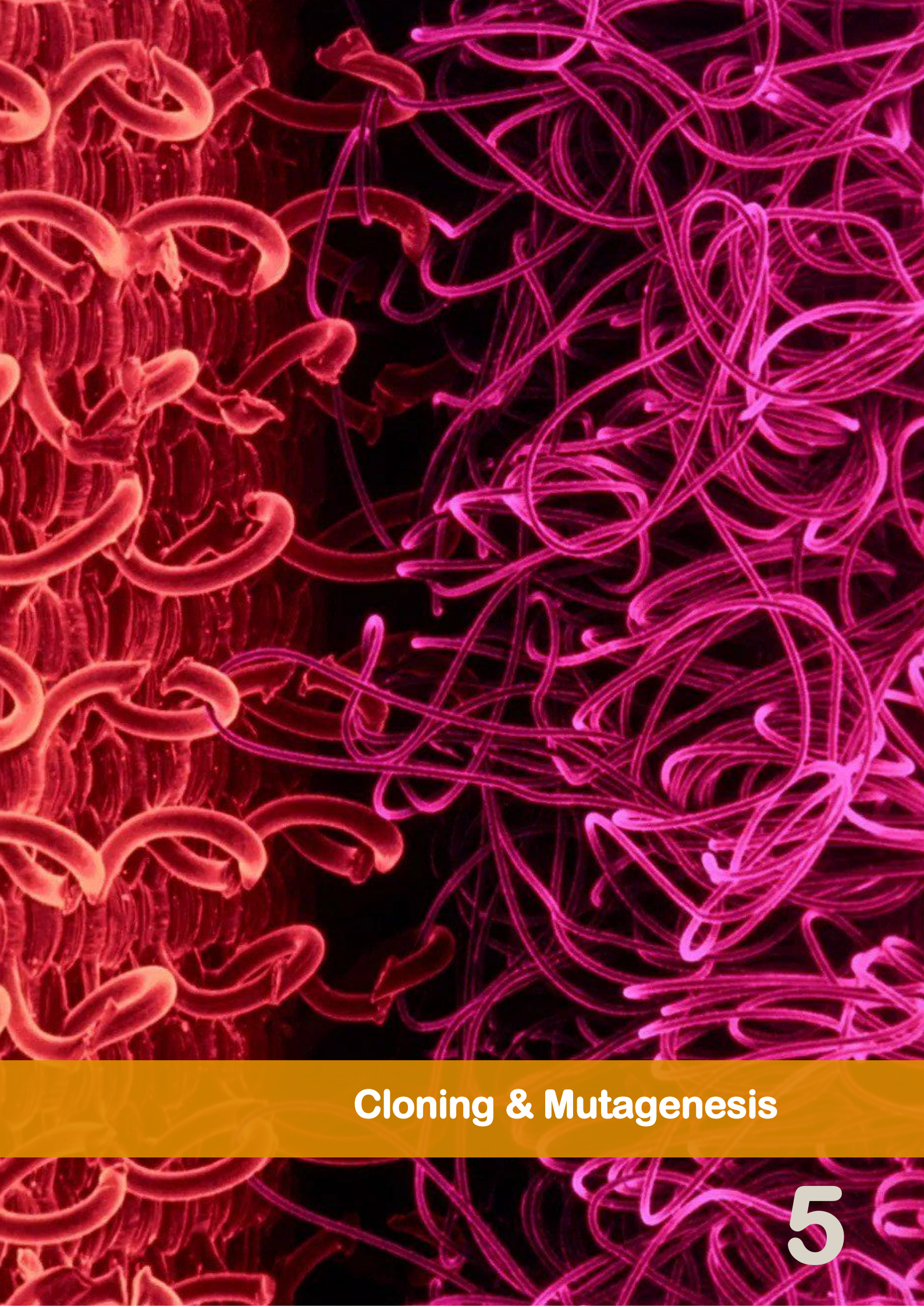
In 1941, while returning home after a walk in the countryside, de Mestral noticed that burdock seeds—a type of thistle—had stuck to his dog's fur and his own clothing. Intrigued, he decided to examine the seeds under a microscope and observed that they were covered with tiny hooks that easily attached to fabric fibers and hair. Inspired by the structure of these natural hooks, de Mestral conceived the ingenious idea of applying what he observed to a closure system that could be easily opened and closed repeatedly. This system would consist of two parts: one covered with tiny hooks and the other with soft loops.

To put his idea into practice, de Mestral visited several textile factories in Europe, but the first six companies he met with were generally skeptical. While manufacturing the soft loops wasn't a problem, producing the tiny hooks was a challenge. They needed to be flexible enough to detach from the loops but strong enough to ensure secure fastening. In Lyon, he finally found a manufacturer that combined durable nylon with cotton, producing a fabric capable of maintaining its shape. Using this material, de Mestral successfully replicated the microscopic hooks he had observed on the burdock seeds.

In 1955, George de Mestral was granted the patent for Velcro®, a combination of the French words "velours" (*velvet*) and "crochet" (*hook*). He also founded a company with the same name for the production of Velcro®, establishing his first factories in the United States; in Europe, Spain was a pioneer in manufacturing Velcro® starting in 1959.

The applications of billions of meters of Velcro® have reached as far as imagination allows. From the textile, construction, medical, and transportation industries to aerospace, this invention has become a key and indispensable product.

#NatureWithHooks



Cloning & Mutagenesis

5

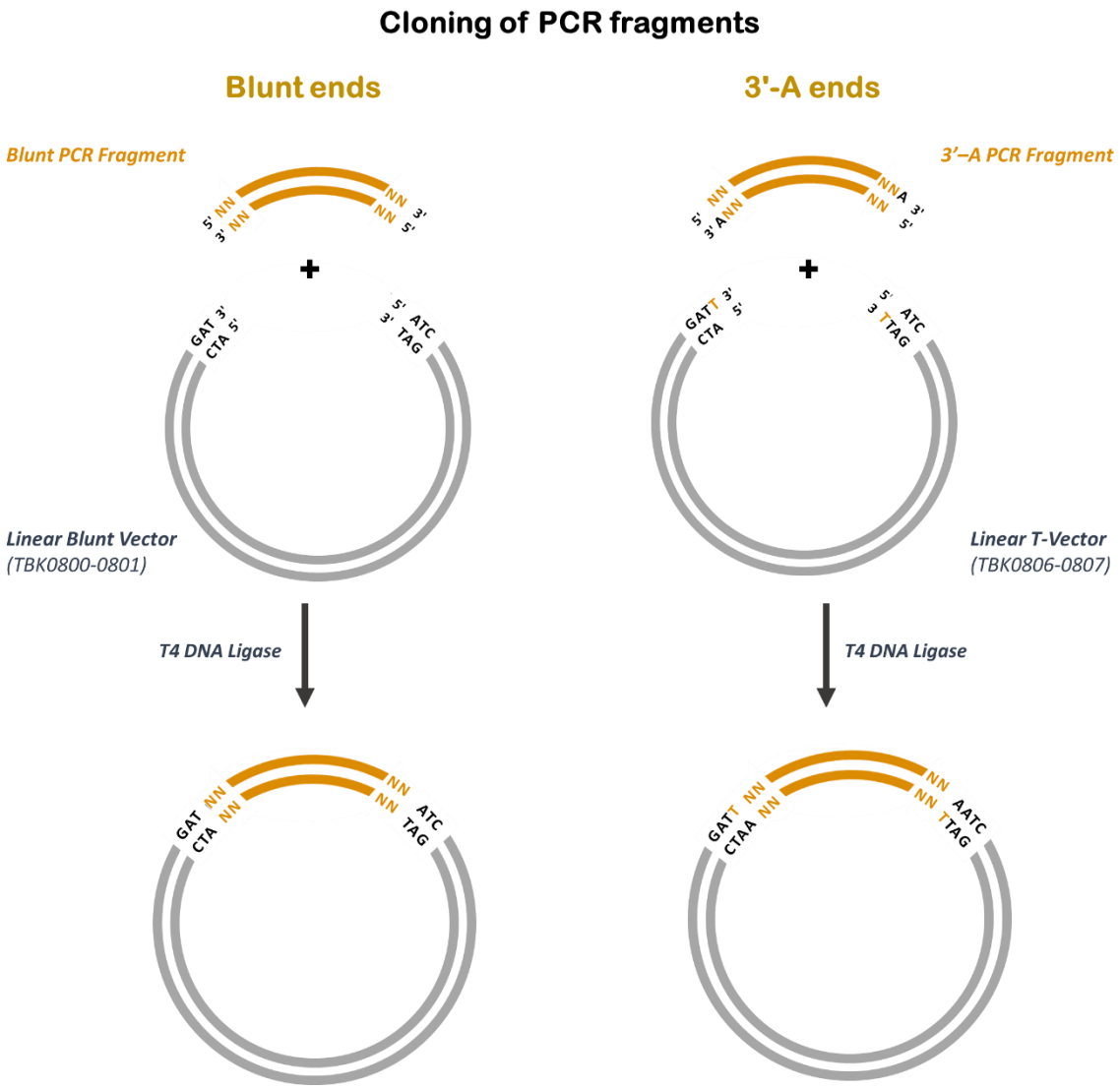
CLONING

T4 DNA LIGASE

T4 DNA Ligase is a recombinant ATP-dependent DNA ligase from bacteriophage T4 produced in *Escherichia coli*. It has been widely used in various applications ranging from molecular cloning, library construction and high-throughput DNA sequencing. This enzyme efficiently catalyzes the formation of a phosphodiester bond between juxtaposed 5'-phosphate and 3'-hydroxyl termini juxtaposed in duplex DNA or RNA.

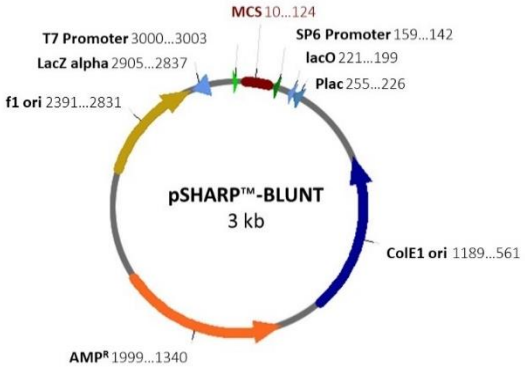
REFERENCES	DESCRIPTION	FORMAT
TBZ0326	T4 DNA LIGASE	200 U
TBZ0327	T4 DNA LIGASE	1000 U

PCR FRAGMENTS CLONING KITS



pSHARP™-BLUNT

The kit includes a blunt linear vector, obtained through innovative technology that ensures an efficient cloning process of blunt PCR fragments with minimal background. Cloning does not require phosphorylated primers or restriction enzymes. The vector includes identical restriction sites on both sides of the cloning site to facilitate subsequent subcloning processes.



Features

- Linear vector ready to use.
- Minimal background.
- Selection blue/ white.
- High number of white recombinant clones.
- *Eco*RI restriction site on both sides of MCS.
- T7 and SP6 promoters included.

Applications

- Cloning PCR fragments produced with high fidelity enzymes or blend polymerases.
- Subcloning of cloned PCR fragment.
- *In vitro* transcription.
- Sequencing.

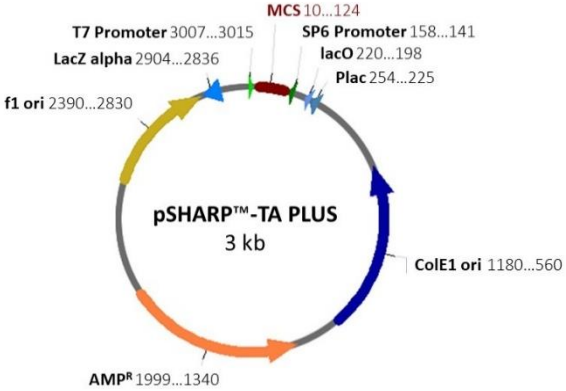
REFERENCES	DESCRIPTION	FORMAT
TBK0800	pSHARP™ -BLUNT VECTOR CLONING KIT	10 rxn
TBK0801	pSHARP™ -BLUNT VECTOR CLONING KIT	20 rxn

Complementary Products

- ✓ **TIARIS™ High-Fidelity DNA Polymerase Kit** (TBK1033)
- ✓ **Pfu DNA Polymerase** (TBK0086, TBK0087)
- ✓ **T7 RNA Polymerase** (TBZ0216)
- ✓ **HIGH-Q™ Spin-Column Gel Extraction & Cleanup Purification Kit** (TBK0191, TBK0192)

pSHARP™-TA PLUS

It is an ideal kit to clone 3'-A PCR fragments. The kit includes a linearized vector with thymine added at the 3' end. Complementarity with adenine, added template-free to the PCR fragment, promotes successful cloning.



Features

- Linear vector ready to use.
- Low background.
- Selection blue/ white.
- High number of white recombinant clones.
- T7 and SP6 promoters included.

Applications

- Cloning PCR fragments produced with non-proofreading DNA polymerases.
- Subcloning of cloned PCR fragment.
- *In vitro* transcription.
- Sequencing.

REFERENCES	DESCRIPTION	FORMAT
TBK0806	pSHARP™ -TA PLUS VECTOR CLONING KIT	10 rxn
TBK0807	pSHARP™ -TA PLUS VECTOR CLONING KIT	20 rxn

Complementary Products

- ✓ **STOUT™ Recombinant Taq DNA polymerase Master Mix** (TBK0029, TBK0030)
- ✓ **STOUT™ Red PCR Master Mix** (TBK0026, TBK0027)
- ✓ **HIGH-Q™ Spin-Column Gel Extraction & Cleanup Purification Kit** (TBK0191, TBK0192)

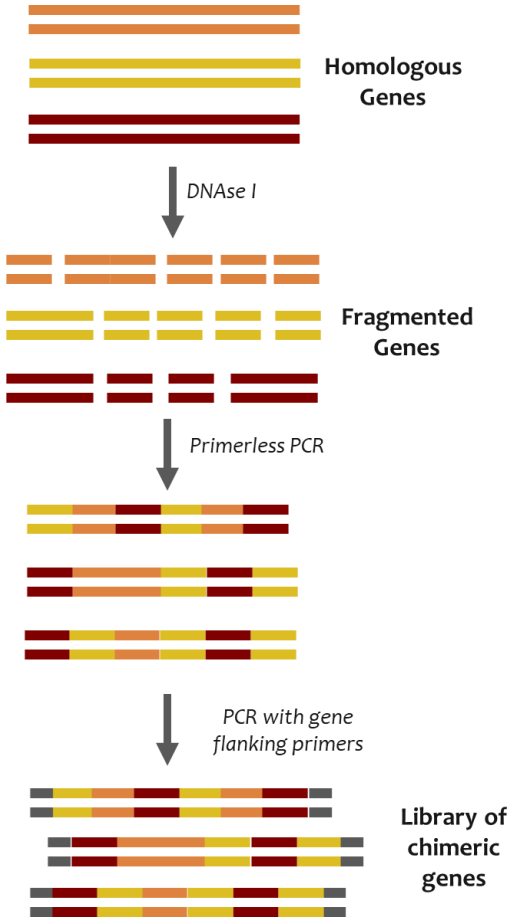
MUTAGENESIS

DNA SHUFFLING

TrapMutant™ DNA Shuffling Kits

The shuffling technique is a powerful tool for conducting molecular evolution of genes, ensuring broad genetic diversity. It is based on the random fragmentation of a target gene or a collection of homologous genes, which are then reassembled in two PCR steps: the first without oligonucleotides and the second flanked by primers of interest.

