

# Instruction for Use

## STAR BEADS Genomic DNA Extraction Kit



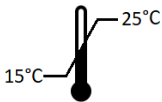
For in vitro diagnostic use



SBK287,1X96PFI - SBK261,2X32PFI -  
SBK265,1X10 - SBK265,1X96



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[www.cyanagen.com](http://www.cyanagen.com)

## **About us**

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Cyanagen is a biotech company located in Bologna, dedicated to research, development, and production of reagents for life science since 2003 and one of the leading companies in reagents for Western blotting and ELISA. Since 2020 the company entered the IVD market with nucleic acids extraction kits based on proprietary magnetic beads.

The main product lines are focused on chemiluminescent and fluorescent substrates and nucleic acids extraction kits for biological analysis, genomics, proteomics and molecular diagnostics. Most of Cyanagen products are based on Cyanagen's internationally patented technologies and achieve outstanding performance in terms of sensitivity and stability. Customer satisfaction and product top quality are of paramount importance to us.

Cyanagen Srl has a certified Quality System

ISO 9001:2015 QUALITY CERTIFIED

ISO 13485:2016 QUALITY CERTIFIED

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# 1. General information

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## 1.1. Description

STAR BEADS Genomic DNA Extraction Kit provides a fast and efficient purification method to isolate high-quality genomic DNA (gDNA) from whole blood and saliva for reliable downstream applications.

The STAR BEADS Kit is based on magnetic bead technology and it can be used for rapid manual extraction and also for automated extraction on automatic magnetic separators, with the dedicated extraction protocol. The procedure's time depends on the instrument's configuration and on the magnetic separation system used. The amount of gDNA recovery depends on the type of sample and on pre-analytical sample handling.

## 1.2. Principle

The procedure is based on the reversible adsorption of nucleic acids to STAR BEADS Magnetic beads in appropriate buffers, while impurities are efficiently removed during the washing steps.

Lysis of the sample is performed in STAR BEADS Genomic Lysis Buffer with the addition of STAR BEADS Proteinase K. Binding of nucleic acids to STAR BEADS Magnetic Beads is performed in STAR BEADS Genomic Binding Buffer. After magnetic separation, the magnetic beads are washed with two washing reagents (STAR BEADS Genomic Washing Buffer 1 and STAR BEADS Genomic Washing Buffer 2) to remove contaminants and salts. Finally, purified gDNA is eluted with STAR BEADS Genomic Elution Buffer which causes the nucleic acid to detach from the magnetic beads. The resulting high-quality genomic DNA is then ready for use in downstream applications such as RT-PCR, PCR, sequencing, or any other type of enzymatic reaction, or it can be frozen for later use.

## 1.3. Intended use

STAR BEADS Genomic DNA Extraction Kit is intended for use for the extraction of genomic DNA from human whole blood and saliva. In

particular, it has been validated by the manufacturer for the extraction of gDNA from:

- 200µL of fresh or frozen whole blood, stabilized with either EDTA, citrate or heparin
- 200µL of preserved saliva

The kit can be used for In Vitro Diagnostics (IVD), in accordance with the new Regulation (EU) 2017/746.

The STAR BEADS Genomic DNA Extraction kit is intended to be used at a temperature between + 15°C and 25°C. Use outside of this temperature range may result in suboptimal results.

Whole blood samples collected in blood collection tubes containing EDTA, heparin or sodium citrate anticoagulants can be used. The Kit is not intended for use with samples that have been collected in other types of blood collection tubes.

The STAR BEADS Genomic DNA Extraction kit is intended to be used on whole blood samples with a white blood cell (WBC) count ranging from  $4 \times 10^6$  to  $10 \times 10^6$  WBC/mL (values for a normal healthy donor), yielding from 3-8 µg of extracted genomic DNA.

Preserved saliva samples collected in Genotek ORAgene DNA OG-575 collection system can be used giving a yield of genomic DNA in accordance with the specifications declared by the manufacturer. It is the user's sole responsibility to use and validate the Kit in combination with other types of saliva collection systems.

The product is intended for use by professionals such as technicians, doctors and biologists trained in molecular biology techniques only. It is designed to be used for subsequent downstream analysis such as PCR, qPCR or sequencing to obtain information about the genomic DNA in the sample.

Any diagnostic result generated using the sample preparation procedure in conjunction with any downstream diagnostic assay must be interpreted in relation to other clinical or laboratory results.

#### **1.4. Product use limitations**

The STAR BEADS Genomic DNA Extraction kit is not intended for use with tissue samples or samples from body fluids such as other than human whole blood and preserved saliva.

Moreover, the kit is not intended to use with clotted human whole blood samples.

The kit performance has not been evaluated with buffy coat, cultured or isolated cells, swabs and dried blood spots.

The Kit is also not intended for use with nonhuman samples, including bacterial and viral samples, or for the purification of RNA.

Appropriate controls should be used for downstream applications to minimize irregularities in diagnostic results.

The STAR BEADS Genomic DNA Extraction Kit does not provide a diagnostic result. It is the user's sole responsibility to use and validate the Kit in conjunction with a downstream test for in vitro diagnostics.

## 1.5. Analytical performance

### 1.5.1. Precision

| Precision testing               | CV% on DNA yield   | CV% on A260/280  |       |
|---------------------------------|--|--|-------|
| <b>Intra-assay variability</b>  | <ul style="list-style-type: none"> <li>8.30% (SBK261,2X32PFI)</li> <li>17.26% (SBK265,1X96)</li> <li>4.73% (SBK287,1X96PFI)</li> </ul> | <ul style="list-style-type: none"> <li>1.60%(SBK261,2X32PFI)</li> <li>1.77%(SBK265,1X96)</li> <li>1.07%(SBK287,1X96PFI)</li> </ul> |       |
|                                 | <b>Inter-assay /inter- day variability</b>   | 8.22%  | 1.59% |
|                                 | <b>Inter-instrument variability</b>  | 17.27%*  | 0.99% |
| <b>Inter-format variability</b> | 20.18%   | 5.97%  |       |

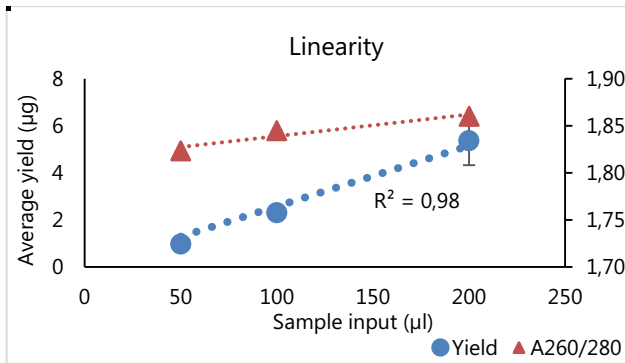
**Table 1. Precision evaluation of STAR BEADS Genomic DNA Extraction Kit.** gDNA was extracted from 200  $\mu$ L of frozen whole blood in up to 6 replicates per run. Inter-assay and inter-day variability were evaluated in three independent runs performed in two different days. Inter-format variability was evaluated for all the formats of the Kit on the compatible extractors with their dedicated scripts/manual procedure. \*The inter-instrument variability was calculated excluding BigFish BFEX 32 extractor, since it is well known that it provides a lower performance. The level of performance, anyway, is considered acceptable, even with a 50% decrease of yield from the average results obtained from the other instruments.

### 1.5.2. Analytical specificity

The **Analytical Specificity** was evaluated together with the **Cross-contamination** by extraction of 8 frozen blood samples (as positive) and 8 water samples (as negative), tested alternatively on all the pre-filled formats

on the relative compatible extractor with the dedicated scripts. For the evaluation, a PCR test was chosen, since the use of the spectrophotometer for the quantification of DNA could give false negative, due to the low sensitivity (10ng/μL, corresponding to a final quantity of 1 μg in the eluate). The extracted DNA were amplified using TaqMan™ Fast Advanced Master Mix (Thermo Scientific, Cat. N. 4444557) and TaqMan primer/probe set for Human RNase P (IDT). All the positive samples resulted positive and all the negative samples resulted to be negative (Ct≥40), affording a 100% analytical specificity.

