Mammalian Cell Culture Homogenization Using the Bullet Blender

RS18-0238C.1MCC

Materials

- Bullet Blender® for 1.5 mL tubes
- Homogenization Buffer
- FoamBlocker (Optional)
- Lysis Kit or Lysis Beads
  - PINK or RED Lysis Kit
  - 0.5 mm Zirconium Oxide Beads in Eppendorf, GATOR, or RINO tubes
- Sample — up to 300 µL pellet

Table 1. Proper sample, bead and buffer volume ratios for 1.5 mL tubes.

Lysis Kit and Bead Choices	Sample Volume	Bead Volume	Buffer Volume
PINK	100 µL pellet	Pre-filled	200 - 300 µL
RED	300 µL pellet	Pre-filled	300 - 600 µL
0.5 mm Zirconium Oxide Beads	up to 300 µL pellet	100 - 200 µL	200 - 600 µL

Procedure

1. Use the pre-filled bead lysis kit tubes OR prepare a tube with the recommended volume of beads from the table above.
2. If the sample has been grown on a plate or other solid surface, detach it by flooding the surface with PBS and scraping the material into a microcentrifuge tube. Centrifuge to obtain a cell pellet and resuspend in the specified volume of lysis buffer. Liquid cultures may be placed directly in the lysis tube as long as they are of sufficient density.
3. (Optional) To avoid excess foaming, add FoamBlocker up to 1-2% of the total volume of the homogenization buffer.
4. Close the tubes tightly and place into the Bullet Blender sample chamber. If using the Gold or Gold^{+} models, pre-cool the chamber before adding sample tubes.
5. Set the controls to speed 8, time 2 minutes then press Start.
   Note: Using single-size beads instead of pre-filled lysis kits may require additional time.
6. After the run, remove the tubes from the instrument and visually inspect the samples. If homogenization is incomplete, homogenize for an additional 30 seconds, or repeat the homogenization step with a higher speed.
7. Using a pipette, transfer the homogenized samples into new tubes.
8. Proceed with downstream application.

Notes

This protocol does not specify a particular buffer – choose a buffer that is most appropriate for the downstream application.

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