

## GeneMAGNET Food DNA Purification Kit

Kit for isolation of DNA from fresh and processed food of plant and animal origin

● **Cat. no. E3427**

EURx Ltd. 80-297 Gdansk Poland  
ul. Przyrodnikow 3, NIP 957-07-05-191  
KRS 0000202039, [www.eurx.com.pl](http://www.eurx.com.pl)  
orders: email: [orders@eurx.com.pl](mailto:orders@eurx.com.pl)  
tel. +48 58 524 06 97, fax +48 58 341 74 23



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Content	96 preps E3427-01	Storage/Stability
Res FE	90 ml	15-25°C
Lyse FE	7.2 ml	15-25°C
Proteinase K (20 mg/ml)	1.2 ml	-20°C
PR	48 ml	2-8°C
Sol FE	72 ml	2-8°C
Wash FEX	2 x 90 ml	15-25°C
Wash FEX2	90 ml	15-25°C
Elution	12 ml	15-25°C
Magnetic Beads	1000 µl	2-8°C
Protocol	1	

## Equipment and reagents to be supplied by the user

- Magnetic stand E0361 for 16 tubes, E0362 for 24 tubes, E0363 for 96-well plate. To be purchased separately.
- Ethanol [96 -100% v/v], microcentrifuge, disposable gloves, sterile pipette tips, sterile 1.5 -2 ml collection tubes or 96-well plate with minimal well volume 2 ml, a heating block capable of incubation at 65°C. Equipment for sample disruption and homogenization, depending on the method chosen: mortar and pestle and liquid nitrogen or handheld rotor-stator homogenizer. Optional RNase A (10 mg/ml, we recommend using EURx RNase A, cat. no. E1350).

# Introductory Notes

**NOTE 1 • Kit Specification.** Food DNA Purification Kit is designed for isolation of DNA from raw or processed food of plant, animal or mixed origin with silica-covered magnetic beads by manual or automatic method.

**NOTE 2 • Maximum Sample Portion.** One preparation enables purification of DNA from up to 300 mg sample, however in the case of dry, hygroscopic material (flour, corn flakes, dried plants) perform the method optimization and, if necessary, reduce sample weight below 100 mg.

**NOTE 3 • Kit Compounds Storage.** Once the kit is unpacked, store components at room temperature, with the exception of Sol FE buffer, PR buffer, Proteinase K and Magnetic Beads. Sol FE, PR buffers and Magnetic Beads should be kept at 2-8°C and Proteinase K at -20°C.

**NOTE 4 • Maintaining Good Working Practice.** All solutions should be kept tightly closed to avoid evaporation and resulting components concentration changes. To obtain high quality DNA, stick carefully to the protocol provided below.

## Protocol

1. Homogenization of sample.
  - a) Grind sample under liquid nitrogen to a fine powder using previously cooled mortar and pestle. Place up to 300 mg of sample material in 2 ml Eppendorf tube. Add 750  $\mu$ l Res FE buffer. Suspend the sample thoroughly.

or


- b) Place up to 300 mg of sample material in a suitably sized vessel for homogenizer. Add 750  $\mu$ l Res FE buffer. Homogenize using conventional rotor-stator homogenizer until the sample is homogeneous.
- c) Homogenize the sample, weigh out up to 300 mg of sample in 2 ml Eppendorf tube and add 750  $\mu$ l Res FE buffer.

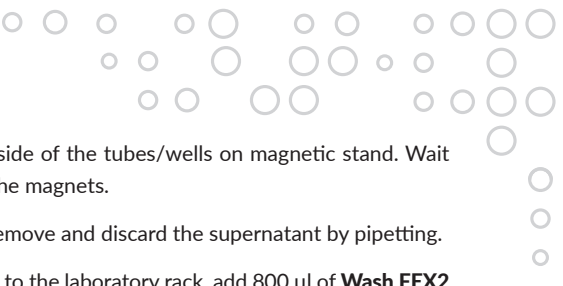
○ *Homogenization technique strongly depends on the type of sample. In some cases homogenization is not needed and only precise suspension is sufficient (for example: flour, soya or chicken paste, tomato puree, ketchup).*

○ *The kit enables purification of DNA from up to 300 mg sample, however in the case of dry, hygroscopic material (flour, corn flakes, dried plants) it is necessary to reduce sample weight below 100 mg.*

○ *In case of liquid samples (cooking oil, soya sauce, soya milk, etc.) add 300  $\mu$ l of sample to 2 ml Eppendorf tube.*

○ *If RNA-free DNA is crucial for downstream applications, add 10  $\mu$ l of RNase A (10 mg/ml).*