### 1.5.3. Linearity

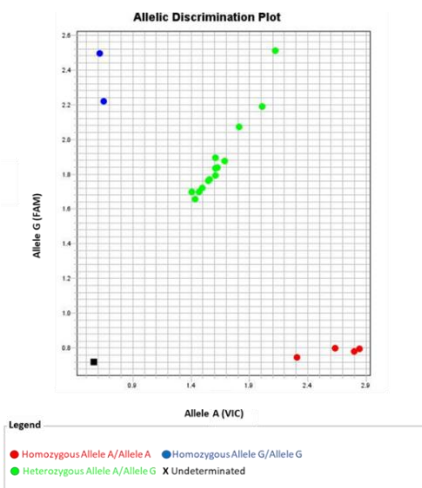


**Figure1. Linearity on gDNA extraction with STAR BEADS Genomic DNA Extraction Kit** Yield of genomic DNA extracted from different input volumes of whole blood using 50 100 and 200 μL as sample input demonstrates a linear correlation between the input volume and DNA yield with a good R2 = 0,98. Graph shows average values from two readings. Data are mean ±SD (n=3).



## 1.6. Performance in clinical downstream assays

### 1.6.1. SNP Genotyping on gDNA extracted with the STAR BEADS Genomic DNA Extraction Kit vs the Reference Extraction Kits



**Figure 2. Allelic discrimination plot for the BCL11A rs1123573 SNP assay.**

Genotypes for the rs1123573 SNP using gDNA extracted from 200  $\mu$ L of whole blood from 5 donors and 200  $\mu$ L of saliva from 5 donors, with STAR BEADS Genomic DNA Extraction Kit in parallel respectively with Reference Extraction Kit 1 and Reference Extraction Kit 2. Allele A is shown in red and allele G is shown in blue. Lime green represents the samples heterozygous for the two alleles. Courtesy of U.O. Medical Genetics - Sant'Orsola Malpighi Hospital, Bologna, Italy

|   | Reference Extraction Kit 1 |     |     |     |     |
|---|----------------------------|-----|-----|-----|-----|
| STAR BEADS<br>Genomic DNA<br>Extraction Kit | rs1123573                  | A/A | A/G | G/G | Tot |
|   | A/A                        | 2   | 0   | 0   | 2   |
|   | A/G                        | 0   | 3   | 0   | 3   |
|   | G/G                        | 0   | 0   | 0   | 0   |
|   | Tot                        | 2   | 3   | 0   | 5   |

**Table 2.** Agreement between genotypes of BCL11A rs1123573 SNP resulted from TaqMan assay on the **blood samples** extracted either with STAR BEADS Genomic DNA Extraction Kit and Reference Extraction Kit 1. A 100% agreement is obtained for all the samples analysed. Courtesy of U.O. Medical Genetics – Sant’Orsola Malpighi Hospital, Bologna, Italy

|   | Reference Extraction Kit 2 |     |     |     |     |
|---|----------------------------|-----|-----|-----|-----|
| STAR BEADS<br>Genomic DNA<br>Extraction Kit | rs1123573                  | A/A | A/G | G/G | Tot |
|   | A/A                        | 0   | 0   | 0   | 0   |
|   | A/G                        | 0   | 4   | 0   | 4   |
|   | G/G                        | 0   | 0   | 1   | 1   |
|   | Tot                        | 0   | 4   | 1   | 5   |

**Table 3.** Agreement between genotypes of BCL11A rs1123573 SNP resulted from TaqMan assay on the **saliva samples** extracted either with STAR BEADS Genomic DNA Extraction Kit and Reference extraction Kit 2. A 100% agreement is obtained for all the samples analysed. Courtesy of U.O. Medical Genetics – Sant’Orsola Malpighi Hospital, Bologna, Italy

### 1.6.2. NGS on gDNA extracted with STAR BEADS Genomic DNA Extraction Kit vs a Reference Extraction Kit.

| Blood sample | Extraction kit                        | NGS platform                   | <i>MET</i><br>chr7<br>g.116435768C>T<br>c.468C>T<br>p.Asp156= | <i>APC</i><br>chr5 g.112173836<br>delAT,<br>c.2547_2548delTA<br>p.Asp849GlufsTer62 |
|--------------|---------------------------------------|--------------------------------|---|--|
| bl_1         | Reference Extraction Kit              | Ion Torrent™ Sequencing System | -   | +  |
|              | STAR BEADS Genomic DNA Extraction kit | MiSeq™ Sequencing System       | -   | +  |
| bl_2         | Reference Extraction Kit              | Ion Torrent™ Sequencing System | +   | -  |
|              | STAR BEADS Genomic DNA Extraction kit | MiSeq™ Sequencing System       | +   | -  |







**Table 4. NGS of a custom target gene library used in oncologic diagnostics.** gDNA was isolated from 200 µL of whole blood from 2 subjects in parallel with STAR BEADS Genomic DNA Extraction Kit and a Reference Extraction Kit. The results obtained for NGS using gDNA extracted with either the STAR BEADS Genomic DNA Extraction Kit or the Reference Extraction Kit were in agreement for all the samples analysed (100% agreement). Courtesy of U.O. Medical Genetics – Sant’Orsola Malpighi Hospital, Bologna, Italy

## 2. Components, shipping and storage conditions and other required materials

### 2.1. Kit content

The Kit is available in both bottle format as well as prefilled plates.







**Bottle format: REF SBK265,1X10 SBK265,1X96.** Use for manual procedure or in combination with Allsheng Auto-Pure 96, Allsheng Auto-Pure Mini, Allsheng Auto-Pure32 A, BIOER GenePure Pro NPA-32P, BIGFISH BFEX 32.

| Components                           | REF          | GHS   | Kit size (10 preps) SBK265, 1X10 (sample size) | Kit size (96 preps) SBK265, 1X96 |
|--------------------------------------|--------------|---|--|----------------------------------|
| STAR BEADS Genomic Lysis Buffer*     | SBLB282      |    | 1,5 mL   | 10 mL                            |
| STAR BEADS Magnetic Beads            | SBB188       |    | 0,75 mL  | 6 mL                             |
| STAR BEADS Genomic Binding Buffer    | SBBB283      |   | 3,5 mL   | 30 mL                            |
| STAR BEADS Genomic Washing Buffer 1* | SBWB284      |  | 18 mL  | 160 mL                           |
| STAR BEADS Genomic Washing Buffer 2  | SBWB285      |  | 9 mL   | 80 mL                            |
| STAR BEADS Genomic Elution Buffer    | SBEB286      | None  | 1,5 mL   | 12 mL                            |
| STAR BEADS Proteinase K              | SBK263,07 50 |  | 0,75 mL  | 3X 0,75 mL                       |

\* Contains chaotropic salt. Take appropriate laboratory safety measures, and wear gloves when handling. Not compatible with disinfecting agents that contain bleach. See Material Safety Data Sheet for safety information.

**Note:** Please note that components from different batches cannot be used interchangeably.




**Prefilled plate format: REF SBK287,1X96PFI.** Use in combination with Allsheng Auto-Pure 96.

| Components  | REF                     | GHS   |
|---|-------------------------|---|
| <b>STAR BEADS Genomic Sample Plate (1)</b> – Prefilled with STAR BEADS Genomic Lysis Buffer* - SBLB282 (80 µL/well)         | <b>SBSP288,1X96PFI</b>  |    |
| <b>STAR BEADS Magnetic Beads Plate (1)</b> - Prefilled with STAR BEADS Magnetic Beads - SBB188 in water (500 µL/well)       | <b>SBMBP289,1X96PFI</b> |    |
| <b>STAR BEADS Genomic Binding Plate (1)</b> - Prefilled with STAR BEADS Genomic Binding Buffer - SBBB283 (300 µL/well)      | <b>SBBP293,1X96PFI</b>  |   |
| <b>STAR BEADS Genomic Washing 1 Plate (2)</b> – Prefilled with STAR BEADS Genomic Washing Buffer 1* - SBWB284 (800 µL/well) | <b>SBWP290,1X96PFI</b>  |    |
| <b>STAR BEADS Genomic Washing 2 Plate (1)</b> – Prefilled with STAR BEADS Genomic Washing Buffer 2 - SBWB285 (800 µL/well)  | <b>SBWP291,1X96PFI</b>  |    |
| <b>STAR BEADS Genomic Elution Plate (1)</b> – Prefilled with STAR BEADS Genomic Elution Buffer - SBEB286 (100 µL/well)      | <b>SBEP292,1X96PFI</b>  | None  |
| <b>STAR BEADS Tip Comb Plate (1)</b>  | <b>SBTP196,1X96PF</b>   | None  |
| <b>STAR BEADS Proteinase K (3x 0,75 mL)</b>   | <b>SBK263,0750</b>      |  |

\* Contains chaotropic salt. Take appropriate laboratory safety measures, and wear gloves when handling. Not compatible with disinfecting agents that contain bleach. See Material Safety Data Sheet for safety information.

