avigene

# HIGHLY PURE ECONOMIC MOLECULAR GRADE RESEARCH & DIAGNOSTIC REAGENTS & KITS

WWW.AVIGENE.CA

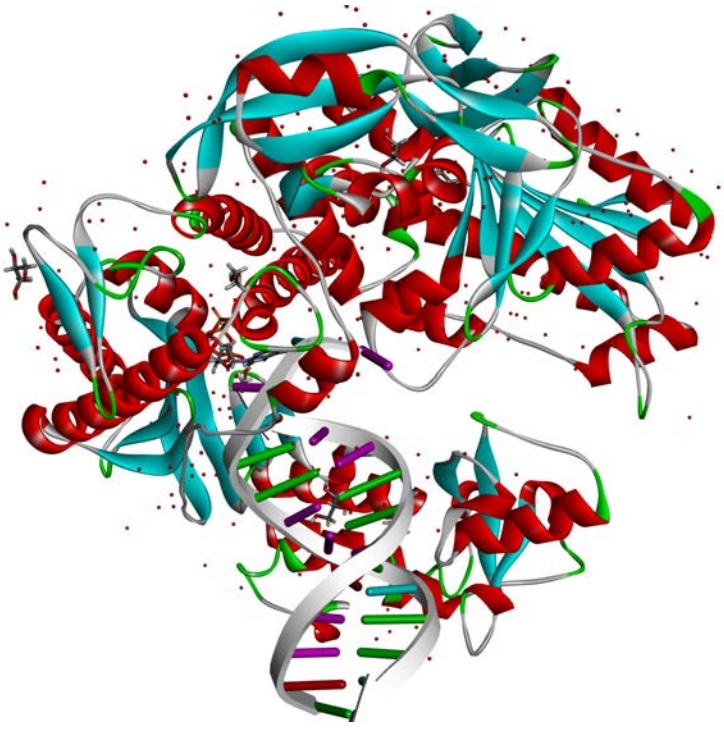
avigene

avigene

WWW.AVIGENE.CA

# MOLECULAR BIOLOGY KITS

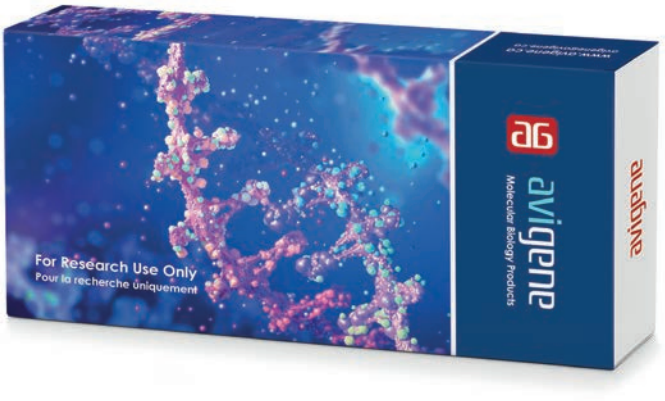
- AviUCiDiNA™
- AviSYBR™
- AviTooX™



# AviUCiDiNA™

## cDNA Synthesis Kit (Optimum activity at 55 °C)

AviUCiDiNA™ contains all necessary components for converting total RNA or mRNA into single-stranded cDNA. The 2X Buffer mix includes RT buffer, 1 mM dNTP mixture, 8 mM $MgCl_2$, Oligo d(t)16, random hexamer, and stabilizer. The Enzyme mix contains thermostable H-minus M-MLV reverse transcriptase with optimum activity at 55°C, RNase Inhibitor, and stabilizer.

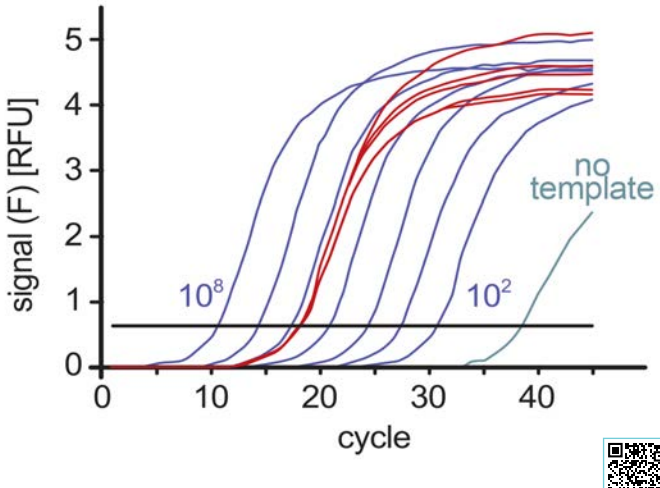



**Advantages:**
**Optimum activity at 55°C**
**Reduces technical errors**
**Offers a simple protocol**
**Allows for higher reaction temperatures than conventional M-MLV, resulting in high yield and sensitivity**

# AviSYBR™

## SYBR Green 2X Mastermix (+ROX)

AviSYBR™ is a highly sensitive and user-friendly solution for real-time quantitative analysis of DNA and cDNA targets. This product combines SYBR Green I dye with a dual hot-start Taq polymerase (chemically modified and antibody-mediated) in an optimized buffer solution.




