DNAstable®/DNAstable® LD Handbook

Preserve and store DNA samples at room temperature

Protocols for Sample Protection, Sample Recovery and Downstream Applications

Biomātrica®
THE BIOSTABILITY COMPANY

Contents

DNAstable® Product Formats

Catalog Number	Product	Description
93021-001	DNAstable Tube Kit	(25) 1.7 ml snap-cap microfuge tubes made of durable polypropylene
94031-001	DNAstable Alpha Numeric Tube Plate (Micronic)	(1) 96 alphanumeric tubes (0.75ml) in 96-well holding rack, with seals
94041-001	DNAstable 2D Barcode Tube Plate (Micronic)	(1) 96 2D Barcoded tubes (0.75ml) in 96-well holding rack, with seals
90031-006	DNAstable Alpha Numeric Tube Plate (Matrix)	(1) 96 alphanumeric tubes (0.75ml) in 96-well holding rack, with seals
90041-006	DNAstable 2D Barcode Tube Plate (Matrix)	(1) 96 2D Barcoded tubes (0.5ml) in 96-well holding rack, with seals
90021-001 90022-001	DNAstable 96-well Plate DNAstable 96-well Plate	(1) 96-well plate with removable lid (10) 96-well plate with removable lid
91021-001	DNAstable 384-well Plate	(1) 384-well plate with seal
Custom		DNAstable can be provided in other tube or plate formats, contact Biomatrica for additional details

* Tube and plate formats identical capacity, ≤30 µg DNA

DNAstable® LD Product Formats

53001-066	DNAstable LD, 2ml	(1) 2 ml screw cap vial
52001-026	DNAstable LD, 10 ml	(1) 10 ml screw cap bottle

Introduction

Biomatrica offers innovative technologies for stabilizing biological samples at room temperature. We have developed a novel platform technology designed for use in protecting complex biological samples and assays. Sample preservation is achieved without degradation, thus enabling labs to decrease their reliance on freezers and drastically reduce shipping costs.

DNAstable is a unique storage medium that preserves genomic DNA, plasmids, bacterial artificial chromosomes (BACs), PCR products and oligonucleotides at room temperature. DNAstable allows for long-term stabilization of DNA samples with easy sample recovery by simply adding water.

DNAstable technology is based on the natural principles of anhydrobiosis ("life without water"), a biological mechanism employed by organisms such as tardigrades and brine shrimp that enable their survival while dry for up to 120 years. Anhydrobiotic organisms protect their DNA, RNA, proteins, membranes and cellular systems, and can be revived by rehydration. By exploiting these unique characteristics, DNAstable preserves DNA dry at ambient temperatures. DNAstable works by forming a glass-like shell, securely "shrink-wrapping" DNA samples and protecting against degradation.

DNAstable enables you to store DNA samples for extended time periods and allows you to use samples directly in downstream applications without the need for further purification. There is no sample degradation, resulting in increased reproducibility and reliability. Since samples are stored at room temperature, precious freezer space is freed up. The cost for shipping DNA samples is drastically reduced, as samples secured with DNAstable can be transported at ambient temperatures, even for extended transit times.

Using DNAstable, you can completely recover your DNA samples by simple rehydration - *just add water*. In addition, you can concentrate your sample during recovery. Rehydrated samples are ready for immediate use, without the need for further purification. Downstream applications using recovered samples include:

- Transformation
- Restriction enzyme analysis
- Cloning
- Sequencing
- PCR
- Quantitative PCR
- Multiplex STR analysis
- Whole Genome Amplification
- Microarray analysis

Visit www.biomatrica.com for further details on the complete line of room temperature sample stabilization products that Biomatrica offers.

Principles and Procedures

DNAstable is a mixture of dissolvable compounds that stabilize DNA at room temperature. The matrix formulation is based upon the natural principles of anhydrobiosis and synthetic chemistry. Meaning "life without water," anhydrobiosis is a biological mechanism employed by some multi-cellular organisms that enables their survival in a dry state for periods up to 120 years (Crowe et al., *Ann. Rev. Physiol.* (1998) 60:73); during these extended dry periods, proteins, DNA, RNA, membranes, and cellular systems are protected and can be revived by rehydration.