**Note:** Please note that components from different batches cannot be used interchangeably.

**Prefilled All Inclusive format: REF SBK261,2X32PFI. Use in combination with Allsheng Auto-Pure Mini, Allsheng Auto-Pure32 A, BIOER GenePure Pro NPA-32P, BIGFISH BFEF 32.**

| Components   | REF                   | GHS  |
|--|-----------------------|--|
| <b>STAR BEADS Genomic Extraction Plate (4)</b><br><b>Prefilled with:</b><br>Lines 1 and 7: STAR BEADS Genomic Lysis Buffer* SBLB282 (80 µL/well)<br>- Lines 2 and 8: - STAR BEADS Magnetic Beads SBB188 in water (500 µL/well)<br>- Lines 3 and 9: STAR BEADS Genomic Washing Buffer 1 SBWB284 (800 µL/well)<br>Lines 4 and 10: STAR BEADS Genomic Washing Buffer 1* SBWB284 (800 µL/well)<br>Lines 5 and 11- STAR BEADS Genomic Washing Buffer 2 SBWB285 (800 µL/well)<br>- Lines 6 and 12: STAR BEADS Genomic Elution Buffer (100 µL/well) | <b>SBK262,1X16PFI</b> |   |
| <b>STAR BEADS Genomic Binding Buffer, 30 mL</b>  | <b>SBBB283,0030</b>   |  |
| <b>STAR BEADS Proteinase K (2x 0,75 mL)</b>  | <b>SBK263,0750</b>    |   |

\* Contains chaotropic salt. Take appropriate laboratory safety measures, and wear gloves when handling. Not compatible with disinfecting agents that contain bleach. See Material Safety Data Sheet for safety information.

**Note:** Please note that components from different batches cannot be used interchangeably.

The kit is to be used in combination with dedicated equipment and plastic consumables. See in section 2.3

## 2.2. Shipping and storage

The kit and all its components are shipped and must be stored at room temperature (RT) (+15 to 25°C). Do not use the product after the expiry date indicated on the label.

**Do not store the pre-filled plates upside down, but with the side closed with the aluminum sheet facing upwards.**

## 2.3. Required materials to be supplied by the user

- Micropipettes suitable for pipetting 10-20 µL, 150 µL, 300 µL, 500 µL;
- Disposable tips without DNase / RNase (filter tips recommended);
- Refrigerator at 4°C or low/very low temperature freezer at -20/-80°C for the storage of samples;
- Biological hood suitable for working with hazardous, infectious or biologically contaminated materials. Follow local guidelines for working in a safe and acceptable manner.
- optional: rotating tube mixer for liquid blood samples

### Specifically for **manual extraction**

- Magnetic separation plate or magnet for separating magnetic beads
- benchtop vortex mixer;
- heating block;
- DNase / RNase-free tubes or plates.

### Specifically for **automated extraction**

The Kit is compatible with several automatic magnetic separators. The equipment required may vary depending on the instrument used.

For prefilled plates **REF. SBK261,2X32PFI**, specific Rod's tips (to be order separately) are needed according to the automated extractor used.

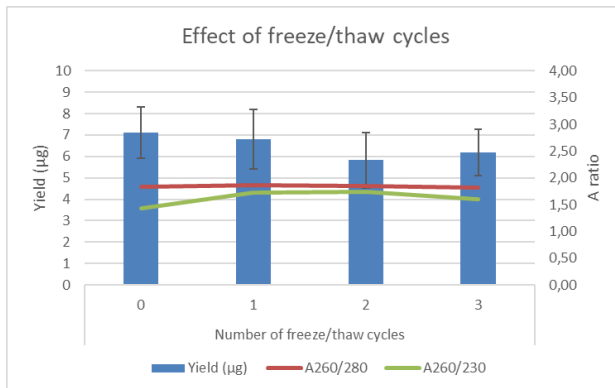
## 3. Collection, handling and storage of sample material and of genomic DNA eluates

### 3.1. Whole blood

Use an aliquot of 200 $\mu$ L of fresh or frozen whole blood samples.

**Note:**

- Frozen samples shall be thawed before processing. The yield and purity of extracted gDNA is ensured from blood samples subjected to up to 3 freeze-thaw cycles.



**Figure 3. Effects of freezing and thawing blood samples.** STAR BEADS Genomic DNA Extraction Kit was used to purify genomic DNA from 200  $\mu$ L of EDTA-treated blood frozen and thawed up to 3 times. Each bar on the graph represents the results from 4 replicates (mean  $\pm$  standard deviation).

- All blood samples shall be thoroughly mixed before use.
- Avoid clot material (if any) when transferring blood to the incubation tube/well into the prefilled plate.
- This kit has been tested with human whole blood samples collected in EDTA, sodium citrate or heparin tubes, in terms of extraction performance and PCR inhibition. The validated blood collection tubes are shown in Table 5.



Performance of the chemistry of the kit cannot be guaranteed with other types of blood collection tubes. It is the user's sole responsibility to use and validate the Kit in combination with other types of blood collection tubes.

| Collection tube                                 | REF.      | manufacturer | Avg DNA yield (µg) |
|---|-----------|--------------|--------------------|
| BD Vacutainer™ NH 68 I.U.<br>(Sodium Herapin)   | BD 367869 | BD           | 4.9                |
| BD Vacutainer™ 9NC 0.105M<br>Buff. Na 3 Citrate | BD 366575 | BD           | 3.7                |
| BD Vacutainer™ K2E (EDTA)<br>10.8mg             | BD 367864 | BD           | 4.6                |
| BD Vacutainer™ K2E (EDTA)<br>10mL               | BD 367525 | BD           | 3.7                |
| BD Vacutainer™ K3EDTA                           | BD 368857 | BD           | 3.8                |

**Table 5. Compatible collection tubes with anticoagulants.** Genomic DNA was purified from 200 µl blood samples from 2 healthy donors. Average yield and purity calculated on the mean of at least four extraction replicates for each tube. CV on DNA yield is ≤ 2% and the absence of PCR inhibition has been demonstrated with ( $\Delta C_t$  (undiluted-1:10 diluted eluted gDNA) < 0.4)

- For blood specimen collection and storage, the collection tube manufacturer's instructions are to be followed.

Follow the ISO 20186-2:2019(E) for storage guidelines, i.e. for examinations requiring HMW DNA, the specimen should be stored at room temperature for not longer than one day or at 2 °C to 8 °C for not longer than three days. For longer storage, the specimen should be kept at -20 °C for not longer than 1 month, or at -70 °C or below for even longer storage; for the examination of DNA variants not requiring HMW DNA examinations, the specimen should be stored at room temperature for up to 3 days or at 2 °C to 8 °C for up to 7 days. For longer storage, the specimen should be kept at -20 °C for up to 3 months or at -70 °C or below for even longer storage.

- Total yield of genomic DNA from whole blood samples depends on the sample volume and the number of white blood cells (WBC)/mL. WBC count in the whole blood sample decreases during storage. Prolonged storage of the samples may cause a poor yield of the DNA after extraction. Also hemolysis and hyperlipidemia may impact DNA yield.
- WBC count on each sample prior to purification of DNA is recommended to ensure the sample falls within the typical range for a normal healthy donor ( $4.0 - 10 \times 10^6$  cells/mL).

### 3.2. Saliva

Use an aliquot of 200  $\mu$ L of human saliva stored according to the collection tube provider's instructions.