**Advantages:**
**Cost-Effective**
**Aptamer-based hot start Taq DNA polymerase**
**Long-Term stability**
**Ease of use**
**Short initial denaturing time**

# AviTooX™

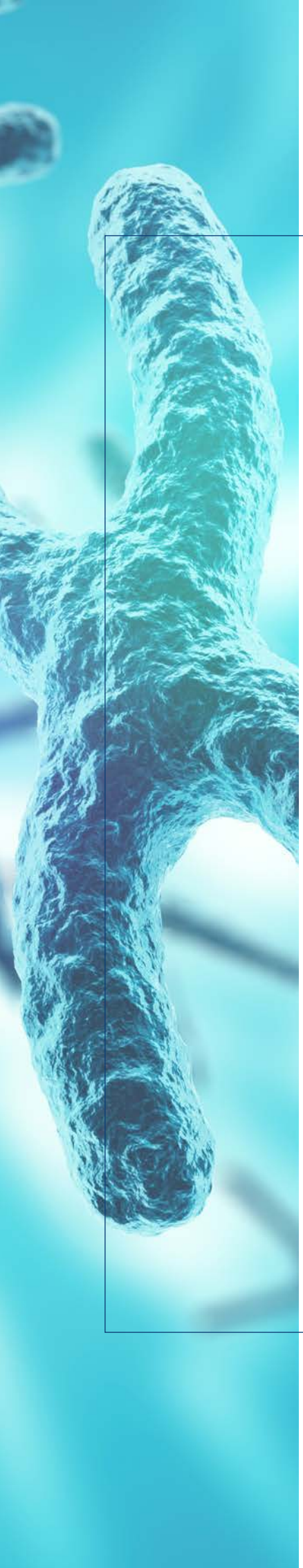
## 2X Taq Mastermix (Red Dye)

AviTooX™ is a ready-to-use PCR mix containing Taq DNA Polymerase, reaction buffer, dNTPs, protein stabilizer, 2 mM $MgCl_2$, tracking dye for electrophoresis, and loading dye.
It optimizes the convenience to use by adding sediment for electrophoresis and 2x solution of loading dye.


**Advantages:**

**Highly resistant to adverse storage conditions and frequent freeze-thaw cycles**
**The most convenient way to perform PCR**
**Reduces technical errors**
**Eliminates the need for adding loading dye during electrophoresis**
**More economical**


avigene
WWW.AVIGENE.CA



# MOLECULAR BIOLOGY ENZYMES & REAGENTS

- AviTaq™
- AviKlen™
- AviAHot™
- AviCHot™
- AviPfu™
- AviLong™
- AviURT™
- AviFix™

avigene

## AviTaq™

Taq DNA polymerase

AviTaq™ is a highly purified Taq DNA polymerase, produced through chromatography, with an optimized buffer for higher specificity.
It comes with an exclusive 10x reaction buffer designed to enhance PCR success when using templates with high secondary structure or GC-rich regions.


**Advantages:**

**Highly purified through chromatography.**
**Free of E. coli DNA.**
**Suitable for both conventional PCR and TA cloning PCR.**

## AviKlen™

Klentaq DNA polymerase

AviKlen™ is a modified Thermus aquaticus (Taq) DNA polymerase lacking the N-terminal portion of the gene.
This modification results in a highly active and exceptionally thermostable enzyme, retaining significant activity even after exposure to 99°C temperature.

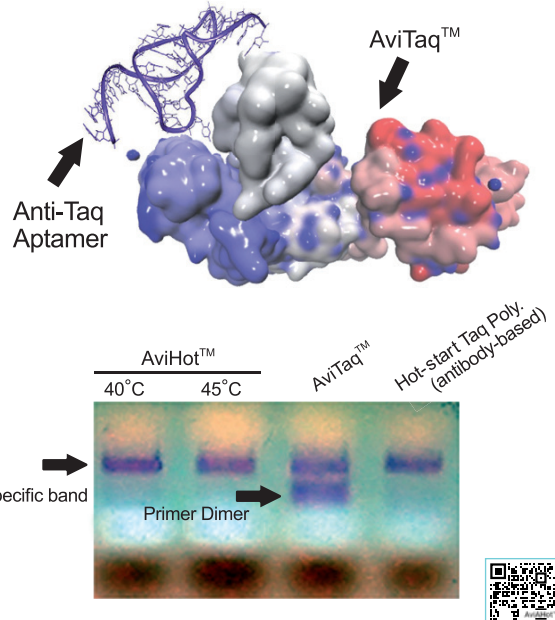

**Advantages:**

**Tolerates a wide range of $MgCl^2$ concentrations.**
**Has a two-fold lower error rate than standard Taq polymerase.**
**Produces amplicons compatible with T/A cloning.**
**Enables mutation analysis with mutation-specific oligonucleotides.**

# AviAHot™

Apta hot-start Taq DNA Polymerase

AviAHot™ is a mixture of Taq DNA polymerase and a temperature-sensitive aptamer-based inhibitor. The inhibitor reversibly binds to the enzyme, suppressing polymerase activity below 40°C but releasing it during standard PCR cycling conditions.
This aptamer-based hot start mechanism eliminates the need for a separate high-temperature activation step.
AviAHot™ remains inactive at room temperature, preventing extension of non-specifically annealed primers or primer dimers, and enhancing the specificity of DNA amplification.
Once activated, AviAHot™ functions like Taq DNA polymerase: it catalyzes 5' → 3' DNA synthesis and lacks detectable 3' → 5' proofreading exonuclease activity.




**Advantages:**
**Reduces primer dimer formation.**
**Requires no inactivation time.**
**Helps eliminate non-specific bands.**

# AviCHot™

Chemical Hot-Start Taq DNA Polymerase

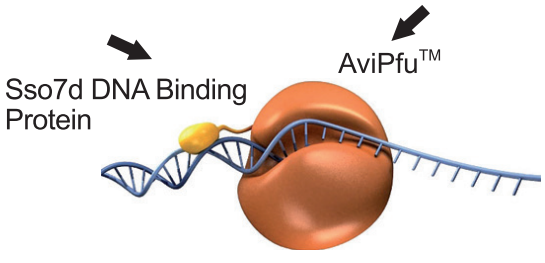
AviCHot™ is a chemically-modified Taq DNA polymerase bound to a heat-labile inhibitor. The inhibitor reversibly binds to the enzyme, suppressing polymerase activity below 60°C but releasing it during standard PCR cycling conditions.
This chemically-modified hot start mechanism requires a brief high-temperature incubation step to activate the enzyme.
Being inactive at room temperature prevents the extension of non-specifically annealed primers or primer dimers, increasing the specificity of DNA amplification.
Once activated, AviCHot™ functions like Taq DNA polymerase, catalyzing 5' → 3' DNA synthesis and lacking detectable 3' → 5' proofreading exonuclease activity.

avigene

## AviPfu™

Recombinant Pfu DNA Polymerase

AviPfu™ is a recombinant Pfu DNA polymerase is a highly purified enzyme with 3' → 5' proofreading exonuclease activity, resulting in over 10-fold higher PCR fidelity compared to Taq DNA polymerase.