Based on the unique thermo-stable properties of Biomatrica's proprietary formulation, DNAstable forms a protective seal around DNA as it dries, effectively "shrink-wrapping" the sample in a protective coating. Drying can occur at ambient temperatures with a vacuum concentrator (*i.e.* SpeedVac®). Stored dry at ambient temperatures, the protected DNA can be safely stored for extended time periods. Biomatrica has over 2 years of real-time data on stable storage of DNA in DNAstable; accelerated aging studies indicate that DNA can be safely stored for up to 30 years at room temperature. Please note that we recommend storing prepared samples in either a dry storage cabinet or a heat-sealed, moisture-barrier bag. Samples can be recovered through simple rehydration and are ready for immediate use, without the need for further purification.

The DNAstable reagent is available in two different formats*:

- DNAstable®, which is pre-dried in either tubes or multi-well plates. This format should be hydrated with DNA already suspended in water or TE buffer.
- DNAstable® LD (Liquid-to-Dry), which is a liquid that can be dispensed according to the end-user's specific requirements.

*Both formats contain the same reagent formulation.

Storage

DNAstable products and kits should be stored dry in their original unopened packaging at ambient laboratory temperatures (*i.e.* room temperature at 15-25°C or 59-77°F) until ready for use. DNAstable LD tubes or bottles should be stored at 4°C in their original unopened packaging before use.

DNAstable products are supplied in a moisture-barrier foil bags along with a desiccant packet. Extra Sample Pouches/Desiccant Packs are sold as sets of twelve at www.biomatrica.com, catalog number 14001-007. The sample pouch allows for dry storage even in uncontrolled humidity environments and serves as an alternative to storage in a dry storage cabinet. The moisture-barrier foil bag should be opened just before use.

Samples protected for storage should be inserted along with a desiccant packet into the pouch and heat-sealed. Alternatively, store dried samples in a dry storage cabinet at room temperature (15-25˚C). Unused products should be placed back into their original packaging, the closure re-heat sealed and stored at room temperature in a clean, dry environment.

Prolonged exposure to light may cause fading or color change of DNAstable; however, this will *not* affect the protective properties of the matrix. To prevent color change, store dried samples in a moisture-barrier bag or wrapped in aluminum foil to protect from light.

For optimal results when shipping samples protected in DNAstable, please utilize the provided moisture barrier foil bag (sample pouch) along with a desiccant packet.

***Note**:* Exposure to moisture over extended periods of time will significantly reduce product performance and sample protection in DNAstable.

Please visit www.biomatrica.com for ordering information on dry storage cabinets customized for the DNAstable product or extra sample pouch/desiccant packs.

Applications

Sample Type:

DNAstable has been used extensively for room temperature dry storage of genomic DNA, plasmids, PCR product, and oligonucleotides.

Assay Type

DNA stored in DNAstable is ready for immediate use in the following applications:

- Transformation
- Cloning
- PCR
- Multiplex STR analysis
- Microarray analysis
- Restriction enzyme analysis
- Sequencing
- Quantitative PCR
- Whole genome amplification

Shipping:

DNAstable provides the ideal format for transport and shipping of samples at ambient temperatures. Individual tubes or plates can be slipped into moisture-barrier foil bags along with a desiccant packet and shipped conveniently without the need for cold packs, dry ice or Styrofoam® packing, thus greatly reducing shipping costs. Fluctuating temperatures or delays during transport do not affect samples protected in DNAstable. (Additional Sample Pouches/Desiccant Packs are available for purchase as sets of 10, catalog number 14001-007. Visit www.biomatrica.com for complete product listings and details.)

Important Notes

Please take a few moments to read this handbook carefully before beginning the sample stabilization step for dry storage of DNA at room temperature. For optimal protection and sample recovery, DNA should be purified of any contaminating DNase activity.

Sample Application and Drying

Samples applied to tubes or wells containing DNAstable must be dried completely for optimal protection and stability during room temperature storage. Sample volumes of up to 50 µl can be applied directly to a DNAstable tube or well and dried at ambient temperatures on the lab

bench or in a laminar flow hood (recommended). Larger sample volumes may require use of a vacuum concentrator for complete drying.

***Note**:* The color of DNAstable may change when you add your sample to the matrix (depending of the pH of your sample) but this will *not* affect the protective properties of the matrix.

For optimal results, do not exceed 30 µg of total DNA per tube or well in a maximum volume of 50 µl. For oligonucleotides, we recommend storage of 30 µl aliquots, with a concentration of ≤100 µM per oligo (2 nmol of each oligo).

Sample Storage

Store dried samples in either (a) a dry storage cabinet at room temperature (15-25°C or 59-77°F) or (b) a heat-sealed, moisture-barrier bag along with a silica gel desiccant pack.