The reassembly of a single treated gene allows for the generation of point mutations at a rate of approximately 0.7%, while the inclusion of different homologous genes enables the creation of chimeric gene libraries with point mutations.



Features

- **0.7% point mutation rate** for one gene shuffled.
- **Homologous recombination and point mutation** at a rate of 0.7% for several genes shuffled.

Applications

- Molecular evolution of genes to obtain new protein variants.
- *In vitro* recombination of homologous or different genes.
- Library generation.

REFERENCES	DESCRIPTION	FORMAT
TBK0090	TRAPMUTANT™ DNA SHUFFLING KIT	30 rxn
TBK0091	TRAPMUTANT™ PLUS DNA SHUFFLING KIT	30 rxn

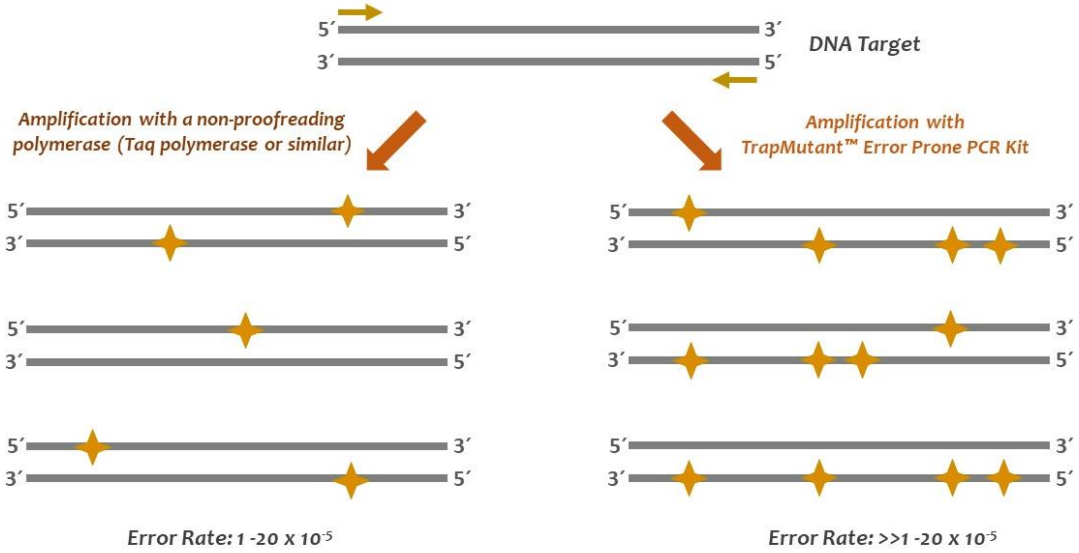
Complementary Products

✓ **HIGH-Q™ Spin-Column DNA Cleanup Purification Kit** (TBK0196, TBK0197)

ERROR PRONE

TrapMutant™ Error Prone PCR Kit

This kit utilizes the fidelity of Taq DNA polymerase, which has an estimated error rate of 1-20 x 10^{-5} bases. This inherent error rate can be modulated by adding Mn^{2+}, adjusting the Mg^{2+} concentration, and using unbalanced dNTP concentrations. Through these deliberate modifications, error-prone PCR enables controlled mutagenesis, with mutation rates typically ranging from 0.6% to 2.0%.



Features

- Efficient, **mutation rate of 0.6-2.0%.**
- **Polymerase included** has an error rate at 10^{-5} order.

Applications

- Protein Engineering to generate variants with desirable properties.
- Molecular evolution of genes to functional genomics studies or to obtain new protein variants.
- Library generation.
- Antibody Development.

REFERENCES	DESCRIPTION	FORMAT
TBK0094	TRAPMUTANT™ ERROR-PRONE PCR KIT	30 rxn

Complementary Products

- ✓ **STOUT™ Recombinant Taq DNA polymerase Master Mix** (TBK0029, TBK0030)
- ✓ **STOUT™ Red PCR Master Mix** (TBK0026, TBK0027)

RELATED REAGENTS

X-GAL

X-GAL is a chromogenic permeable substrate to detect β-galactosidase activity. The enzyme hydrolyzes X-GAL releasing galactose and 5-Bromo-4-Chloro-3-hydroxyindole. Indole compound produced is dimerized and oxidized generating an insoluble dark blue product

IPTG

It is a synthetic compound widely used in protein expression driven by lac promoter. This compound is a non-metabolizing analogous of lactose that triggers transcription of the lac promoter.

Ampicillin, sodium salt

Ampicillin belongs to the group of beta lactam antibiotics. Its beta lactam ring structure includes an amino side chain attached to 6-amino-penicillanic acid. Ampicillin is one of the most important β-lactam antibiotics used today. Its action interrupts bacterial cell-wall peptidoglycan synthesis.

Kanamycin Sulphate

It belongs to the group of aminoglycoside antibiotics which binds to the 30S ribosomal subunit causing translocation inhibition and misreading of tRNA. Their specific interactions with bacterial ribosomal RNAs inhibits bacterial protein synthesis.

SOC Medium

SOC Medium is bacterial growth medium mostly used to culture transformed cells of *Escherichia coli.* It is a rich medium that contains a combination of salts, magnesium and glucose that stabilizes competent cells and maximizes transformation efficiency .

REFERENCES	DESCRIPTION	FORMAT
TBR0110	X-GAL	1 g
TBR0111	X-GAL SOLUTION, READY TO USE	10 mL
TBR0112	AMPICILLIN SODIUM SALT	5 g
TBR0113	AMPICILLIN SODIUM SALT	10 g
TBR0114	IPTG	5 g
TBR0115	IPTG SOLUTION 1M	5 x 1.5 mL
TBR0116	IPTG SOLUTION 0.1M	10 x 1.5 mL
TBR0118	KANAMYCIN SULPHATE	5 g
TBB0417	SOC MEDIUM	100 mL

"The answer to our questions are everywhere,
we just need to change the lens with which we see the world."

Janine Benyus

Today, in some countries, traveling by train at over 200 km/h is no longer a groundbreaking experience. However, in the early 1960s, trains rarely exceeded 110 km/h. In October 1964, for the Tokyo Olympics, Japan inaugurated the era of high-speed rail with the Shinkansen line. The first Shinkansen, known as the Series 0, boasted a maximum speed—unbelievable for the time—of 210 km/h.

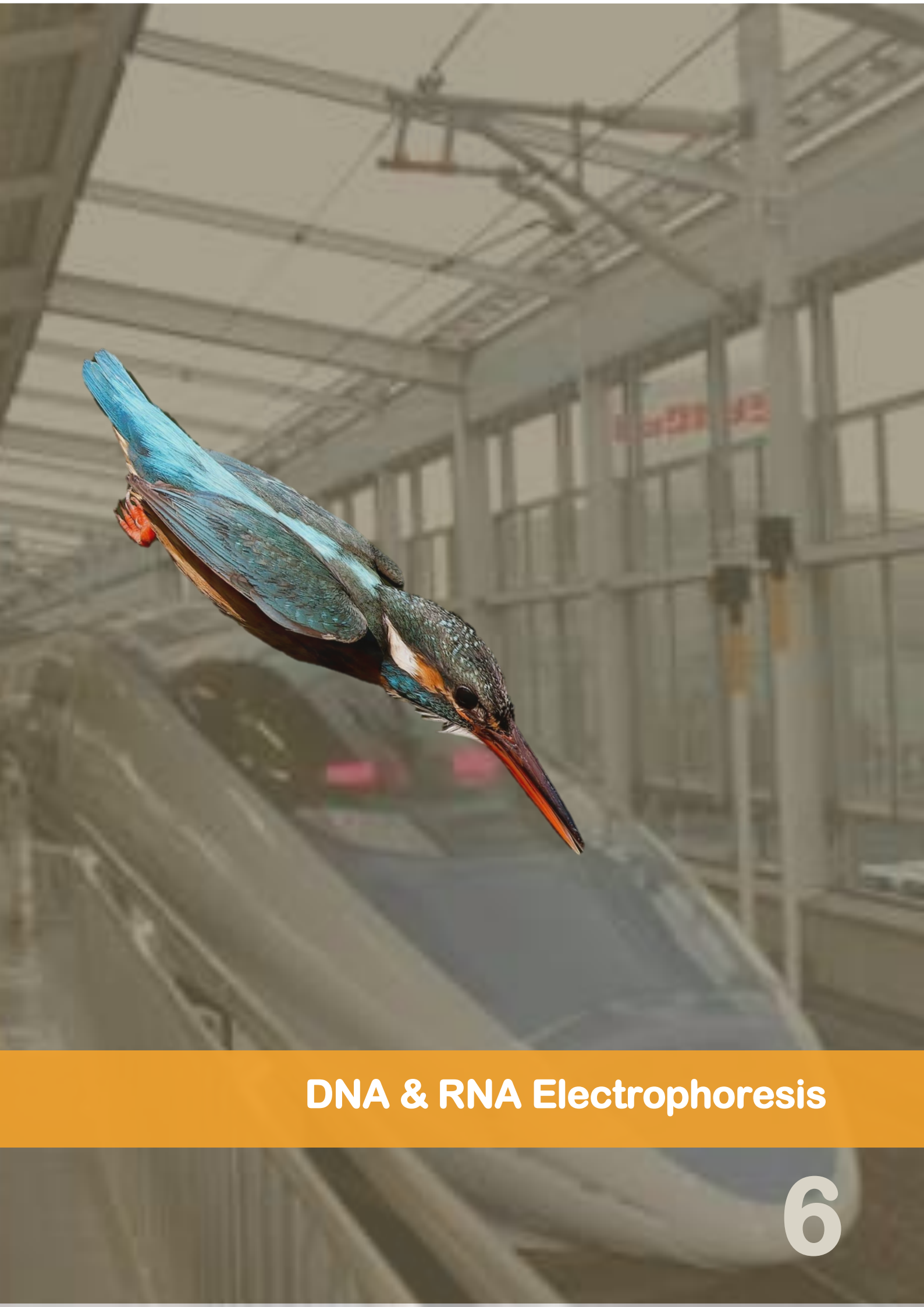
When trains began reaching speeds close to 270 km/h, the operating company faced a major problem: as trains exited tunnels, they produced a loud noise that could be heard up to 400 meters away. The solution to this problem came from Eiji Nakatsu, manager of the Test Operations Department at Japan Railway West. After hearing one of his engineers remark that the train seemed to "shrink" when entering a tunnel, Nakatsu hypothesized that the sonic boom was caused by differences in air resistance inside and outside the tunnel.

The solution to this challenge lay in the question: is there a living organism that deals with sudden changes in air resistance? Nakatsu, a passionate birdwatcher and member of the Wild Bird Society of Japan, recalled the kingfisher's dives, which barely create a splash. The kingfisher's ability to transition from a low-resistance medium to water, which is 800 times denser, mirrored the issue faced by the bullet trains.

Nakatsu and his engineering team conducted a detailed study of the kingfisher's beak shape. The modified train, redesigned by Nakatsu, featured an elongated nose, extending from the original train's 6 meters to 15 meters in the Series 500 version, which debuted in 1997. Additionally, the new train had a rounded body, allowing air to flow more smoothly between the train and the tunnel walls. This design achieved speeds of 300 km/h without exceeding the noise limit of 70 decibels and reduced energy consumption by 15% compared to previous models.

Today, Shinkansen technology and infrastructure have advanced significantly, reaching regular operating speeds of up to 320 km/h with the Series N700S, launched in July 2020. Even faster models are expected by 2027. Following Japan's lead, high-speed rail systems were developed worldwide, including Italy's Diretissima (1977), France's TGV (1981), Spain's AVE (1992), South Korea's KTX (2004), and China's CRH (2007). And technology continues to progress at bullet-train speed!

##NatureInspiredBulletTrain



DNA & RNA Electrophoresis

6

DNA & RNA ELECTROPHORESIS

ELECTROPHORESIS BUFFER

	TAE BUFFER	TBE BUFFER
Composition (10x)	400 mM Tris 200 mM Acetic Acid 10 mM EDTA	0.89M Tris 0.89M Boric Acid 0.02M EDTA
pH	8.3	8.3
Voltage	Low (<150V)	High (>2000V)
Conductivity	+++	+
Buffering Capacity	+	+++
Overheated	+	+++
Resolution	High for long fragments	High for short fragments
Large fragments separation (>3kb)	++	+
Small fragments separation (<0.3kb)	+	++
Suitable for DNA gel extraction	++	-
Enzymatic inhibition	-	++
Toxicity	-	++

TBE, Tris Borate-EDTA Buffer

Tris-Borate-EDTA Buffer pH 8.3 is a high quality buffer to be used in agarose or acrylamide gels. It is supplied as sterile concentrated solution (10x or 5x) or 1x in powder presentation.

TAE, Tris Acetate-EDTA Buffer

Tris-Acetate-EDTA Buffer (TAE) is a high-quality buffer to be used in agarose gel preparation and as electrophoresis running buffer. It is supplied as sterile concentrated solution(10x or 50x) that must be diluted at 1x before its use or in powder format. TAE 1x is the most commonly buffer used in molecular biology because it doesn´t interfere with downstream applications.

REFERENCES	DESCRIPTION	FORMAT
TBB0348	TBE BUFFER 10X	1 L
TBB0349	TBE BUFFER 10X	4 x 1L
TBB0422	TBE BUFFER 5X	5 x 1L
TBB0618	TBE BUFFER 1x, Powder 10x 1L	10 pouches
TBB0619	TBE BUFFER 1x, Powder 50x 1L	50 pouches

REFERENCES	DESCRIPTION	FORMAT
TBB0355	TAE BUFFER 10X	1 L
TBB0356	TAE BUFFER 10X	4 x 1L
TBB0359	TAE BUFFER 50X	1 L
TBB0622	TAE BUFFER 1x, Powder 10x 1L	10 pouches
TBB0623	TAE BUFFER 1x, Powder 50x 1L	50 pouches

AGAROSES

High-Q™ Agarose LE (*low electroendosmosis*)

High-Q™ Agarose LE is a high quality agarose specifically validated for genetic and molecular biology applications. It is a linear heteropolysaccharide composed of alternating D-galactose and 3,6-anhydro-L-galactopyranose units linked by α-(1->3) and β-(1->4) glycosidic bonds. This agarose, with low electroendosmosis values (0.05-0.13) and high mechanical strenght (1% ≥1200 g/cm²), is the standard agarose used in DNA electrophoresis.