#### **Note:**

- The total yield of genomic DNA depends on the cellular material present in the stabilized saliva specimen. The amount of cellular material in the saliva is dependent on donor, collection technique, and donor behavior before collection. To maximize the yield, please follow the instruction of the collection tube provider.
- This kit has been tested with preserved saliva samples collected in Genotek ORAgene DNA OG-575 collection system. Performance of the chemistry cannot be guaranteed with other types of saliva collection systems. It is the user's sole responsibility to use and validate the Kit in combination with other types of saliva collection systems.

### 3.3. Genomic DNA eluates

For short-term storage of up to few hours, purified genomic DNA can be stored at room temperature. For long-term storage, it is recommended

to store at 2-8°C or -20°C. DNA purified with the STAR BEADS Genomic DNA Extraction Kit is stable for at least 2 years at 2-8°C or 10 years at -20°C.

## 4. Protocol for the isolation of gDNA (manual procedure REF SBK265,1X10 SBK265,1X96)

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### Lyse the sample

- In a clean empty tube, add in the order as follows:  
80  $\mu\text{L}$  of **STAR BEADS Genomic Lysis Buffer**  
200  $\mu\text{L}$  of **sample**  
20  $\mu\text{L}$  of **STAR BEADS Proteinase K**
- Vigorously vortex for 30 seconds to completely mix STAR BEADS Genomic Lysis Buffer, sample and STAR BEADS Proteinase K.
- Incubate for 10 minutes at room temperature, vortexing every 2 minutes.

**Note:** optimization may be required for incubation time and incubation temperature, depending on the sample type.

The user must validate the STAR BEADS Genomic DNA Extraction Kit in combination with the consumables used and the downstream in vitro diagnostic test. Appropriate controls (e.g. internal controls, extraction controls, positive / negative controls) must be used. For the internal negative control, use 200  $\mu\text{L}$  of nuclease-free water instead of the sample.

### Bind the nucleic acid

- Add 300  $\mu\text{L}$  of **STAR BEADS Genomic Binding Buffer** and 50  $\mu\text{L}$  of **STAR BEADS Magnetic Beads** to the lysate sample.
- Vigorously vortex for 5 min at room temperature.
- Briefly centrifuge the sample and after 5 minutes of separation on the magnetic support remove the supernatant.

### Wash magnetic beads

- Add 800  $\mu\text{L}$  **STAR BEADS Genomic Washing Buffer 1** and mix well by vortexing and inverting the tube up and down several times for

at least 2 minutes. Briefly centrifuge the sample and after 2-3 minutes of separation on the magnetic support remove the supernatant.

### **Wash magnetic beads**

- Add 800  $\mu\text{L}$  **STAR BEADS Genomic Washing Buffer 1** and mix well by vortexing and inverting the tube up and down several times for at least 2 minutes. Briefly centrifuge the sample and after 2-3 minutes of separation on the magnetic support remove the supernatant.

### **Wash magnetic beads**

- Add 800  $\mu\text{L}$  **STAR BEADS Genomic Washing Buffer 2** and mix well by vortexing and inverting the tube up and down several times for at least 2 minutes. Briefly centrifuge the sample and after 2-3 minutes of separation on the magnetic support remove the supernatant.

### **Dry magnetic beads**

- Incubate at room temperature for 5-10 min until the magnetic beads are dried, avoiding excessive drying.

### **Elute highly pure gDNA**

- Add **100  $\mu\text{L}$  STAR BEADS Genomic Elution Buffer** and mix well by vortexing. Do not use the pipette to mix the magnetic beads. It is essential to cover the magnetic beads completely with elution buffer during this step.
- Incubate at 55°C for 5 minutes in a heating block and mix by vortexing several times.

### **Collect nucleic acids**

- Separate 5-10 min on the magnetic support and transfer supernatant containing the eluted gDNA into a new DNase/RNase free plate/tube.

#### **Note:**

In some cases, traces of STAR BEADS Magnetic Beads may be left in the eluate. Although such particles usually do not interfere with PCR or most downstream applications, an additional separation step either using centrifugation or a magnetic separator is recommended to separate any traces of particles.

## 5. Protocol for the isolation of gDNA (automated procedure, with bottle format REF SBK265,1X10 - SBK265,1X96)

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### 5.1. Automated extraction with STAR BEADS Genomic DNA Extraction kit, bottle format REF SBK265,1X10 - SBK265,1X96 in combination with Allsheng AutoPure 96,

- Set up the plates using standard 96 deep well plates and 96 Tip comb. Prepare the Sample, Washing 1, Washing 2 and Elution plates according to the following table:

| Plate                | Component                                       | Reagent volume per well |
|----------------------|---|-------------------------|
| Sample Plate         | STAR BEADS Genomic Lysis REF. SBLB282           | 80 $\mu$ L              |
| Magnetic Beads Plate | STAR BEADS Magnetic Beads REF. SBB188           | 50 $\mu$ L              |
|                      | Ultrapure water                                 | 450 $\mu$ L             |
| Washing 1 Plate      | STAR BEADS Genomic Washing Buffer 1 REF. SBW284 | 800 $\mu$ L             |
| Washing 2 Plate      | STAR BEADS Genomic Washing Buffer 1 REF. SBW284 | 800 $\mu$ L             |
| Washing 3 Plate      | STAR BEADS Genomic Washing Buffer 2 REF. SBW285 | 800 $\mu$ L             |
| Elution Plate        | STAR BEADS Genomic Elution Buffer REF. SBEB286  | 100 $\mu$ L             |

- Add **200  $\mu$ L of sample** to the relevant wells of the Sample Plate, starting from the well in position A1.
- Dispense **20  $\mu$ L of STAR BEADS Proteinase K**, to the relevant wells of the Sample Plate, starting from the well in position A1.
- Add the appropriate Extraction Controls\* to the relevant wells of the Sample Plate.
- Turn on the extractor.
- Make sure you have downloaded the correct protocols \*\* on the instrument. To complete the extraction, two protocols are needed

(**SBGenomicA** for the first step, and **SBGenomicB** for the second step).

- Load the plates into the instrument in the correct position as indicated in the table. Place the A1 well of each plate in the corner marked as A1 in each station of the turntable.

| Plate           | Position |
|-----------------|----------|
| Tip Comb Plate  | 1        |
| Sample Plate    | 2        |
| Magnetic Beads  | 3        |
| Washing 1 Plate | 4        |
| Washing 2 Plate | 5        |
| Washing 3 Plate | 6        |
| Elution Plate   | 8        |

- Choose the program '**SBGenomicA**' and press "Run".
- After the run is over, remove the Sample Plate from the instrument and add **300 µL of STAR BEADS Binding Buffer** to the relevant wells of the Sample Plate.
- Place the Sample Plate in the position 2 of the instrument, in the same position where it was during the first step.
- Choose the program '**SBGenomicB**' and press "Run".
- After the extraction session is complete, remove the Elution plate from position 8 of the instrument and proceed with downstream applications.

**Note:**

In some cases, traces of STAR BEADS Magnetic Beads may be left in the eluate. Although such particles usually do not interfere with PCR or most downstream applications, an additional separation step either using centrifugation or a magnetic separator is recommended to separate any traces of particles.

\* Appropriate controls (e.g. internal controls, extraction controls, positive / negative controls) should be used, according to the downstream assay. For internal negative control, use 200 µL of nuclease-free water instead of sample.