**Advantages:**

**Pure recombinant enzyme**
**Over 10-fold higher PCR fidelity than Taq**
**Enhanced performance due to a new buffer formulation**

Fig: Analysis of AviTaq™ and AviPfu™ on 12.5% polyacrylamide gel electrophoresis.
AviPfu™ shows sharp band with a Molecular Weight 90 kDa. Taq indicates a monomer protein with Molecular Weight 94 kDa.

## AviLong™

Chimeric Pfu DNA Polymerase

AviLong™ is a chimeric Pfu DNA polymerase with a DNA-binding protein fused to its N-terminal region. This modification enhances the enzyme's processivity and extension rate compared to standard Pfu DNA polymerase, while also maintaining significant activity after exposure to 99°C or repeated exposure to 98°C.

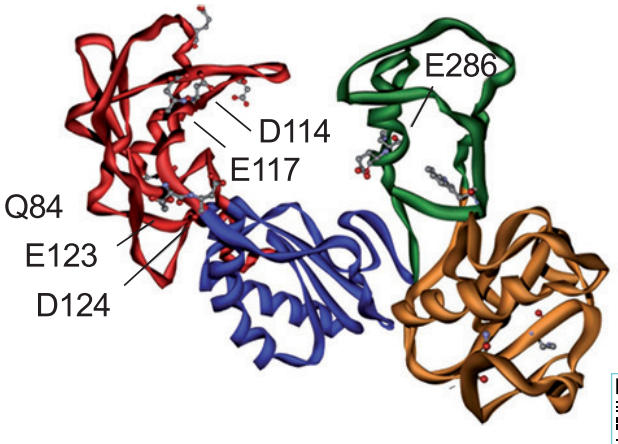

**Advantages:**

**Faster than standard Pfu DNA polymerase.**
**Efficient amplification of GC-rich templates.**
**Suitable for high-fidelity PCR and primer extension reactions, especially for amplicons larger than 3kb.**

# AviURT™

Thermo-resistant H-minus MMLV with optimum activity at 55 °C

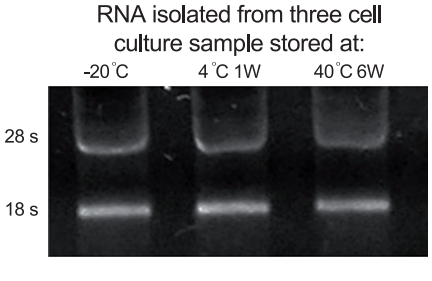
AviURT™ is a genetically-modified MMLV reverse transcriptase with optimum activity at 55°C. This RNA-dependent DNA polymerase requires a DNA primer and an RNA template to synthesize complementary DNA (cDNA).
With lacking RNase H activity, AviURT™ prevents RNA degradation during first-strand cDNA synthesis. This results in higher yields of full-length cDNA from long templates compared to other reverse transcriptases.
AviURT™ maintains functionality across a wide temperature range (50-60°C), making it an ideal choice for reverse transcription of RNAs with complex secondary structures.