Agarose Gel (%)	Separation Range (bp)
0.5	1,000-3,0000
0.7	800-12,000
1.0	500-10,000
1.2	400-7,000
1.4	200-4,000
2.0	50-2,000

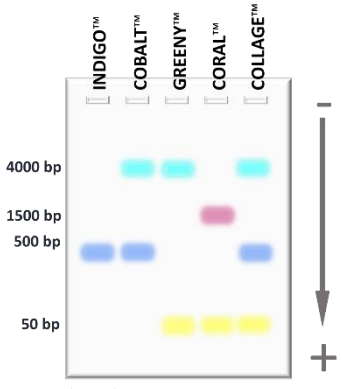
High-Q™ Agarose LM (*low melting*)

High-Q™ Agarose LM is a specially modified form of agarose in which hydroxyethyl groups have been chemically introduced into the agarose molecule. This modification alters the properties of the agarose, causing it to gel at a lower temperature (~30 °C) and melt at a relatively low temperature (65 °C). This unique characteristic makes it particularly useful for applications such as gel electrophoresis, where the agarose needs to be melted and re-solidified without compromising the integrity of the DNA or other biomolecules being analyzed. It provides easier recovery of nucleic acids from the gel, making it a preferred choice in molecular biology laboratories.

REFERENCES	DESCRIPTION	FORMAT
TBR0120	HIGH-Q™ AGAROSE LE	500 g
TBR0121		250 g
TBR0122		100 g
TBR0305	HIGH-Q™ AGAROSE LM	50 g

LOADING BUFFERS

Suitable solutions for monitoring nucleic acid migration. For this purpose, we offer a standard series of loading buffers and the Intense™ serie, which allows you to observe your DNA fragments with greater clarity.



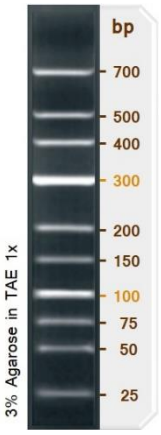
Electrophoresis in agarose 1% in TAE 1x

REFERENCES	DESCRIPTION	FORMAT
TBB0320	INDIGO™ LOADING BUFFER, 6x	5 x 1 mL
TBB0321	COBALT™ LOADING BUFFER, 6x	5 x 1 mL
TBB0322	GREENY™ LOADING BUFFER, 6x	5 x 1 mL
TBB0323	CORAL™ LOADING BUFFER, 6x	5 x 1 mL
TBB0324	COLLAGE™ LOADING BUFFER, 6x	5 x 1 mL
TBB0325	INTENSE™ INDIGO™ LOADING BUFFER, 6x	5 x 1 mL
TBB0326	INTENSE™ COBALT™ LOADING BUFFER, 6x	5 x 1 mL
TBB0327	INTENSE™ GREENY™ LOADING BUFFER, 6x	5 x 1 mL
TBB0328	INTENSE™ CORAL™ LOADING BUFFER, 6x	5 x 1 mL
TBB0329	INTENSE™ COLLAGE™ LOADING BUFFER, 6x	5 x 1 mL

LADDERS

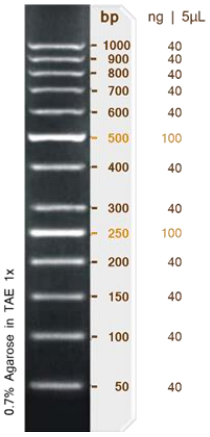
TIARIS™ Ruler 25-700 pb

Suitable for sizing DNA fragments from 25-700 bp. Composed of 10 linear individual DNA fragments, included two visual references.



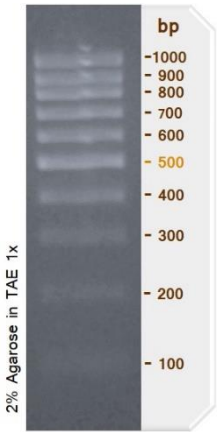
TIARIS™ Ruler 50-1.000 pb

Suitable for sizing DNA fragments from 50-1000 bp. Composed of 13 linear individual DNA fragments, included two visual references.



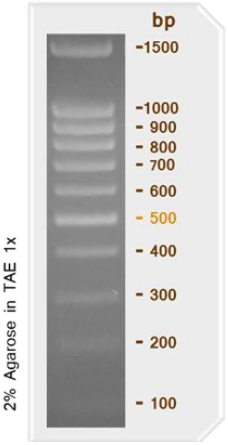
TIARIS™ Ruler 100-1.000 bp

Suitable for sizing DNA fragments from 100-1000 bp. Composed of 10 linear individual DNA fragments, included one visual references at 500 bp band.



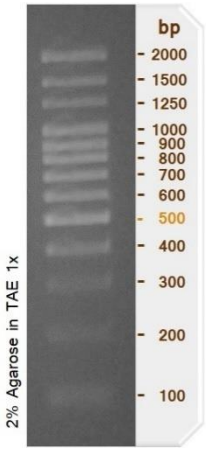
TIARIS™ Ruler 100-1500 bp

Suitable for sizing DNA fragments from 100-1500 bp. Composed of 11 linear individual DNA fragments, included one visual references.



TIARIS™ Ruler 100-2000 bp

Suitable for sizing DNA fragments from 100-2000 bp. Composed of 13 linear individual DNA fragments, included one visual references at 500 bp band.



REFERENCES	DESCRIPTION	FORMAT
TBR0235	TIARIS™ RULER 25-700 bp	0.5 mL
TBR0236	TIARIS™ RULER 25-700 bp	5 x 0.5 mL
TBR0231	TIARIS™ RULER 50-1000 bp	0.5 mL
TBR0232	TIARIS™ RULER 50-1000 bp	5 x 0.5 mL
TBR0237	TIARIS™ RULER 100-1000 bp	0.5 mL
TBR0238	TIARIS™ RULER 100-1000 bp	5 x 0.5 mL
TBR0241	TIARIS™ RULER 100-1500 bp	0.5 mL
TBR0242	TIARIS™ RULER 100-1500 bp	5 x 0.5 mL
TBR0239	TIARIS™ RULER 100-2000 bp	0.5 mL
TBR0240	TIARIS™ RULER 100-2000 bp	5 x 0.5 mL
TBR0283	TIARIS™ λ-*Hind*III	0.5 mL

All ladders are supplied at 0.1 µg/µL

GEL STAINS

	DETECTION RANGE	READOUT	
		UV LIGHT	BLUE LIGHT
ETHIDIUM BROMIDE SOLUTION 1%	0.5-5.0 ng	✓	x
TIARISTAIN™ GREEN SAFE	0.5-5.0 ng	✓	✓
TIARISTAIN™ DIRECT GREEN SAFE	0.1-1.0 ng	✓	✓

Ethidium Bromide Solution, 1%

It is a fluorescent dye used for its ability to intercalate between the base pairs of DNA and RNA molecules forming relatively stable complexes with markedly increased fluorescence.

TIARISTAIN™ GREEN SAFE, 20000X

It is a new non-carcinogenic formulation to stain nucleic acids in agarose and polyacrylamide gels. It has a strong excitation peak at 485 nm enabling the use of less DNA destructive blue light instead UV light. Also the dye has excitation peaks in the ultraviolet range.

TIARISTAIN™ DIRECT GREEN SAFE

It is a convenient formulation designed to be added directly to your sample and perform electrophoresis. It is a non-carcinogenic ultrasensitive dye with excitation peaks in blue and ultraviolet range.

REFERENCES	DESCRIPTION	FORMAT
TBR0224	ETHIDIUM BROMIDE SOLUTION 1%	2 x 5 mL
TBR0226	TIARISTAIN™ GREEN SAFE, 20000X	1 mL
TBR0286	TIARISTAIN™ DIRECT GREEN SAFE	1 mL

"The great book, always open and which we should make an effort to read, is that of Nature."

Antonio Gaudí

The Catalan architect Antoni Gaudí (*Spain, 1852–1926*), creator of seven UNESCO World Heritage sites, is renowned for his exceptional ability to blend architecture with natural forms. By meticulously studying the shapes and principles of nature, Gaudí crafted spaces that are not only visually stunning but also innovative in their approach to sustainability and structural efficiency. A pioneer of biomimetic design, Gaudí drew inspiration from the intricate structures and patterns found in nature, incorporating regulated geometric forms into his works, such as the hyperbolic paraboloid, hyperboloid, helicoid, and conoid.

For La Sagrada Família, Gaudí designed hyperbolic paraboloids and catenary arches inspired by natural geometry, which distribute weight evenly and enhance structural stability while minimizing material use. The columns, resembling tree trunks that branch out to form a canopy, mimic how trees support themselves while optimizing space and light. This design not only serves an aesthetic purpose but also improves the building's structural integrity. This innovative approach reduced construction waste and allowed for taller, more open spaces without compromising strength.

Gaudí, a century ahead of his time, applied many principles in his works that are now studied in the field of sustainable architecture: optimizing structural design, harnessing natural light, using economical and recycled materials, employing natural ventilation systems, and improving thermal insulation, among others.

In Casa Batlló, the ventilation and lighting systems demonstrate Gaudí's commitment to sustainability. The central light well is precisely designed to optimize airflow and natural light throughout the building, reducing the need for artificial lighting and ventilation.

Gaudí's biomimetic creations reflect a profound understanding of the synergy between form, function, and the environment. By drawing inspiration from the natural world, he designed spaces that were not only visually impressive but also groundbreaking in their approach to sustainability and structural efficiency. His legacy continues to inspire architects and designers to explore the possibilities of biomimicry, bridging the gap between human-made constructions and the natural world.

#ArchitectureNatureInspired

Protein Research

7

PROTEIN RESEARCH

REAGENTS FOR POLYACRYLAMIDE GEL PREPARATION

Polyacrylamide gel electrophoresis (PAGE) is probably the most common analytical technique used to separate and characterize proteins. Polyacrylamide gels are chemically crosslinked gels formed by the reaction of acrylamide with a bifunctional crosslinking agent such as N,N'-methylenebisacrylamide (Bis). The 'pore size' is determined by the ratio of acrylamide to bisacrylamide, and by the concentration of acrylamide.

Acrylamide/ Bisacrylamide Solution, 30%

It is a high purity and ready-to-use Acrylamide/ Bisacrylamide Solution 30%. It contains 29.22% (w/v) acrylamide and 0.78% (w/v) bis-acrylamide for a monomer to crosslinker ratio of 37.5:1 (2.6% crosslinker).

Ammonium Persulfate

It is a strong oxidizer commonly used in the preparation of polymer materials. In polymerization reactions, ammonium persulfate is often used as a radical initiator to start the polymerization process. It can generate free radicals that react with the monomers to form polymer chains.

TEMED

TEMED is a co-initiator in polymerization reactions in combination with ammonium persulfate.

SDS, Sodium Dodecyl Sulfate

SDS is an anionic detergent used in molecular biology and protein field. It is highly used in protein purification for membranes & inclusion bodies solubilization, protein denaturation and analysis (SDS-PAGE) preparation. It is presented in solution (10 or 20%) and in powder.

2-Mercaptoethanol

2-Mercaptoethanol is a potent reducing agent commonly used in biochemistry and molecular biology applications to reduce disulfide bonds in proteins and denatured protein samples, which makes the proteins more accessible for analysis or manipulation.

REFERENCES	DESCRIPTION	FORMAT
TBR0315	ACRYLAMIDE/ BISACRYLAMIDE SOLUTION 30% (37.5:1)	100 mL
TBR0316		500 mL
TBR0139	TEMED	10 g
TBR0140	AMMONIUM PERSULFATE	10 g
TBR0141		25 g
TBR0107	2-MERCAPTOETHANOL 99%	25 mL
TBR0108	2-MERCAPTOETHANOL SOLUTION, 50 mM	20 mL
TBR0109		100 mL
TBR0144	SDS SOLUTION 20%	1 L
TBR0145		100 mL
TBR0146	SDS SOLUTION 10%	1 L
TBR0147		100 mL
TBR0143	SDS POWDER	500 g

LOADING BUFFERS

Laemmli Loading Buffer, 2x or 4x

Laemmli Loading Buffer is a ready to use buffer to dilute protein samples before loading in SDS-PAGE gels. It ensures optimal band resolution when preparing proteins for SDS-PAGE with Tris-Glycine-SDS running buffer. Laemmli Loading Buffer contains bromophenol blue to monitor the electrophoresis, and SDS to denature and charge negatively the protein, separating them by size and not by charge. To obtain reducing conditions is necessary to add β-mercaptoethanol or DTT.

Tricine Loading Buffer, 2x

Tricine Loading Buffer 2x is a ready to use buffer to dilute protein samples before loading in SDS-PAGE gels. It ensures optimal band resolution when preparing peptides and small proteins for SDS-PAGE with Tris-Tricine-SDS running buffer. Tricine Loading Buffer 2x contains Coomasie Blue G-250 to monitor the electrophoresis, and SDS to denature and charge negatively the protein separating them by size and not by charge.

Native Loading Buffer, 2x

Native Loading Buffer 2x is a ready to use non-denaturing buffer to dilute protein samples before loading in polyacrylamide gel. It maintains the proteins' secondary structure and native charge density. Native Loading Buffer 2x ensures optimal band resolution when preparing proteins for polyacrylamide gel electrophoresis with Tris-Glycine buffer.

REFERENCES	DESCRIPTION	FORMAT
TBB0390	LAEMMLI LOADING BUFFER, 2X	5 x 1 mL
TBB0391	LAEMMLI LOADING BUFFER, 2X	30 mL
TBB0392	LAEMMLI LOADING BUFFER, 4X	5 x 1 mL
TBB0393	LAEMMLI LOADING BUFFER, 4X	20 mL
TBB0394	TRICINE LOADING BUFFER, 2X	20 mL
TBB0397	NATIVE LOADING BUFFER, 2X	30 mL

PROTEIN BUFFERS

Glycine Buffer 0.1M

Glycine Buffer 0.1 M pH 3.0, is a high quality, ready to use buffer used extensively with affinity chromatography, particularly with proteins and antibodies. Glycine is a zwitterionic compound which has pKa values of 2.3 and 9.6-9.8. Glycine Buffer 0.1 M pH 3.0, low pH and mild conditions are ideal to break weak hydrogen bonds formed during affinity chromatography and selective removal of antibodies.