Prolonged exposure to light may cause fading or color change of DNAstable; however, this will *not* affect the protective properties of the matrix. To prevent color change, store dried samples in a moisture-barrier bag or wrapped in aluminum foil to protect from light. The recommended humidity level is ≤ 40% relative humidity.

Sample Recovery

To recover samples stored in DNAstable, just add water. Samples are ready for immediate use in downstream applications. It is not necessary to further purify rehydrated samples. Aqueous solutions such as TE buffer (10 mM Tris HCl, 1 mM EDTA), PCR reaction buffers, and restriction enzyme buffers are also compatible with the recovery of samples from DNAstable.

Concentrate DNA without loss

Storage of DNA samples dried into DNAstable is an easy and efficient means for concentrating DNA since the rehydration volume can be chosen between 10-100 µl. Eliminate the need for time-consuming salt precipitations and reduce sample loss associated with multiple wash steps or microcolumn concentrators by using DNAstable to store and then recover DNA samples.

Protocol: Sample preparation

This protocol is designed for the preparation of purified DNA for storage in DNAstable.

Types of DNA

All types of DNA can be stored in DNAstable, including genomic DNA, plasmids, oligonucleotides, PCR products, artificial chromosomes (BACs), and DNA from complex sources (e.g. forensics or genetic identify DNA samples.)

Purification Techniques

Most standard molecular biology techniques and/or commercially available kits are compatible with DNAstable storage. For optimal results, DNA samples should be free of any contaminating DNase activity.

Purified DNA that is DNase-free should be resuspended in water or TE buffer (10 mM Tris•Cl, 1 mM EDTA) prior to application into DNAstable.

Determining yield

The concentration of the DNA sample should be determined prior to sample application into DNAstable. Although not essential, applying a known amount of DNA into DNAstable for storage can facilitate sample retrieval and subsequent applications.

For optimal results, do not exceed 30 µg of total DNA per tube or well in a maximum volume of 50 µl. For oligonucleotides, we recommend storage of 20 µl aliquots, with a concentration of ≤100 µM per oligo (2 nmol of each oligo).

Protocol: Sample drying and storage

DNAstable preserves DNA samples at room temperature. Each tube or plate contains DNAstable provided as a coating at the bottom of the tube or well, which protects picogram to microgram amounts of DNA. DNAstable is formulated so that upon application of liquid samples, the matrix dissolves and forms a protective coating around the DNA. The sample must then be completely dried for maximum protection and stability for storage at ambient temperatures.

Note: In the event you want to determine the DNA concentration at a later date using a spectrophotometer, keep an unused DNAstable well or tube to generate a blank. See **Appendix A**, page 17.

Procedure

1. **Determine the amount of purified DNA (µg/ml) in the sample, and calculate the amount to be applied into DNAstable wells or tubes.**
2. **Remove the seal or cap and gently apply the sample directly into the center of each tube or well containing DNAstable.**

   The final volume of the sample applied to each well should be ≤50 µl. For larger volumes, a vacuum concentrator is required to ensure complete drying. See Table 2 on page 12 for drying times.
3. **Mix the sample thoroughly with gentle pipetting. Avoid forming air bubbles.**
4. **Dry the uncovered sample completely at room temperature (15-25°C).**

   We recommend using a laminar flow hood or drying under a vacuum concentrator to ensure complete drying. Recommended drying times are given in Tables 1 and 2.

Note: Drying should occur at ambient laboratory temperatures (15°C–25°C). Exposure to moisture for extended periods of time will reduce product performance and sample protection. Climate-controlled laboratory environments and buildings are normally maintained at 40-50% relative humidity levels. We recommend drying under a vacuum concentrator if conditions exceed these parameters.

Table 1. Minimal Drying Times in a Laminar Flow Hood.*

Sample Volume (µl)	Drying Times (hrs) Tubes	Drying Times (hrs) (96-well plate)	Drying Times (hrs) (384-well plate)
5	4	4	8
6-10	6	6	12
11-20	12	8	24
21-50	28	18	48
51-100	56	24	68
101-125	72	24	78

***Drying time may vary dependent on the humidity level in the laboratory. Recommended drying times were determined at 50% relative humidity (RH); (typical HVAC controlled facilities have 40-50% RH).**

Longer drying times are preferable to ensure complete sample drying. Completely dried samples should NOT feel sticky or tacky when tapped with a sterile pipette tip.