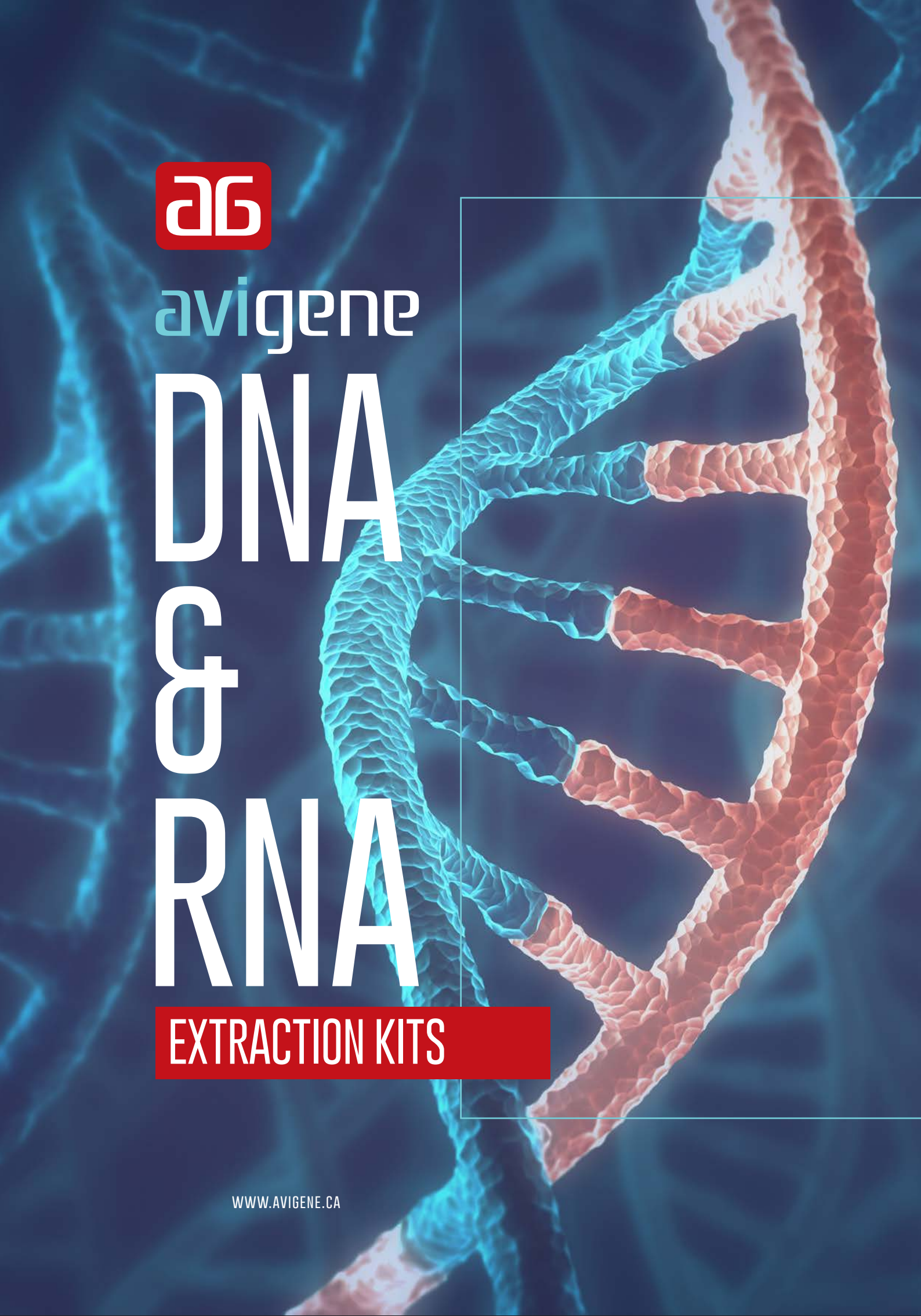



# AviFix™

RNA fix solution

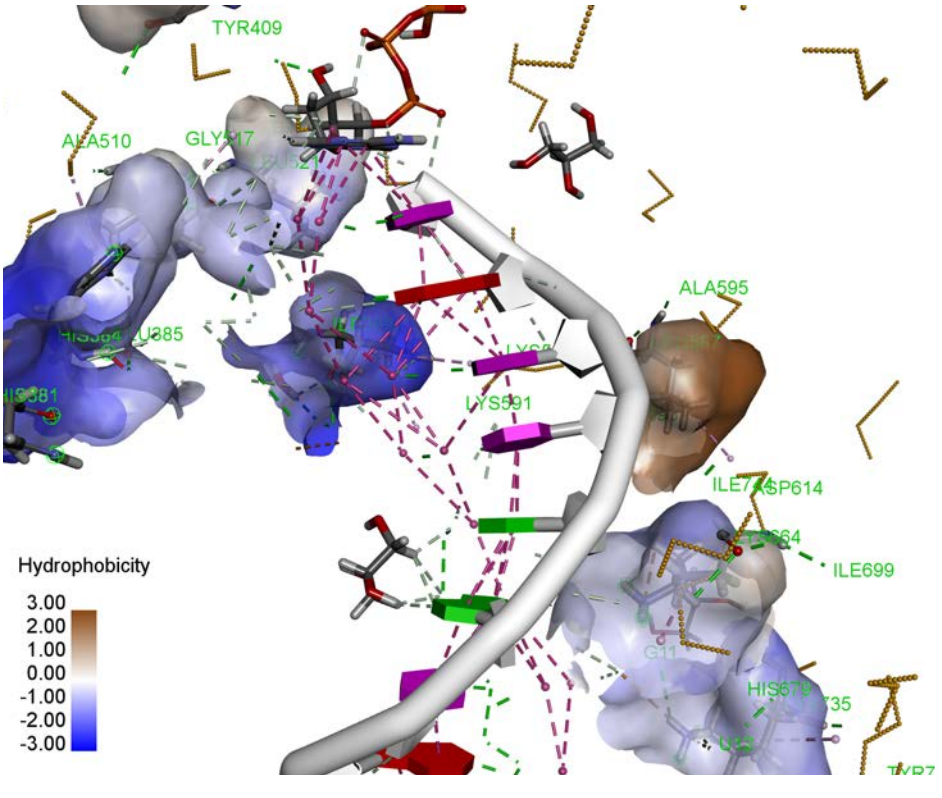
AviFix™ is a non-toxic, aqueous solution designed to preserve RNA in tissues and cells for later isolation. It allows for the recovery of intact RNA from a variety of samples, including tissues, cell cultures, bacteria, and yeasts.
Samples stored in AviFix™ at -20°C remain stable indefinitely, with no RNA degradation. AviFix™ is compatible with most RNA isolation methods, providing flexibility for downstream applications.





avigene
DNA
&
RNA
EXTRACTION KITS
WWW.AVIGENE.CA

# EXTRACTION KITS

- AviRex™ Total RNA
- AviRex™ Plant RNA
- AviRex™ Blood RNA
- AviDex™ Blood DNA
- AviDex™ Tissue DNA
- AviDex™ Bacteria DNA
- AviDex™ Plant DNA



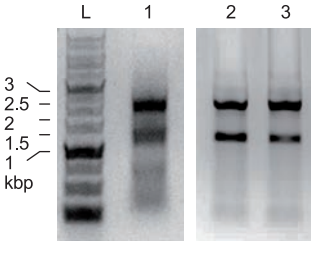
# AviRex™ Total RNA

Total RNA Extraction kit

AviRex™ Total RNA utilizes a silica-based column to efficiently extract total RNA. The sample is lysed under highly denaturing conditions to preserve RNA integrity.
This kit enables the simultaneous processing of multiple tissue samples in under 30 minutes. The procedure thoroughly removes contaminants and enzyme inhibitors, resulting in fast, convenient, and reliable RNA isolation.

**Applications:**

**RNA extraction from animal tissues, cell cultures and blood**

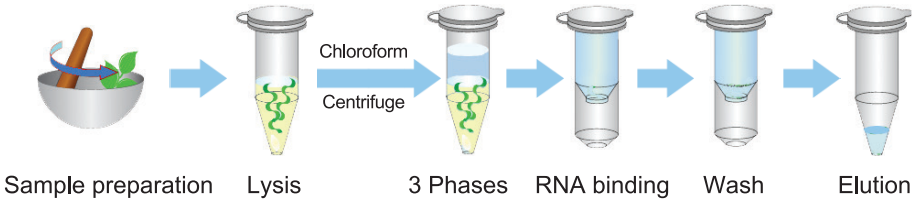



L: 1 kbp DNA Ladder
1: 10 µl RNA from Blood
2: 5 µl RNA from J774 cells
3: 5 µl RNA from Hela cells


# AviRex™ Plant RNA

Plant RNA Extraction Kit

AviRex™ Plant RNA utilizes a spin column-based method for the isolation of total RNA from a variety of plant samples. Samples should be homogenized in lysis buffer before starting the process. All contaminants, including polysaccharides and phenolic compounds, are effectively removed during purification.
Purified RNA is suitable for various downstream applications, such as RT-PCR, Northern blot analysis, differential display, and poly $A^+$ RNA selection.