Tris-Glycine Buffer

Tris-Glycine Buffer pH 8.3, is the perfect buffer to work with proteins in applications such as native and gradient polyacrylamide gel electrophoresis and as Western transfer buffer. It must be diluted in water or 20% methanol to working concentration of 1x. It is presented in liquid format (10x) and in powder formulation (1x).

Tris-Glycine-SDS Buffer

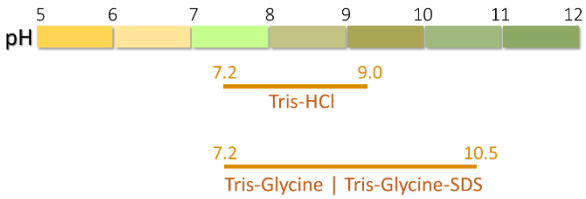
Tris-Glycine-SDS Buffer pH 8.3, is a buffer suited for protein gel electrophoresis. It is commonly used as the electrophoresis buffer of SDS-PAGE where proteins migrate by their size. It is presented in liquid format (10x, 1x) and in powder formulation (1x).

Tris-Tricine-SDS Buffer

Tris-Tricine-SDS Buffer, pH 8.3 is the perfect buffer in the separation of peptides, low molecular weight proteins and hydrophobic proteins. Replacement of traditional glycine (pK 9.6) with Tricine (pK 8.15) allows a better resolution of low molecular weight proteins when compared to the Laemmli method. Besides, Tricine gel are particularly suitable for isolating hydrophobic proteins from 2D gels, facilitates its transfer during Western blotting and it is effective in the isolation of protein complexes from biological membranes.

Tris-HCl Buffer, 1.5M, pH 8.8

Tris HCl Buffer is a high quality and effective buffer in the physiological range. It is commonly buffer used in molecular or biochemistry labs to be used directly or to prepare other solutions.



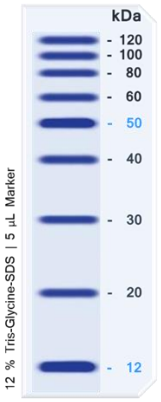
REFERENCES	DESCRIPTION	FORMAT
TBB0109	GLYCINE BUFFER 0.1 M, pH 3.0	1L
TBB0333	TRIS-GLYCINE BUFFER 10X, pH 8.3	1 L
TBB0334	TRIS-GLYCINE BUFFER 10X, pH 8.3	4 x 1 L
TBB0610	TRIS-GLYCINE BUFFER 1X, POWDER 10x 1L	10 pouches
TBB0611	TRIS-GLYCINE BUFFER 1X, POWDER 20x 1L	20 pouches
TBB0335	TRIS-GLYCINE-SDS BUFFER 1X, pH 8.3	1 L
TBB0336	TRIS-GLYCINE-SDS BUFFER 1X, pH 8.3	4 x 1 L
TBB0614	TRIS-GLYCINE-SDS BUFFER 1X, POWDER 10x 1L	10 pouches
TBB0615	TRIS-GLYCINE-SDS BUFFER 1X, POWDER 20x 1L	20 pouches
TBB0339	TRIS-GLYCINE-SDS BUFFER 10X, pH 8.3	1 L
TBB0340	TRIS-GLYCINE-SDS BUFFER 10X, pH 8.3	1 L
TBB0395	TRIS-TRICINE-SDS BUFFER 10X, pH 8.3	0.5 L
TBB0396	TRIS-TRICINE-SDS BUFFER 10X, pH 8.3	1 L
TBB0332	TRIS-HCl BUFFER 1.5M, pH 8.8	1 L

PROTEIN MARKERS & REFERENCES

Ready-to-use molecular weight markers that include visual references and labeled proteins, which serve as indicators of the efficiency of gel-to-membrane transfer procedures for use in Western blotting.

Unstained Protein Marker, 12-120 kDa

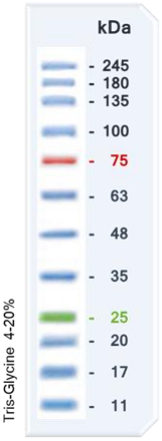
It is a ready to use molecular weight marker composed by 9 proteins ranging from 12 to 120 kDa. For easy identification, 12 and 50 kDa bands have increased intensity relative to the other bands. The product includes a 12 kDa prestained band for electrophoresis and transfer monitoring.



REFERENCES	DESCRIPTION	FORMAT
TBR0295	TIARIS™ UNSTAINED PROTEIN MARKER, 12-120 kDa	0.5 mL

Multicolour Protein Marker, 11-245 kDa

It is a ready to use molecular weight marker composed by 12 prestained proteins ranging from 11 to 245 kDa. All bands appear in blue, excepting the 25 kDa band, which is green, and the 75 kDa band, which is red. This color differentiation makes it easy to identify them.



REFERENCES	DESCRIPTION	FORMAT
TBR0298	TIARIS™ MULTICOLOUR PROTEIN MARKER, 11-245 kDa	0.5 mL

BSA, Bovine Serum Albumin

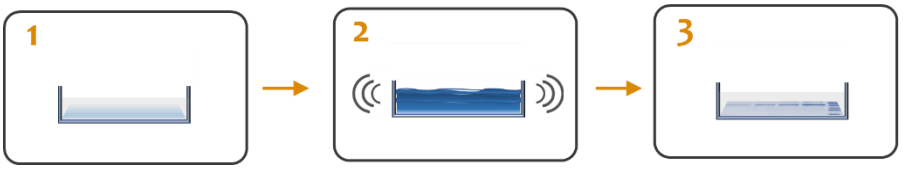
Bovine Serum Albumin (BSA) Solution 30 % is an aqueous solution of high purity bovine serum albumin (>96%). BSA is a well-known protein used as blocking reagent in immunological applications, as nutrient in microbiological cultures, as protein standard and it is present in many enzymatic formulations.

REFERENCES	DESCRIPTION	FORMAT
TBR0280	BSA SOLUTION 30%	25 mL

GEL STAIN

SuperFast-Blue™ Coomasie Stain, 1x

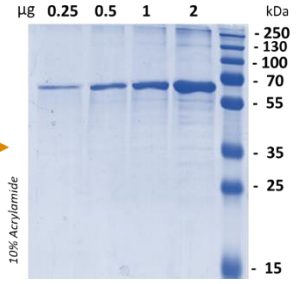
It is a next generation staining solution specially formulated for nonhazardous sensitive detection of proteins. It is based on the colloidal properties of Coomassie Blue dyes created in aqueous solutions containing inorganic acids and high salt concentrations.



Wash gel 3 times with deionized water (15 min)

Add SuperFast-Blue™ Coomasie Stain and shake gently (1 hour)

Wash gel 3 times with deionized water (15 min)



SDS-PAGE stained with SuperFast-Blue™ Coomasie Stain. Detection limit < 10 ng BSA on 4-20% of 1 mm gel.

REFERENCES	DESCRIPTION	FORMAT
TBB0419	SUPERFAST-BLUE™ COOMASIE STAIN	1 L

Ponceau S Staining Solution

It is a ready to use solution that provides a qualitative assessment of protein presence and transfer efficiency in Western procedure. Ponceau S dye selectively binds to proteins, forming a stable complex.

REFERENCES	DESCRIPTION	FORMAT
TBR0290	PONCEAU S STAINING SOLUTION	0.5 L
TBR0291	PONCEAU S STAINING SOLUTION	1 L

PROTEIN QUANTITATION

Bradford Reagent, 5x

It is a known reagent used in Bradford assay. It is the mostly used colorimetric assay to determine the concentration of proteins. The procedure is based on the formation of a complex between the dye Brilliant Blue G and protein in a solution at acidic pH. The colorimetric reaction depends on the content of aromatic and basic amino acids. The protein-dye complex causes a shift in the maximum absorption of the dye from 465 to 595 nm. Absorbance increase is proportional to the amount of protein.

REFERENCES	DESCRIPTION	FORMAT
TBR0299	BRADFORD REAGENT 5X	200 mL
TBR0300	BRADFORD REAGENT 5X	500 mL
TBR0301	BRADFORD REAGENT 5X	50 mL

PROTEASE INHIBITORS

Set of two different cocktails of protease inhibitors dissolved mainly in DMSO.

Inhibitor	MW	Concentration (mM)	Inhibited Proteases	Type	TBZ0333	TBZ0334
Bestatin	308.38	2	Aminopeptidase B & Leu aminopeptidase	Reversible	✓	✓
E-64	357.41	0.3	Cysteine Proteases	Irreversible	✓	✓
EDTA.Na_2	372.24	100	Metalloproteases	Reversible	✓	x
Pepstatin A	685.9	0.3	Aspartic Proteases	Reversible	✓	✓
PMSF	174.2	100	Serine & Cysteine Proteases	Irreversible	✓	✓

KO Protease Inhibitor Cocktail Set 1

KO Protease Inhibitor Cocktail Set 1 is a convenient formulation comprising 5 proteases inhibitors: PMSF, Bestatin, E-64, Pepstatin A and EDTA. It is a wide spectrum protease inhibitor cocktail for the inhibition of various proteases and esterases.

KO Protease Inhibitor Cocktail Set 2

KO Protease Inhibitor Cocktail Set 2 is a formulation comprising 4 proteases inhibitors: PMSF, Bestatin, E-64 and Pepstatin A.

REFERENCES	DESCRIPTION	FORMAT
TBZ0333	KO PROTEASE INHIBITOR COCKTAIL SET 1, 100X	1 mL
TBZ0334	KO PROTEASE INHIBITOR COCKTAIL SET 2, 100X	1 mL

"There are no better models when it comes to being better adaptive to this planet than the models set by species that have preceded us for millions of years"

Janine Benyus

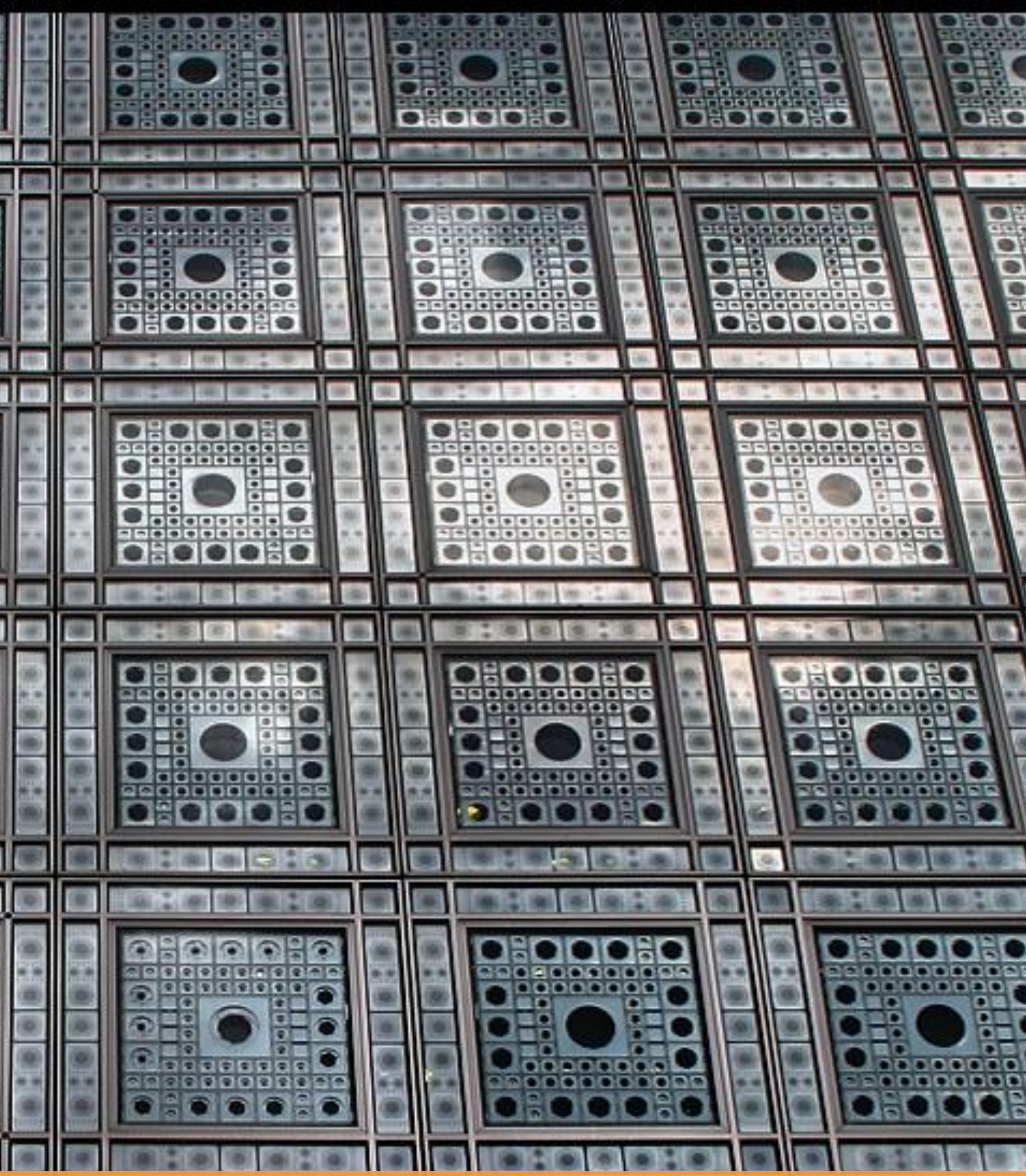
The Arab World Institute (IMA), inaugurated in Paris in 1987, is a masterpiece by French architect Jean Nouvel (*France, 1945*). This eleven floor building stands out for its biomimetic innovation, particularly its southern façade—a modern and functional reinterpretation of traditional mashrabiya, the Islamic latticework used to control light in Arab architecture. Inspired by the compound eyes of insects, Nouvel designed 240 motorized panels with diaphragms that automatically open and close based on the intensity of sunlight. This biomimetic system optimizes the entry of natural light while reducing heat gain, providing sustainable thermal and visual comfort.

The connection to insect eyes is not just aesthetic but functional. Like the compound eyes of insects, which consist of thousands of tiny independent photoreception units called ommatidia, each window contains a central photoelectric sensor larger than the rest, alongside others of two smaller sizes, arranged geometrically in the glass. Similar to ommatidia, each of the hexagonal diaphragms operates autonomously in response to sunlight, creating a perfect balance of shade and brightness.