Table 2. Minimal Drying Times in a SpeedVac at Low Temperature (25-30˚C)**

Sample Volume (µl)	Drying Times (Min) Tubes	Drying Times (Min) (96-well plate)	Drying Times(Min) (384-well plate)
5	10	15	80
6-10	15	15	120
11-20	30	30	180
21-50	45	90	360
51-125	60	150	--
125-150	75	180	--

** Drying times may vary depending on model and condition of SpeedVac and vacuum pump used.

Note: Do not exceed 30 µg of DNA per well or tube to ensure optimal protection.

5. **Cover samples after drying and store at room temperature, protected from moisture.**

After complete sample drying, plates should be re-sealed with aluminum foil seals. Tubes can be closed using the cap supplied with the tube.

DNAstable is sensitive to temperature and humidity, therefore it is critical to maintain stored samples at room temperature (15-25°C) in an environment protected from moisture. Cover samples after drying and store in either (a) a dry storage cabinet at room temperature (15–25°C) or (b) a heat-sealed moisture-barrier bag along with a silica gel desiccant packet. The recommended humidity level is ≤ 40% relative humidity. Prolonged exposure to light may cause fading or color change of DNAstable; however, this will *not* affect the protective properties of the matrix. To prevent color change, store dried samples in a moisture-barrier bag or wrapped in aluminum foil to protect from light.

DNAstable LD

Add 20µl of DNAstable LD to 1-100µl of DNA sample **(≤30µg)** stored in water or aqueous buffer. Gently mix by pipetting up and down to mix. Avoid forming bubbles. Proceed with same drying conditions and sample recovery protocol as recommended for DNAstable.

Protocol: Sample recovery

DNA stored in DNAstable can be recovered by the addition of water or aqueous buffer. Samples are ready for downstream applications *without the need for further purification*.

Procedure

1. **Add 10-100 µl of water or aqueous buffer directly to the dried sample in DNAstable tube or well.**

   Individual wells in a plate can be opened by puncturing the aluminum foil seal with a pipette tip or razor blade.

   Samples may be rehydrated directly with aqueous buffers used for downstream applications such as restriction enzyme buffers, PCR buffers, etc.

   Note: Samples can be easily concentrated at this step if an appropriate amount of water or buffer is used to rehydrate a known amount of stored DNA.

2. **Incubate at room temperature for 15 min to allow complete rehydration.**

3. **Mix the sample by gently pipetting up and down to resuspend the sample. Avoid forming bubbles while pipetting.**

   The rehydrated sample is now ready for use in downstream applications. Real-time PCR analysis using SYBR® Green or sequence-specific probes should be performed using the guidelines as provided in **Appendix B**, page 17.

   To determine DNA concentration and recovery yield**,** see **Appendix A** on page 17 for directions on how to perform UV spectrophotometry (*i.e.* A_{260} reading) using samples stored in DNAstable. Since the spectrophotometer must be zeroed against a DNAstable blank, rehydrate an unused well or tube with the same buffer used to rehydrate the DNA sample.

4. **Store unused rehydrated samples at 4°C or room temperature for up to 10 days.**

   Rehydrated sample contain DNAstable and can be re-dried without lost of efficient sample stabilization. We do not recommend repeating this process more than 3 times.

Protocol: Downstream applications

Rehydrated DNAstable samples do not require further purification for the majority of molecular biology applications, and can be used directly without interference or inhibition in downstream applications. See page 7 for complete list of suitable applications. For further results and examples, refer to www.biomatrica.com under *Application Notes*.

Real-time PCR analysis using SYBR® Green or sequence-specific probes should be performed using the guidelines as provided in **Appendix B**, page 18.

If necessary, samples can be purified using column purification technology from commercially available kits.

Troubleshooting Guide

Dry storage of DNA in DNAstable is extremely effective for storage of samples at room temperature, if attention is paid to ensure complete drying and proper storage conditions (*i.e.* between 15-25°C and protected from moisture). Stabilized samples should be placed in either (a) a dry storage cabinet at room temperature (15-25°C) or (b) a heat-sealed, moisture-barrier bag to ensure a permanently controlled environment. Significant moisture content in the air will hydrate DNAstable, resulting in sample degradation.

The following troubleshooting guide may be helpful in solving any problems that arise. Scientists at Biomatrica's Technical Service Department are available to answer questions about the information and protocols in this handbook or general molecular biology applications (see pg. 25 for contact information).