\*\* Download the script for the relative extraction system from documents section on



<https://www.cyanagen.com/products/star-beads-genomic-dna-extraction-kit-bottle-prefilled-plate-formats-ce-ivdr/>

For related technical support email to [technical.support@cyanagen.com](mailto:technical.support@cyanagen.com)

**5.2. Automated extraction with STAR BEADS Genomic DNA Extraction kit, bottle format REF SBK265,1X10 - SBK265,1X96 in combination with Allsheng Auto-Pure Mini, Allsheng Auto-Pure32 A, BIOER GenePure Pro NPA-32P, BIGFISH BFEX 32**

- Use standard 96 deep well plates and Rod's tips compatible with the relative instrument. Prepare up to two Extraction plates outside the instrument according to the following table:

| Column | Component                                       | Volume per well |
|--------|---|-----------------|
| 1-7    | STAR BEADS Genomic Lysis REF. SBLB282           | 80 µL           |
| 2-8    | STAR BEADS Magnetic Beads REF. SBB188           | 50 µL           |
|        | Ultrapure water                                 | 450 µL          |
| 3-9    | STAR BEADS Genomic Washing Buffer 1 REF. SBW284 | 800 µL          |
| 4-10   | STAR BEADS Genomic Washing Buffer 1 REF. SBW284 | 800 µL          |
| 5-11   | STAR BEADS Genomic Washing Buffer 2 REF. SBW285 | 800 µL          |
| 6-12   | STAR BEADS Genomic Elution Buffer REF. SBEB286  | 100 µL          |

- Add **200 µL of sample** to the relevant wells in column 1/7 of the Extraction Plate.
- Dispense **20 µL of STAR BEADS Proteinase K** in the relevant wells of the Extraction Plate.
- Add the appropriate Extraction Controls \* to the appropriate wells of the Extraction Plate.
- Turn on the extractor.
- Make sure you have downloaded the correct protocols \*\* on the instrument. To complete the extraction, two protocols are needed

(**SBGenomicA** for the first step and **SBGenomicB** for the second step).

**IMPORTANT:** In **BIGFISH BFX 32** extractor a specific set-up is needed before proceeding with the extraction.

From the central screen click on “System Setting” and then click on “Motion parameter Setting”; enter the password (the default password is 123456), and set the “tip Position” to 73 and then click on OK.

- Insert a new **Rod’s Tip** (to be ordered separately) into the instrument (be sure to replace the Rod's Tip with a new one to avoid any contamination). The number of Rod's tips depends on the number of STAR BEADS Extraction Plates used (2 Rod's Tips for each Extraction Plate).
- Place the Extraction Plate in the instrument, in the same position where the Rod's tip was previously inserted and with the labels attached to the plates facing the operator.
- Choose the program '**SBGenomicA**' and press “Run”.
- After the run is over, remove the Extraction Plate from the instrument and add **300 µL of STAR BEADS Binding Buffer** in column 1/7 of the Extraction Plate.
- Place the Extraction Plate in the instrument, in the same position where it was during the first step.
- Choose the program '**SBGenomicB**' and press “Run”.
- After the second extraction session is over, remove the Extraction Plate from the instrument, recover the gDNA from columns 6 and 12 and proceed with the downstream applications.

**Note:**

In some cases, traces of STAR BEADS Magnetic Beads may be left in the eluate. Although such particles usually do not interfere with PCR or most downstream applications, an additional separation step either using centrifugation or a magnetic separator is recommended to separate any traces of particles.

\* Appropriate controls (e.g. internal controls, extraction controls, positive / negative controls) should be used, according to the downstream assay. For internal negative control, use 200  $\mu$ L of nuclease-free water instead of sample.

\*\* Download the script for the relative extraction system from documents section on <https://www.cyanagen.com/products/star-beads-genomic-dna-extraction-kit-bottle-prefilled-plate-formats-ce-ivdr/>

For related technical support email to [technical.support@cyanagen.com](mailto:technical.support@cyanagen.com)

## 6. Protocol for the isolation of gDNA (automated procedure with prefilled format REF. SBK261,2X32PFI - SBK287,1X96PFI)

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### 6.1. Before using the pre-filled plates

- Before each use of the pre-filled plates check the integrity of the plate.

### 6.2. Automated extraction with STAR BEADS Genomic DNA Extraction Kit, Prefilled Plates REF SBK261,2X32PFI in combination with Allsheng Auto-Pure Mini, Allsheng Auto-Pure32 A, BIOER GenePure Pro NPA-32P, BIGFISH BFEF 32.

- Centrifuge the plate for a few seconds or shake downward with a sharp blow by hand to prevent the reagents from adhering to the well walls.
- Remove the aluminum foil from the **STAR BEADS Genomic Extraction Plate**. Orient the plate so that the label faces the operator, with the wells of column 1 on the left side.
- Add **200 µL of sample** to the relevant wells in column 1/7 of the **STAR BEADS Genomic Extraction Plate**.
- Dispense **20 µL of STAR BEADS Proteinase K** in the corresponding wells in column 1/7 of the **STAR BEADS Genomic Extraction Plate**.
- Add the appropriate Extraction Controls \* to the appropriate wells of the **STAR BEADS Genomic Extraction Plate**.
- Turn on the extractor.
- Make sure you have downloaded the correct protocols \*\* on the instrument. To complete the extraction, two protocols are needed (**SBGenomicA** for the first step and **SBGenomicB** for the second step).

**IMPORTANT: In BIGFISH BFEK 32 extractor a specific set-up is needed before proceeding with the extraction.**

**From the central screen click on “System Setting” and then click on “Motion parameter Setting”; enter the password (the default password is 123456), and set the “tip Position” to 73 and then click on OK.**

- Insert a new **Rod’s Tip** (to be ordered separately) into the instrument (Be sure to replace the Rod's Tip with a new one to avoid any contamination). The number of Rod's tips depends on the number of STAR BEADS Genomic Extraction Plates used (2 Rod's Tips for each Extraction Plate).
- Place the **STAR BEADS Genomic Extraction Plate** in the instrument, in the same position where the Rod's tip was previously inserted and with the labels attached to the plates facing the operator.
- Choose the program '**SBGenomicA**' and press “Run”.
- After the run is over, remove the **STAR BEADS Genomic Extraction Plate** from the instrument and add **300 µL of STAR BEADS Genomic Binding Buffer** to the relevant wells in column 1/7 of the **STAR BEADS Genomic Extraction Plate**.
- Place the **STAR BEADS Genomic Extraction Plate** in the instrument, in the same position where it was during the first step and with the labels attached to the plates facing the operator.
- Choose the program '**SBGenomicB**' and press “Run”.
- After the second extraction session is over, remove the **STAR BEADS Genomic Extraction Plate** from the instrument, recover the purified gDNA from columns 6 and 12 and proceed with the downstream applications.

**Note:**

In some cases, traces of STAR BEADS Magnetic Beads may be left in the eluate. Although such particles usually do not interfere with PCR or most downstream applications, an additional separation step either using centrifugation or a magnetic separator is recommended to separate any traces of particles.

\* Appropriate controls (e.g. internal controls, extraction controls, positive / negative controls) should be used, according to the downstream assay. For internal negative control, use 200  $\mu$ L of nuclease-free water instead of sample.

\*\* Download the script for the relative extraction system from documents section on <https://www.cyanagen.com/products/star-beads-genomic-dna-extraction-kit-bottle-prefilled-plate-formats-ce-ivdr/>

For related technical support email to [technical.support@cyanagen.com](mailto:technical.support@cyanagen.com)

### 6.3. Automated extraction with STAR BEADS Genomic DNA Extraction kit, Prefilled Plates format REF. SBK287,1X96PFI in combination with Allsheng Auto-Pure 96

- Centrifuge the plate for a few seconds or shake downward with a sharp blow by hand to prevent the reagents from adhering to the well walls
- Remove the aluminum foil from the **STAR BEADS Genomic Sample Plate**.
- Add 200  $\mu$ L of sample to the relevant wells of the **STAR BEADS Genomic Sample Plate**, starting from the well in position A1.
- Add 20  $\mu$ L of **STAR BEADS Proteinase K** to the relevant wells of the **STAR BEADS Genomic Sample Plate**.
- Add the appropriate Extraction Controls\* to the relevant wells of the **STAR BEADS Genomic Sample Plate**.
- Turn on the extractor.
- Make sure you have downloaded the correct **extraction protocol** \*\* to the instrument. To complete the extraction, two protocols are needed (**SBGenomicA** for the first step and **SBGenomicB** for the second step).
- Remove the aluminum foil from the **STAR BEADS Magnetic Beads Plate**, **STAR BEADS Genomic Washing 1 Plate (X2)**, **STAR BEADS Genomic Washing 2 Plate**, **STAR BEADS Genomic Elution Plate** and load all the plates into the instrument in the correct position as

indicated in the table. Place the A1 well of each plate in the corner marked as A1 in each station of the turntable:

| Plate                              | Position |
|------------------------------------|----------|
| STAR BEADS Tip Comb Plate          | 1        |
| STAR BEADS Genomic Sample Plate    | 2        |
| STAR BEADS Magnetic Beads Plate    | 3        |
| STAR BEADS Genomic Washing 1 Plate | 4        |
| STAR BEADS Genomic Washing 1 Plate | 5        |
| STAR BEADS Genomic Washing 2 Plate | 6        |
| STAR BEADS Genomic Elution Plate   | 8        |

- Choose the program '**SBGenomicA**' and press "Run".
- After the run is over, remove the **STAR BEADS Genomic Sample Plate** from the instrument, take the **STAR BEADS Genomic Binding Plate** and remove the aluminum foil, then transfer **300 µL of STAR BEADS Binding Buffer** to the relevant wells in the **STAR BEADS Genomic Sample Plate**.
- Place the **STAR BEADS Genomic Sample Plate** in the instrument, in position 2 in the same position where it was during the first step.
- Choose the program '**SBGenomicB**' and press "Run".
- After the extraction session is complete, remove the **STAR BEADS Genomic Elution plate** from **position 8** of the instrument and proceed with downstream applications.