During initial tests, the light sensors struggled to adapt to Paris's changing weather, causing the diaphragms to move erratically. However, after meticulous adjustments, the system began to function flawlessly, becoming an iconic example of biomimicry in architecture. The Arab World Institute not only bridges East and West through its design but also showcases how nature can inspire innovative solutions to modern design challenges.

The innovative design of the Arab World Institute is one of the many achievements that led to Jean Nouvel receiving the prestigious Pritzker Prize in 2008. The award recognized his ability to integrate modern architectural concepts with cultural and environmental considerations, as exemplified by the Institute's façade. This project showcased his mastery of harmonizing technology and tradition, blending cutting-edge mechanics with the timeless elegance of Islamic mashrabiya. Nouvel's vision continues to inspire architects worldwide, cementing his legacy as a pioneer in merging sustainability, biomimicry, and cultural identity in architecture.

#SetAllEyesOnNature



Cell Culture & Assays

8

CELL CULTURE

ANTIBIOTICS & SUPPLEMENTS

Most used antibiotics and supplements required in cell culture labs are supplied in Cell Culture Grade.

Antibiotic-Antimycotic Solution, 100x

Antimycotic Solution is an antibiotic mixture of penicillin (10-12,000 U/mL), streptomycin (10-12 mg/ mL) and amphotericin B (> 25 µg/ mL) that offer a broad efficacy spectrum (gram-positive, gram-negative bacteria, yeast and fungi). Penicillin is a typical β-lactam antibiotic that inhibits bacterial peptidoglycan cell wall synthesis. In other hand, streptomycin acts by binding to the 30S subunit of the bacterial ribosome causing protein synthesis inhibition and death, while amphotericin B interferes with fungal membrane permeability by forming channels in the membranes and causing small molecules to leak out.

REFERENCES	DESCRIPTION	FORMAT
TBR0328	ANTIBIOTIC-ANTIMYCOTIC SOLUTION 100X	100 mL

Penicillin-Streptomycin Solution, 100x

Penicillin-Streptomycin Solution is a sterile antibiotic mixture of penicillin (10-12,000 U/mL) and streptomycin (10-12 mg/ mL) useful to control bacterial contamination in vitro. Antibiotic dual action is effective against gram-positive and gram-negative bacteria.

REFERENCES	DESCRIPTION	FORMAT
TBR0325	PENICILLIN-STREPTOMYCIN SOLUTION 100X	100 mL

TIARIS™ Mycoplasma Removal Reagent, 50x

TIARIS™ Mycoplasma Removal Agent, 50x is an antibiotic solution based on a derivative of the quinoline. It is a highly effective against multiple mycoplasma species. Mycoplasma is the predominant contaminant in cell cultures, posing challenges in detecting pollutants due to interference with experimental results. Cell culture mycoplasma contamination is estimated to occur in approximately 30.3% to 50.5% of cases. Quinoline compound eliminates mycoplasma infection by inhibiting mycoplasma DNA gyrase.

REFERENCES	DESCRIPTION	FORMAT
TBR0332	TIARIS™ MYCOPLASMA REMOVAL REAGENT 50X	100 mL

G-418 Sulphate Solution

G-418 Sulfate Solution is an aqueous solution of G-418 sulfate at 50 mg/ mL. This antibiotic, isolated in 1974 from *Micromonospora rhodorangea*, belongs to the group of aminoglycoside antibiotics, It is widely used in molecular and cell biology experiments. Its mechanism of action is based on blocking polypeptide synthesis by inhibiting the elongation step in both prokaryotic and eukaryotic cells. Resistance to G-418 is conferred by the neo gene, located on both transposons Tn5 and Tn601 (903). They have been included in some plasmids as selective genes.

REFERENCES	DESCRIPTION	FORMAT
TBR0334	G-418 SULPHATE SOLUTION, 200 mg/mL	10 mL

L-Glutamine, 100x

L-Glutamine 100x is a concentrated sterile solution of the essential amino acid L-glutamine, used as a supplement in cell culture medium. It plays a key role in cellular metabolism, serving as a major source of nitrogen and carbon, which are essential for synthesizing proteins, nucleotides, and other molecules required for cell proliferation. In addition, L-glutamine is critical for maintaining cell viability, especially in fast-growing cells. The concentration of L-glutamine needed varies depending on the cell type and medium formulation; in specialized media, such as serum-free or protein-free formulations, L-glutamine is often supplemented at levels around 2.5 mM to 6 mM.

REFERENCES	DESCRIPTION	FORMAT
TBR0320	L-GLUTAMINE, 100X	100 mL

L-Alanyl-L-Glutamine (*stable glutamine*), 200 mM

L-Alanyl-L-Glutamine 100x is a concentrated sterile solution of stable L-glutamine, used as a supplement in cell culture medium. The dipeptide is metabolized within the cells to yield L-Glutamine plus the second amino acid. This results in a more consistent delivery of L-Glutamine to cells and avoids toxic build-up of ammonia in cell cultures. This feature can be especially important for ammonia-sensitive cell lines.

L-Alanyl-L-Glutamine prevents the intramolecular cyclization reaction associated with solutions of L-Glutamine, allowing the formulation of cell culture media containing L-Glutamine that may be stored at 4°C for extended periods. Solutions containing these derivatives can even be autoclaved without appreciable degradation of the product (30 minutes at 121°C results in <5% loss of the product).

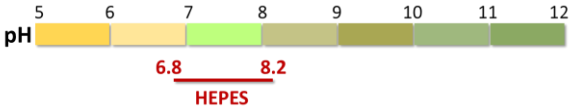
REFERENCES	DESCRIPTION	FORMAT
TBR0322	L-ALANYL-L-GLUTAMINE (STABLE L-GLN), 200 mM	100 mL

CELL CULTURE GRADE BUFFERS

Most used antibiotics and supplements required in cell culture labs are supplied in Cell Culture Grade.

HEPES Buffer 1 M

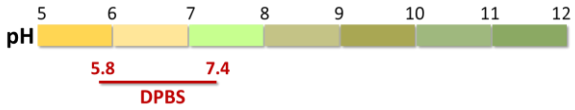
HEPES Buffer Solution (1M) is widely used as a buffering agent in cell culture media. The zwitterion possesses a pKa(1) of 3 and a pKa(2) of 7.5 with useful pH ranges of 2.5-3.5 and 6.7-8.6. In comparison with bicarbonate buffer systems, HEPES is better in maintaining physiological pH despite changes in CO_2 concentrations resulting from cellular activity. HEPES is suitable for many cell culture systems as it is membrane impermeable and has limited effect on biochemical reactions.



REFERENCES	DESCRIPTION	FORMAT
TBB0387	HEPES BUFFER 1M	100 mL

DPBS 1x, *without calcium and magnesium*

Dulbecco Phosphate Buffer Saline (DPBS) 1x is a chemically defined balanced salt solution used for a variety of laboratory procedures such as: cell culture applications maintaining osmotic stability in a physiological pH range; immunoassays and immunohistochemical techniques; storage and transporting of biological samples.



REFERENCES	DESCRIPTION	FORMAT
TBB0404	DPBS 1x, without calcium and magnesium	100 mL

VIABILITY INDICATORS

Trypan Blue Cell Viability Indicator

Trypan Blue Cell Viability Indicator is a highly used solution to test cell viability routinely. This large negatively charged molecule is excluded by cells which have intact cell membranes, while it can penetrate cells with a damaged membrane. The assay, based on the dye exclusion, allows to differentiate living cells (*bright*) from dead cells (*blue*) under the microscope.

Erythrosin Cell Viability Indicator

Erythrosin Cell Viability Indicator is a non-toxic solution used to test cell viability. Safer than trypan dye, this molecule is excluded by cells which have intact cell membranes, while it can penetrate cells with a damaged membrane. The assay allows to differentiate living cells (*bright*) from dead cells (*pink*) under the microscope.

CELL DETACHMENT

Trypsin-EDTA

Trypsin-EDTA is a well-known solution used as standard solution to detach cells from standard tissue culture plastic ware and adhesion coated plastic ware. It contains pancreatic porcine trypsin at 0.05% (1x) or 0.5% (10x) in Dulbecco´s PBS pH=7.3 ± 0.3. Trypsin is a serine protease that hydrolyzes proteins at the carboxyl side of the Lysine or Arginine. EDTA presence enhances trypsin action, and reduces the required trypsin concentration for effective hydrolysis. The solution does not include calcium and magnesium.

Trypsin-EDTA is used to dissociate adherent cells from surfaces, routine cell passage and to create single cell suspension for accurate cell counting.

Accutase®

Accutase® is an enzymatic mixture with protease and collagenase activity used as routine cell detachment solution. It allows a more gentle treatment of adherent cells than trypsin to detach cells from standard tissue culture plastic ware and adhesion coated plastic ware, and polymer. Cells detached by Accutase® are suitable for analysis of cell surface biomarkers, flow cytometry of receptors or extracellular epitopes, assays of cell proliferation, virus growth assay, quiescence assays by serum starvation, transformation assays by oncogene transfection, etc.

REFERENCES	DESCRIPTION	FORMAT
TBB0402	TRYPAN BLUE CELL VIABILITY INDICATOR	100 mL
TBB0403	TRYPAN BLUE CELL VIABILITY INDICATOR	5 x 1.5 mL
TBB0413	ERYTHROSIN CELL VIABILITY INDICATOR	100 mL
TBB0413	ERYTHROSIN CELL VIABILITY INDICATOR	5 x 1.5 mL
TBZ0340	ACCUTASE®	100 mL
TBZ0342	TRYPSIN-EDTA IN DPBS, 0.05% (1X)	100 mL
TBZ0344	TRYPSIN-EDTA IN DPBS, 0.5% (10X)	100 mL

TRANSFECTION REAGENTS

Tiaris™ Cell Transfection Kit | *Cationic Polymer*

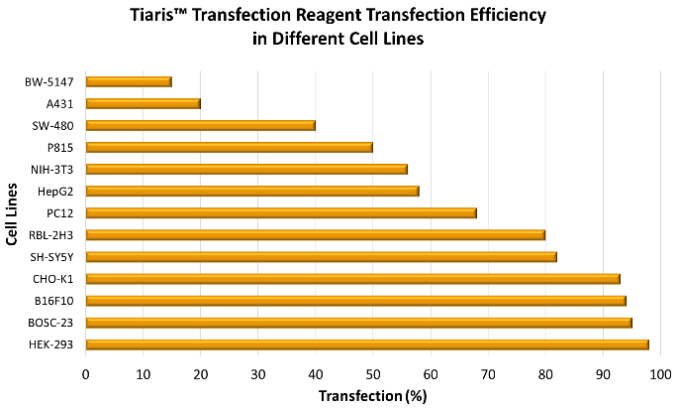
Tiaris™ Cell Transfection Kit is an effective kit that includes a highly charged cationic polymer able to bind anionic nucleic acids and a plasmid control with green fluorescent protein as reporter of transfection performance. The included, Tiaris™ Transfection Reagent, is based on a new formulation that inhibits lysosomal nuclease activity and increases transfection efficiency. It provides stoutly results in a wide variety of laboratory cell lines, making it an excellent choice for everyday use.

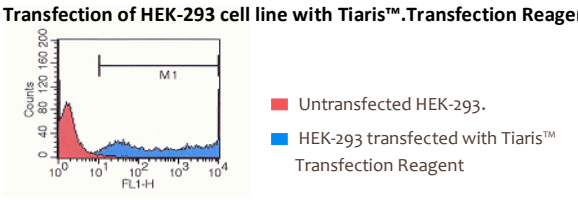
Features

- High transfection efficiency in the most common cell lines.
- Tiaris™ Transfection Reagent is serum resistant.
- Easy protocol and reproducible results.
- Low cytotoxicity.

Applications

- Stable and transient transfection of viral and non-viral plasmid vectors.
- Co-transfection of different vectors to obtain viral supernatants.
- Transfected cells are suitable for all downstream cellular applications.
- High-throughput transfection.





LipoCore™ Transfection Reagent | *Cationic Lipid*

Kit based on the high performance of the LipoCore™ cationic lipid formulation with optimal balance of cationic charge and hydrophobic lipidic groups. Suitable kit to for the transfection of plasmid DNA, siRNA, miRNA or mRNA with low cytotoxicity and useful in cell lines, primary and stem cells.

Features

- High transfection efficiency in cell lines, primary and stem cells.
- Serum resistant.
- Low cytotoxicity.

Applications

- Transfection of plasmid DNA.
- Transfection of siRNA, miRNA and mRNA.

REFERENCES	DESCRIPTION	FORMAT
TBK0551	TIARIS™ CELL TRANSFECTION KIT	1 mL
TBK0552	TIARIS™ CELL TRANSFECTION KIT	5 x 1 mL
TBR0338	LIPOCORE™ TRANSFECTION REAGENT	1 mL

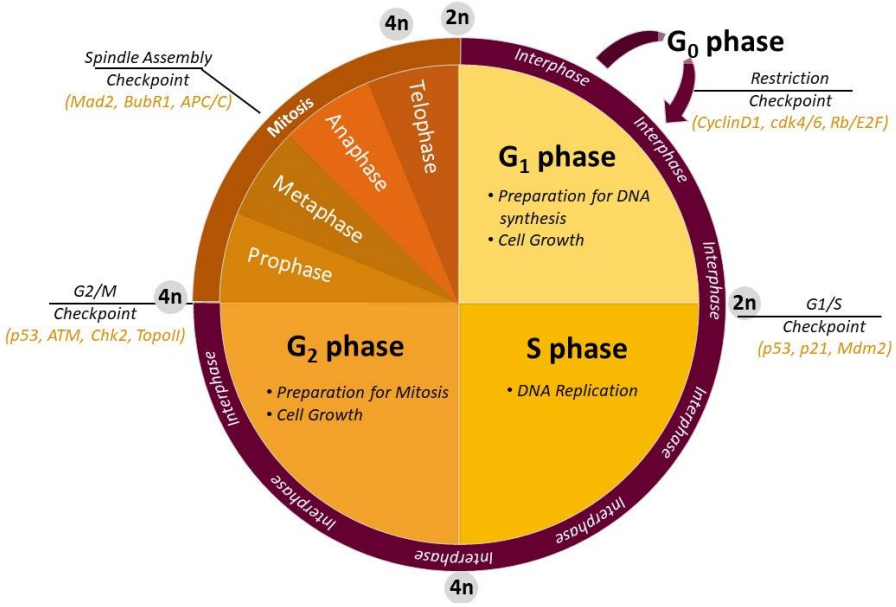
CELL ASSAYS

Assay Selection Guide

	CELL CYCLE	CELL VIABILITY	CYTOTOXICITY	PROLIFERATION	APOPTOSIS	OXIDATIVE STRESS	β-GAL REPORTER ASSAY	LUCIFERASE REPORTER	SEAP REPORTER
Propidium Iodide Cell Cycle Analysis Kit *(TBK0554)*	F								
Trypan Blue Cell Viability Indicator Kit *(TBB0402-0403)*		✓	✓						
Erythrosin Cell Viability Indicator *(TBB0413-0414)*		✓	✓						
LDH Cytotoxicity Assay Kit *(TBK0521-0522)*		C	C		C				
SRB Cytotoxicity Assay Kit *(TBK0518)*		C	C						
Resazurin Cell Viability Assay *(TBK0506-0507)*		F	F						
XTT Viability & Proliferation Assay *(TBK0501-0502)*		C	C	C					
Annexin V-FITC Apoptosis Detection Kit *(TBK0508-0509)*					F				
Annexin V-APC Apoptosis Detection Kit *(TBK0510-0511)*					F				
Annexin V-Biotin Apoptosis Detection Kit *(TBK0512-0513)*					F				
Annexin V-PE Apoptosis Detection Kit *(TBK0514-0515)*					F				
Superoxide Dismutase Assay Kit *(TBK0527)*						C			
ROS Detection Assay Kit *(TBK0530)*						F			
ONPG β-Galactosidase Assay Kit *(TBK0543)*							C		
FDG β-Galactosidase Assay Kit *(TBK0543)*							F		
Firefly Luciferase Detection Kit *(TBK0546, TBK0547)*								L	
SEAP Reporter Gene Assay Kit *(TBK0537)*									L