Situation	Comment	Suggestion
DNases in sample	DNA to be stored in DNAstable must be free of contaminating DNase activity for optimal protection.	Ensure that samples are purified so that they are DNase-free before applying to DNAstable.
Low amount of DNA in initial sample	Before applying the sample, measure the concentration and record the amount of DNA added.	Identical samples can be rehydrated separately.
DNAstable is faded or has a slight change in coloration	Prolonged exposure to light may cause fading or color change of DNAstable; however, this does not affect the protective properties of the matrix. The color of DNAstable may change when you add your sample to the matrix (depending of the pH of your sample)	Store dried samples in moisture-barrier foil bag or wrap in aluminum foil to protect from light. This will not affect the protective properties of the matrix.
Sample not properly applied	Sample must be applied directly into DNAstable to ensure complete rehydration of matrix components prior to drying.	Make sure to apply the sample to the center of DNAstable tube or well so that it does not stick to the side of the tube or well.
Too much buffer used for rehydration	Use of large volumes (>100 µl) for rehydration may cause overflow of wells and cross-contamination between wells.	Samples can be rehydrated in the recommended volumes and then transferred to a larger vessel and brought up to a larger volume
Less volume is recovered from well than was initially added for rehydration	Rehydration of the dissolvable matrix may cause a reduction in sample volume recovery. This is especially noticeable for smaller volumes (i.e. <20 µl).	• Minimal loss of recovered sample volume does not affect the stability or performance of DNA or DNAstable in downstream applications. • A 10% loss in volume can be included for adjustment (e.g. add 11 µl of water to ensure recovery of 10 µl of rehydrated sample).

Appendix A: UV spectrophotometry with DNAstable

The absorbance of UV light (260 nm) can be used to determine the concentration of rehydrated DNAstable samples.

Procedure

1. **Prepare sample and blank**

   The UV spectrophotometer must be calibrated against an aliquot of DNAstable for accurate $\boldsymbol{A}_{260}$ readings.

   Sample: Rehydrate well or tube containing sample stored in DNAstable in a final volume large enough to obtain an accurate absorbance reading (volume is dependent on cuvette size). The absorbance will be accurate up to a reading of 2, at which point sample dilution may be necessary to obtain an accurate $\boldsymbol{A}_{260}$ reading.

   Blank: Calibrate the spectrophotometer against an aliquot of DNAstable for use as the reference sample. Rehydrate an unused tube or well containing only DNAstable (*i.e.* no DNA) using the same volumes (including dilutions) as was performed for sample preparation.

2. **Reference the spectrophotometer against DNAstable.**

   Calibrate the spectrophotometer using the reference sample.

3. **Determine $\boldsymbol{A}_{260}$ reading of sample.**

4. **Calculate concentration of sample.**

   The nucleic acid concentration for a standard cuvette with 1 cm path length can be calculated as follows:

   For double-stranded nucleic acid

   Conc. (µg/ml) = (A_{260} reading) (50 µg/ml) (dilution factor)

   For single-stranded nucleic acid

   Conc. (µg/ml) = (A_{260} reading) (38 µg/ml) (dilution factor)

Appendix B: Quantitative PCR using samples stored in DNAstable

Samples recovered from dry storage in DNAstable can be used directly in real-time quantitative PCR (QPCR) reactions without further purification. For optimal results we recommend the following dilutions of rehydrated samples when using SYBR® Green or sequence-specific probes.

Sequence-specific probes - TaqMan® Technology

A 1:5 final dilution is recommended when using the whole sample. Samples should be rehydrated in a volume appropriate for 50 µl QPCR reaction (total final volume) prior to following manufacturer's instructions.

Example for TaqMan® Universal PCR*Master Mix*

1. 5 µl of human genomic DNA (Novagen; Madison, WI) at 0.2 ng/µl was added to wells containing DNAstable. The DNAstable samples were dried overnight in a laminar flow hood. The plate was then sealed and stored at room temperature for 1 week.
2. The samples were rehydrated with 10 µl of water for 15 min at room temperature and mixed gently prior to use.
3. For each QPCR reaction, the entire10 µl of rehydrated sample was added to 40 µl of QPCR master mix containing:

    25 µl TaqMan Universal PCR Master Mix (ABI)

    1.25 µl probe

    1 µl 10 µM forward primer

    1 µl 10 µM reverse primer

    11.75 µl water

    +10 µl rehydrated DNA sample

    50 µl total volume

4. A Thermal Cycler (ABI 7300 Real Time PCR System) was used with the following cycling conditions:

Initial steps:	50°C for 2 min
	95°C for 10 min
40 cycles each:	95°C for 15 sec
	60°C for 1 min

5. The predicted concentration of DNA as determined by QPCR was found to be equivalent between the test and control samples (+/- 10%). A slope of -3.1 to -3.6 and an R^2 value of 0.99 are considered acceptable.