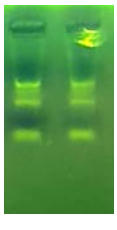
# AviRex™ Blood RNA

Blood RNA Extraction Kit

AviRex™ Blood RNA is designed for the silica spin-based isolation of total intracellular RNA from up to 200 µl of fresh or frozen whole blood treated with common anticoagulants (heparin, EDTA, or acid-citrate-dextrose). The procedure completely removes contaminants and enzyme inhibitors, resulting in fast, convenient, and reliable total RNA isolation.
Cell lysis, RNase inactivation, and DNA removal are achieved using a phenol-based solution. After separating the RNA-containing fraction and adding an RNA enhancer, the lysate is applied to a spin column. Cellular debris and contaminants like hemoglobin are effectively washed away, and high-quality RNA is eluted in DEPC-treated water.

**Adventages:**

**Small sample size 200 µl**
**Fast and easy protocol**
**DNA depletion**
**Suitable yield 1-4 µg**



10 µl of extracted RNA from blood on a 1.5% agarose gel stained with AviStain™


# AviDex™ Blood DNA

Blood DNA Extraction kit

AviDex™ Blood DNA is a silica-membrane-based purification system for extracting DNA from up to 200 µl of fresh or frozen human whole blood. Yields 4–10 µg of high-quality DNA, depending on the white blood cell count.

**Applications:**

**Genomic DNA extraction from human and animal blood, serum, and plasma.**


**Advantages:**

**Simple protocol**
**No precipitation step required**
**Less than 30 minutes per sample**
**Purified DNA is fully compatible with downstream applications and all restriction enzymes tested**

# AviDex™ Tissue DNA

Tissue DNA Extraction kit

AviDex™ Tissue DNA utilizes proteinase K and chaotropic salt to lyse cells and degrade proteins, facilitating DNA binding to the glass fiber matrix of the genomic DNA spin column.

**Applications:**

**Genomic DNA extraction from various animal tissues, including liver, kidney, and brain.**


**Advantages:**

**No precipitation step required.**
**Less than 45 minutes of preparation time per sample.**
**Purified DNA is fully compatible with all restriction enzymes tested and seamlessly integrates with downstream applications.**

# AviDex™ Bacteria DNA

Bacteria DNA Extraction kit ($G^+$ & $G^-$)

AviDex™ Bacteria DNA is designed for rapid spin column preparation of genomic DNA from 2 x $10^9$ viable bacterial cells (between 0.5 and 1.0 ml of culture).
This kit is suitable for both Gram-negative and Gram-positive bacteria, including *Escherichia coli* and *Bacillus cereus*. Purified genomic DNA is of excellent quality and yield.

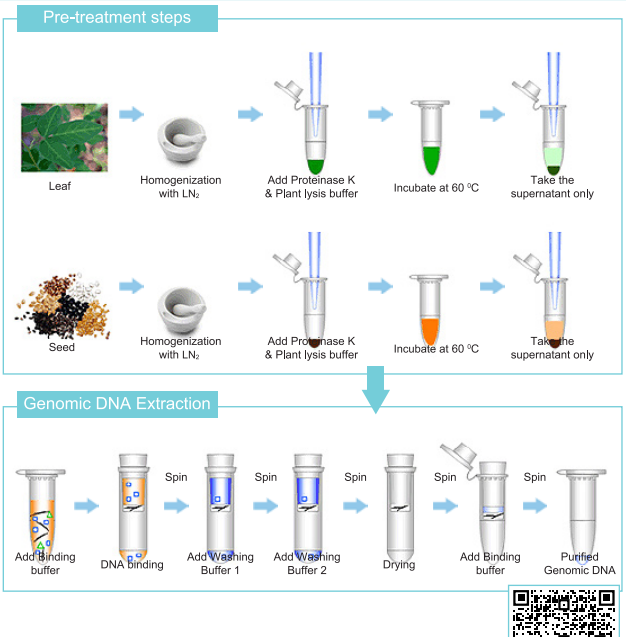

**Advantages:**

**Rapid and convenient spin column protocol**
**High yield, high-quality DNA ideal for sensitive downstream applications, including sequencing, PCR, qPCR, and more**

