

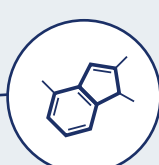
RNA isolation

Disruption and homogenization of various starting materials

Animal Cells



Mechanical
Rotor–stator homogenizer
Bead mill
Syringe and needle
Vortex
Sonication

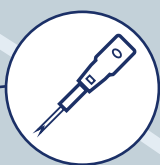
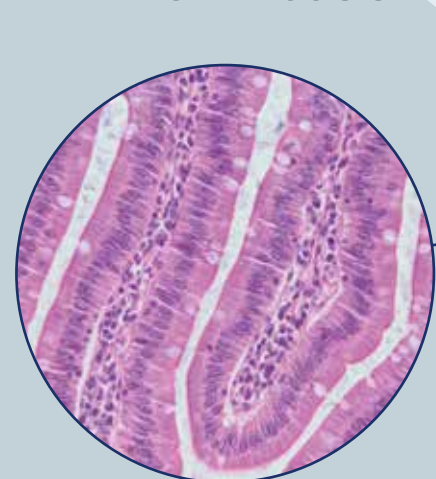


Chemical
Addition of lysis buffer
(alkali, detergents)



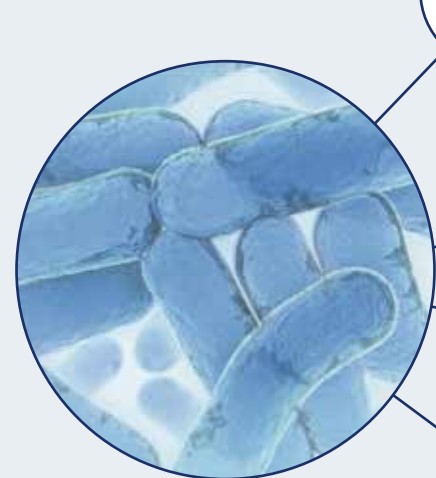
Physical
Heat
Osmotic shock

Animal Tissue

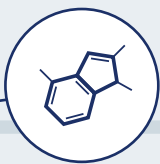


Mechanical
Rotor–stator homogenizer
Mortar and pestle
Bead mill
Syringe and needle
Sonication

Bacteria



Mechanical
Bead mill
Syringe and needle
Vortex
Sonication



Chemical
Addition of lysis buffer
(alkali, detergents)

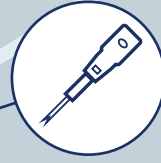
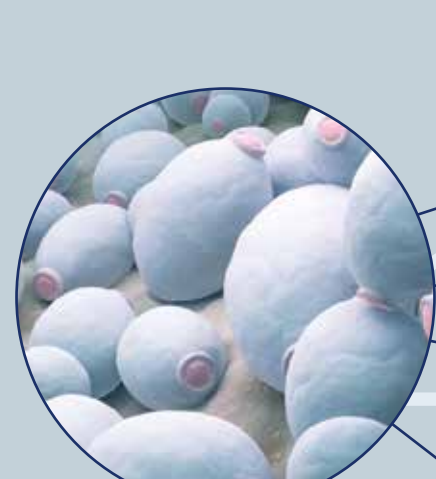


Physical
Heat
Osmotic shock

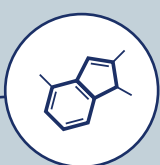


Biological
Enzymatic
(lysozyme/
zymolase, etc.)

Yeast



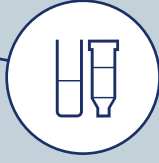
Mechanical
Bead mill
Vortex



Chemical
Addition of lysis buffer
(alkali, detergents)

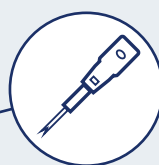


Physical
Heat
Osmotic shock



Biological
Enzymatic
(lysozyme/
zymolase, etc.)

Plants and Fungi



Mechanical
Mortar and pestle
Bead mill
Syringe and needle



Biological
Enzymatic
(lysozyme/
zymolase, etc.)

Comments

Rotor–stator homogenizer

Simultaneously disrupts and homogenizes animal tissues and cell lysates.

Mortar and pestle

Disrupts samples but does not homogenize. Use rotor–stator homogenizer and bead mill for higher yields from animal tissues. Use mortar and pestle for plants and filamentous fungi, do not replace with rotor–stator homogenizer.

Bead mill

Simultaneously disrupts and homogenizes; do not replace by vortexing for some bacteria and yeast.

Syringe and needle

Homogenizes viscous cell and tissue lysates. Use syringe and needle for higher yields from $>5 \times 10^8$ bacterial cells.

Vortex

Homogenize by vortexing when processing $\leq 1 \times 10^5$ mammalian cells.

Sonication

Suitable for cells, bacteria and finely diced tissue. Do not use alone for solid, resilient animal tissues.

Addition of lysis buffer (alkali, detergents)

Use in combination with other methods. Ideal for cultured animal cell disruption. Add after enzymatic digestion of bacteria and yeast.

Enzymatic (lysozyme/zymolase, etc.)

Bacteria: Lysozyme digestion followed by addition of lysis buffer.
Yeast: Cell wall digestion (lyticase/zymolase) followed by lysis of spheroplasts.
Use freshly harvested samples for enzymatic lysis of yeast cells or isolation of cytoplasmic RNA from animal cells.

Heat

Ideal for most viruses. Use in combination with other methods.

Osmotic shock

Ideal for microbial cell disruption. Use in combination with other methods.

Find your RNA stabilization and purification solution for any sample type at www.qiagen.com/RNA.

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