ASSAY READOUT C *Colorimetric* F *Fluorescence* L *Luminiscence*

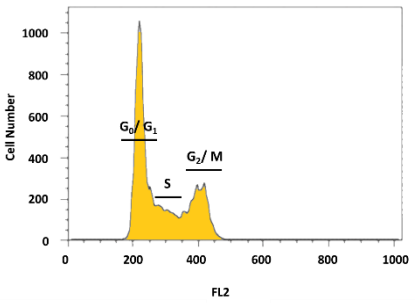
CELL CYCLE ANALYSIS



Propidium Iodide Cell Cycle Analysis Kit

This kit offers a rapid and reliable tool for analyzing the distribution of cells in various cell cycle stages. Using propidium iodide, a nuclear dye that binds to cellular nucleic acids, the kit generates fluorescence signals proportional to the DNA content, enabling the quantification of cells in the G0/G1, S, and G2/M phases through flow cytometry.

The cell cycle is a universal and intricate process governing cell growth and proliferation, tightly regulated due to its crucial roles in development, DNA damage repair, and overall cellular health. Disruptions in the cell cycle can result in conditions like tissue hyperplasia and diseases such as cancer. Understanding and monitoring the cell cycle are essential for studying cellular development, disease progression, and therapeutic evaluation.



Features

- Quick, precise and efficient method to detect the number of cells in a cell population.
- **Highly sensitive method** to detect and monitor cells at various stages of the cell cycle.
- **Fluorescent readout**.
- Well-suited for **high throughput analysis**.

Applications

- Detection and monitoring cells at various stages of the cell cycle.
- Screening of compounds that affect cell growth and division.

REFERENCES	DESCRIPTION	FORMAT
TBK0554	PROPIDIUM IODIDE CELL CYCLE ANALYSIS KIT	200 reactions

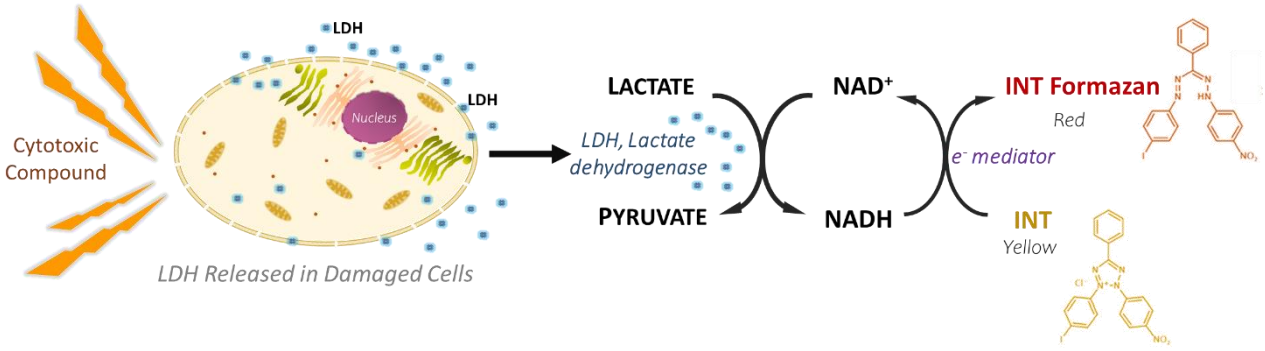
CYTOTOXICITY ASSAYS

Cytotoxicity can be measure using assays with different readout. We provide cytotoxicity assays with colorimetric (LDH, SRB assay) and fluorometric readout (Resazurin Assay).

LDH Assay

LDH Cytotoxicity Assay Kit is a robust kit to measure cell death or cytotoxicity in cell culture experiments through lactate dehydrogenase (LDH) activity. LDH is a cytosolic enzyme that is rapidly released into the cell medium after damage of cell membrane. The amount of LDH released is proportional to the number of cells undergoing necrosis, apoptosis, or other forms of cell death, as well as from damaged or stressed cells.

LDH activity determination is based on the reduction of the tetrazolium salt, iodonitrotetrazolium chloride (INT). INT is reduced by LDH in the supernatant to form a colored formazan product that can be quantified spectrophotometrically at 490 nm.



Features

- **Non-radioactive assay**, is safer alternative to $_{51}$Cr assay.
- **Accurate**, simple and reproducible assay.
- Ideal for **high throughput screening**.
- Measurement **can be performed directly in the culture medium** without solubilization process.
- **Highly sensitive**, with a limit of detection of 1-10 ng/mL of LDH.
- Suitable **assay for both adherent and non-adherent cells**.

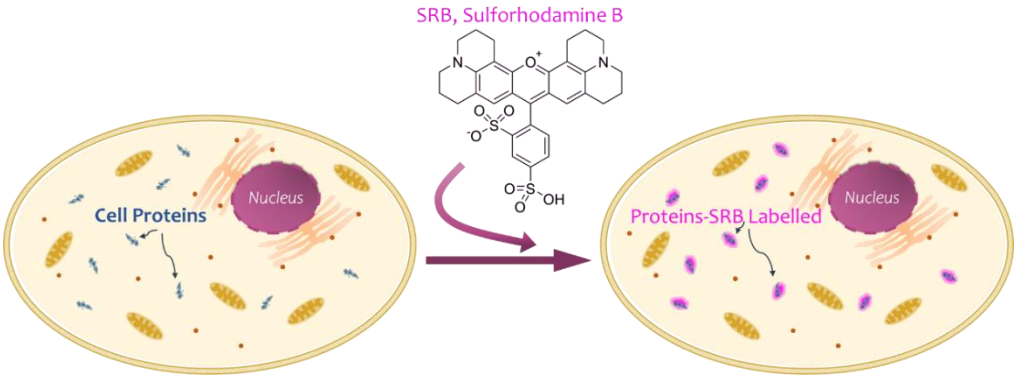
Applications

- For assessing induced cytotoxicity of drugs/ pollutants/ test compounds.
- To assess the cytotoxicity of immune cells (NK, T lymphocytes, etc) or viruses against target cells.
- To evaluate the invasiveness of cancer cells.
- Antibody-dependent cell-mediated cytotoxicity.
- Cell death, cell viability or cell proliferation measure.

REFERENCES	DESCRIPTION	FORMAT
TBK0521	LDH CYTOTOXICITY ASSAY KIT	400 assays
TBK0522	LDH CYTOTOXICITY ASSAY KIT	1,000 assays

SRB Assay

SRB Cytotoxicity Assay Kit is an excellent and efficient assay to evaluate cytotoxicity and cell viability. It is based in the staining of cellular proteins with the bright pink aminoxanthane dye, sulforhodamine B (SRB). SRB forms an electrostatic complex with basic amino acid residues in labeling acidic conditions, but it can dissociate under solubilization basic conditions.



The binding of SRB is stochiometric. The incorporated dye solubilized is directly proportional to the cell number. The assay readout is colorimetric at 540 nm with a reference at 690 nm.

Features

- **Accurate, simple and reproducible**.
- **Highly sensitive**, 1-200% of cell confluence is in a linear range with cell number and protein concentration.
- **Sensitivity comparable with fluorometric assays** and better and superior to Lowry or Bradford.
- **Excellent signal to noise ratio** and the resolution is 1000-2000 cells/ well.
- **Suitable for high throughput format**.
- Cell labelling is **not cell line depending**.

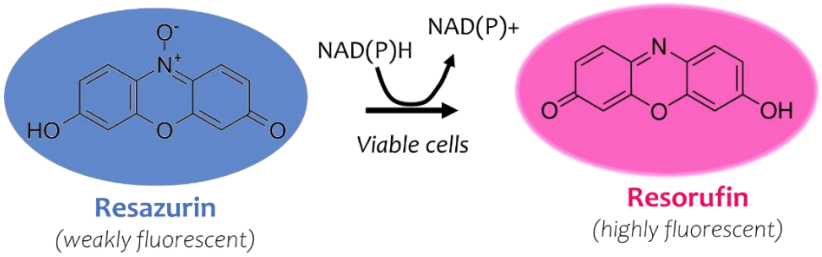
Applications

- Cell viability determination.
- Cytotoxicity.
- Drug toxicity screening.

REFERENCES	DESCRIPTION	FORMAT
TBK0518	SRB CYTOTOXICITY ASSAY KIT	1000 assays

Resazurin Assay

Resazurin Viability Assay Kit is a rapid and highly robust kit to measure cellular viability. It is based on the reduction of weakly fluorescent blue resazurin to a pink fluorescent resorufin by oxidoreductases of viable cells. Resazurin is a permeable dye and the reaction is produced at mitochondria organelle. The production of resorufin is proportional to the number of living cells.



Features

- **Ready to use solution,** to monitor cell viability.
- **Highly sensitive,** 50 – 50000 cells in a linear range could be measured in fluorescent readout.
- **Suitable for high throughput format,** homogeneous assay without washing steps.
- **Versatile,** fluorescent or colorimetric readout.
- **Not require radioactive materials,** cell fixation, or cell permeabilization.

Applications

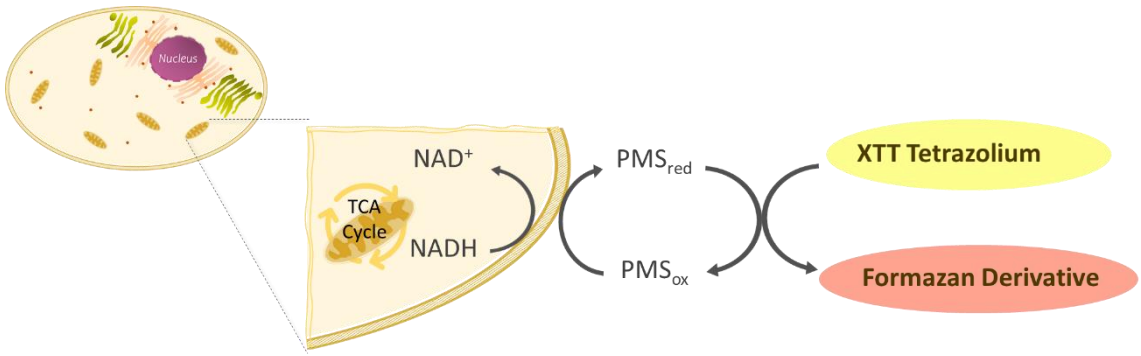
- Determination of cell viability in presence of different agents.
- Bacterial contamination in milk.
- Sperm viability.
- Mitochondrial activity.

REFERENCES	DESCRIPTION	FORMAT
TBK0506	RESAZURIN CELL VIABILITY ASSAY	2500 assays
TBK0507	RESAZURIN CELL VIABILITY ASSAY	10000 assays

PROLIFERATION ASSAYS

XTT Assay

XTT Assay is a colorimetric assay widely used to measure cellular viability, proliferation and cytotoxicity. It is based on the reduction of a yellow XTT tetrazolium salt to an orange soluble formazan derivative by the succinate dehydrogenase system of the mitochondrial respiratory chain. The intensity of formazan dye is proportional to the number of living cells.



Features

- **Improved efficiency**, with the addition of Activation Reagent as electron coupling in the reaction.
- **Higher accuracy**, based in the solubility of formazan derivative produced.
- **Highly sensitive**, low number of living cells could be measured.
- **Suitable for high throughput format**, homogeneous assay without washing steps.
- **Versatile**, valid for adherent and suspension cells.
- **Safe**, not require radioactive materials.

Applications

- Determination of cell viability in presence of different agents.
- Cell proliferation.
- Cytotoxicity assays.

REFERENCES	DESCRIPTION	FORMAT
TBK0501	XTT VIABILITY & PROLIFERATION ASSAY KIT	200 assays
TBK0502	XTT VIABILITY & PROLIFERATION ASSAY KIT	1,000 assays

Complementary Products

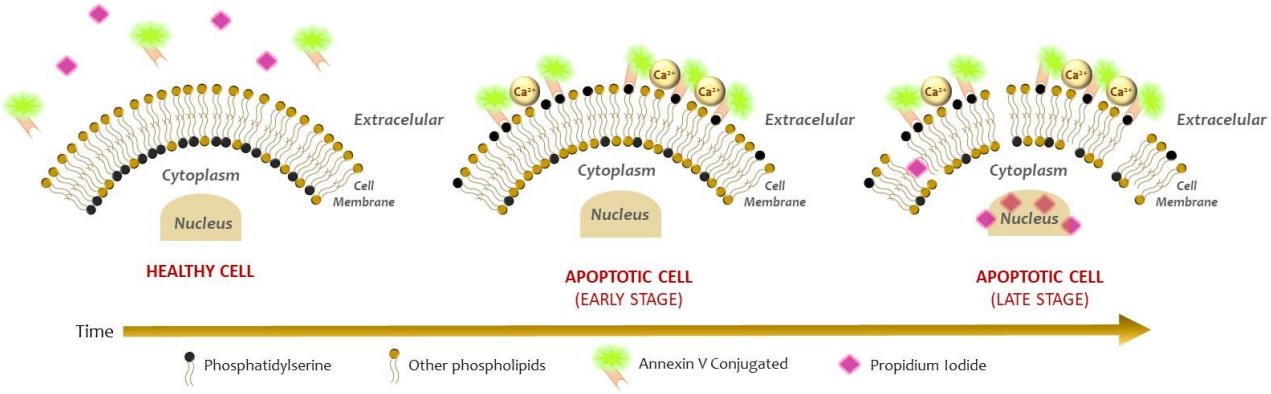
✓ **Trypan Blue Cell Viability Indicator** *(TBB0402-3)*

APOPTOSIS ASSAYS

Annexin Assays

Annexin V Apoptosis Detection Kits are an effective kits designed to dual detection of apoptotic stage: collapse of asymmetrical distribution of phosphatidylserine (PS) and destabilization of membrane integrity. Annexin V binds with high affinity to PS (Kd ~ 5×10^{-2}) in Ca^{2+} presence and this binding is detected by its fluorochrome (*FITC, PE, APC*) or molecule (*biotin*) conjugated.