SYBR® Green Technology

A final 1:20 dilution is recommended for DNAstable samples used in QPCR with SYBR Green reagents.

Example SYBR® Green *reaction*

1. 5 µl of human genomic DNA (Novagen; Madison, WI) at 0.2 ng/µl was added to wells containing DNAstable. The DNAstable samples were dried overnight in a laminar flow hood. The plate was then sealed and stored at room temperature for 1 week.
2. Samples were rehydrated with 20 µl of water for 15 min at room temperature and mixed gently prior to use.
3. For each QPCR reaction, 10 µl of rehydrated sample was added to 90 µl of QPCR master mix following manufacturer's instructions
4. Use thermal cycling reaction conditions as recommended by the manufacturer.

Quality Control

Every manufacturing production lot of DNAstable is quality control tested for contamination and functional performance. All products are tested against predetermined specifications to ensure consistent product quality.

Product Use Limitations

DNAstable technology is specifically designed for the stabilization of purified DNA samples. No claim or representation is intended for their use on any other biological materials. DNAstable products are for *research use only* and are not intended for use in diagnostic procedures. For optimal performance, products must be used and stored according to manufacturer's guidelines.

Optimal protection of DNA in DNAstable occurs when samples are prepared and stored at room temperature and in a relative humidity environment ≤ 40%. Please refer to "Sample drying and storage" (pg. 11) for details on preparing and storing DNA under relative humidity conditions exceeding 40%.

Warranty and Satisfaction Guarantee

Biomatrica, Inc. guarantees the performance of all products in the manner described in our product literature. The purchaser must determine the suitability of the product for a particular use. Should any of our products fail to perform satisfactorily due to any reason other than misuse, Biomatrica will replace it free of charge or refund the purchase price, at your request. Biomatrica reserves the right to change, alter, or modify any product to enhance its performance and design. Contact Biomatrica if a product does not meet your expectations.

Warranties of merchantability or fitness for a particular purpose are expressly disclaimed. Biomatrica's liability shall not exceed the purchase price of the product. Biomatrica shall have no liability for indirect, consequential, or incidental loss or damages from the use, results of use, or inability to use its products. A copy of Biomatrica's full limited warranty statement is available at www.biomatrica.com or upon request.

Literature Citation

When a procedure utilizing this product is described in a manuscript for publication, kindly refer to it as DNAstable from Biomatrica, Inc.

Safety Information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective eyewear. For more information, please consult appropriate material safety data sheets (MSDS, available online at www.biomatrica.com, in PDF format).

Ordering Information

PRODUCT NAME	CATALOG NUMBER	DESCRIPTION
Trial Kit	93000-001	(3) Tubes of DNAstable
Tube Kit	93021-001	(25) Tubes of DNAstable
96 Well Plate	90021-001	(1) 96-well plate
96 Well Plate Pack	90022-001	(10) 96-well plates
384- Well Plate	91021-001	(1) 384-well plate
384-Well Plate Pack	95021-001	(10) 384-well plates
Alphanumeric Tube Plate (Micronic)	94031-001	(1) 96 Tubes in 96-well footprint
2D Barcode Tube Plate (Micronic)	94041-001	(1) 96 Tubes in 96-well footprint
Alphanumeric Tube Plate (Matrix)	90031-006	(1) 96 Tubes in 96-well footprint
2D Barcode Tube Plate (Matrix)	90041-006	(1) 96 Tubes in 96-well footprint

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Technical Assistance

Biomatrica, Inc. takes pride in providing efficient quality technical support. Biomatrica's Technical Service Department is staffed by experienced scientists with extensive practical and theoretical expertise in molecular biology and the use of Biomatrica's biostability and storage products. Please contact Biomatrica directly with any questions regarding DNAstable technology, product use, or general matters.

Technical Service Department:
Phone: USA (866) DRY-MTRX or (866) 379-6879
Web: www.biomatrica.com
Email: support@biomatrica.com

Biomātrica®
THE BIOSTABILITY COMPANY

5627 Oberlin Drive, Suite 120
San Diego, CA 92121