### Note:

In some cases, traces of STAR BEADS Magnetic Beads may be left in the eluate. Although such particles usually do not interfere with PCR or most downstream applications, an additional separation step either using centrifugation or a magnetic separator is recommended to separate any traces of particles.

\* Appropriate controls (e.g. internal controls, extraction controls, positive / negative controls) should be used, according to the downstream assay. For internal negative control, use 200 µL of nuclease-free water instead of sample.

\*\* Download the script for the relative extraction system from documents section on

<https://www.cyanagen.com/products/star-beads-genomic-dna-extraction-kit-bottle-prefilled-plate-formats-ce-ivdr/>

For related technical support email to [technical.support@cyanagen.com](mailto:technical.support@cyanagen.com)

## 7. Troubleshooting

### For Bottle format:

| Problem                   | Possible Cause                                   | comments/suggestions  |
|---------------------------|--|---|
| Low or inconsistent yield | Low concentration of white blood cells in sample | The DNA yield depends on the number of white blood cells per sample. Blood samples with low white blood cell count yield low DNA amounts.   |
|                           | Low concentration of cells in saliva sample      | Some saliva samples contain very little amount of DNA. This varies from individual to individual based on numerous variables. Ensure that saliva is collected strictly following the manufacturer's instructions.   |
|                           | Degraded DNA in whole blood samples              | Blood that has undergone multiple freeze-thaw cycles may have degraded DNA. Use samples that have been collected and stored under the conditions listed in Section 3.1.   |
|                           | Incomplete sample lysis                          | Inhomogeneous blood sample or blood clots within the sample: Make sure that blood samples are collected following the instructions of the manufacturer of the blood collection tube. Make sure that only blood which can be easily transferred by pipetting is used as sample material. If necessary, homogenize the blood sample before use.<br>Sample not thoroughly mixed with Proteinase K and lysis buffer. The mixture has to be vortexed vigorously immediately after addition of STAR BEADS Genomic Lysis Buffer. |



|  |  |  |
|--|--|--|
|  |  | Proteinase K digestion not optimal. Never add Proteinase K directly to the STAR BEADS Genomic Lysis Buffer.<br>For blood samples, if Proteinase K was not added, the resulting blood sample will be red. Proteinase K-treated samples turn dark red/brownish, which can be used as a visual indicator that Proteinase K was added to the sample. |
|  | Insufficient elution buffer volume                                 | Beads pellet must be entirely covered with elution buffer. Follow the procedure in section 4.  |
|  | Insufficient performance of elution buffer during the elution step | Remove Ethanol from the final washing step entirely before proceeding with elution   |
|  | Magnetic beads over-drying   | The magnetic beads should be free from any visible liquid ethanol but not completely dried out. Reduce drying time   |
|  | Loss of magnetic beads   | Increase time for magnetic separation  |
| Magnetic beads carryover                           | Magnetic separation time too short                                 | In some cases, traces of STAR BEADS Magnetic Beads remain into the eluates which appear brownish. Perform a second magnetic particle capture using the magnetic rack or remove the particles by centrifugation.  |
| Low purity of nucleic acids                        | Insufficient washing procedure                                     | Ensure that the magnetic beads are re-suspended during the washing. If the agitation is not sufficient to re-suspend entirely, mix repeatedly  |
|  | Evaporation of Ethanol from Wash buffer                            | Close the bottles of the buffer well, avoiding the evaporation of the Ethanol  |
| Poor performance of DNA in downstream applications | Ethanol carryover  | The magnetic beads should be free from any visible liquid ethanol before the elution step  |
|  | DNA degradation  | Avoid any nuclease contamination   |
| Low reproducibili                                  | STAR BEADS Genomic Lysis Buffer forms                              | Incubate the buffer bottle at 40°C until all of the precipitates are re-dissolved  |

|                      |  |  |
|----------------------|--|--|
| ty of DNA extraction | salt precipitates if stored below 15°C   |  |
|                      | STAR BEADS Genomic Washing Buffer 1 forms salt precipitates if stored below 15°C | Incubate the buffer bottle at 40 °C until all of the precipitates are re-dissolved |

**For prefilled plates:**

| Problem                   | Possible Cause  | Precautions/Remedies  |
|---------------------------|---|---|
| Low or inconsistent yield | Plates stored at inappropriate temperature              | Check the integrity of the plate.<br>Make sure that the plates are stored at room temperature (+ 15-25 ° C).<br>If the presence of precipitate is observed in the STAR BEADS Genomic Extraction Plate, STAR BEADS Genomic Sample Plate, STAR BEADS Genomic Washing 1 Plate, incubate at + 40 ° C until the precipitate is completely dissolved. |
|                           | Plates stored upside down                               | Check the integrity of the plate.<br>Make sure that the plates are stored in the correct position (the closed side with the aluminum sheet facing up).<br>Centrifuge the plates before removing the aluminum foil to avoid reagent residues sticking to the underside of the aluminum foil.   |
|                           | Eluate recovered from wrong wells                       | For the 2X32PFI format make sure to recover the eluates from columns 6 and 12 from the STAR BEADS Genomic Extraction Plate. For the 1X96PFI format be sure to retrieve eluates from the STAR BEADS Genomic Elution Plate.   |
|                           | Error in the positioning of the plates in the extractor | For the 2X32PFI format, be sure to insert in the instrument the STAR BEADS Genomic Extraction Plate with the label facing the operator. For the 1X96PFI format, make sure to insert the plates in the extractor in the correct position as indicated in section 5.1 and 6.3.  |

|                          |  |   |
|--------------------------|--|---|
|                          | Low concentration of white blood cells in sample | Same suggestions as for the bottle format |
|                          | Low concentration of cells in saliva sample      | Same suggestions as for the bottle format |
|                          | Degraded DNA in whole blood samples              | Same suggestions as for the bottle format |
|                          | Incomplete sample lysis                          | Same suggestions as for the bottle format |
| Magnetic beads carryover | Magnetic separation time too short               | Same suggestions as for the bottle format |

## 8. Warning and Precautions


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- When working with chemicals, always wear protective equipment accessories (goggles, work clothes, hats, shoes, gloves, etc.). For more information, please refer to the appropriate material safety data sheets (MSDSs) available online at [www.cyanagen.com/MSDS](http://www.cyanagen.com/MSDS)
- Clinical samples and other specimens to be tested should be considered as potentially infectious substances and processed strictly according to laboratory biosafety requirements.
- Components from different batches cannot be used interchangeably. Do not collect reagents from other bottles of the same lot. After use, immediately close all bottles to avoid leakage, changes in buffer concentrations or buffer contamination. After the first opening, keep all the bottles in an upright position.
- Do not use a kit after the expiration date.
- Avoid any nuclease contamination. Always wear gloves and change them often, especially after contact with skin, hair or other potentially nuclease-contaminated surfaces. Use nuclease-free solutions and nuclease-free certified, disposable plastic ware and filter tips. Maintain a separate area for nucleic acids work. Carefully clean all surfaces.
- Do not add bleach or acidic solutions directly to STAR BEADS Genomic Lysis Buffer, STAR BEADS Magnetic Beads, STAR BEADS Genomic Washing Buffer 1, STAR BEADS Genomic Sample Plate, STAR BEADS Genomic Washing 1 Plate and STAR BEADS Genomic Extraction Plate. They contain guanidine salts, which can form highly reactive compounds when combined with bleach. If the liquid containing these buffers is spilled, clean it with suitable laboratory detergent and water.
- Cyanagen has not tested the liquid waste generated by the
- procedures for residual infectious materials. Contamination of the liquid waste with residual infectious materials is highly unlikely but cannot be excluded completely. Therefore, liquid

waste must be considered infectious and be handled and discarded according to local safety regulations.