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2. Add 60  $\mu$ l **Lyse FE** buffer and 10  $\mu$ l **Proteinase K**.
  3. Mix by several-fold inverting the tube and incubate the mixture for 30 min at 65°C (mix twice during incubation by inverting the tube).
  4. Centrifuge the lysate in a microcentrifuge for 5 min at maximum speed.
  5. Transfer 400  $\mu$ l of the supernatant to a new 2 ml microcentrifuge tube.
    - *In certain cases the homogenized material strongly absorbs the buffer, causing difficulties in obtaining 400  $\mu$ l of supernatant. In such cases reduce the starting weight of sample or transfer as much liquid as possible, then fill-up to 400  $\mu$ l with Res FE buffer.*
  6. Add 400  $\mu$ l **PR** buffer. Vortex for 5 sec and incubate on ice for 5 min.
    - *PR buffer precipitates non-DNA organic and inorganic material including cell debris, proteins, inhibitors.*
  7. Centrifuge for 1 min at maximum speed.
  8. Transfer 600  $\mu$ l of the supernatant to a new 2 ml microcentrifuge tube or 96-well plate (working volume at least 2 ml). Continue the protocol by manual method or proceed with automatic method.
  9. Add 600  $\mu$ l **So! FE** buffer.
  10. Add 600  $\mu$ l of 96% ethanol and mix thoroughly by pipetting or inverting the tube.
  11. Resuspend **Magnetic Beads** before removing them from the storage tube by vortexing or pipetting. Add 10  $\mu$ l of resuspended **Magnetic Beads** to the sample and mix by vortexing or pipetting for 1 min.
    - *If needed 10  $\mu$ l of Magnetic Beads can be added into 600  $\mu$ l 96% ethanol (step 10), mixed and added together to the sample.*
  12. Separate the magnetic beads against the side of the tubes/wells on magnetic stand. Wait until all the beads have been attached to the magnets.
  13. Keeping the samples on magnetic stand, remove and discard the supernatant by pipetting. Remove the magnetic stand/transfer tubes to the laboratory rack, add 800  $\mu$ l of **Wash FEX** and mix by pipetting or vortexing for 10 s.
  14. Separate the magnetic beads against the side of the tubes/wells on magnetic stand. Wait until all the beads have been attached to the magnets.
  15. Keeping the samples on magnetic stand, remove and discard the supernatant by pipetting. Remove the magnetic stand/transfer tubes to the laboratory rack, add 800  $\mu$ l of **Wash FEX** and mix by pipetting or vortexing for 10 s.

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16. Separate the magnetic beads against the side of the tubes/wells on magnetic stand. Wait until all the beads have been attached to the magnets.
  17. Keeping the samples on magnetic stand, remove and discard the supernatant by pipetting.
  18. Remove the magnetic stand/transfer tubes to the laboratory rack, add 800  $\mu$ l of **Wash FEX2** and mix by pipetting or vortexing for 10 s.
  19. Separate the magnetic beads against the side of the tubes/wells on magnetic stand. Wait until all the beads have been attached to the magnets.
  20. Keeping the samples on magnetic stand, remove and discard the supernatant by pipetting without disturbing magnetic beads. Leave the open tubes/plate in magnetic stand and air dry the beads for 15-20 min.
    - *Wash FEX2 contains alcohol, make sure all the solution evaporates before proceeding to the next step.*
  21. Add 100  $\mu$ l **Elution** to the tube/well and mix by pipeting or vortexing for 2 min.
  22. Separate the magnetic beads against the side of the wells. After all the beads have been attached to the magnets transfer the supernatant containing the purified DNA to a suitable tube/plate. DNA is ready for analysis/manipulations. Isolated DNA can be stored either at 2-8°C (preferred) or at -20°C.

# Safety Information

## Lyse FE

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### Danger

**H318** Causes serious eye damage.  
**H412** Harmful to aquatic life with long lasting effects.  
**P280** Harmful to aquatic life with long lasting effects.  
**P273** Avoid release to the environment.  
**P305+P351+P338** If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
**P310** Immediately call a poison center/doctor.

## Proteinase K

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### Danger

**H334** May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
**P261** Avoid breathing vapours/spray.  
**P304+P340** If inhaled: remove person to fresh air and keep comfortable for breathing.  
**P342+P311** If experiencing respiratory symptoms: call a poison center or doctor/physician.

## Sol FE

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### Warning

**H302+H332** Harmful if swallowed or if inhaled.  
**H315** Causes skin irritation.  
**H319** Causes serious eye irritation.  
**P261** Avoid breathing vapours/spray.  
**P280** Wear protective gloves/protective clothing/eye protection/face protection.  
**P301+P312** If swallowed: call a poison center/ doctor if you feel unwell.  
**P304+P340** If inhaled: remove person to fresh air and keep comfortable for breathing.  
**P305+P351+P338** If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
**P333+P313** If skin irritation or rash occurs: get medical advice/attention.  
**P337+P313** If eye irritation persists: get medical advice/ attention.  
**EUH032** Contact with acids liberates very toxic gas.

## Wash FEX / Wash FEX2

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### Danger

**H225** Highly flammable liquid and vapour.  
**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.  
**P305+P351+P338** If in eyes: rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
**P403+P235** Store in a well-ventilated place. Keep cool.  
**P337+P313** If eye irritation persists: get medical advice/ attention.



- **GeneMAGNET Food DNA Purification Kit is designed for rapid purification of DNA from raw or processed food of plant, animal or mixed origin by manual or automatic method and can be used for the identification of DNA from Genetically Modified Organisms (GMO) in the food. Purified DNA is free of contaminants, such as: proteins, lipids, dyes, detergents, organic inhibitors of enzymatic reactions, buffers, salts, divalent cations, among others.**

Sample is finely grinded and lysed in the presence of buffer preserving the integrity of even traces of DNA. Further, Proteinase K digests contaminating proteins, including nucleases. Specialized solution is added to precipitate enzyme inhibitors that strongly inhibit downstream applications. Optimized buffer and ethanol provide selective conditions for

DNA binding to the silica covered magnetic beads. Contaminants are efficiently removed in three wash steps. High-quality cellular DNA is then eluted in low salt buffer, e.g.: Tris-HCl, TE. Isolated DNA is ready for downstream applications without the need for the ethanol precipitation.

- **GeneMAGNET line is based on the use of silica paramagnetic beads (Magnetic Beads) for selective binding of RNA and DNA. The use of specially designed binding and washing buffers enables the efficient purification of highly pure nucleic acids.**



EURx Ltd. 80-297 Gdansk Poland  
ul. Przyrodnikow 3, NIP 957-07-05-191  
KRS 0000202039, [www.eurx.com.pl](http://www.eurx.com.pl)  
orders: email: [orders@eurx.com.pl](mailto:orders@eurx.com.pl)  
tel. +48 58 524 06 97, fax +48 58 341 74 23