# AviDex™ Plant DNA

Plant DNA Extraction kit

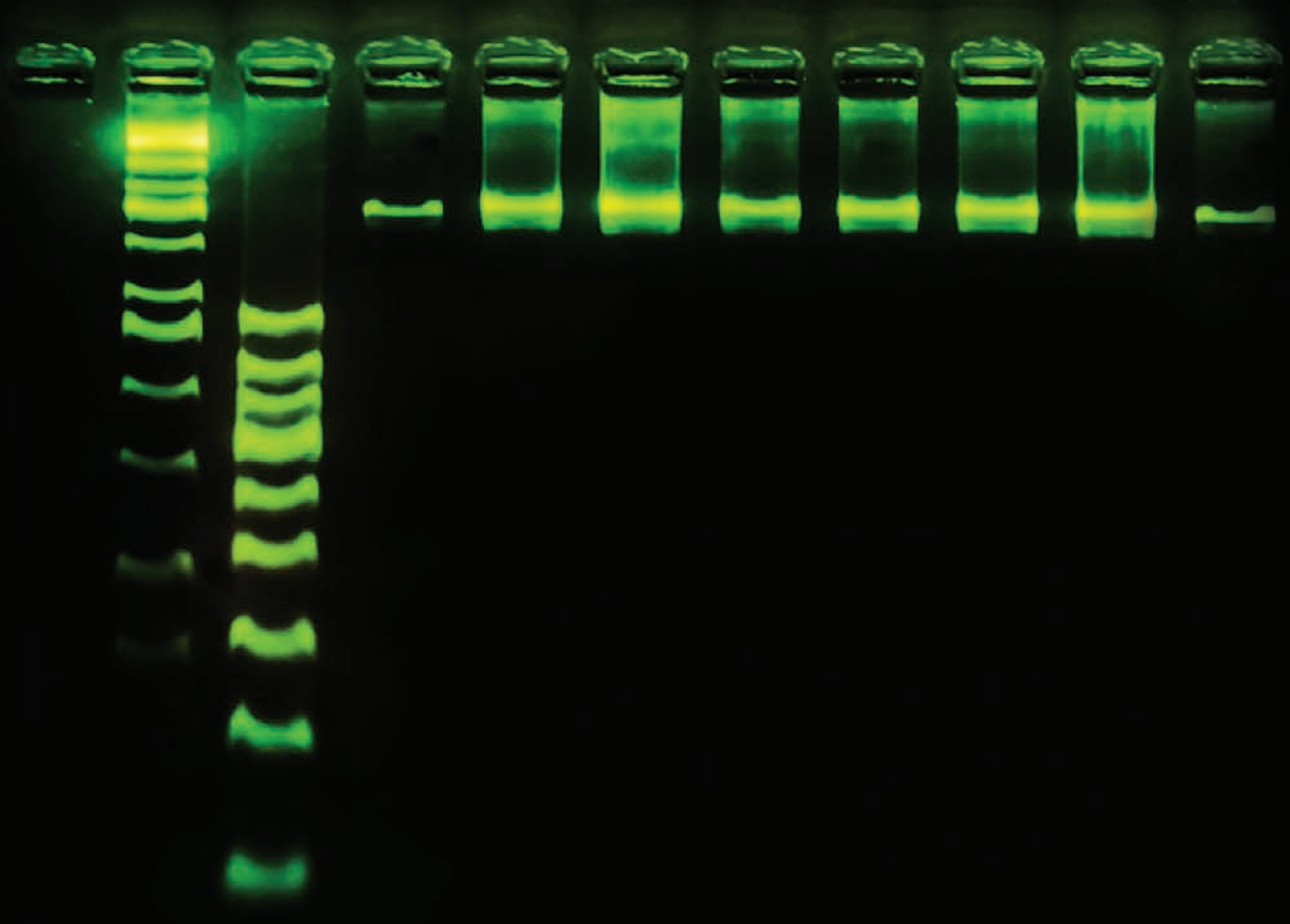
AviDex™ Plant DNA offers a simple, efficient column-based method for isolating genomic DNA from a wide variety of plant materials, eliminating the need for hazardous reagents such as phenol.
The kit includes all necessary components for high-performance extraction of high-quality DNA. Optimized lysis conditions and a specialized column matrix ensure improved recovery of genomic DNA from a diverse range of plant samples.




**Advantages:**

**Streamlined protocol for rapid DNA extraction.**
**Ideal for various downstream applications.**
**Maximizes DNA yield and purity for reliable results.**

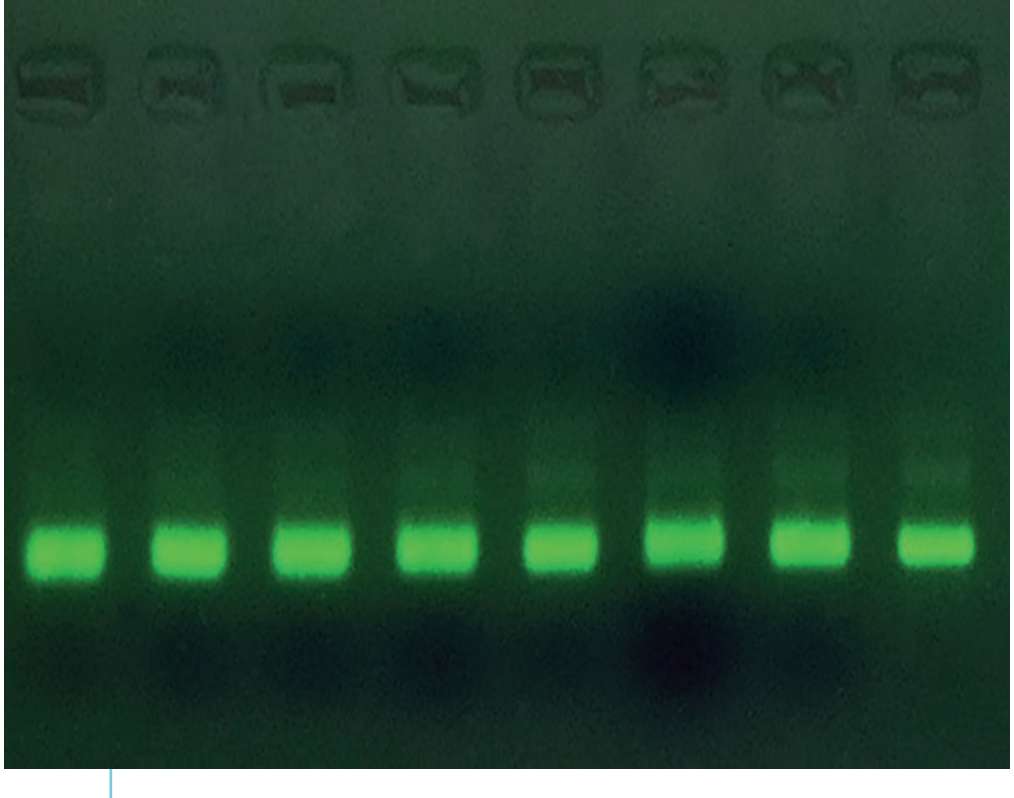
avigene



WWW.AVIGENE.CA

# ELECTROPHORESIS PRODUCTS

- AviStain™
- 100bp Ladder
- AviDuo™
- AviTri™
- TBE buffer (10X)
- TAE buffer (50X)

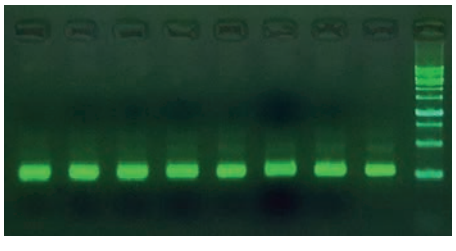


avigene

## AviStain™

Safe DNA Staining Dye

AviStain™ is a new and safe nucleic acid stain, offering a superior alternative to traditional ethidium bromide (EB) fordetecting double-stranded DNA and RNA in agarose gels.