Healthy cells will be negative for Annexin V and propidium Iodide staining; early-stage apoptotic cells will be positive for Annexin V while late-stage apoptotic cells or necrotic cells will be positive for both markers. Propidium iodide only can enter into late apoptotic or necrotic cells, to bind to DNA.



Features

- **Earlier Apoptosis Detection** than DNA-based assays.
- **Versatile**, suitable for adhesion and suspension cells.

Applications

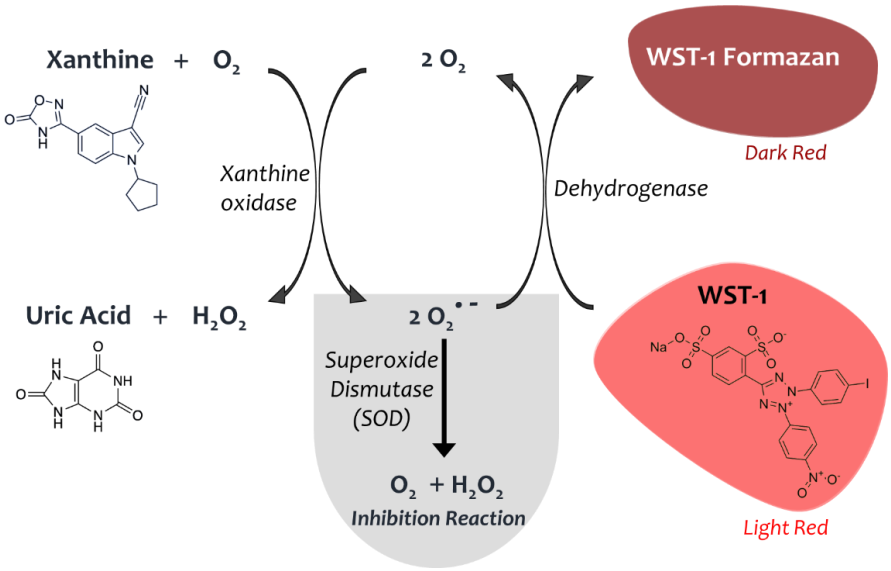
- Dual detection of early- and late-stage cell apoptosis.
- Differentiation of apoptosis and necrosis cells.

REFERENCES	DESCRIPTION	FORMAT
TBK0508	ANNEXIN V-FITC APOPTOSIS DETECTION KIT	20 assays
TBK0509		100 assays
TBK0510	ANNEXIN V-APC APOPTOSIS DETECTION KIT	20 assays
TBK0511		100 assays
TBK0512	ANNEXIN V-BIOTIN APOPTOSIS DETECTION KIT	20 assays
TBK0513		100 assays
TBK0514	ANNEXIN V-PE APOPTOSIS DETECTION KIT	20 assays
TBK0515		100 assays

OXIDATIVE STRESS ASSAYS

SOD, Superoxide Dismutase Assay

Superoxide Dismutase Assay Kit is an excellent and efficient assay to detect superoxide dismutase (SOD) activity. SOD catalyzes the conversion of superoxide radicals into hydrogen peroxide and oxygen. Superoxide Dismutase Assay Kit is based on WST-1 tetrazolium salt and in the use of xanthine oxidase to generate superoxide radicals. WST-1 is converted into a water-soluble formazan dye by cellular dehydrogenases. The presence of SOD reduces the amount of WST-1 formazan produced. The rate of WST-1 reduction by superoxide anion is linearly related to the xanthine oxidase activity and the inhibition by SOD.



Features

- **Accurate, simple and reproducible assay**, around 3.2% inter- and intra- assay coefficient of variation.
- **Wide dynamic range**, linearity from 0.005 to 0.5 U SOD/ mL.
- Colorimetric readout at 450 nm.
- **Highly sensitive** for measure SOD activity in plasma, serum, urine, saliva, tissues, cells, etc.

Applications

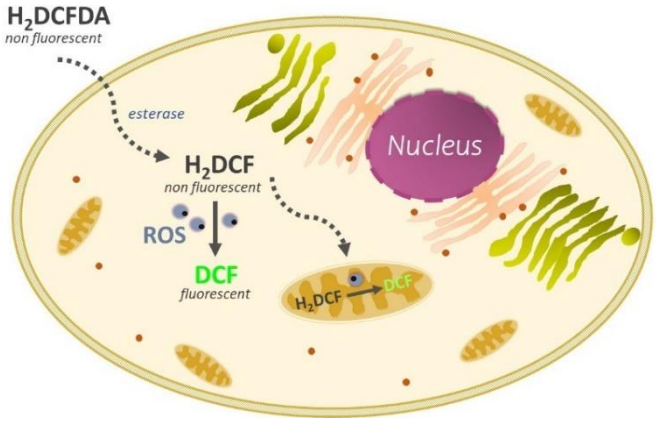
- Role of SOD in physiological processes such as aging, oxidative stress, inflammation, cellular signaling, etc.
- Antioxidant therapies effectiveness.
- Analysis of environmental stressors.

REFERENCES	DESCRIPTION	FORMAT
TBK0527	SUPEROXIDE DISMUTASE ASSAY KIT	100 assays

ROS Assay

ROS Detection Assay Kit is a widely used kit designed to detect reactive oxygen species (ROS), highly reactive molecules containing oxygen such as free radicals like superoxide anions ($O_2 \bullet^-$), hydroxyl radical ($HO\bullet$) and non-radical compounds like hydrogen peroxide (H_2O_2). ROS are expressed in various cellular compartments including peroxisomes, mitochondria and endoplasmic reticulum. These molecules play essential roles in cell signaling and homeostasis but can cause oxidative stress when present in excess, leading to cellular damage.

ROS Detection Assay Kit is based on the use of the fluorogenic substrate H2DCFDA. H2DCFDA is a cell-permeable, non-fluorescent compound that, once inside the cell, is deacetylated by intracellular esterases to H2DCF. In the presence of ROS, H2DCF is then oxidized to the highly fluorescent compound DCF (*dichlorofluorescein*). The intensity of DCF fluorescence can be measured providing a reliable indicator of intracellular ROS levels.



Features

- **Highly sensitive assay.**
- Mainly ROS compounds detected are **hydrogen peroxide** (H_2O_2), **hydroxyl radicals** ($HO\bullet$), and **peroxynitrite (ONOO$^-$).**
- **Fluorometric** readout (Ex/ Em = 485/ 530 nm).
- **Safe detection,** non-radioactive compounds.
- **High throughput.**
- **Versatile,** suitable for adherent and suspension cells.

Applications

- Measurement of intracellular levels of ROS.
- Fluorescence microscopy (*TRITC/ FITC channel*).
- Flow Cytometry (*FL1 channel*).

REFERENCES	DESCRIPTION	FORMAT
TBK0530	ROS DETECTION ASSAY KIT	500 assays

Reactive Oxygen Species

Free Radicals
- Alkoxyl, $RO\bullet$
- Carbonate, CO_3^-
- Carbon Dioxide, CO_2^-
- Hydroperoxyl, $HO\bullet$
- Hydroxyl, $OH\bullet$
- Peroxyl, $RO_2\bullet$
- Superoxide, O_2^-

Non-Radical
- Hydrogen Peroxide, H_2O_2
- Hypobromous Acid, HOBr
- Hypochlorous Acid, HOCl
- Organic Peroxides, ROOH
- Ozone, O_3
- Peroxynitrite, $ONOO^-$
- Peroxynitrous Acid, ONOOH

GENE REPORTER ASSAYS

Gene reporter assay are very useful assays with applications in :

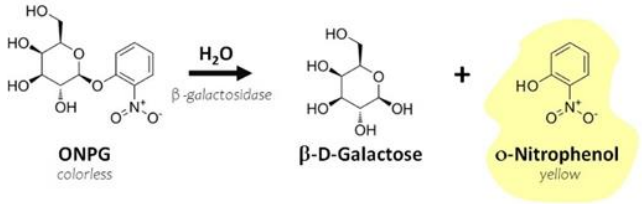
- Normalization of transfection efficiency in mammalian cells.
- Study of protein trafficking, strength of promoters and enhancer with β-galactosidase as reporter.
- Protein-protein interaction studies.

β-Galactosidase Detection

lacZ, the gene coding β-galactosidase, is one of the most notable reporter gene used in molecular biology. The enzyme is very resistant to proteolytic degradation, then lysates could be assayed directly or store at -80 °C for at least 2 months. The presence of β-galactosidase can be easily detected. Its activity is commonly monitored using substrates such as X-GAL, ONPG or FDG.

ONPG β-Galactosidase Assay Kit

Quantitative colorimetric assay based on the cleavage of the synthetic chromogenic lactose analogous substrate ortho-nitrophenyl-β-galactopyranoside (ONPG), releasing a bright yellow product called ortho-nitrophenol (ONP). The ONP production per unit time is directly proportional to the activity of β-galactosidase in the sample.

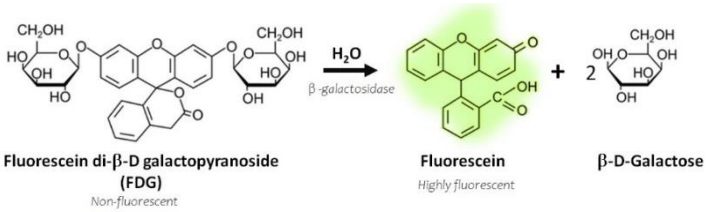


Features

- **Accurate and reproducible assay**, around 3,5-6% inter- and 3.3-5.5% intra- assay coefficient of variation.
- **Narrow dynamic range**, linearity from 0.2 to 2 nmol/min/mg protein.
- **Colorimetric readout** at 420 nm.
- **Highly Sensitive**, range detection of 0.1-10 nmol/min/mg protein.

FDG β-Galactosidase Assay Kit

Fluorimetric assay based on the hydrolysis of fluorescein di-β-D-galactopyranoside (FDG) into a highly fluorescent fluorescein. Fluorescein can be detected at 490 nm excitation/ 525 nm emission. The concentration of β-galactosidase is proportional to fluorescence produced.



Features

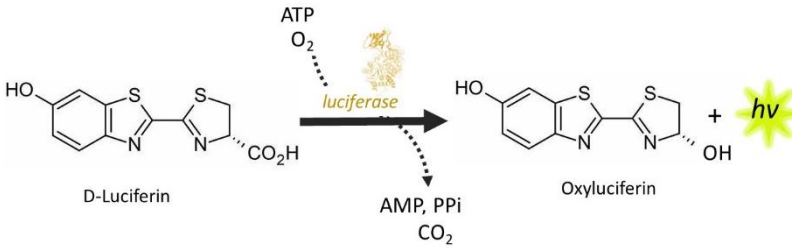
- **Highly sensitive assay**, in femtogram range.

REFERENCES	DESCRIPTION	FORMAT
TBK0543	ONPG β GALACTOSIDASE ASSAY KIT	500 assays
TBK0540	FDG β GALACTOSIDASE ASSAY KIT	500 assays

Luciferase Firefly Detection

Firefly Luciferase Assay Kit is an efficient, reproducible and superior dynamic range assay to quantify firefly luciferase activity. Luciferase from *Photinus pyralis* catalyzes a reaction between luciferin and molecular oxygen, producing oxyluciferin, carbon dioxide, and a flash of visible light. The kit improve this signal generating a sustained bioluminescent reaction.

The enzyme is used in reporter gene assays, where the luciferase gene is inserted into a DNA sequence of interest. When the sequence is expressed in a cell, the luciferase enzyme is produced, and its activity can be measured by adding luciferin to the sample. The resulting bioluminescence is directly proportional to the gene expression level, providing a highly sensitive and quantitative signal.



Features

- Intracellular enzyme.
- **Non-radioactive**, quick and highly specific assay.
- **Sustained light reaction** (*half life > 5 min*), without requirement of luminometer injection.
- **Highly sensitive assay**.
- **Broad dynamic range**, linearity in the range of 10^{-13} - 10^{-20} moles of luciferase.

Applications

- Luciferase reporter assay in cultured cells, bacteria or plants based in luciferase gene from the firefly *Photinus pyralis*.
- High-throughput screening for drug discovery.
- Gene expression and promoter studies.
- Cellular signaling analysis.

REFERENCES	DESCRIPTION	FORMAT
TBK0546	FIREFLY LUCIFERASE DETECTION KIT	100 assays
TBK0547	FIREFLY LUCIFERASE DETECTION KIT	1000 assays

SEAP Detection

Secreted alkaline phosphatase (SEAP) is widely used as a reporter for gene expression studies. Unlike conventional intracellular reporters, SEAP offers the unique advantage of being secreted into the culture medium by transfected cells. This allows SEAP activity in the medium to directly reflect intracellular SEAP mRNA and protein levels.

SEAP Assay Kit is a powerful tool for measuring gene expression with high sensitivity and precision. By leveraging chemiluminescent substrates such as the 1,2-dioxetane CSPD, this assay enables the detection of SEAP activity with remarkable sensitivity.

Features

- **Homogenous assay**, SEAP is secreted from transfected cells into the culture medium.
- **Highly sensitive assay**, in femtomolar range.
- **Accurate quantification** across varying levels of gene expression, from low-abundance transcripts to highly expressed genes.
- **Broad dynamic range**, typically spanning several orders of magnitude.

Applications

- Measurement of SEAP levels in transfected cells.
- Gene expression and promoter studies.
- Cellular signaling analysis.

REFERENCES	DESCRIPTION	FORMAT
TBK0537	SEAP ASSAY KIT	288 assays

OTHER ASSAYS

Q-PLUS™ *Mycoplasma* Detection Kit

Contamination with mycoplasma is among the most frequently occurring problems associated with cell cultures. With Q-PLUS™ *Mycoplasma* Detection Kit, the highly conserved 16S rDNA of more than 130 mollicute species is targeted, covering *Mycoplasma*, *Acholeplasma* and even *Ureaplasma*, whereas genomic eukaryotic DNA is not amplified.