- In case of spillage or damage to the bottles, dispose of the components as chemical waste according to local safety regulations.
- Should a user detect the Product's malfunction concerning the stated specifications, download the claim form at <https://www.CYANAGEN.com/cyanacontent/uploads/Pages-content/Support/support-request-form1.pdf>, fill and submit it to CYANAGEN, [technical.support@CYANAGEN.com](mailto:technical.support@CYANAGEN.com), for internal quality analysis.

STAR BEADS Genomic DNA Extraction Kit, REF SBK265,1X96 - SBK265,1X10


| <b>Name: STAR BEADS Genomic Lysis Buffer – SBLB282 – (1X96) 10 mL – (1X10) 1 mL</b> |   |
|---|---|
| Hazard pictograms:  |  |
| Signal words:   | Warning   |
| Contains:   | Guanidine hydrochloride   |
| H302+H332   | Harmful if swallowed or if inhaled.   |
| H319  | Causes serious eye irritation.  |
| H315  | Causes skin irritation.   |
| P261  | Avoid breathing dust / fume / gas / mist / vapours / spray.                       |
| P280  | Wear protective gloves / eye protection / face protection.                        |
| P312  | Call a POISON CENTRE / doctor if you feel unwell.                                 |
| P264  | Wash hands thoroughly after handling.   |

| <b>Name: STAR BEADS Magnetic Beads – SBB188 – (1X96) 6 mL – (1X10) 0,75 mL</b> |   |
|--|---|
| Hazard pictograms:   |  |
| Signal words:  | Danger  |
| Contains:  | Guanidine Thiocyanate   |
| H314   | Causes severe skin burns and eye damage.  |
| EUH032   | Contact with acids liberates very toxic gas.  |


|                    |  |
|--------------------|--|
| EUH071             | Corrosive to the respiratory tract.  |
| P260               | Do not breathe dust / fume / gas / mist / vapours / spray.   |
| P305+P351+<br>P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P303+P361+<br>P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].                         |
| P280               | Wear protective gloves/protective clothing/eye protection/face protection.   |
| P310               | Immediately call a POISON CENTER / doctor.   |
| P304+P340          | IF INHALED: remove person to fresh air and keep comfortable for breathing.   |


|   |  |
|---|--|
| <b>Name: STAR BEADS Genomic Binding Buffer SBBB283 - (1X96) 30 mL – (1X10) 3,5 mL</b> |  |
| Hazard pictograms:  |               |
| Signal words:   | Danger   |
| Contains:   | Sodium perchlorate   |
| H225  | Highly flammable liquid and vapour.  |
| H302  | Harmful if swallowed.  |
| H373  | May cause damage to organs through prolonged or repeated exposure.                             |
| H319  | Causes serious eye irritation.   |
| P210  | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |

|           |  |
|-----------|--|
| P280      | Wear protective gloves/protective clothing/eye protection/face protection. |
| P370+P378 | In case of fire: Use carbon dioxide, foam, chemical powder for extinction. |
| P233      | Keep container tightly closed.   |
| P337+P313 | If eye irritation persists: Get medical advice / attention.                |
| P264      | Wash hands thoroughly after handling.                                      |


|   |  |
|---|--|
| <b>Name: STAR BEADS Genomic Washing Buffer 1 – SBWB284 – (1X96) 160 mL – (1X10) 18 mL</b> |  |
| Hazard pictograms:  |               |
| Signal words:   | Danger   |
| Contains:   | Guanidine hydrochloride  |
| H225  | Highly flammable liquid and vapour.  |
| H302+H332   | Harmful if swallowed or if inhaled.  |
| H319  | Causes serious eye irritation.   |
| H315  | Causes skin irritation.  |
| P210  | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280  | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P370+P378   | In case of fire: Use carbon dioxide, foam, chemical powder for extinction.                     |
| P261  | Avoid breathing dust / fume / gas / mist / vapours / spray.                                    |
| P233  | Keep container tightly closed.   |
| P312  | Call a POISON CENTRE / doctor if you feel unwell.  |




|   |  |
|---|--|
| <b>Name: STAR BEADS Genomic Washing Buffer 2 – SBWB285 – (1X96) 80 mL – (1X10) 9 mL</b> |  |
| Hazard pictograms:  |               |
| Signal words:   | Danger   |
| H225  | Highly flammable liquid and vapour.  |
| P210  | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280  | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P370+P378   | In case of fire: Use carbon dioxide, foam, chemical powder for extinction.                     |
| P233  | Keep container tightly closed.   |

|   |   |
|---|---|
| <b>Name: STAR BEADS Proteinase K - SBK263 – (1X96) 3X0,75 mL – (1x10) 1X0,75 mL</b> |   |
| Hazard pictograms:  |  |
| Signal words:   | Danger  |
| Contains:   | Proteinase K  |
| H334  | May cause allergy or asthma symptoms or breathing difficulties if inhaled.        |
| P261  | Avoid breathing dust / fume / gas / mist / vapours / spray.                       |
| P342+P311   | If experiencing respiratory symptoms: call a POISON CENTER / doctor.              |
| P304+P340   | IF INHALED: remove person to fresh air and keep comfortable for breathing.        |


STAR BEADS Genomic DNA Extraction Kit, REF SBK287,1X96PFI:


|  |   |
|--|---|
| <b>Name: STAR BEADS Genomic Sample Plate, SBSP288,1X96PFI - Prefilled with STAR BEADS Genomic Lysis Buffer – SBLB282 - 7,68 mL</b> |   |
| Hazard pictograms:   |  |
| Signal words:  | Warning   |
| Contains:  | Guanidine hydrochloride   |
| H302+H332  | Harmful if swallowed or if inhaled.   |
| H319   | Causes serious eye irritation.  |
| H315   | Causes skin irritation.   |
| P261   | Avoid breathing dust / fume / gas / mist / vapours / spray.                       |
| P280   | Wear protective gloves / eye protection / face protection.                        |
| P312   | Call a POISON CENTRE / doctor if you feel unwell.                                 |
| P264   | Wash hands thoroughly after handling.   |


|   |   |
|---|---|
| <b>Name: STAR BEADS Magnetic Beads Plate, SBMBP289,1X96PFI - Prefilled with STAR BEADS Magnetic Beads – SBB188 in water – 48 mL</b> |   |
| Hazard pictograms:  |  |
| Signal words:   | Warning   |
| H319  | H319 Causes serious eye irritation.   |
| H315  | Causes skin irritation.   |

|           |   |
|-----------|---|
| EUH032    | Contact with acids liberates very toxic gas.                |
| EUH071    | Corrosive to the respiratory tract.                         |
| P280      | Wear protective gloves / eye protection / face protection.  |
| P337+P313 | If eye irritation persists: Get medical advice / attention. |
| P264      | Wash hands thoroughly after handling                        |