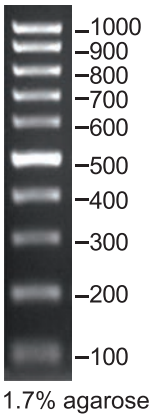



**Advantages:**
**As sensitive as EB**
**Safer than ethidium bromide**
**Most economical**

## 100bp Ladder

DNA Marker

The 100 bp DNA Marker consists of 11 DNA fragments ranging in size from 100 to 1,000 base pairs (bp). For easy reference on agarose gels, the 500 bp and 1,000 bp fragments are two to three times brighter than the other bands.




1.7% agarose gel

## AviDuo™

Dual-color DNA Loading Dye

AviDuo™ contains bromophenol blue and xylene cyanol, making it ideal for loading DNA samples into gel electrophoresis wells and tracking their migration during electrophoresis.


## AviTri™

Tri-color DNA Loading Dye

AviTri™ contains Orange G, bromophenol blue, and xylene cyanol. This product is used for loading DNA samples into gel electrophoresis wells and tracking their migration during electrophoresis.


**Advantages:**

**Orange G dye runs faster than bromophenol blue or xylene cyanol FF dyes in standard agarose gels.**

**Orange G dye migrates with DNA fragments that are 10-20 nucleotides long.**

## TBE buffer (10X)

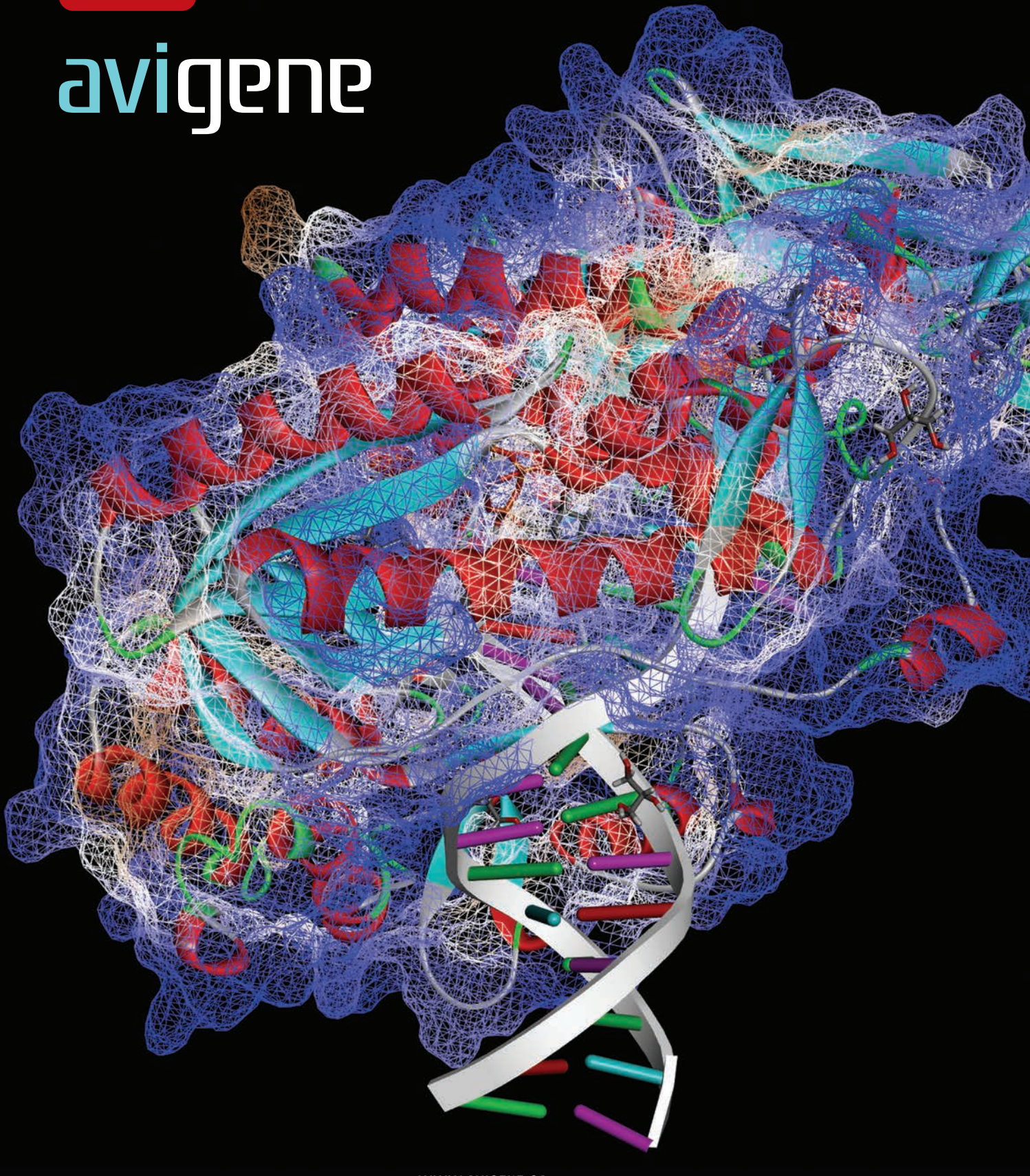
Highly pure reagents are provided for the preparation of electrophoresis buffers.
This TBE buffer is used to prepare agarose gels and as a running buffer for electrophoresis to separate double-stranded DNA in agarose and polyacrylamide gels.