REFERENCES	DESCRIPTION	FORMAT
TBK1065	Q-PLUS™ MYCOPLASMA DETECTION KIT	100 rxn

Lysozyme Detection Assay

Lysozyme Detection Kit provides ready-to-use reagents for detecting the presence of lysozyme activity. It is a turbidimetric method based on the lysis of *Micrococcus luteus* cells as substrate. The reaction is followed by monitoring the decrease in absorbance at 450 nm.

Features

- **Accessible to most laboratories**, the assay requires basic laboratory equipment.
- **Cost-Effectiveness**.
- **Sensitivity**, turbidimetric assays are sensitive and can detect variations in lysozyme activity effectively.

REFERENCES	DESCRIPTION	FORMAT
TBK0528	LYSOZYME DETECTION KIT	100 rxn

"We are awake now, and the question is how do we stay awake to the living world? How do we make the act of asking nature´s advice a normal part of everyday inventing."

Janine Benyus

An outstanding example of sustainable and biomimetic design, combining advanced technology with inspiration from natural forms, is *The Gherkin*. This 180-meter-tall architectural icon of London was conceived by renowned British architect Norman Foster (*United Kingdom, 1935*).

Foster, deeply committed to sustainability, designed this building inspired by the marine sponge Venus' Flower Basket (*Euplectella aspergillum*). Known also as the "glass sponge" and first described in 1841 by Richard Owen, the inaugural director of London's Natural History Museum, this sponge utilizes an intricate network of silica spicules that provide exceptional structural strength.

The Gherkin's biomimetic façade replicates this grid-like structure, enhancing the building's stability while reducing the use of heavy materials. This framework incorporates over 35 kilometers of steel, and the outer layer consists of 7,429 flat glass panels precisely placed to maximize natural light—a surprising achievement for a curved building. Notably, the dome's single curved glass panel sits at its apex.

The cylindrical shape of the skyscraper ensures uniform wind force distribution, allowing air to flow more smoothly than around traditional rectangular buildings. Its passive ventilation system incorporates circular floors with six openings per level, offset in contiguous floors. This design creates a natural ventilation cycle, channeling hot air upward and significantly reducing energy use for air conditioning, boosting the building's energy efficiency.

Foster's legacy in The Gherkin transcends its striking aesthetic. This biomimetic skyscraper has influenced generations of architects, showcasing how nature-inspired solutions can enhance sustainability and urban functionality. Today, it remains a model for future architecture, blending beauty, efficiency, and environmental respect.

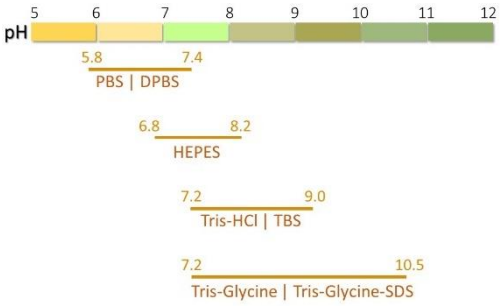
#FromDeepSeaToSkyscrapers

Buffers & Solutions

9

BUFFERS, SOLUTIONS & WATERS

Wide range of buffers and solutions, commonly used **for molecular and cellular biology applications**. These are manufactured with highly purified analytical-grade chemicals and comply with strict quality standards, batch-to-batch consistency, guaranteed pH, and they are free of DNases, RNases and proteins contamination.



GENERAL BUFFERS

Tris Buffers

Tris Base

Tris (hydroxymethyl)-aminomethane hydrochloride $(CH_2OH)_3CNH_2$) (CAS 77-86-1) is a high quality chemical component of Tris buffers.

Tris-HCl Buffers

Tris-HCl buffers are high-quality buffering solutions prepared using ultra-pure components and subjected to rigorous quality control measures to ensure lot-to-lot consistency. They are widely used in various biochemical and molecular biology applications due to their excellent buffering capacity and stability. Tris-HCl buffers are available in different molarities, pH values, and formulations with additives such as NaCl, EDTA, Tween-20® or casein. Additionally, Tris buffers do not inhibit alkaline phosphatase activity, making them suitable for enzyme-based assays with different readout, immunoassays, protein purification, and electrophoresis.

REFERENCES	DESCRIPTION	COMPOSITION	FORMAT
TBR0160	TRIS BASE		1 kg
TBB0330	TRIS-HCl BUFFER, 1M, pH 7.4	1 M Tris-HCl, pH 7.4	1 L
TBB0331	TRIS-HCl BUFFER, 1M, pH 8.0	1 M Tris-HCl, pH 8.0	1 L
TBB0332	TRIS-HCl BUFFER, 1.5M, pH 8.8	1.5 M Tris-HCl, pH 8.8	1 L
TBB0383	TRIS-HCl 10 mM, NaCl 50 mM BUFFER, pH 8	10 mM Tris-HCl, 50 mM NaCl pH 8.0	1 L
TBB0384	TRIS-HCl 50 mM, NaCl 100 mM BUFFER, pH 8	50 mM Tris-HCl, 100 mM NaCl pH 8.0	1 L
TBB0341	TRIS BUFFER SALINE (TBS) 10x, pH 7.6	500 mM Tris-HCl, 1.5M NaCl	1 L
TBB0342	TRIS BUFFER SALINE (TBS) 10x, pH 7.6	500 mM Tris-HCl, 1.5M NaCl	4 x 1L
TBB0103	TRIS-EDTA BUFFER, 10x, pH 7.5	100 mM Tris-HCl, 10 mM EDTA	1 L
TBB0353	TRIS-EDTA BUFFER, 1x, pH 8	10 mM Tris-HCl, 1 mM EDTA	0.1 L
TBB0354	TRIS-EDTA BUFFER, 1x, pH 8	10 mM Tris-HCl, 1 mM EDTA	10 x 1.5mL
TBB0343	TRIS BUFFER SALINE TWEEN®- 20 (TBS-T), 20x, pH 7.4	1M Tris-HCl, 3 M NaCl, 2% Tween®-20	1 L
TBB0344	TRIS BUFFER SALINE TWEEN®- 20 (TBS-T), 20x, pH 7.4	1M Tris-HCl, 3 M NaCl, 2% Tween®-20	4 x 1 L
TBB0345	TRIS BUFFER SALINE CASEIN 1%, 1x , pH 7.6	50 mM Tris-HCl, 150 mM NaCl, 1% Casein	1 L
TBB0346	TRIS BUFFER SALINE CASEIN 1%, , pH 7.6	50 mM Tris-HCl, 150 mM NaCl, 1% Casein	0.5 L
TBB0347	TRIS BUFFER SALINE CASEIN 1%, , pH 7.6	50 mM Tris-HCl, 150 mM NaCl, 1% Casein	0.1 L

Tris-Glycine Buffers

Tris-Glycine Buffers are high quality and reliable buffers used in polyacrilamide gel electrophoresis for protein separation. Tris-Glycine can be used as running buffer in native or denaturing protein electrophoresis to resolve proteins by their size.

Please see Chapter 7. Protein Research

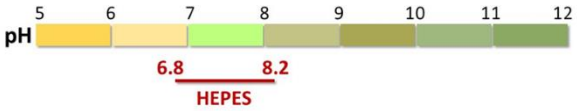
Phosphate Buffers

Phosphate Buffer Saline (PBS)

PBS is a widely used buffer solution formulated with high-purity components and subjected to strict quality control to ensure batch-to-batch consistency. PBS maintains physiological pH and osmolarity, making it ideal for a variety of biological and biochemical applications. It is available in different formats and can be supplemented with additives such as calcium (Ca^{2+}), magnesium (Mg^{2+}), and potassium (K^{+}) to suit specific experimental needs. PBS is frequently used for cell culture, molecular biology, immunoassays, and as a washing or dilution buffer in various laboratory protocols. Additionally, PBS is non-toxic to cells and does not interfere with most enzymatic reactions, making it a versatile and essential reagent in life sciences research.

REFERENCES	DESCRIPTION	COMPOSITION	FORMAT
TBB0360	PBS 1x, pH 7.4	10 mM Na_2HPO_4, 1.8 mM KH_2PO_4, 2.7 mM KCl, 137 mM NaCl	1 L
TBB0361			4 x 1 L
TBB0362	PBS 10x, pH 7.4	100 mM Na_2HPO_4, 18 mM KH_2PO_4, 27 mM KCl, 1.37 M NaCl	1 L
TBB0363			4 x 1 L
TBB0364	PBS 20x, pH 7.4	200 mM Na_2HPO_4, 36 mM KH_2PO_4, 54 mM KCl, 2.74 M NaCl	1 L
TBB0365			4 x 1 L
TBB0600	PBS 1x, pH 7.4 (Powder, 10x 1L)	10 mM Na_2HPO_4, 1.8 mM KH_2PO_4, 2.7 mM KCl, 137 mM NaCl	10 pouches
TBB0601			50 pouches
TBB0602			100 pouches
TBB0372	PBS - TWEEN® 20, 1x, pH 7.4	10 mM Na_2HPO_4, 1.8 mM KH_2PO_4, 2.7 mM KCl, 137 mM NaCl, 0.05% Tween®-20	1 L
TBB0373			4 x 1 L
TBB0374	PBS - TWEEN™ 20, 10x, pH 7.4	100 mM Na_2HPO_4, 18 mM KH_2PO_4, 27 mM KCl, 1.37 M NaCl, 0.5% Tween®-20	1 L
TBB0375			4 x 1 L
TBB0376	PBS - TWEEN® 20, 20x, pH 7.4	200 mM Na_2HPO_4, 36 mM KH_2PO_4, 54 mM KCl, 2.74 M NaCl, 1% Tween®-20	1 L
TBB0377			4 x 1L
TBB0605	PBS-TWEEN® 20, 1x, pH 7.4 (Powder, 10x 1L)	10 mM Na_2HPO_4, 1.8 mM KH_2PO_4, 2.7 mM KCl, 137 mM NaCl, 0.05% Tween®-20	10 pouches
TBB0606			50 pouches
TBB0607			100 pouches
TBB0378	PBS-CASEIN 1% , pH 7.4	10 mM Na_2HPO_4, 1.8 mM KH_2PO_4, 2.7 mM KCl, 137 mM NaCl, 1% Casein 1%	1L
TBB0379			0.5 L
TBB0380			0.1 L
TBB0405	DPBS 1x, without calcium and magnesium	1.47 mM KH_2PO_4, 8.1 mM Na_2HPO_4, 137 mM NaCl, 2.7 mM KCl 2.7 mM, pH 7.3	0.5 L
TBB0406			1 L
TBB0407			0.5L
TBB0408	DPBS 1x, with calcium and magnesium	1.47 mM KH_2PO_4, 8.1 mM Na_2HPO_4, 137 mM NaCl, 2.7 mM KCl, 0.9 mM $CaCl_2$, 0.5 mM $MgCl_2$, pH 7.3	0.5 L
TBB0409			1 L
TBB0410	DPBS 10x, with calcium and magnesium	14.7 mM KH_2PO_4, 81 mM Na_2HPO_4, 1.37 M NaCl, 27 mM KCl, 9 mM $CaCl_2$, 5 mM $MgCl_2$, pH 7.3	0.5 L

HEPES Buffer



HEPES Buffer is a high-quality biological buffer prepared with ultra-pure components and subjected to stringent quality control to ensure lot-to-lot consistency. It is widely used in cell culture, biochemical, and molecular biology applications due to its excellent buffering capacity in the physiological pH range (6.8–8.2). Unlike phosphate-based buffers, HEPES does not interfere with enzymatic reactions or metal ion-dependent processes, making it ideal for use in protein purification, enzymatic assays, and electrophysiology experiments. HEPES buffer is available in various concentrations and can be supplemented with additives such as NaCl or glucose to suit specific experimental needs. Additionally, it provides superior pH stability compared to bicarbonate buffers, making it a preferred choice for maintaining physiological conditions in cell culture and biological research.

REFERENCES	DESCRIPTION	FORMAT
TBB0387	HEPES BUFFER, 1 M, pH 7.5 *(Cell Biology Grade)*	100 mL
TBB0388	HEPES BUFFER, 1 M, pH 7.5	500 mL

Citrate Buffer

Saline Sodium Citrate Buffer (SSC)

Saline-Sodium Citrate (SSC) Buffer is a high-quality hybridization buffer formulated with high-purity components and subjected to rigorous quality control. It is widely used in molecular biology, particularly in nucleic acid hybridization techniques such as Southern and Northern blotting, *in situ* hybridization, and microarray applications. SSC buffer is available at 20x and it can be adjusted with additives to optimize hybridization stringency. Its buffering capacity helps maintain nucleic acid stability and enhances probe-target interactions. Additionally, SSC buffer is frequently used for washing steps in hybridization protocols to control the stringency of DNA or RNA binding.

REFERENCES	DESCRIPTION	FORMAT
TBB0357	SCC, SALINE SODIUM CITRATE BUFFER, 20x	1 L
TBB0358	SCC, SALINE SODIUM CITRATE BUFFER, 20x	4 x 1 L

SOLUTIONS

REFERENCES	DESCRIPTION	FORMAT
TBB0350	EDTA SOLUTION 0.5M, pH 8.0	0.1L
TBB0351		0.5L
TBB0352		4 x 0.1L
TBR0144	SDS SOLUTION 20%	1 L
TBR0145		0.1 L
TBR0146	SDS SOLUTION 10%	1 L
TBR0147		0.1 L
TBR0215	MgCl2 25mM	10 x 1.5 mL
TBR0216		100 mL
TBR0217	MgCl2 50mM	10 x 1.5 mL
TBR0218	MgCl2 1M	100 mL
TBR0104	TCEP SOLUTION	5 x 1.5 mL
TBR0107	2-MERCAPTOETHANOL 99% PURE	25mL
TBR0108	2-MERCAPTOETHANOL SOLUTION, 50 mM	20 mL
TBR0109		100 mL
TBR0259	DMSO, *Molecular Biology Grade*	10 x 1.5 mL
TBR0260		50 mL
TBR0261		100 mL
TBR0151	DTT, DITHIOTHREITOL	10 g

WATERS

REFERENCES	DESCRIPTION	FORMAT
TBB0297	WATER, nuclease free	100 mL
TBB0298	WATER, nuclease free	25 mL
TBB0299	WATER, nuclease free	5 x 10 mL
TBB0300	WATER, nuclease free	1 L
TBB0301	WATER, nuclease free	0.5 L
TBB0303	PCR GRADE WATER	10 x 1.5 mL
TBB0304	WATER DEPC TREATED	1 L
TBB0305	WATER DEPC TREATED	0.5 L
TBB0306	WATER DEPC TREATED	5 x 1.5 mL

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