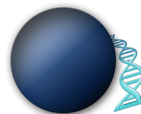
MagSi-DNA
Product Description



Product nr: MD01017, MD02017, MD03017

Technical Data

Product Name	MagSi-DNA
Size	200 – 400 nm
Concentration	300 mg/ml
Supplied product volume	2 ml, 10 ml, 100 ml
Material	Dense iron oxide core coated with porous silica. Optimized for nucleic acid isolation.
Magnetic Particle Content (per gram dry solid)	60 - 70%
Solution additives	water
Storage	Store at 4-8°C

Material Supplied

- Vial with silica bead beads suspended in double distilled water.

Application

General Information

MagSi-DNA beads are magnetic silica beads with a dense core of iron oxide. The surface is optimized to bind nucleic acids and the high paramagnetic strength gives high recovery of the bead when isolating them from a complex mix like whole blood. This high magnetic strength makes them also applicable in automated systems because the beads will collect in a few seconds when magnetic force is applied. This quick and complete separation gives very good reproducibility since no beads will be lost during washing steps.

The MagSi-DNA beads are ideal for own DNA isolation experiments and making your own protocol based on magnetic separation.

Bead Usage

This product is stable for at least 1 year after production date when stored at 2-8°C. Store beads in well closed vial and in upright position to prevent drying of the beads since this makes them more difficult to resuspend. Do not freeze the product! Vortex bead suspension well before use.

The beads are suspended in double distilled water. This suspension media can easily be replaced with your own buffer/storage media.

The beads can be used in a pH range from 3 to 13 and are stable at temperatures up to 95 degrees. At these conditions, no degradation or iron oxide leakage was measurable using spectrophotometric assays. Nevertheless, if you expect iron interference in downstream applications, we strongly advise you to rinse the beads before usage.

Additional materials needed

Depending on the application, some buffers and materials are needed.

- Magnets for bead separation/collecting.
- Own suspension buffer
- Mixer/vortex to mix samples and resuspend beads

Protocols

These beads can be used for own development and isolation methods. The protocols below can help you to get optimal results.

Sample Preparation

Lysate your cell or bacteria sample via mechanical (sonication/frensch press) or enzymatic (lysozyme) methods or by using a surfactant like Tween20.

Binding

- Add your binding buffer to the lysate mix well to get a homogeneous suspension.
- Add beads. Mix beads by vortexing before adding them to the sample. Depending on the expected amount of DNA the amount of beads can vary. A good starting point is 20 µl when having 400 – 800 µl of cell lysate
- Mix sample and incubate 2 – 10 minutes to allow the DNA to bind to the bead surface.

Washing

Usually, the beads can be washed with 70% ethanol. This will keep the DNA in dehydrated form and bound to the bead. To reduce possible elution of DNA, salts can be added to the washing buffer.

- Following incubation, place the sample tube in a magnetic separator in order to collect the beads to the side of the tube. Wait 30 seconds until all the beads have been attracted to the magnet. Discard the supernatant using a pipette and then remove the tube from the separator.
- Add 400 µl wash buffer, vortex 10 seconds and place the sample tube in a magnetic Separator in order to collect the beads and discard the supernatant.
- Wash the beads at least two times

Elution

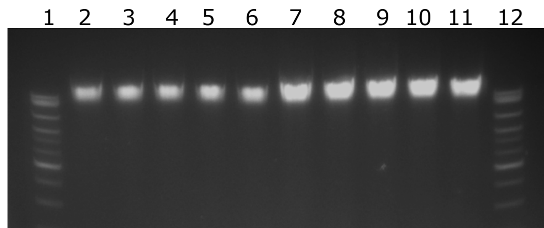
Elution buffer can consist of a TE buffer to rehydrate the DNA so it will elute from the bead. Also, DNAse free water can be used and concentrated TE buffer added later to improve storage properties

- Elute DNA by adding 50-200 µl pre-heated elution buffer. Incubate 2 – 10 minutes at room temperature and mix several times.
- Collect beads with a magnetic separator and pipette the supernatant, containing the DNA, in a new tube.
- Elution can be improved by repeating these steps or by heating the elution buffer to 60°C

Example of results

Agarose (0,8%) electrophoresis of DNA isolated from blood

Lane	Sample	Elution buffer
2, 3, 4, 5, 6	100µl blood	200µl
7, 8, 9, 10, 11	200µl blood	200µl
1, 12	DNA Marker	-

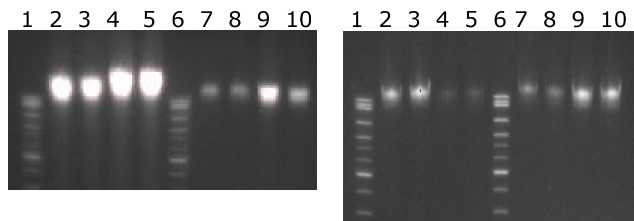


Loaded 10 ul of sample per lane

Agarose (0,8%) electrophoresis of DNA isolated from blood using different kits and reference

Lane	Bead	Elution buffer
2, 3	MagSi-DNA	100µl
4,5,7,8,9,10	Reference beads	100µl
1, 6	DNA Marker	-

a) the MagSi-DNA beads are compared with reference beads in a non-chaotropic buffer system while gel b) shows results of beads used in a chaotropic buffer system



a) b)

Loaded 10 ul of sample per lane

Additional Information

Internet

- www.magnamedics.com

Disclaimer

For R&D use only. Not for drug, household or other uses. Material Safety Data Sheet (MSDS) is available on our website at www.magnamedics.com.

Order Information

Product	Volume	Product number
MagSi-DNA	2 ml	MD01017
MagSi-DNA	10 ml	MD02017
MagSi-DNA	100 ml	MD03017

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