## TAE buffer (50X)

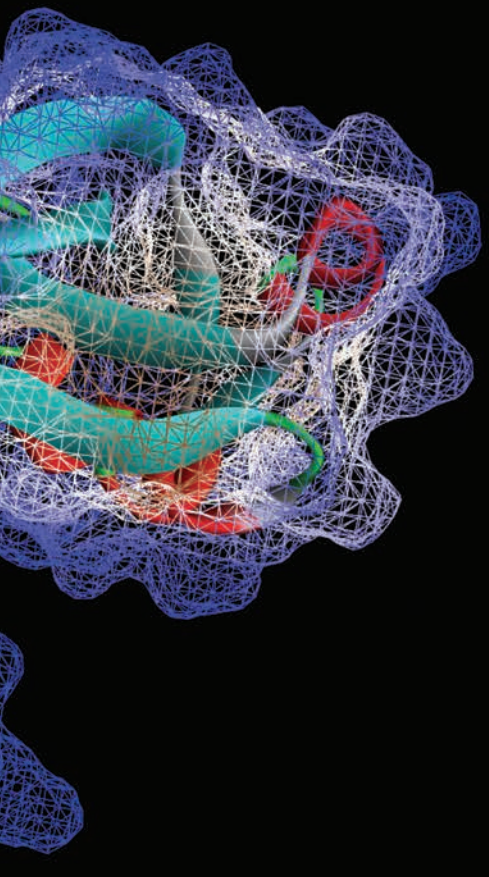
50X Tris/Acetic Acid/EDTA (TAE) is made from highly pure reagents in 18 Ω water, making it perfect for sensitive electrophoresis of nucleic acids. This buffer is compatible with both horizontal agarose and vertical polyacrylamide gels.
It is suitable for use with nondenatured and denatured DNA and nondenatured RNA. Unlike TBE, TAE does not interfere with the activity of some downstream enzymes, such as ligases.

avigene

avigene



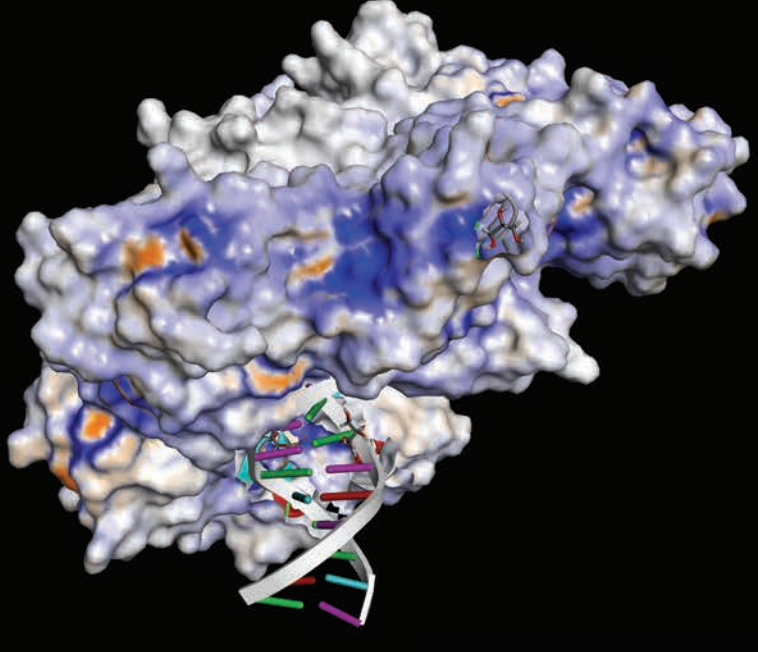
WWW.AVIGENE.CA



# PROTEIN

## PROTEIN ASSAY

- AviLMW™
- AviChem™
- AviBiciA™

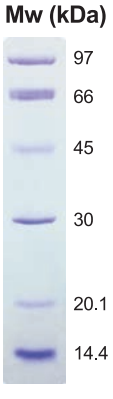


avigene

## AviLMW™

Low Molecular Weight Protein Marker

AviLMW™ for SDS electrophoresis is a ready-to-use liquid mixture of six purified proteins. It is designed for use as a molecular weight standard in SDS-polyacrylamide gel electrophoresis.
The proteins in AviLMW™ range from 14.4 KDa to 97 KDa when used in denaturing polyacrylamide gels.

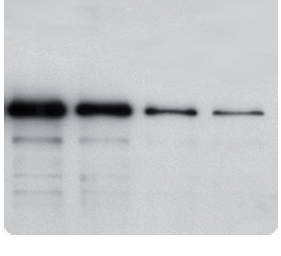




## AviChem™

Chemiluminescence Substrate

AviChem™ is a two-component (Solution A and Solution B) system recommended for horseradish peroxidase (HRP)-based Western blotting procedures. The chemiluminescent signal can be quantitatively detected using autoradiography film, CCD cameras, or chemiluminescence readers.




**Advantages:**
**Suitable for Western blotting and dot blot applications.**
**Offers higher sensitivity than traditional chromogenic substrates like DAB and Alpha-naphthol.**

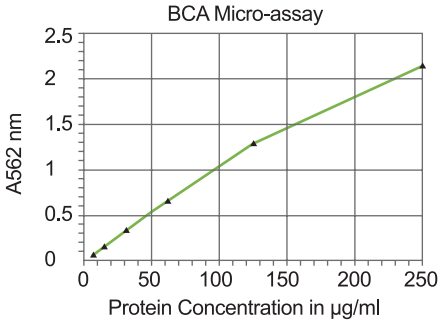
# AviBiciA™

Bicinchoninic Acid Protein Quantification Kit

AviBiciA™ utilizes the reduction of a copper ($Cu^{2+}$) salt to its cuprous state ($Cu^{+}$) by proteins in solution. This colorimetric assay is suitable for measuring protein concentrations ranging from 5 to 1000 µg/ml.

**Advantages:**

**Less protein-to-protein variation**
**Less affected by ionic and nonionic detergents**
**Detection down to 5 µg/ml of protein with concentration as low as**





avigene

WWW.AVIGENE.CA
avigene@avigene.ca

Ver.2404