**Name: STAR BEADS Genomic Binding Plate, SBBP293,1X96PFI - Prefilled with STAR BEADS Genomic Binding Buffer - SBBB283 - 38,4 mL**

|                    |  |
|--------------------|--|
| Hazard pictograms: |               |
| Signal words:      | Danger   |
| Contains:          | Sodium perchlorate   |
| H225               | Highly flammable liquid and vapour.  |
| H302               | Harmful if swallowed.  |
| H373               | May cause damage to organs through prolonged or repeated exposure.                             |
| H319               | Causes serious eye irritation.   |
| P210               | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280               | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P370+P378          | In case of fire: Use carbon dioxide, foam, chemical powder for extinction.                     |
| P233               | Keep container tightly closed.   |
| P337+P313          | If eye irritation persists: Get medical advice / attention.                                    |
| P264               | Wash hands thoroughly after handling.  |


| <b>Name: STAR BEADS Genomic Washing 1 Plate, SBWP290,1X96PFI - Prefilled with STAR BEADS Genomic Washing Buffer 1 - SBWB284 - 76,8 mL</b> |  |
|---|--|
| Hazard pictograms:  |               |
| Signal words:   | Danger   |
| Contains:   | Guanidine hydrochloride  |
| H225  | Highly flammable liquid and vapour.  |
| H302+H332   | Harmful if swallowed or if inhaled.  |
| H319  | Causes serious eye irritation.   |
| H315  | Causes skin irritation.  |
| P210  | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280  | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P370+P378   | In case of fire: Use carbon dioxide, foam, chemical powder for extinction.                     |
| P261  | Avoid breathing dust / fume / gas / mist / vapours / spray.                                    |
| P233  | Keep container tightly closed.   |
| P312  | Call a POISON CENTRE / doctor if you feel unwell.  |

| <b>Name: STAR BEADS Genomic Washing 2 Plate, SBWP291, ,1X96PFI - Prefilled with STAR BEADS Genomic Washing Buffer 2 - SBWB285 - 76,8 mL</b> |   |
|---|---|
| Hazard pictograms:  |  |
| Signal words:   | Danger  |
| H225  | Highly flammable liquid and vapour.   |


|           |  |
|-----------|--|
| P210      | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280      | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P370+P378 | In case of fire: Use carbon dioxide, foam, chemical powder for extinction.                     |
| P233      | Keep container tightly closed.   |

|  |   |
|--|---|
| <b>Name: STAR BEADS Proteinase K - SBK263 –3X0,75 mL</b> |   |
| Hazard pictograms:                                       |  |
| Signal words:  | Danger  |
| Contains:  | Proteinase K  |
| H334   | May cause allergy or asthma symptoms or breathing difficulties if inhaled.        |
| P261   | Avoid breathing dust / fume / gas / mist / vapours / spray.                       |
| P342+P311  | If experiencing respiratory symptoms: call a POISON CENTER / doctor.              |
| P304+P340  | IF INHALED: remove person to fresh air and keep comfortable for breathing.        |


STAR BEADS Genomic DNA Extraction Kit, REF SBK261,2X32PFI:


|   |   |
|---|---|
| <b>Name: STAR BEADS Genomic Extraction Plate, SBK262,1X16PFI Prefilled with STAR BEADS Genomic Lysis Buffer – SBLB282 - 1,28 mL</b> |   |
| Hazard pictograms:  |  |

|               |   |
|---------------|---|
| Signal words: | Warning   |
| Contains:     | Guanidine hydrochloride                                     |
| H302+H332     | Harmful if swallowed or if inhaled.                         |
| H319          | Causes serious eye irritation.                              |
| H315          | Causes skin irritation.                                     |
| P261          | Avoid breathing dust / fume / gas / mist / vapours / spray. |
| P280          | Wear protective gloves / eye protection / face protection.  |
| P312          | Call a POISON CENTRE / doctor if you feel unwell.           |
| P264          | Wash hands thoroughly after handling.                       |


|  |  |
|--|--|
| <b>Name: STAR BEADS Genomic Extraction Plate, SBK262,1X16PFI - Prefilled with STAR BEADS Magnetic Beads – SBB188 in water – 8 mL</b> |  |
| Hazard pictograms:   |  |
| Signal words:  | Warning  |
| H319   | H319 Causes serious eye irritation.  |
| H315   | Causes skin irritation.  |
| EUH032   | Contact with acids liberates very toxic gas.                                       |
| EUH071   | Corrosive to the respiratory tract.  |
| P280   | Wear protective gloves / eye protection / face protection.                         |

|           |   |
|-----------|---|
| P337+P313 | If eye irritation persists: Get medical advice / attention. |
| P264      | Wash hands thoroughly after handling                        |

|  |  |
|--|--|
| <b>Name: STAR BEADS Genomic Binding Buffer - SBBB283 – 30 mL</b> |  |
| Hazard pictograms:   |               |
| Signal words:  | Danger   |
| Contains:  | Sodium perchlorate   |
| H225   | Highly flammable liquid and vapour.  |
| H302   | Harmful if swallowed.  |
| H373   | May cause damage to organs through prolonged or repeated exposure.                             |
| H319   | Causes serious eye irritation.   |
| P210   | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280   | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P370+P378  | In case of fire: Use carbon dioxide, foam, chemical powder for extinction.                     |
| P233   | Keep container tightly closed.   |
| P337+P313  | If eye irritation persists: Get medical advice / attention.                                    |
| P264   | Wash hands thoroughly after handling.  |


|   |   |
|---|---|
| <b>Name: STAR BEADS Genomic Extraction Plate, SBK262,1X16PFI - Prefilled with STAR BEADS Genomic Washing Buffer 1 - SBWB284 - 25,6 mL</b> |   |
| Hazard pictograms:  |  |

|               |  |
|---------------|--|
| Signal words: | Danger   |
| Contains:     | Guanidine hydrochloride  |
| H225          | Highly flammable liquid and vapour.  |
| H302+H332     | Harmful if swallowed or if inhaled.  |
| H319          | Causes serious eye irritation.   |
| H315          | Causes skin irritation.  |
| P210          | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280          | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P370+P378     | In case of fire: Use carbon dioxide, foam, chemical powder for extinction.                     |
| P261          | Avoid breathing dust / fume / gas / mist / vapours / spray.                                    |
| P233          | Keep container tightly closed.   |
| P312          | Call a POISON CENTRE / doctor if you feel unwell.  |

|   |  |
|---|--|
| <b>Name: STAR BEADS Genomic Extraction Plate, SBK262,1X16PFI - Prefilled with STAR BEADS Genomic Washing Buffer 2 - SBWB285 - 12,8 mL</b> |  |
| Hazard pictograms:  |             |
| Signal words:   | Danger   |
| H225  | Highly flammable liquid and vapour.  |
| P210  | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P280  | Wear protective gloves/protective clothing/eye protection/face protection.                     |
| P370+P378   | In case of fire: Use carbon dioxide, foam, chemical powder for extinction.                     |



|      |                                |
|------|--------------------------------|
| P233 | Keep container tightly closed. |
|------|--------------------------------|

|  |   |
|--|---|
| <b>Name: STAR BEADS Proteinase K - SBK263 –2X0,75 mL</b> |   |
| Hazard pictograms:                                       |  |
| Signal words:  | Danger  |
| Contains:  | Proteinase K  |
| H334   | May cause allergy or asthma symptoms or breathing difficulties if inhaled.        |
| P261   | Avoid breathing dust / fume / gas / mist / vapours / spray.                       |
| P342+P311  | If experiencing respiratory symptoms: call a POISON CENTER / doctor.              |
| P304+P340  | IF INHALED: remove person to fresh air and keep comfortable for breathing.        |

Contact and technical support information:

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## 9. Ordering information

| PRODUCT  | ORDER - N      | COMPATIBLE EXTRACTORS   | UNIT SIZE |
|--|----------------|---|-----------|
| <b>STAR BEADS<br/>Genomic<br/>DNA<br/>Extraction Kit</b> | SBK265,1X10    | Allsheng Auto-Pure 96   | 10 preps  |
|  | SBK265,1X96    | Allsheng Auto-Pure Mini, Allsheng Auto-Pure 32 A, BIOER GenePure Pro NPA-32P, BIGFISH BFEX 32 | 96 preps  |
|  | SBK287,1X96PFI | Allsheng Auto-Pure 96   | 96 preps  |
|  | SBK261,2X32PFI | Allsheng Auto-Pure Mini, Allsheng Auto-Pure 32 A, BIOER GenePure Pro NPA-32P, BIGFISH BFEX 32 | 64 preps  |

For further information

Visit: [www.cyanagen.com](http://www.cyanagen.com)

Or contact: [technical.support@cyanagen.com](mailto:technical.support@cyanagen.com)

For orders: [sales@cyanagen.com](mailto:sales@cyanagen.com)

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